Alberta Health Services Performance Review

Final Report

December 31, 2019

Contents

1 Executive summary

Alberta's provincial health care model is one that deserves great praise. Through many years of regionalization, restructuring and redesign, Alberta has established the largest integrated provincial health care system across Canada, with more than 125,000 staff and 10,000 physicians serving 4.3 million Albertans.

Alberta's model has driven many successes. Integration has enabled Alberta Health Services (AHS) to streamline governance and accountability, driving standardization through provincially-delivered programs. Organizational leadership and culture have strengthened through consolidation – AHS is one of Canada's top 100 employers and is consistently recognized as a great place to work. AHS also raises more than $250 million annually through its foundations, which are invested in the health care system.

The transition from regional health authorities to AHS has also enabled greater integration, including through the consolidation of administrative systems like payroll, and through the current implementation of Connect Care, the largest province-wide clinical information system across Canada. The shift away from regionalization over the last 20 years has clearly begun to pay off while providing Albertans with a platform from which to continually modernize and improve health services delivery.

However, a significant challenge remains in Alberta. Alberta spends more money on public services than any other Canadian province. Health care, which accounts for approximately 43% of the public spend in Alberta, continues to outpace provinces such as Ontario, BC and Quebec on a per-capita basis. Considering the structural growth pressures that exist in health care, notably negotiated wage increases and population growth, Alberta's spending on health would have to remain flat over the next four years to align with these provinces.

This is a key component of Premier Kenney's Health-Care Guarantee to Albertans, which included a performance review of AHS. In conducting this review, we aimed to provide clear answers on how health care dollars are being spent, what improvement opportunities exist across AHS when considering leading organizations and systems, and to provide recommendations on how long-term sustainability of the health care system can be achieved.

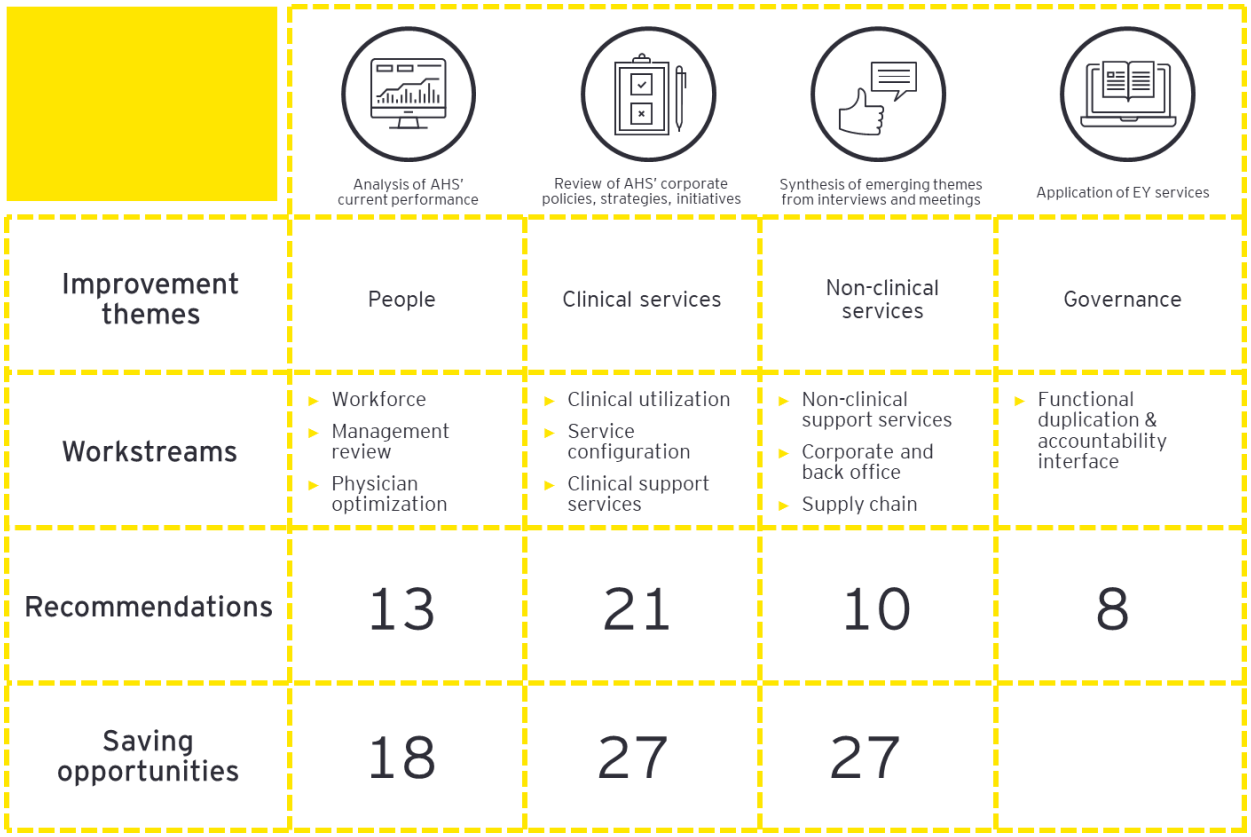
In alignment with the Health-Care Guarantee, core to our review approach was hearing directly from Albertans, including patients, staff and physicians working in AHS. We also heard from key stakeholder groups including patient advocates, regulatory bodies and associations, as well as municipalities and universities. We received an overwhelming response from Albertans, AHS employees and physicians. More than 30,000 responses were received through surveys, interviews and focus groups. This signals to us that Albertans recognize that change is needed and want to be part of it.

At the commencement of our work we were given clear direction by the Minister to engage broadly, and to hear directly from Albertans. We have done so and have been guided by the thousands of Albertans – from physicians and care providers to front line staff, managers and the organizations that work alongside AHS - who have shared their perspectives and ideas through this process.

We leveraged the response from across the province to design ten focus areas, or workstreams, that aligned with where the current state analysis and benchmarking of AHS' performance took us. We then took opportunities aligned to these workstreams to staff closer to the front-line to validate and further understand their causes and historical drivers. We also assembled a panel of Global Experts with experience working with health systems like AHS, and who have led significant optimization efforts, to provide an international point of view on potential opportunities, as well as key considerations for implementation and long-term sustainability.

This led to the design of recommendations grouped into 4 key areas of improvement: governance, people, clinical services and non-clinical services. Each area is associated with specific workstreams. The recommendations and opportunities in this report are provided at the workstream level.

Figure 1. Improvement themes and workstreams[1]



The reality is that AHS will need to take actions on a range of opportunities to meet their budget targets, while managing growth pressures and funding provincial strategies such as reducing surgical wait times. We are not suggesting AHS can implement the opportunities we've described in this report all at once. In fact, we expect that appropriate validation and phasing of opportunities will be a critical element of the path

[1] In addition to recommendations aligned to the workstreams, 5 recommendations have been put forward aligned to Implementation. These are outlined in Section 7 of this report.

forward. Our intention is to provide AHS with potential areas of focus, evidence, and opportunities that they can leverage in their future planning efforts to manage operational costs and anticipated pressures.

AHS will need to consider the opportunities presented and, in coordination with Alberta Health (AH), develop an achievable plan for implementation. The values included in this report are presented as gross opportunity amounts and do not represent expected or even achievable savings. The values are presented in this manner to illustrate the breadth of the opportunity that is available to AHS. Achievable savings need to factor in implementation costs, the selection, phasing and sequencing of opportunities, and any potential interdependencies across opportunities. This report provides AHS with a framework from which to begin designing specific initiatives as part of a multi-year implementation strategy. This will inform a savings value that the organization can plan for. The development of this strategy is discussed in greater detail in the final section of this report.

AHS was an active and helpful participant in this exercise. Their executive team led by CEO Dr. Verna Yiu, was highly responsive, providing us with all relevant information and access to key staff within the organization and across the province.

The report that follows summarizes the findings, recommendations, and opportunities identified throughout our review. It is our hope that this will inform Alberta's continued journey of heath system improvement and sustainability.

2 Introduction

The pathway towards a provincial health system

AHS is Canada's largest provincially integrated health system. AHS is the major service delivery arm of Alberta's health system, governed by the AHS Board and accountable to the Minister of Health. AHS provides health services to more than 4.3 million Albertans as well to patients in Saskatchewan, British Columbia and the Northwest Territories for specific health care services.

The formation of AHS is a culmination of several efforts to restructure health services in Alberta. In 1994, over 200 separate boards and administrations were replaced by 17 new regional health authorities through the *Regional Health Authorities Act*. During this time, regional health authorities were responsible for assessing needs, setting priorities, allocating resources and monitoring performance for the continuous improvement of health service quality, within consolidated, regional global budgets. At the same time, health care spending across the province reduced significantly – from $1393 per capita in 1993, to $1156 in 1995 – driven largely by reducing the number of hospital beds and the associated health human resources workforce.[2]

As is well documented, this provincial financial position was not sustained. In the 2000's, as oil and gas revenues continued to grow, provincial health spending began to increase. In 2004, the regional health authority delivery models were reviewed again, resulting in a further consolidation of the 17 regional health authorities to 9.[3]

In 2008, the Minister of Health and Wellness announced the creation of AHS, as a single, centralized health authority built on an integrated governance model. AHS consolidated the services of the 9 regional health authorities, as well as the provincial Alberta Alcohol and Drug Abuse Commission, the Alberta Mental Health Board, the Alberta Cancer Board, and ultimately, ground ambulance services previously delivered through municipalities. The establishment of AHS also marked the creation of a single AHS Board responsible for organizing the delivery of health services of the province, with accountability to the Minister.

The singular governance structure of AHS was intended to streamline access of health care services, drive more effectiveness and efficiency, and create a high quality and innovative system of care.[4] This was to be achieved through a reduction in regional inequalities and competition for health system resources, while centralizing accountability for service delivery across the province.

The provincially integrated model of AHS has remained largely intact. In 2011, five geographic-based zone structures were established to drive more localized decision-making while achieving provincial standardization of key operational and clinical processes. Assessing the degree to which this has been achieved was a key element of our review approach.

[2] Health Reform in Alberta: The Introduction of Health Regions.
[3] Ibid.
[4] Government of Alberta news release, 2008.

How the health system has been funded

Alberta's health system reforms have been driven by many changes to how health organizations have been funded in the province, as well as the reliance that public services in Alberta have on natural resources.

The first consolidation effort in 1994 drove the creation of a population-based budgeting model. This replaced the global budgeting model that was used to fund the over 200 hospital, public health and long-term care boards based on a negotiation between Alberta Health and an individual organization based on past expenditures and estimates of anticipated changes. The establishment of 17 regional health authorities allowed for the implementation of the population-based model, which is based on funding services at a per person level, based on demographic factors such as age and socioeconomic status. This allowed for more sensitivity in annual allocations provided to each regional health authority. This model continued into 2004 when the regional health authorities were consolidated into nine larger organizations.

The establishment of AHS coincided with the cancellation of Alberta Health Care Insurance Plan Premiums on January 1, 2009, which had generated close to $1 billion annually.[5] This was done to allow Albertans to directly benefit from the province's prosperity in natural resources. This also allowed for a five-year funding agreement to be established between AHS and the Government of Alberta, which included annual increases of 4.5% - 6% to AHS' consolidated global budget.

As outlined in the recent *Report and Recommendations of the Blue-Ribbon Panel on Alberta's Finances*, there has been a strong reliance on natural resource revenues to fund Alberta's demand for public services. These revenues are highly variable, with annual swings as large as -70% to +100% since 1993. Unfortunately, spending patterns have not matched years in which anticipated revenues are not received. The relationship between increased spending and volatile revenues, creates a structural imbalance across the system, where provincial debt is created, and the deployment of rapid financial management strategies is required. The reliance Alberta's public system has on volatile natural resources is unique across Canada and creates a need to carefully manage finances and future investments.

A national case for change

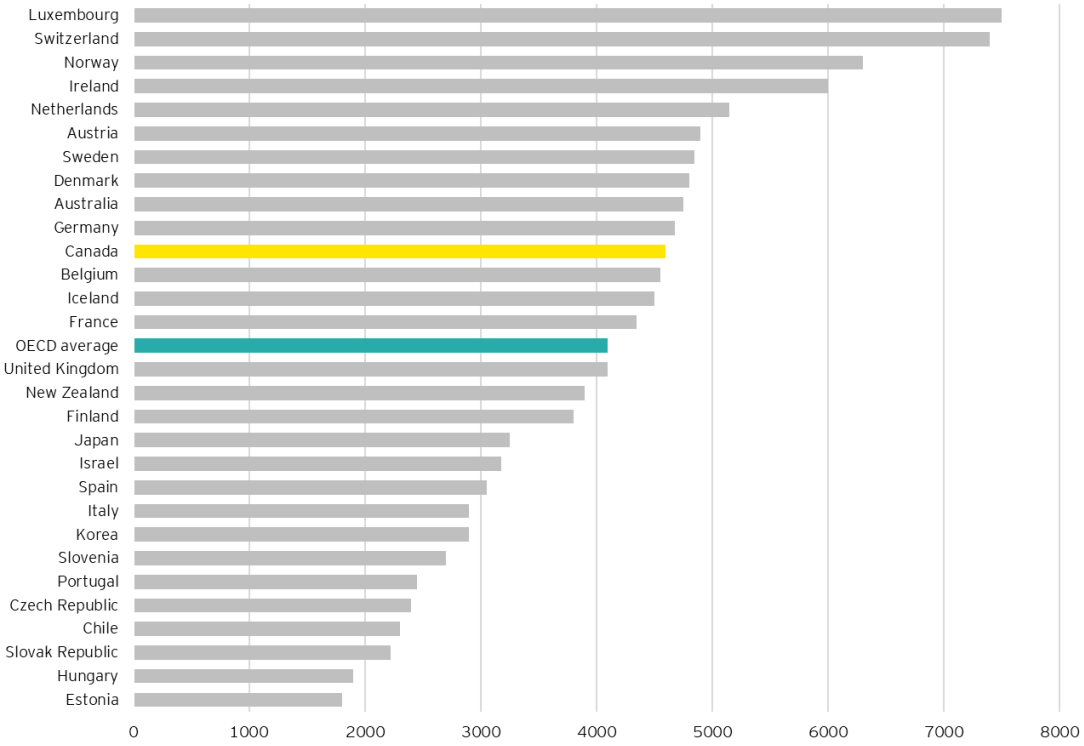
A review of AHS comes amidst many provinces exploring new and different health care delivery models. Much of this is driven by a growing body of evidence that the level of health system performance does not match how much Canada spends on health, when compared to other international jurisdictions.

In 2017, the Fraser Institute released a study of Canada's health system performance compared to 29 other countries with similar universal access health care systems. This study used a 'value for money' approach, comparing expenditures with four measures of performance (resource availability, use of resources, access to resources, and quality and clinical performance). The study found that Canada ranks among the most expensive universal access health care systems across the OECD. Resource availability and use of resources were among the worst and access to resources and quality and clinical performance was mixed. Figures 2 and 3 provide examples of Canada's performance compared to other countries in the study.

The study concluded that there is an imbalance between the value Canadians receive and the relatively high amount of money spent on care.

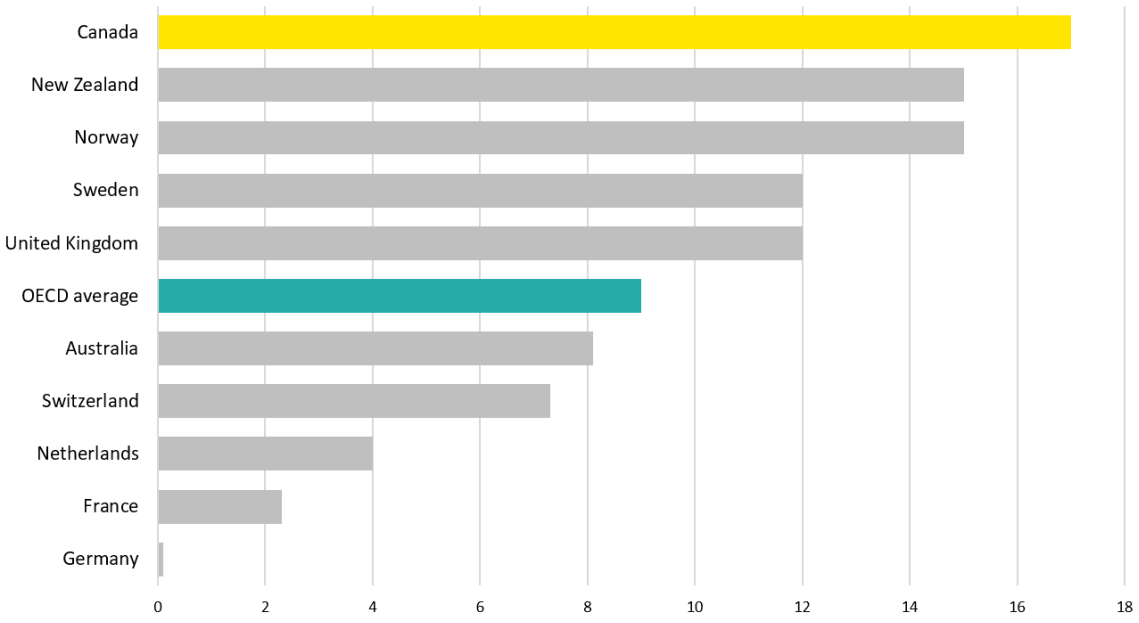
[5] Government of Alberta news release, 2008.

Figure 2. Age-adjusted health care spending per capita, 2015



Source: OECD, 2017

Figure 3. Age-adjusted percentage of patients who waited 4+ months for elective surgery, 2015



Sources: Commonwealth Fund, 2017; OECD, 2017

Another study from the Commonwealth Fund also reinforces Canada's higher spend and lower relative performance relationship on the international stage. This study also includes the US health care system and leveraged 72 indicators across the domains of care process, access, administrative efficiency, equity and health care outcomes. As illustrated in the figure below, Canada ranked 9 out of 11 countries overall, largely driven by lower performance on indicators related to the domains of access, equity and health care outcomes.

Table 1. Health care system performance rankings

	AUS	CAN	FRA	GER	NETH	NZ	NOR	SWE	SWIZ	UK	US
Overall ranking	2	9	10	8	3	4	4	6	6	1	11
Care process	2	6	9	8	4	3	10	11	7	1	5
Access	4	10	9	2	1	7	5	6	8	3	11
Administrative efficiency	1	6	11	6	9	2	4	5	8	3	10
Equity	7	9	10	6	2	8	5	3	4	1	11
Health care outcomes	1	9	5	8	6	7	3	2	4	10	11

Source: Commonwealth Fund, 2017

The message that these studies create is consistent and clear: Canada's high rate of spending on health does not correlate with higher relative performance on key international measures. This creates questions around how health care dollars are spent, the distribution of these dollars across the health system and how provinces and individual health organizations like health authorities or hospitals use funding as an incentive for achieving high quality patient outcomes.

Albertans can be justifiably proud of the provincial health system. It offers world class care to Albertans located across the province, but there is clearly an opportunity to improve the quality and affordability of our health care. Our report, and the direction we have been given by the government, is not about spending less. It is about getting value for what Albertans spend and doing more with the money that exists in the system.

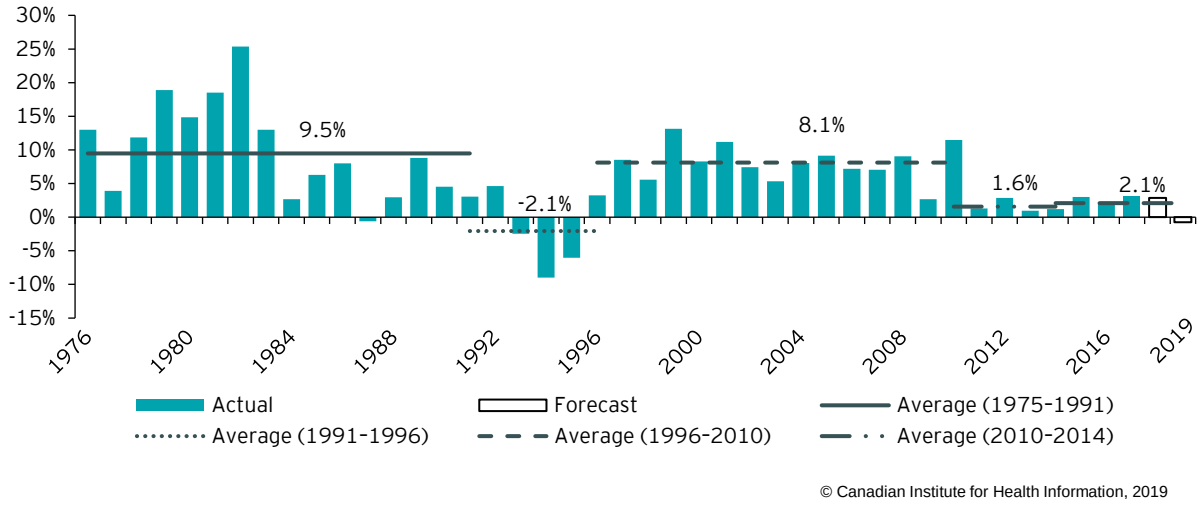
Alberta's health spending and performance

Health spending accounts for the largest proportion of the Government of Alberta's budget – approximately 43%.[6] How dollars are spent on health therefore has a large impact on the fiscal position of government.

Alberta's health spending per capita has generally increased over the last 40 years, with the exception of several years in the 1990s.[7]

[6] Government of Alberta. *Fiscal Plan: A Plan for Jobs and the Economy 2019-23*. Edmonton, AB.
[7] Canadian Institute for Health Information. *Health Expenditures in the Provinces and Territories – Provincial and Territorial Chartbook, 2019*. Ottawa, ON: CIHI; 2019.

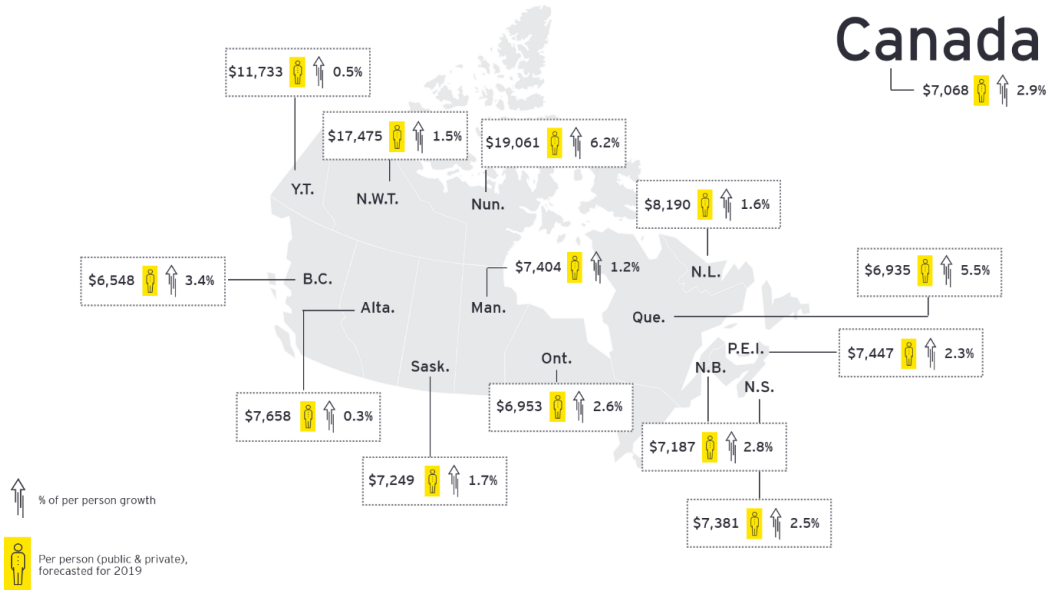
Figure 4: Growth in Alberta provincial government health spending per capita



Source: Table B.4.2 (Series B), National Health Expenditure Database, CIHI.

Alberta continues to spend more than other Canadian provinces on health.[8] As illustrated in Figure 5, only the territories and Newfoundland spend more than Alberta, per person, on health (this includes private expenditures such as drug costs), and when compared to provinces with similar patient demographics, such as Ontario and British Columbia, Alberta stands out as the most expensive.

Figure 5. Per capita spending on health across Canada



[8] CIHI. National Health Expenditure Trends.

The good news is that the per person growth rate is not as fast as some of the other provinces or territories. However, the fact that Alberta still leads the country on spending, suggests that there are some structural costs within the system, as well as potential inefficiencies, that need to be exposed, analyzed and addressed.

It is also concerning that Alberta's higher level of health spending has not translated into commensurate results and performance levels. Comparatively speaking, Albertans get lower value for their money.

A study from the Fraser Institute found that Alberta ranks 5th on access to physicians, 7th on access to nurses, 6th on hospital beds, 5th on MRIs and 8th on CT Scanners. The study also found that Albertans faced a median wait of 26.1 weeks between GP referral to treatment – far in excess of the national average.[9]

Similarly, the Conference Board of Canada concluded that Alberta is a "middle-of-the-pack performer" when considering its performance on 10 health indicators against all 29 jurisdictions (all provinces and territories, and 15 peer countries). Alberta scored 12 out of 29 jurisdictions. Of particular concern was Alberta's performance on infant mortality rates, as well as mortality due to heart disease and stroke.[10]

This does not mean that Albertans do not have a high-quality health care system. It should be noted that Alberta does lead the country on several nationally reported indicators. These include the total time spent in the emergency department for admitted patients, repeat hospital stays for mental illness and the potentially inappropriate use of antipsychotics in long-term care. Alberta is also among the top performers nationally on obstetric patients being readmitted to hospital, hospital deaths and the percentage of patients requiring hip fracture surgery within 48 hours[11].

Additionally, Alberta has made significant investments in innovative clinical care, including the Gamma Knife technology in place at the University of Alberta Hospital which avoids invasive neurosurgery, and the Alberta Transplant Institute, ranked sixth in the world for transplanting excellence in clinical care and research[12].

Moving forward, Alberta's spending on health services should be balanced by the outcomes generated for patients, as well as affordability and sustainability across the system. Alberta's integrated position provides an excellent starting point to address key areas of system improvement, driving further value for the investments made in the system.

To put it simply, Alberta's high spending on health services does not consistently translate into achieving the highest performance on key measures of system access and patient outcomes.

The challenge ahead

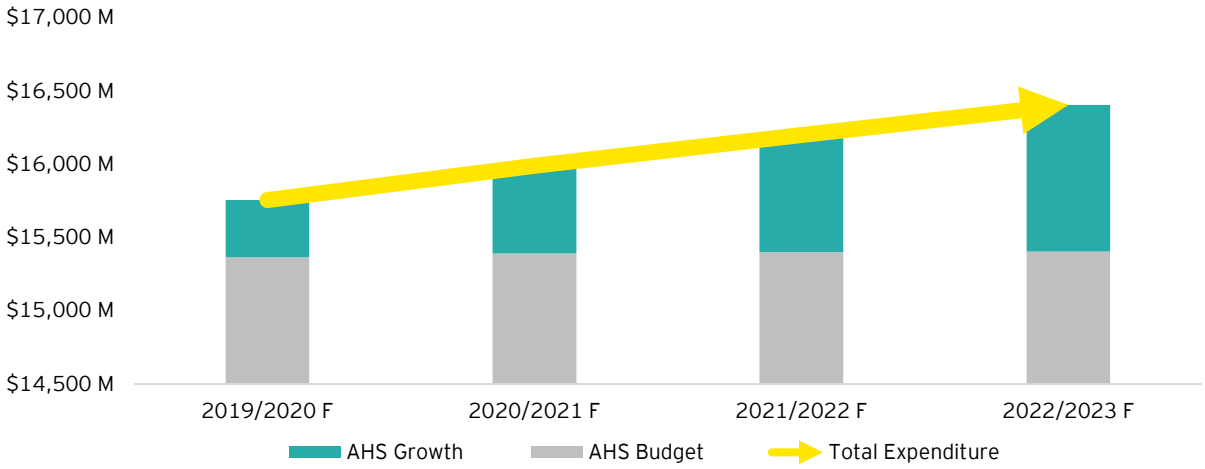
Alberta's 2019 budget outlines a plan to end the provincial deficit by 2022. Doing so is going to require making hard decisions across all sectors, including health. The government has pledged to not reduce health spending in the province – in fact, the 2019 budget includes an increase in health spending over the next four years.

While AHS isn't seeing its funding reduced, it has unavoidable growth pressures that it will need to address – things like a growing and aging population, new hospitals opening, scheduled collective agreement rate step increases, and commitments to improve services in areas such as surgical wait times. As illustrated below, these pressures represent the equivalent of approximately 1.5% year over year growth. This means that to hold expenditures flat, AHS will have to realize equivalent offsetting efficiencies. This is significant.

[9] The Fraser Institute. Waiting Your Turn: Wait Times for Health Care in Canada, 2018 Report.
[10] The Conference Board of Canada.
[11] CIHI. Data retrieved from *Your Health System* website.
[12] Centre for World University Rankings. 2017.

Managing this challenge will require doing things differently and finding opportunity to use the current health budget more efficiently. The challenge is not to spend less, but to get better value for the dollars that are spent – and it's a challenge we believe that AHS will be able to meet.

Figure 6. Systemic growth pressures to be offset



While the scope of this review focuses on AHS, the scale of the fiscal challenge facing Alberta will require a response across the system. While AHS is accountable for most of the health spend across Alberta, other areas of healthcare spending, notably physician compensation and the provincial drug program, are the responsibility of Alberta Health. Addressing the fiscal challenge will require equally urgent action in these areas, including enhancing government's ability to manage uncontrolled growth in the physician services budget. In parallel to this review of AHS, Alberta Health has begun developing and implementing strategies to address spending on physicians and drugs in the province.

How to read this report

This report consists of the following sections:

- **Review approach and methodology** – restates the review mandate, summarizes the high-level approach to generate key workstreams, findings and opportunities for long-term sustainability;
- **Stakeholder engagement findings** – summarizes the approach, the stakeholders engaged across Alberta, the response received and key takeaways, as well as how the findings will be used in the report;
- **Workstream findings and recommendations** – outlines the findings, recommendations and opportunities across 10 key workstreams;
- **Opportunity prioritization** – puts forward an initial, indicative prioritization of each opportunity based on speed to realize benefits and implementation complexity. This is intended to inform future planning efforts once recommendations and opportunities are accepted;
- **Implementation recommendations and the path forward** – a summary of recommendations to provide Alberta Health and AHS with clear direction on what is required to commence the implementation effort.
- **Appendices** – including the results from the AHS staff survey, as well as a complete list of the opportunities and valuations identified.

3 Review approach and methodology

The case for change: a performance review of AHS

On February 20, 2019, then leader of the United Conservative Party called for a comprehensive performance review of AHS, as part of the Health-Care Guarantee to Albertans.[13] Alberta Health set out the following terms of reference for the review:

1. Examine AHS' management structure, organization and administrative costs, and recommend appropriate consolidation and reorganization reallocating savings to front-line service delivery,
2. Evaluate AHS' programs, services and policies, to identify overlapping functions, including overlap between AHS and Alberta Health, and methods that are out of step with the best practices in other Canadian jurisdictions,
3. Compare AHS to other provinces' health systems and best practices, and identify opportunities to make AHS' operations responsive to the front-line, based on an evaluation of resource distribution, and
4. Gather input from employees, physicians and the public to inform opportunity areas across AHS.

The review was designed to identify opportunities to maximize the efficiency of AHS that could be reinvested back into the health care system.

As part of the Health-Care Guarantee, the need for Albertans to understand the value they are receiving for public health care was reinforced. This is based on the fact that Alberta has the highest per capita cost on health care across Canada among comparable provinces, while not leading nationally on a number of key quality and efficiency indicators.[14] Generating a clear understanding of what is contributing to Alberta's higher cost position, and objectively assessing the value to AHS and Albertans, was an objective that our review team set out at the onset of the review.

The review commenced in July 2019 with final recommendations to government due by December 31, 2019.

Review approach

To address these objectives, our team designed a four-phase approach. The approach enabled our review team to hone in on specific opportunities through an iterative process, leveraging stakeholder feedback, analysis, benchmarking, testing and validation with staff working within AHS:

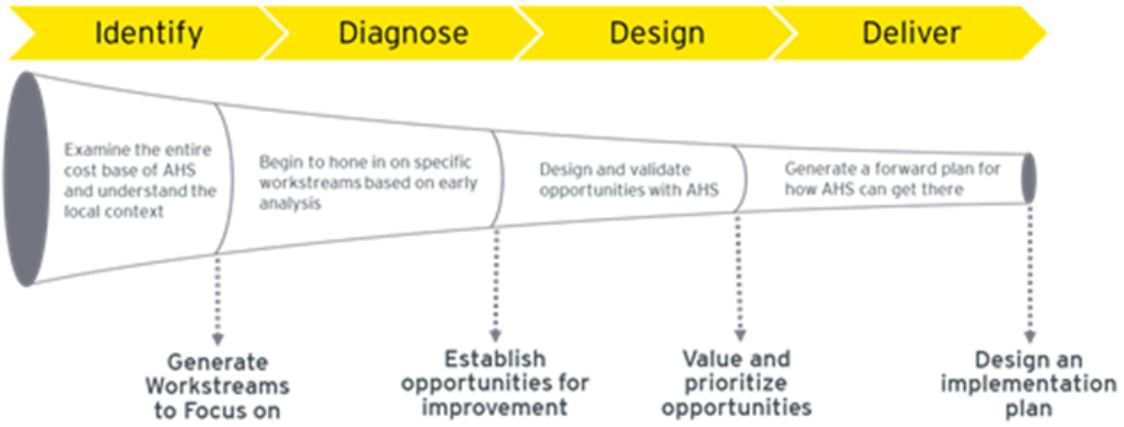
- **Phase 1: Identify**. Beginning in July 2019, we sought to examine the entire cost base of AHS. This was done through a high-level benchmarking exercise of the major drivers of cost within AHS' budget using

[13] United Conservative Party News Release, February 2019.
[14] Ibid.

data from CIHI's National Health Expenditure database, and some comparative information from British Columbia and Ontario. This provided an indication of how costs were being incurred at AHS and enabled the establishment of improvement workstreams to examine key cost drivers.

- **Phase 2: Diagnose**. The design of the workstreams leveraged the results from the identify phase, as well as feedback received from the general public and staff working within AHS. This formalized the workstreams and allowed for high-level opportunities to be designed. This phase also involved targeted engagement with clinical and operational teams across AHS, based on the specific opportunities that had emerged across each workstream. This phase also began the process of scaling any potential standardization opportunities based on comparisons of internal performance (e.g. zone-zone comparisons) and external performance (e.g. service delivery models in other jurisdictions).
- **Phase 3: Design**. The design phase allowed for the opportunities across each of the workstreams to be tested and challenged using two approaches. First, opportunities were taken to AHS staff, either members of the executive team, or operational leaders within each zone, to further understand root causes, context and to validate assumptions. We also assembled a panel of Global Experts, discussed in detail below, to further challenge the opportunities and offer insights on implementation and benefits realization. This phase also resulted in an initial opportunity prioritization, reflected later in the opportunity prioritization section of this report.
- **Phase 4: Deliver**. The final phase of the review focused on the path forward. This included designing strategic enablers, or the key structural changes AHS and Alberta Health should be focusing on to drive the level of health system change required. It also involved a design process of implementation recommendations, leveraging insights EY possesses from working with similar organizations, international insights from the Global Expert Panel, and a process to ensure recommendations were in alignment with what we heard from staff and the public.

Figure 7. AHS review approach



Of note, Covenant Health, Lamont Health Care and AHS' wholly-owned subsidiaries were not reviewed individually or separately throughout the review. Where relevant, they were reviewed within each of the workstreams through a consistent review methodology.

Global expert panel

Our approach leveraged the experience and expertise of experts from around the world and across Canada.

We did this by assembling a panel of national and international health system experts to act as advisors to our review team. Members of this global expert panel included former hospital CEOs, health care executives, chairs of government-appointed commissions, former government officials, physician leaders, and experts in key areas such as alternative service delivery for clinical and non-clinical services, IT and Digital Health. We engaged the global expert panel in sessions at four key points in the review.

At the first session we asked the panel members to objectively challenge the emerging workstreams and opportunities from the Identify and Diagnose phases. To do this, we aligned each workstream to individual panel members, which allowed for a deeper dive into the analysis, assumptions and comparison against relevant global experiences.

The second session involved a more detailed discussion on the valued opportunities, focusing on prioritization and required enablers from the perspective of panelists who had implemented similar opportunities.

The third session focused on designing recommendations aligned with the theme of functional duplication and accountability, as well as strategic enablers for change, and what an immediate plan for Alberta Health and AHS would look like.

The final panel session involved representatives from Alberta Health and AHS and focused on a review of the draft final report and shared experiences in implementing similar change programs.

The recommendations and opportunities summarized in the following sections have been informed and strengthened by the challenge offered up by these experts. We very much appreciated the support they have provided and would recommend establishing a similar advisory group during implementation.

Stakeholder engagement

Engaging Albertans, staff working within AHS, as well as physicians and a variety of health system stakeholders, was a cornerstone of our approach. This is detailed in the following section.

4 Stakeholder engagement findings

Overview

From the onset the guidance we received from Alberta Health and the Minister of Health was clear: make sure that our work is guided and informed by system stakeholders. We took this to heart. Through meetings, roundtables, surveys, and public forums we heard from those who manage our system and, most importantly, those who provide and receive care in it. Our findings reflect what we heard from them and our recommendations have considered the impact proposed change will have on them.

Key stakeholders across the province were segmented into four key groups.

- Albertans
- Health System Stakeholder Groups
- Alberta Health / AHS Executive Leadership
- AHS Front-Line Staff, Management, and Physicians

More than 1,000 responses were received from Albertans. These responses were used to better understand potential areas of opportunity that we then used to test with analysis and more in-depth discussions with AHS.

We also heard from many of Alberta's health system stakeholder groups. These included the regulatory colleges, professional associations as well as the universities and municipalities. Our project team also had the privilege of meeting with the Price Family who bravely shared a story about the untimely and avoidable death of their son and brother Greg. Our time with them profoundly impacted us, and provided us with a compelling, patient-focused perspective on gaps in the health care system. The findings and recommendations in this report address many of the areas they highlighted to us. Their determined efforts to develop proactive strategies to avoid similar incidents from happening in the future can serve as inspiration for Albertans as they embark on the transformation journey that has begun. For more information about the Price family and Greg's story, visit http://gregswings.ca.

> *"To Dream Forward we need to empower people, enable innovation, and reinforce that teamwork is key to maintaining health and providing care. This government can work with that new vision and to take those strong leadership steps."*
>
> *Comment from David Price following a viewing of "Falling through the cracks: Greg's story."*

Senior government officials in Alberta Health, as well as AHS' Executive team, were engaged throughout the review process. This provided our team with the strategic context of Alberta's health system, the structure and function of AHS and its unique structures (e.g. zones, strategic clinical networks, provincial programs), as well as with understanding the interface between Alberta Health and AHS from an accountability and funding perspective. Both leadership teams provided us with feedback on our interim findings and emerging opportunities to drive a level of validity as we designed our final recommendations.

Finally, AHS' front-line staff, management and physicians were engaged in two key ways. First, a survey was distributed to staff and physicians working within AHS, as well as AHS' wholly-owned subsidiaries and Covenant Health. The response we received was significant – more than 30,000 anonymized responses were submitted, with many staff providing ideas around key areas that could be improved across AHS. We leveraged this feedback to identify lines of inquiry, and to validate or discount opportunities that our teams had designed through our own analysis and benchmarking of AHS' costs. This survey relied on respondents to self-identify as front-line staff, management or physicians to help us understand if perspectives varied by group, and to drive more targeted engagement in future phases of work.

We also leveraged AHS staff in a series of zone-based operational leader focus groups. This allowed our team to bring forward key themes to leaders close to the front-lines of service delivery. For example, we invited leaders from HR, professional practice as well as patient care managers to understand major drivers for variation of staffing models, practices for controlling overtime and sick time, and root causes associated with varied levels of skill mix performance.

The sessions were in-person, within each of the zones. This allowed our team to understand any of the unique or local considerations that impact service delivery, which also helped us understand what would be required to implement opportunities effectively across a very diverse health system.

What we heard

Simply put, the response we received from Albertans, those working in AHS and those working with AHS, went beyond our expectations. Over 30,000 responses were received from Albertans, AHS employees and physicians across the various engagement channels guiding our review, representing stakeholder input that far exceeds any of the many other similar projects we have conducted across Canada.

Specific opportunities that came forward from staff and members of the public were assessed within each of the workstreams discussed in the following section. This allowed our team to consider these inputs alongside our analysis of AHS' performance when identifying and validating opportunities. These opportunities were also used to shape conversations with AHS staff, including the operational and clinical leaders, that drove further validation and refinement of potential improvement initiatives.

This report also includes specific quotes from Albertans, as well as AHS employees and physicians from the survey or the operational leader sessions. These quotes represent what was told to us when asked about improvement opportunities or successes across Alberta's health care system but should not be considered as perspectives that have been validated or endorsed by EY.

In addition to the engagement guidance we received in developing opportunities, feedback also led us to some important themes on culture, decision making and organizational readiness which we found very helpful in understanding the context surrounding our findings and in making recommendations for the path forward.

These themes are not a comprehensive representation of everything we heard across each channel. Our team aggregated the findings and what we heard, identified key points of consensus, and designed themes that were the most representative of what was shared with us throughout the review.

These themes are summarized below, alongside selected individual responses from the AHS staff survey, the public engagement process and our many discussions with staff throughout AHS. They provide representative insight into the themes we describe below.

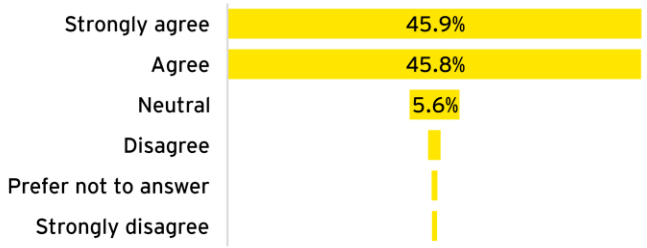
Summary of provincial engagement

1. **75+** Health System stakeholder engagement sessions
2. **5** Zone-based operational leader sessions
3. **1,074** Emails received directly from Albertans
4. **32,519** Staff survey responses, with each zone proportionally represented
   - North – **8.9%**
   - Central – **10.8%**
   - Calgary - **32.5%**
   - Edmonton – **34.9%**
   - South – **7.7%**
5. **28%** Response rate
   - **27,073** – Front-line staff
   - **4,223** – Leadership
   - **1,223** - Physician

Theme 1. *AHS is a change ready organization, with a strong organizational will to drive efficiency while delivering excellent care.*

An overwhelming majority (90%) of respondents to the AHS staff survey agreed that protecting and strengthening the affordability and sustainability of Alberta's health system should be a key priority for AHS.

Figure 8. Overall Response to Survey Question: "Protecting the affordability and sustainability of Alberta's health care system should be an important part of AHS' purpose and vision."



We also heard a clear message from all levels of staff: dedicated, strong and stable leadership is necessary for AHS.

The consolidation process was a tremendous effort and was disruptive and challenging for leaders and staff alike. The first five years of AHS' current existence was marked by changing leadership and significant uncertainty. Any organizational change has the potential to impact the morale of people at all levels. We consistently heard that the appointment of Dr. Yiu as CEO was a turning point for the organization, enabling AHS to move beyond the disruption of its first few years and build momentum towards becoming an integrated, patient-centred provincial health system.

> *"Dr. Yiu and her leadership team have provided the guidance that has been required to stabilize an organization the size and scale of AHS."*
>
> *Comment from AHS Employee Survey*

Finally, there were several perspectives that we heard from Albertans around the high degree of quality experienced when utilizing AHS' services. We heard many success stories – about individual physicians,

nurses, clinical staff, speciality clinics or sites, that provided compassionate, caring, high quality care and support to patients and their families. This is not a minor point and should not be lost in the necessary discussion on improvement opportunities that follows.

This report is in no way an indictment of Alberta's health system. Quite the contrary. It is an evidence-based commentary on a path to improvement. This path should never end. It became clear to us throughout this review that the AHS staff, physicians, leadership and users we heard from acknowledge this imperative. Our work here is focused on providing them with the information and tools they need to act on it.

Theme 2. *The prevailing culture surrounding Alberta's health system is defined by many as being risk averse. The level of transformation envisioned by Alberta's future vision for better and more sustainable health care will require responsible, but bold action.*

A common improvement opportunity raised by staff, as well as many of the health system stakeholder partners we worked with, was the risk averse culture that exists across all levels of staff at AHS.

Many of the examples cited were related to AHS' relationship with its unions. Staff indicated that skill mix opportunities, or new and innovative staffing models, often failed to receive management consideration or endorsement for fear of potential grievance or union opposition. Real change will require discussion and consideration, even if not all ideas are adopted in the end.

We also heard that staff were not able to work to their full scope of practice due to operational decisions that were based on historical ways of working. When we brought this forward to operational leaders across many of the zones, the theme resonated, and additional examples were provided related to better use of licensed practical nurses and nurse practitioners.

Front line staff and operational leaders have clear ideas about how to improve the way they work. We heard from them about topics ranging from the layers of approvals required to drive standard purchasing or hiring decisions to a perceived movement towards a more 'command and control' environment that was in place prior to the establishment of the five zones.

This isn't to say that these are black and white issues that warrant immediate action or reversal. It is more complicated than that. For example, the negative reaction to a perceived move to more "command and control" could be natural uneasiness with more standardization, fiscal restraint and increased efficiency that requires a disruption to more familiar local practices. A dialogue is required in which we can find ways to disrupt the system for the better while understanding and accommodating the impact that it has to the ways in which we are used to working. This dialog isn't without risk. In our experience and based on the engagement that led to this theme, it in our view is a risk worth taking.

Staff also told us that the culture of risk aversity is not contained to the organizational boundaries of AHS. Canada's fully public health care system links operational decisions to the elected governments that fund it. The value that Canadians place in our health system puts intense scrutiny and near-automatic opposition to any change proposed. Alberta is no different in this regard.

> *"People truly want to do the right thing, but we fall short. Sometimes I feel my hands are tied but I don't understand why."*
>
> *Comment from AHS Employee Survey*

When we asked staff and operational leaders for their ideas on long-term sustainability, many brought up opportunities related to hospital configuration – the services provided in hospitals and the number of hospitals that provide them. Many staff indicated that there could be opportunities to reclassify or reconfigure sites that had lower occupancy or under-utilized services, into long-term care homes or urgent care centres that more practically meet the needs of the community they

serve. The readers of this report will understand the risk that policy and decision makers face when considering these sorts of proposals.

It is important to point out that we have been directed by the Minister and his Department to identify and report all evidence-based improvement opportunities. The consideration of them by government, AHS and Albertans will likely challenge the culture of risk aversity discussed here. Regardless of which opportunities end up forming the path to improvement and sustainability at AHS, we believe that a culture of consideration and open dialog should be welcomed. To this end, we have made a recommendation regarding Alberta Health's role in actively engaging and informing Albertans on system sustainability and performance that will be discussed later in this report.

Theme 3. *Organizational priorities for achieving health sustainability are not always clear.*

We heard examples from all levels of staff on ways to transform AHS and the broader health system. The staff survey results further recognize the commitment of organization leadership to drive the required transformation. Almost three quarters of staff respondents felt that AHS' leadership is committed to achieving greater health system efficiency. AHS has established solid organizational foundations, commitment and capabilities to drive towards long-term health system sustainability.

While many of these provincial initiatives and priorities are positive, we heard from staff that the volume of these initiatives, as well as the complexity and timescales associated with them, create difficulty in implementing or sustaining the desired benefits. For example, many operational leaders indicated that clinical pathways developed by some strategic clinical networks could not be implemented due to a lack of resources. Others indicated that the coordination of various initiatives could be improved, as guidance or direction that stemmed from different initiatives in the same area were not being coordinated by leaders at the site, zone, or executive level.

> *"From an organizational standpoint we should focus on fewer priorities but getting them done in a timely fashion and getting them done right.*
>
> *Comment from AHS Operational Leader Session*

The staff survey also suggested that grass-roots ideas driven by the front-line often fail to gain traction with leadership, potentially due to a lack of capacity and focus on other priorities. This feedback is important. AHS simply cannot execute everything at once, nor can staff, clinicians and managers be expected to treat every project or initiative as an incremental stand-alone project to their primary role of delivering health care. Phasing, coordination, and integrating the improvement program into the operational and decision-making fabric of the organization is a key topic we will return to in our section on implementation. Getting this right has been the key critical success factor for organizations that have implemented similar sustainability programs.

The feedback we heard from external health system stakeholder groups was consistent with this. Many indicated that AHS' strategy and overarching goals were clear, but how AHS works with government to take the health system forward, based on a clear articulation of priorities, objectives and goals, was not. Many of these stakeholders stated that AHS is an organization that has received many recommendations in the past, including from the Auditor General or the Health Quality Council of Alberta. Yet AHS' ability to prioritize these recommendations, act on them, and demonstrate progress in a transparent way, was voiced as an area where AHS can improve.

We've observed that the highest performing organizations have processes for setting priorities, designing initiatives and implementing them with clear indicators of success. They also have the willingness to stop doing things that are no longer adding value or have transitioned into operations. They have created a new normal where the most important changes are integrated with the most important task – caring for patients.

From what we heard from staff and health system partners, establishing clear priorities, rationalizing what is no longer adding value and creating a clear framework of what needs to get done, by whom and by when, will help to drive realization of benefits, as well as balance the workload on leaders and staff closer to the front-line.

Theme 4. *Alberta has the right foundation in place to maximize the benefits of its position as a provincially integrated system*

The survey also validated a theme that had developed through our analysis and via our many discussions with stakeholders: AHS can and should be achieving a greater level of system performance, based on its consolidation into a single health authority. As we discuss in the back-office section below, AHS' benefits from lower administration costs than its provincial peers and has developed consolidated service models in corporate services that serve as a foundation for further optimization.

However, benefits of AHS' integrated system are as important when it comes to patient care across the province. We heard from operational leaders, physicians and front-line staff that AHS' zonal structure has been useful at maintaining local considerations in care delivery, while at the same time achieving benefits of standardization and focused specialization that come with a truly integrated provincial system. There was support for retaining this structure as the provincial health system continues to transform.

At the same time, we also heard that zones are not always consistently operating as a zone, but more so as a collection of sites that exist in the same geographic area. For example, we were told by operational leaders that policies for repatriation and patient flow were often driven by preferences and historical practices of individual sites. This has apparently created difficulties in moving patients across a zone to the most appropriate setting with the available capacity. Another example was the siting and reclassification of sites based on patient demands and capacity across a zone. Consistently, we heard that these opportunities for consolidation and reconfiguring sites were understood, but not always acted upon.

Stakeholders also forwarded ideas on the opportunity to drive optimization and quality care through implementing more standard practices across the province. Through our engagement across each zone, and by analyzing AHS' performance at a provincial level, we found several examples of delivery models that were variable. The usage of Non-Hospital Surgical Facilities (NHSF) provides helpful insight into this theme: our review of AHS' data indicates that the Calgary zone performs almost all cataracts performed by privately-owned, but publicly-funded NHSFs, while Edmonton performs these services in acute-care hospitals at significantly greater cost.

Our engagement led to the conclusion that Alberta has made strong progress towards achieving an effective and important balance between localized services delivered through zones, and a standardized, system-wide, efficient network of care across the province. Where variation with sites occurs, or when zones seek ways to exempt themselves from the network, the balance is interrupted. Everyone that works in the system should seek out and correct these imbalances. The people we spoke with throughout the engagement demonstrated a sincere willingness to assist in this regard.

We are grateful to the thousands of Albertans that have provided us with their ideas, concerns, perspective and experiences. They have helped us immensely in understanding the full picture of the system as it stands, and the system that can be. We have attempted to integrate their perspective into the findings and recommendations that follow.

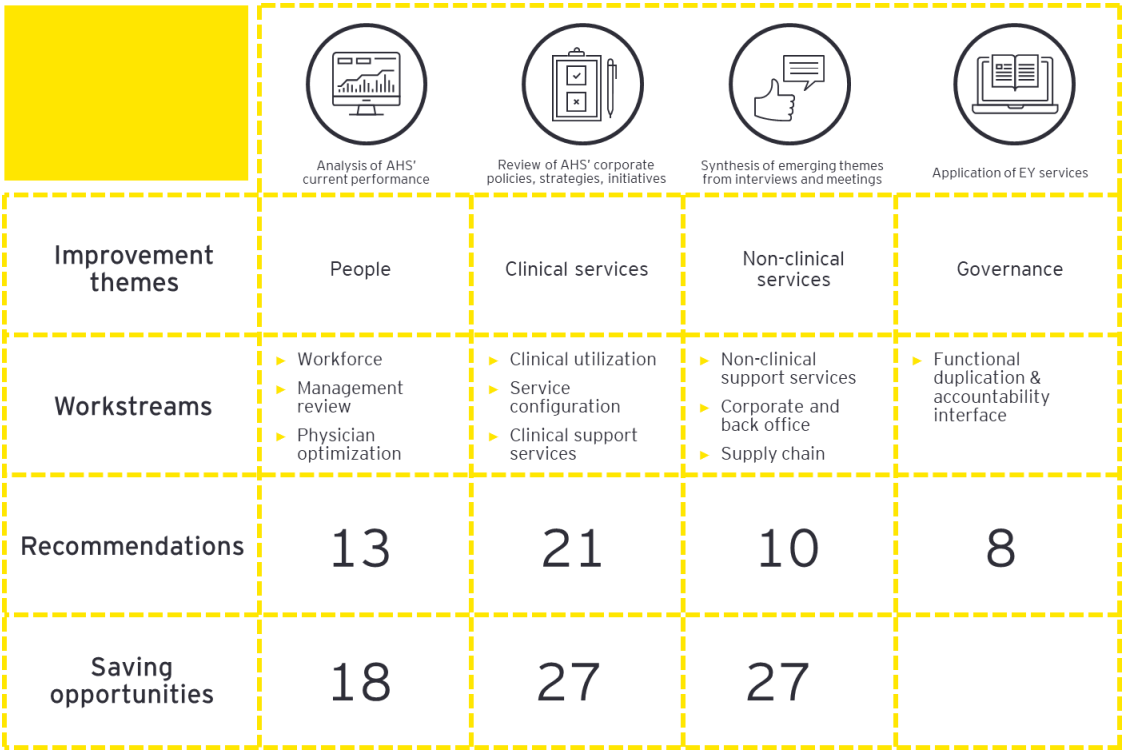
5 Workstream findings and recommendations

Workstreams

After categorizing feedback into major themes and by key functions, we aligned the early engagement outputs with our initial observations of AHS based on an analysis of current performance, a comparison of AHS' performance with other organizations, and our knowledge of improvement areas based on our experience working with other organizations.

This resulted in the creation of 10 workstreams, illustrated below.

Figure 9. Workstream formation[15]



This section contains context, findings, recommendations and opportunities across 10 key areas we have reviewed. The areas, or 'workstreams' represent the major cost drivers across AHS. They are also the areas that we feel are associated with the most significant opportunity across the system.

While AHS is the primary focus of this review, we also conducted interviews and analysis related to Covenant Health and Lamont Health Care Centre. Throughout this report, we have indicated where findings,

[15] In addition to recommendations aligned to the workstreams, 5 recommendations have been put forward aligned to Implementation. These are outlined in Section 7 of this report.

recommendations, or opportunities include either of these organizations. As AHS' largest service provider, Covenant Health delivers a significant proportion of care services in the province. In specific areas we have explicitly requested data and other information and included Covenant in our analysis.

Gross opportunities - not guaranteed savings

Each of the workstream sections below contains key findings, recommendations and opportunities.

The findings are based on our analysis of AHS' financial and operational data, what we heard from Albertans, staff and physicians at AHS, and our team's experience working with organizations across Canada and globally. Some of the findings are also based on areas that AHS has already identified as being sources of opportunity, and in some instances has begun implementation. The findings inform proposed recommendations for AHS and Alberta Health.

Each section also contains a list of opportunities. Many of them are accompanied by the maximum savings potential or what we call "gross opportunity values". These opportunities provide a high-level indication of the scale of potential gross savings that can be generated. Typically, this is based on the full realization of the opportunity, or the removal of all the potential inefficiency. Our experience supporting organizations with implementation suggests that the gross savings identified can not be wholly realized. This is because costs need to be factored in, such as new systems or technology, and the significant change management impact that full realization of a gross opportunity may have. Thoughtful planning and the translation of the gross opportunities into discrete, phased initiatives is what's required to understand the scale of savings and when they can be realized.

Example of moving from gross opportunity to realized savings: optimizing OR capacity

EY worked with a large academic health science centre in Ontario to help them identify a potential closure of 343 OR slates, or scheduled days of surgical activity, with a gross opportunity value of $390k. The opportunity was predicated on improvements in turnaround times that would enable surgeons to maintain the same level of activity in a reduced amount of operating time.

During the implementation planning phase, the hospital's Sustainability Program Office refined the valuation to reflect achievable savings based on factors such the specific case mix and needs of various sub-specialties. For example, complex cardiac cases were provided with a longer turn around time than high volume ophthalmology cases. Ultimately, the organization's executive leadership team committed to a reduction of 166 OR slates, valued at $189k.

Implications

We recognize the scale of the gross opportunities identified and 10 workstreams. Realizing these opportunities will have several implications that need to be considered throughout implementation:

- **These are a starting point.** To reiterate - our analysis does not suggest that the full savings we have identified can be driven out of AHS' bottom line. Our experience working with other organizations is that a proportion of the gross opportunity is achievable within a given time span. The specific achievable savings amounts should be validated and refined during implementation, when the interdependencies and full net costs of each opportunity can be understood in detail.

- **Human resource impact.** Many of the gross savings opportunities we've recommended, including those related to optimizing clinical resources, will have a direct impact on AHS' workforce. Much of this workforce is unionized, with specific provisions that need to be factored in to the transformation. Appropriate consideration therefore needs to be given to the amount of workforce change, including associated costs such as severance, that can be tolerated by AHS, as it designs its implementation plan.

- **Clinical services impact.** Many of the opportunities will affect clinical services delivery. The initiatives that are developed to achieve these opportunities need be thoughtfully planned, phased, and prioritized to ensure clinical services are not disrupted.

- **Patient impact.** All the opportunities identified are based on improving care – either directly or indirectly – for patients. How patients access and use services during this time of transformation should be key as implementation of these opportunities is planned for.

- **Operational impact.** AHS' leaders will be accountable for designing a plan that seeks to address the opportunities we have identified. This has to be done based on a recognition of the operational work that staff are obligated to do, as well as other priority initiatives that must continue, such as the ConnectCare implementation. As opportunities are prioritized, consideration to the capacity and availability of leaders, staff and clinicians will need to be considered, with an awareness that some work may need to be reallocated or stopped.

Improvement Theme: People

Workforce

The workforce section includes findings, recommendations and opportunities related to compensation, workforce management and controls (e.g. human resources policies and procedures, staff scheduling practices) and clinical staffing models. For the purposes of this report, the staffing models for corporate and back-office services (e.g. Finance and Human Resources) are covered under the Corporate and Back-Office section. A separate section, Management Review, includes a detailed review of AHS' management staff, including assessment of span of control and administrative support. Physicians will be discussed in the Physician Optimization section.

Context

Overview of the AHS workforce

AHS employs 102,717 people (70,139 FTE) across the province, making it the largest employer in Alberta. The workforce is highly unionized, with 93,804 (61,948 FTE) unionized staff members or 91.3% of the total workforce. Unionized staff include members of five unions, outlined in the table below. UNA (nursing) and AUPE-GSS employees make up the largest proportion of the workforce making up 27.9% and 27.5% of total AHS headcount respectively. AHS has 8,913 (8,191 FTE) non-union employees making up 8.7%% of the workforce. Non-union staff include managers and senior leaders, as well as non-union professional and technical roles. AHS' Executive Leadership Team is made up of 14.0 FTE including the CEO, earning a combined $6.03M in 2018/19 (including salaries and benefits).[16] Employee compensation makes up the largest independent driver of AHS' cost base, with salary and benefit expenses representing approximately 54.3% of AHS' total expenses. When including the employees of AHS' contracted health service providers and other contracted services (including Covenant Health), the percentage would be approximately 70% of total expenses.[17]

[16] AHS 2018/19 Annual Report.
[17] Ibid.

Table 2. Summary of AHS' workforce by employee group

Employee Group	Description	Typical Titles[3]	Headcount[4,5]	% of AHS Headcount	FTE[5]	Salary Expense[6] ($million)	Salary & Benefits	% of AHS Salary & Benefits Expense
Total AHS[1]			102,717	---	70,139	$6,371.2	$7,709.2	---
Total Union			93,804	91.3%	61,948	$5,522.9	$6,682.7	86.7%
UNA	Provide direct nursing care to patients and deliver health education programs.	Registered Nurse, Registered Psychiatric Nurse, Nurse Educator	28,617	27.9%	18,001	$2,060.1	$2,492.7	32.3%
HSAA	Provide paramedical professional & technical care to patients and deliver health education programs.	Pharmacist, Physical Therapist, Paramedic, Dialysis Technician, Respiratory Therapist, Psychologist, Public Health Inspector	19,476	19.0%	14,368	$1,456.6	$1,762.5	22.9%
AUPE-AUX	Provide auxiliary nursing care to patients.	Licensed Practical Nurse, Health Care Aide	15,804	15.4%	8,725	$646.9	$782.8	10.2%
AUPE-GSS	Provide general support and administrative services to patients, those that provide direct patient care and to the organization.	Administrative Support, HR Technician, Food Service Worker, Financial Analyst, Pharmacy Assistant, Electrician, Maintenance Worker, IT Analyst	28,209	27.5%	19,055	$1,233.2	$1,492.2	19.4%
PARA	Provide care to patients in outpatient facilities and acute care.	Resident Physicians	1,698	1.7%	1,698	$126.1	$152.6	2.0%
Total Non-Union Employees (Non-Union)			8,913	8.7%	8,191	$848.3	$1,026.4	13.3%
All Managers and Senior Leaders[2]			3,296	3.2%	3,197	$373.2	$451.6	5.9%
Senior Leaders	Set and align overarching organizational clinical and operational goals and strategies.	CEO, VP, Chief Zone Officer, Senior Operating Officer, Senior Program Officer, Senior Medical Director, Zone Medical Director	68	0.07%	66	$18.8	$22.8	0.3%
Managers	Provide leadership and supervision to union and non-union staff who deliver and support the delivery of health services.	Unit Manager, Public Health Manager, Pharmacy Manager, Biomedical Engineering Manager, Food Services Manager, Clinical Program Director IT Manager, Facilities Maintenance Manager, HR Manager, Workplace Health & Safety Manager, Finance Manager, Communications Director	3,228	3.1%	3,131	$354.4	$428.8	5.6%
Non-Union Professional/ Technical	Provide professional and administrative services to patients and those that provide direct patient care and to the organization.	Legal Counsel, Medical Physicist, HR Advisors, Patient Care Navigators, Patient Concerns Consultant, Nurse Practitioner, Clinical Assistant	5,617	5.5%	4,995	$475.1	$574.9	7.5%

1. *Totals may not equal the sum of the groups as employees may have jobs in more than one group.*
2. *Manager and Senior Leaders include salary grades CEO, SL1 to SL3, ML2 to ML3 and M1 to M5.*
3. *Titles provide examples found in each employee group and are not meant to be exhaustive.*
4. *Does not include vacant positions.*
5. *Source: AHS Payroll System (Clinical = MIS codes 712XXXXXX to 715XXXXXX + 711854XXX; Clinical Support = 7145XXXX, 71150XXXX, 71175XXXX, 71180XXXX, 71182XXX, 71185XXXX [except 711854XXX], 7119XXXX and 71195XXXX; Corporate Support = All other MIS codes).*
6. *Source: AHS Payroll System. Includes salaries earned per fiscal year.*
7. *Based on assumption of benefits equating to 21% of total salary.*

Source: Data provided by AHS. Effective date, March 31, 2019.

AHS' approach to workforce and sustainability

AHS' Operational Best Practice (OBP) program is an organization-wide initiative that benchmarks AHS with comparable counterparts inside and outside of Alberta, with the aim of reducing variation and achieving efficiencies. The initiative encompasses both AHS and Covenant Health and includes acute care, corporate services, and clinical support services. The OBP initiative was first rolled out in 2014/2015.

OBP benchmarking is based on a worked hours metric; the total worked hours per workload unit specific to the function of the department. For example, the metric used in inpatient units is the total worked hours per patient day. OBP develops savings targets, based on reducing the number of worked hours in a given unit to the relevant benchmarks. Operational leaders must complete a workbook with a plan to achieve their target.

AHS estimates that since late 2015, OBP has achieved annualized savings of $178M and a reduction of 1.6M worked hours across AHS and Covenant Health. OBP benchmarks directly impact the amount of budget that is set for units/departments, and inform organizational decision making. For example, if an area is not achieving its OBP benchmarks it is less likely to be approved to fill vacant positions. AHS is currently in phase 4 of the OBP program and has identified further savings of $101M. Our findings related to the OBP program are included in the following section.

Findings

Compensation

Executive compensation

1. AHS' executives[18] paid more than their BC counterparts, but less than comparable positions in Ontario.

    - In general, AHS' executive members make less than twice that of their counterparts at BC's Fraser Health. Fraser Health is one quarter of the size of AHS. CEOs of similar organizations in Ontario make more than the AHS CEO, while leading organizations that are significantly smaller than AHS. Other AHS executive members are compensated generally similarly to their Ontario counterparts.

    - While generally executive-level compensation at AHS is, in our view, appropriate, it should be externally assessed periodically with formal reporting to the board.

    - These findings are supported by a 2015 external review of AHS' senior leadership compensation, which concluded that compensation was deemed to be below market value by 14% due to lack of incentive pay and uncompetitive supplemental retirement plans. Since that time, AHS' executive salaries, along with other non-unionized positions, have been subject to a salary freeze.

    - Covenant Health executives are paid comparatively to AHS, despite being a significantly smaller organization. The figure below compares executive leadership compensation per employee across several organizations and demonstrates that Covenant Health is an outlier compared to AHS, Ontario, and British Columbia. For example, the Covenant Health CEO is paid $51 for every full-time staff member compared to the AHS CEO who is paid $6. While this is only one potential metric for comparison, considering the organizations by size of budget would yield similar results.

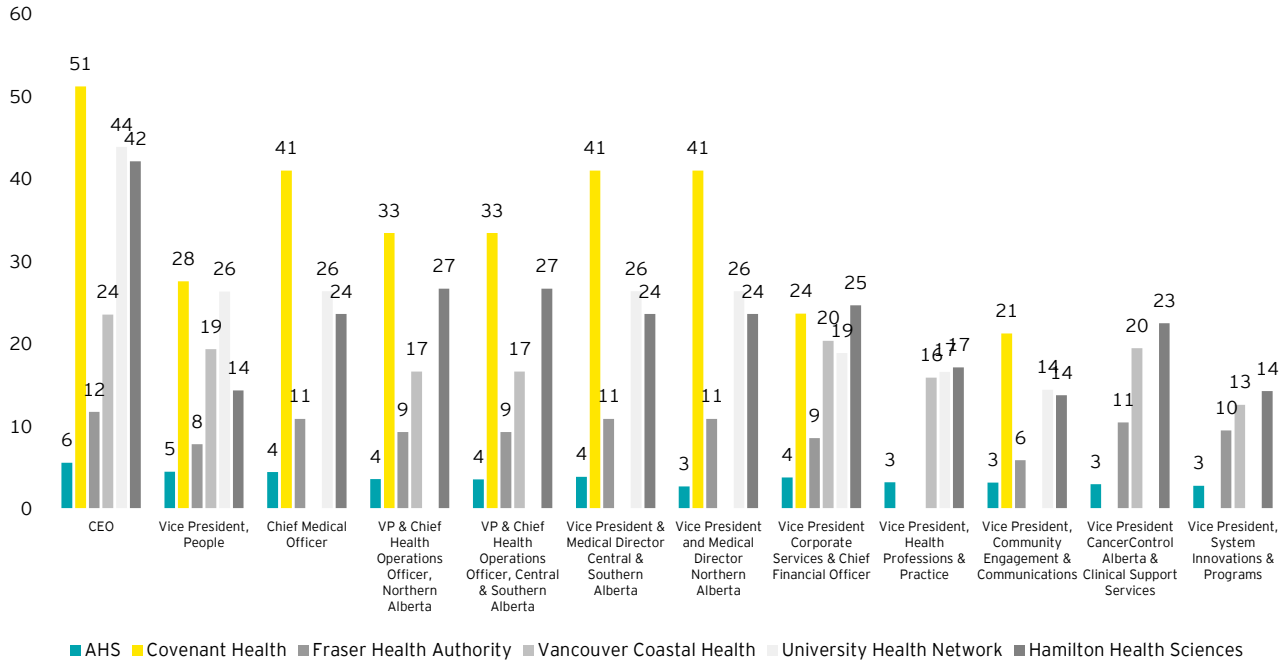
[18] Executive in this comparison are those that report to the CEO as per the AHS' organizational chart. We recognize that there are other executive positions that exist within AHS.

Table 3. Comparison of AHS' salaries to Covenant Health and peers in Ontario and BC (2018/19)

Position	AHS	Covenant Health	Fraser Health Authority	Vancouver Coastal Health	University Health Network	Hamilton Health Sciences
Approximate Organization Headcount	102,717	10,824	26,000	14,000	16,354	15,000
Budget (2018/19)	$15.20B	$862.80M	$3.67B	$3.60B	$2.32B	$1.56B
CEO	$ 576,856	$ 554,952	$ 306,273	$ 330,431	$ 718,300*	$ 633,057
Vice President, People	$ 464,997	$ 299,019	$ 204,224	$ 271,443	$ 431,319	$ 216,013
Chief Medical Officer	$ 461,800	$ 444,413	$ 284,738	-	$ 432,124	$ 355,040
VP & Chief Health Operations Officer, Northern Alberta	$ 373,097	$ 362,476	$ 243,182	$ 233,739	-	$ 401,323
VP & Chief Health Operations Officer, Central & Southern Alberta	$ 369,097	$ 362,476	$ 243,182	$ 233,739	-	$ 401,323
Vice President & Medical Director Central & Southern Alberta	$ 402,591	$ 444,413	$ 284,738	-	$ 432,124	$ 355,040
Vice President and Medical Director Northern Alberta	$ 281,211	$ 444,413	$ 284,738	-	$ 432,124	$ 355,040
Vice President Corporate Services & Chief Financial Officer	$ 395,100	$ 256,456	$ 223,760	$ 285,796	$ 309,692	$ 370,721
Vice President, Health Professions & Practice	$ 334,212	-	-	$ 223,093	$ 272,246	$ 257,624
Vice President, Community Engagement & Communications	$ 329,854	$ 230,415	$ 154,644	-	$ 236,943	$ 207,218
Vice President CancerControl Alberta & Clinical Support Services	$ 310,306	-	$ 273,141	$ 273,141	-	$ 338,142
Vice President, System Innovations & Programs	$ 292,064	-	$ 248,210	$ 177,215	-	$ 214,999

Source: Publicly available compensation information.
Note: Salary left blank where the organization does not have an executive with a similar portfolio.
*Based on 2017/2018 compensation.
**Salary information is for PHSA executive as PHSA delivers clinical support services to Fraser Health Authority and Vancouver Coastal Health.

Figure 10. Executive salary paid per employee



Unionized staff compensation

2. AHS' unionized employees are paid more than their peers in other Canadian provinces.

   - Alberta pays higher than the Canadian average across employee groups: 7.2% higher for RNs, 5.5% higher for LPNs, 6.8% higher for HCAs, 11.1% higher for HSAA employees and 6.95% higher for AUPE-GSS employees. *19,20,21 22,23*

   - In addition, the MacKinnon panel found that Alberta has higher hourly premium rates for nursing compared to Ontario and Quebec for nights, evening, weekend, and call back hours, as well as higher travel allowances. Alberta uses double time for overtime, while Ontario and Quebec offer 1.5x rate for standard days and 2.5x the basic rate for statutory holidays compared to Ontario and Quebec's 2x rate. This significantly compounds the wage differential.

   - The panel also identified other provisions included in the UNA collective agreement that are not consistent in other provinces and which add to the cost base of AHS' operations. These provisions include designated days of rest, restrictions on the use of vacancies, and annual lump sum payments to registered nurses.

[19] Source: Provincial Bargaining Coordination Office.
[20] Comparison is based on total compensation.
[21] HSAA union members include Pharmacists, Physical Therapists, Paramedics, Dialysis Technicians, Respiratory Therapists, Psychologists, Public Health Inspectors and others.
[22] AUPE-GSS union members include unit clerks, food services workers, administrative support, carpenters, accounting clerks and others.
[23] While AUPE-GSS employees earn on average 6.95% higher than their peers, compensation ranges by job type with some job types earning below or at market rate.

- While AHS has been successful at negotiating a 0% increase to the pay bands in the collective agreements for the past two years, overall costs increased as employees moved up bands.

Non-union exempt employee compensation

3. The high relative pay of nurses in Alberta creates a disincentive to pursue management or advanced practice roles, such as nurse practitioner. These roles are critical to providing consistent and high-quality patient care.

    - The average yearly salary for a unit manager at AHS in 2019 was $109,22924 with the top 10 highest paid unit managers at AHS earning between $122,000-$127,000.[25]

    - The average yearly salary for registered nurses was lower (approximately, $94,664), however nurses' ability to work additional shifts and earn premium pay allow them to earn significantly more. According to publicly disclosed information, 1,851 registered nurses earned more than $127,000 in 2018, with 485 earning over $150,000 and 31 earning over $200,000.

    - We found that there is a similar misalignment of pay between RNs and Nurse Practitioners (NP). Since RNs have more earning capacity when compared to NPs, there is no incentive for many RNs to pursue additional education and training. According to AHS' employee data, the average yearly salary of a NP based on a 1.0 FTE was $113,000.

> *"Front-line unit managers have one of the hardest jobs in health care and they do fantastic work. I would not want to be a unit manager again…there is little incentive to go into management since front-line nurses will easily make as much or more salary with far fewer responsibilities."*
>
> *Comment from AHS Employee Survey*

4. Compensation for non-union employees is not linked to the achievement of specific goals, objectives and outcomes.

    - AHS introduced pay-at-risk for health care executives in 2009 but it was ended amid controversy. However, other health care organizations have used this approach successfully to improve accountability and performance.

    - In Ontario, the Excellent Care for All Act (2010) sets out that every health care organization will ensure executive compensation plans are linked to the achievement of specific performance improvement targets as outlined in their annual Quality Improvement Plan. The percentage at risk varies across hospitals but typically ranges from 2%-10%. The 2011, Manley Report on Executive Hospital Compensation recommended a range of CEO at risk or performance-based pay of 10%-30%.

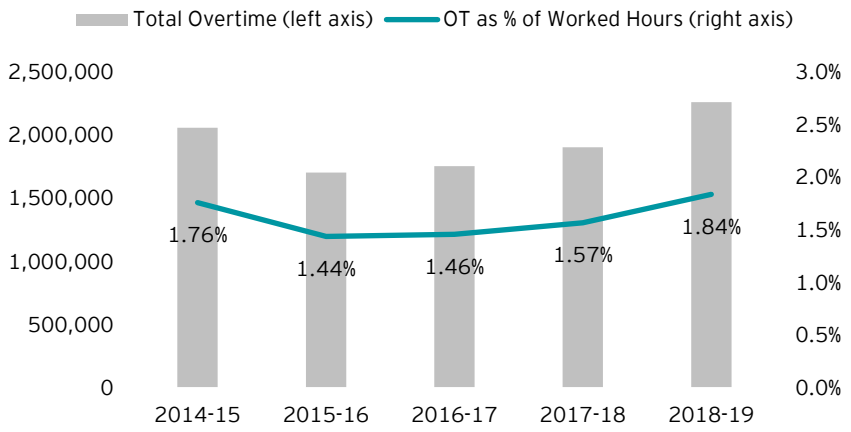
[24] Estimate based on 1.0 FTE and the average hourly salary.
[25] Based on AHS employee data.

Workforce management and controls

Overtime

5. Compared to its peers, AHS has been successful overall at managing overtime across the organization, with a low overtime rate of 1.84% of total worked hours across the organization; however, the overtime rate has increased annually beginning in 2015/16, growing from 1.44% to 1.84% in 2018/19.

Figure 11. AHS Overtime Hours, 2014/15 to 2018/19



Source: Data provided by AHS.

CIHI data confirms this finding. For 2015-16 and 2016-17, respectively, overtime rates were: 2.60% and 2.86% for Canada as a whole; 2.58% and 2.81% for Ontario and BC; and 1.44%, and 1.46% for Alberta. While Alberta's overtime rate has increased since 2018/19 this rate is still likely lower than peers in Ontario-BC and Canada.

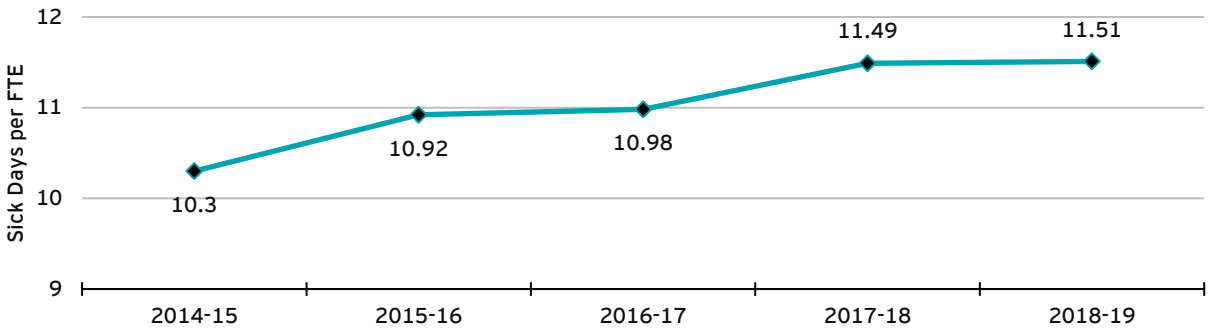
- Despite success with this measure, AHS should assess areas of internal variation across the organization, which may produce opportunities for further incremental reductions. For example:
    - Overtime rates in the North (2.8%) and Central (2.1%) zones exceed the provincial average.
    - Critical Care and Emergency units have higher overtime rates of 4.8% and 4% respectively.
    - Management and operational staff have an overtime rate of 1.1%, despite generally not being eligible for overtime.

> *"More support needs to be given to North zone and rural communities in general. Not enough staff means greater overtime needed and more costs to the system."*
>
> *Comment from AHS Employee Survey*

Sick-time

6. While AHS' sick time rate remains low when compared to peers, the rate has been steadily increasing.
    - AHS' sick rate has increased from 10.3 sick days per FTE in 2014/15 to 11.51 sick days per FTE in 2018/19. This equates to an 11% increase over the past five years.
    - Despite the increase, the rate remains significantly below the Conference Board of Canada health care benchmarks.

Figure 12. AHS sick time rate, 2014/15 to 2018/19



Source: Data provided by AHS.

- Our analysis suggests the following areas have higher than average rates of sick time that should be targeted for improvement: Critical Care Units (5.8% of total worked hours), Perioperative (5.6%) and Ambulatory Care Units (5.6%).

- There are similar rates of sick time for management and front-line staff (4.8% of total worked hours) compared to front-line staff (5.0% of total worked hours). We find this to be an interesting result as research has shown that hospital workers, particularly registered nurses, have higher than average incidence rate of injury and illness when compared to other workers. For example, a 2018 study of sick rates in the NHS found that all hospital staff had an average sick rate of 4.2%, 4.5% for nurses, compared to 2.9% reported in the broader public sector.[26]

7. AHS has an attendance management policy in place, however it is not consistently enforced, and AHS has had challenges managing inappropriate use of sick time.

   - We heard from operational leaders that it is rare that the attendance management program results in any definitive action for employees that inappropriately use sick time. This is in part due to the administrative burden posed by the processes and policy, and a reluctance to have difficult performance conversations.

   - It was suggested that further HR support for discussions with employees may be helpful to enforce the policy more effectively.

Recruitment, retention and vacancy management

8. Provisions contained in the collective agreements can make it challenging for AHS to implement innovative staffing approaches to meet demands, especially in rural areas.

   - The collective agreements contain provisions including restrictions on the use of vacancies that are not common in nursing agreements across Canada.

   - Collective agreements can also inhibit adopting flexible staffing models, such as changing positions to be multi-site positions to help meet demand in rural areas. The UNA collective agreement gives the union the ability to review such positions.

9. AHS' vacancy management program is an effective workforce control that should be strengthened to ensure best use of realized savings.

   - Under AHS' current vacancy management program, each vacancy is reviewed prior to posting to assess necessity to fill using OBP targets and criteria set out in the AHS Enhanced Vacancy Management process. In June 2019, revised approval requirements were instituted, requiring that every vacant position is reviewed by senior leadership.

   - AHS tracks and forecasts future savings generated through enhanced vacancy management, however budget associated with vacant positions is not secured or frozen from the department budget. As a result, budget identified as potential savings may still be used to offset other operational pressures of the department and will not be available to contribute to the significant financial challenge that is the subject of this review.

[26] Moberly Tom. (2018). Sickness absence rates across the NHS. *BMJ*.

Staff scheduling

10. While AHS has followed leading practice in creating a centralized staff scheduling function, there continues to be large parts of the organization that have not transitioned to this model.

- Decentralized scheduling leads to inconsistent local interpretation of contracts and collective agreements, often relies on resource-intense manual processes, creates challenges with conducting system-wide performance management and reporting, and is less efficient.
- AHS' centralized Provincial Staffing Services (PSS) provides staffing services to 40% of all employees, while the remaining 60% are supported outside of PSS by decentralized staffing offices and resources that could be consolidated, such as the Rural Hospital Scheduling Office Edmonton.

> *"I have worked in the world of both paper-based and computer-based staff scheduling and can see a huge improvement in terms of less overtime and workload levelling, less sick calls, etc."*
>
> *Comment from AHS Employee Survey*

- There is variability across zones in the proportion of employees supported by PSS; 50% of employees in Calgary zone are supported by PSS; compared to 37% in Edmonton zone, 37% in South zone, 36% in Central zone and 30% in North zone.
- There is variability in the systems used to support scheduling. Kronos Workforce Central with Environment for Scheduling Personnel (ESP) is the current state enterprise scheduling platform used by PSS and select units not affiliated with PSS. The E-People system is used for manual timekeeping and scheduling for other employees. EMS staff are scheduled using Telestaff.
- Even within PSS, there is inconsistency in how scheduling is performed. This presents an opportunity to further optimize AHS' scheduling operation.

Table 4. Current state employee headcount by scheduling support type

Scheduling Support Type	Definition	PositionCount (FY 19/20)[27]	% Total
PSS, Full Scheduling	Scheduling is fully supported by PSS services and staffing service centres (SSC).	28,189	26%
PSS, Unit-Based	Scheduling is governed by PSS but units manage their own day-to-day scheduling needs.	2,332	2%
PSS, Data Entry Only	Scheduling is governed by PSS but SSC only handles paperwork and timekeeping.	3,699	3%
PSS, ESP Only	Scheduling is governed by PSS, but schedulers are not part of SSCs.	6,321	6%
PSS, Non ESP, Paper-based	Scheduling is governed by PSS but units are remote.	2,304	2%
	Total Employees supported by PSS	42,845	40%
Non-PSS, Non ESP, Paper-based	Fully remote units who do not have any affiliation with PSS.	51,434	48%
Non-PSS – ESP	Units that utilize ESP but have no affiliation with PSS.	9,686	9%
Telestaff (EMS)	EMS scheduling program.	3,082	3%
	Total Employees not supported by PSS	64,202	60%
	Total	107,047	100%

11. There is an additional opportunity to automate some of the current, highly manual processes involved to collect, evaluate and approve time. This would improve efficiencies and reduce payroll errors, including overpayments.

    - While some degree of automation is enabled in the current state, there are limitations to the current ESP system that inhibit AHS' ability to fully maximize automation opportunities.

    - There are approximately 3,698 employees across the organization who support time entry for decentralized scheduling operations. While time entry typically only makes up a portion of these employees' responsibilities, there is an opportunity to reduce the amount of support required through centralization.

    - AHS tracks worked time for hourly employees through negative time capture, tracking deviations to planned working time, as opposed to positive time capture where time and attendance is recorded as worked. Organizations that have implemented positive time capture typically find significant improvements financial savings because of improved accuracy of recorded time.

[27] Data is from ePeople and represents at a point in time the number of positions in the system. Employees may hold multiple positions. It does not include vacant positions.

Clinical staffing models

Skill mix and staffing levels: Nursing

12. Clinical staffing decisions are typically based on historical staffing levels and OBP worked hours targets, rather than evidence-based assessments of patient acuity.

    - The optimal staffing model on a unit enables high-quality, safe patient care where patients are being cared for by appropriately qualified and experienced staff. For example, a high-acuity unit such as an intensive care unit, requires one-on-one RN care around the clock, while an elderly convalescent patient can likely be cared for by an LPN with a larger caseload.

    - Leading jurisdictions in Canada and internationally, have begun to use evidence-based tools to carefully assess patient needs to determine the right number and skill mix of staff on a given unit. Examples of tools being used in Ontario and the UK include the Safer Nursing Care Tool and the Patient Care Needs Assessment, described below.

Safer Nursing Care Tool (SNCT) measures the staffing levels

- *The SNCT is a validated, evidence-based tool that enables nurses to assess patient acuity and dependency.*
- *The acuity level of patients is used in conjunction with contextual data to inform the number of staff needed to provide care.*

Patient Care Needs Assessment (PCNA) tool measures the type of nursing staff needed

- *PCNA is an evidence-based tool that helps match patient care needs with the required category of nursing (e.g. RN/LPN) in acute care medical/surgical units.*
- *The PCNA tool assesses each patient's needs based on the stability, complexity, and predictability of the patient's condition and their level of risk for negative outcomes. Using the tool, a panel of nurses periodically assesses patients on the unit through a consensus process.*

13. Staffing levels within clinical units can vary significantly across similar type of units. When compared with leading practice and other provinces, AHS has higher levels of staffing across all types of units.

    - Leading organizations in Canada and internationally use a set of common targets for assessing patient care staffing ratios on different types of acute inpatient units:

        - Medical and surgical units: 4 patients to 1 nurse on days, 5 patients to 1 nurse on nights (equates to 5.33 hours per patient day)
        - Obstetrical units: 5 patients to 1 nurse, days and nights (equates to 4.80 hours per patient day)

    - As seen in the table below, AHS and Covenant Health staffing has been assessed against these commonly used benchmarks, indicating opportunity for improvement.

Table 5. RN/LPN/HCA worked hours per patient day across AHS and Covenant Health inpatient units

Clinical Area	Degree of variation across AHS (25th and 75th percentiles)	AHS Average (50th Percentile)	Leading practice/ Provincial comparator[28]
Medical Unit	5.17-6.56	5.80	5.33
Surgical Unit	6.24-7.43	6.65	5.33
Medical/Surgical Unit	5.19-6.46	5.69	5.33
Obstetrical	8.33-10.11	9.15	4.80

Understanding nursing staffing levels

Staffing levels are a way of measuring the ratio of nursing staff on a unit to the number of patients.

Staffing levels are measured using "hours per patient day", meaning the number of nursing staff hours for each patient on the unit per day.

We calculated hours per patient day by dividing the total number of hours worked by Registered Nurses (RNs), Licensed Practical Nurses (LPNs), and Health Care Aides (HCAs) and dividing it by the total number of patient days seen on the unit.

Hours per patient day can be translated to a nursing ratio. For example, 6 hours per patient day is a 1:4 ratio 24x7 (i.e. 24 hours per day divided by 6 hours per patient).

14. The skill mix of clinical staff at AHS can vary significantly across similar units and can be further optimized.

- While there are some organizations in Canada that are still staffing their inpatient units with only registered nurses, Alberta has worked to introduce staffing models that leverage staff of various skill levels, including registered nurses, licensed practical nurses (LPNs) and health care aids (HCAs).
- While AHS and Covenant Health have made progress in improving their skill mix, the extent to which LPNs and HCAs are used varies considerably across these organizations, even in similar types of units.
- Table 6 below includes the average RN/LPN/HCA staffing mix, as well as the variability in the proportion of hours worked by RNs. Aligning units that use a higher level of RNs to the staffing

"Our operating room runs with higher than recommended staffing levels and uses almost no ORT/LPN employees."

Comment from AHS Employee Survey

[28] Medical/Surgical units was based on 4:1 on days, 5:1 on nights which provides more hours per patient day than UK NHS averages.
Obstetrical units were modelled on 5:1.
The remaining areas were benchmarked based on internal variation.

ratios of their higher performing peers, would reduce staffing costs, and support clinical staff in working to their full scope of practice.

Table 6. Staffing mix across AHS and Covenant Health inpatient units

		% of Total Hours worked by RNs on Unit*		
Clinical Area	Average Staffing mix (RN/LPN/HCA)	25th percentile	50th percentile	75th percentile
Medical Unit	49:32:19	40%	47%	57%
Surgical Unit	60:25:15	51%	57%	69%
Medical Surgical Unit	51:40:09	46%	50%	59%
Operating Room	84:15:02	77%	84%	95%
Long-Term Care (AHS only)	21:14:66	11%	17%	28%
ICU	94:02:04	90%	95%	100%
Obstetrical	63:37:0	54%	60%	68%
Emergency	79:19:02	67%	80%	92%
Ambulatory	79:19:03	70%	100%	100%

*For example, on 25% of medical units, 40% or fewer of the hours are worked by RNs; 50% have 47% or fewer worked by RNs; 25% have greater than 57% worked by RNs.

Understanding nursing staffing mix

Nursing staffing mix is described as the ratio of the different types of nurses on a unit providing patient care.

To assess the staffing mix at AHS, we calculated the ratio of the number of hours worked by Registered Nurses (RNs) to Licensed Practical Nurses (LPNs) and Health Care Aides (HCAs) on a unit.

15. AHS and Covenant Health have established staffing models through the OBP program, which will continue to move staffing levels and skill mix towards more effective and sustainable models of care delivery.

    - The OBP program provides an effective vehicle for continued enhancement in these areas and will assist AHS and Covenant in implementing acuity-based approaches to developing staffing models

    - Further education and support for managers and front-lines staff will be an essential component to implementing these optimized and evidence-based models.

Skill mix and staffing levels: Clinical support services

16. AHS has implemented effective strategies to optimize its pharmacy workforce, both in terms of skill mix and overall staffing levels.

    - AHS effectively leverages pharmacy technicians to supplement the work of pharmacists in its central pharmacy function.

- This is likely due to the significant work Pharmacy Services has done to develop and implement an Inpatient Clinical Practice Model. The approach, and rigor of this model can be leveraged as an example for other clinical, and non-clinical areas across AHS to support the establishment of evidence-based staffing models that align with patient/client needs.

- AHS has also developed an inpatient clinical practice model to ensure limited and costly pharmacist resources are allocated to patients of the highest need, to maximize the impact on clinical outcomes, readmission, and length of stay. To develop the model, bed types were categorized based on the needs of the patient population. Target ratios for 'beds to clinical FTE' were developed, as well as guidance on continuity of care considerations.

- Basing the pharmacist staffing model on the specific needs of patients is an example of acuity-based staffing that can inform further staffing initiatives across the organization.

17. There is variation in the proportion of laboratory assistants used relative to more expensive laboratory technicians.

    - By standardizing staffing models across the system to optimize the use of laboratory assistants, AHS can have an appropriate and more efficient staffing model.

Table 7. Proportion of lab assistants relative to laboratory technicians by discipline

	Lab assistants %		
Discipline	**Min**	**Max**	**Average**
Chemistry	0%	34%	14%
Core Lab	0%	32%	5%
Hematology	0%	15%	4%
Microbiology	9%	43%	32%
Transfusion Medicine	0%	24%	16%

Full-time/part-time/casual nursing mix

18. AHS' high rate of part-time nurses is not cost effective and poses operational challenges.

    - 33% of AHS' registered nurses (RNs) are full-time, 42% are part-time and 25% are casual.

    - An over-reliance on part-time nurses means AHS must bear additional costs related to the cost of benefits, orientation, and corporate support for a greater number of part-time employees than they would need if they had a more full-time workforce.

    - The cost of a 1.0 FTE RN per year is approximately $111,789 as opposed to $118,631 for two 0.5 FTE positions.

> *"Previously, nursing was a secondary family income in Alberta, but this isn't the case anymore. We [AHS] have the ability to rethink how we approach part-time nursing."*
>
> *Comment from AHS Operational Leader Session*

- A part-time workforce can be challenging for management. It can pose challenges in implementing optimal scheduling practices and increases the headcount that managers need to manage, contributing to additional workload.
- The designated day of rest provision for part time nurses in the UNA Collective Agreement has created challenges in staff scheduling. Part-time RNs receive the same number of designated days of rest as full-time employees.[29] Part-time RNs who work on scheduled days of rest are eligible for overtime, regardless of whether they have worked full time hours.

> *"It drives me batty that I have to go in every week for my treatments and I get a new staff member who is casual that doesn't know their way around… this is wasteful and impacts patients."*
>
> *Comment from AHS Patient and Family Advisory Council*

- Provisions in the UNA collective agreement can create challenges with using full time staff efficiently. For example, the requirement for RNs to have half of their weekends scheduled off duty means that it takes 1.4 FTE to fill a line in a schedule for 24/7 operational areas.
- AHS utilizes a high-number of casual nursing positions; we heard feedback that this may have a negative impact on workforce satisfaction and patient experience.

Patient watch

19. AHS uses highly skilled staff to observe at-risk patients in cases where less costly staff would be more appropriate.

- Patient watch is a service provided to patients where there is no identified risk of violence towards staff or patients and supports the heightened monitoring of patients who are at risk of wandering, pulling tubes, who are suicidal, have dementia, or other conditions requiring constant observation.
- Based on available data we estimate that 258 FTE across AHS are providing this service[30]. Of these FTEs, 13% are providing patient watch at overtime or banked overtime rates, increasing the cost of this service.
- Patient watch is typically provided by Health Care Aides or Mental Health Aides; however, 9% of hours are currently provided by higher levels of nursing care signaling an inefficient use of resources. In addition, there is variability within staffing models across zones.
- New advances in technology have also enabled remote monitoring of patients using camera systems. Trained telesitters can monitor several patients at a time thereby reducing the cost of bed side staff and expanding the reach of patients that can be monitored. Telesitters can speak directly to a patient or notify staff on the unit to attend to the patient.

[29] Designated Days of Rest are protected days, and any work on those days triggers payment at 2x the basic hourly rate of pay (or applicable overtime rate).
[30] 258 FTE is based on an extrapolation of ESP data on constant care provision.

Table 8. Percent of patient watch hours provided by job category

Job Category	% of Patient Watch / Constant Care Hours Provided
Mental Health/Aide	62%
HCA	25%
RN	6%
LPN	3%
Facilities/Service Workers	3%

AHS' approach to workforce sustainability

20. The Operational Best Practice (OBP) program has been successful in raising awareness and instilling a sense of accountability for sustainability across managers and operational leaders.

- OBP provides managers and leaders with extensive operational data about their areas, and supports the organization in setting and achieving savings and quality improvement targets
- This function has credibility in the organization and can be quickly and effectively leveraged and refined to address a broader range of benchmarks and improvement opportunities.
- While the OBP program is a valuable function, there are some opportunities to improve its effectiveness:
    - There is a risk to over-reliance on the hours per patient day metric that is the basis of most OBP budget targets and reductions. While AHS should continue to use benchmarking data to identify areas for improvement, it should be joined with other types of data to provide a completer and more detailed picture of operations.
    - The focus on productivity targets (i.e. worked hours) can create incentives to "upskill" to meet targets. As managers strive to meet worked hours targets, they may focus on removing hours from positions with a lower scope of practice (i.e. HCA, LPN), without regards to the skill-mix implications. OBP could be extended to provide skill-mix targets as well as staffing level targets.
    - Managers noted that the OBP program is manual in nature and results in incremental work effort to the formal budgeting process. AHS can continue to integrate OBP more formally into its ongoing management accountability processes.

Recommendations

Recommendation 1: AHS should work with the unions and government to remove or revise collective agreement provisions that impede sustainability without providing any patient benefit.

- Throughout this review AHS has identified collective agreement clauses that could impede many of the sustainability measured proposed in this report. Working with government and unions, AHS should seek to minimize impediments to achieving sustainability.
- Research conducted for the MacKinnon panel identified specific provisions in the UNA collective agreement that do not align with those in other jurisdictions.
- In tandem, AHS should review non-union nursing management compensation to ensure salary grades are aligned to enable AHS to recruit and retain the right leaders and advanced nursing professionals.

Recommendation 2: AHS should review its workplace policies and processes to strengthen controls where required to achieve incremental benefits.

- While AHS has low rates of overtime and sick time, these rates are increasing, indicating that the current controls in place may not be enough to achieve their intended objectives.
- AHS should continue to operate its vacancy management program but should strengthen it by putting in place processes to realize associated savings through budget adjustments.
- As AHS embarks on further sustainability initiatives, there will be a higher risk of increasing overtime as resources are adjusted. AHS must ensure that its workforce controls are effective at managing this risk to fully realize the financial benefits of these initiatives.

Recommendation 3: AHS should expand the use of the Provincial Staffing Services, as well as consider a technology strategy to enable automation and positive time keeping.

- There are efficiencies to be gained through the centralization of the Provincial Staffing Services office, including standardization and optimization of scheduling practices and consolidation of staffing resources. The current provincial scheduling office should be reviewed to ensure it is set-up to effectively support all units, including looking at ways to improve the connection between the scheduling staff and the units they serve.
- Automation presents a significant opportunity to transform scheduling practices. While a new scheduling system with enhanced capabilities is an important enabling factor in the longer term, there are opportunities to automate current processes in the shorter-term that do not necessarily require the procurement and implementation of a new system.

Recommendation 4: AHS should optimize staffing levels and skill mix across the organization in both nursing and clinical support services through the use of evidence-based approaches such as acuity-based staffing.

- AHS should supplement the use of productivity data (e.g. hours per patient day) with patient needs assessment tools and methodologies for decisions related to clinical staffing.
- AHS should consider starting with an initial pilot in several units to serve as a proof of concept and source of lessons learned to be applied across the organization.
- The Inpatient Clinical Practice model is an example of leading practice that could be adopted in other areas.
- Professional Practice, Quality and other key areas need to ensure managers are educated and have the necessary supports to optimize skill mix and lead change programs.
- While Alberta Health has made good progress in updating the legislation to support innovative care models (for example, the LPN scope of practice was updated in October 2019), there are further opportunities to update legislation. Through this Review the Nursing Home Operation Regulation was specifically identified as requiring modernization to remove restrictions requiring an RN in charge.

Opportunities

Table 9. Summary of workforce opportunities

#	Opportunity Name	Opportunity Description & Valuation Approach	Gross Valuation
W1	Removing specific UNA provisions	Removing lump sum payments, designated days of rest for part-time employees and benefits for part-time employees working <15 hours per week. Valuation based on AHS' estimate.	$42M
W2	Overtime reduction	Reduction in overtime usage across all positions. Valuation is based on all areas and positions being at or under a 2.8% rate of overtime. Considers premium costs associated with OT.	$24M
W3	Sick time reduction	Focused attention on attendance management, wellness strategies and sick time protocols to reduce % of sick time across AHS. Valuation is based on a reduction in average sick time from 11.51 sick days per FTE per year to 11 (low estimate) or 10.3 (high estimate). 10.3 sick days per FTE per year was the AHS sick rate in 2014/15 and 11 in 2015/16. Valuation is based on reduction in total sick relief replacement cost of $58.5M, the total cost in 2018/19.	$3M-$7M
W4	Eliminate vacancies >1 year	Eliminate, inactivate and permanently remove budget for positions vacant longer than one year. Valuation is based on elimination, inactivation and permanent removal of budget for vacant position. Low opportunity is based on removal of only exempt positions; high value is based on all positions. Positions identified by AHS as being purposefully held or non-budgeted were removed.	$11M-$103M
W5	Enhanced vacancy management	Implement process to secure budget for vacant positions being held for enhanced vacancy management targets to ensure the underspend is not used to offset other pressures. Valuation is based on AHS' targeted savings from existing enhanced vacancy management program.	$22M
W6	Implement staff scheduling system	Implement staff scheduling system to reduce payroll errors, premium payments and number of timekeeping FTEs. Efficiencies realized through automation including positive time capture are typically in the range of 3-5% annually of the payroll bill for hourly workers; valuation is based on 2-3% to discount for efficiencies already realized. Significant initial investment will be required to realize savings. That investment would offset potential savings.	$82M-$123M
W7	Optimize nurse staffing based on patient demand	Optimize nursing ratio (RN/LPN/HCA) and reduce staffing level in alignment with internal and external leading practice based on patient demand. Includes AHS and Covenant Health sites in nursing units (medical, surgical, obstetrical), operating room, ICU, Emergency department, and long-term care. Valuation is based on both 1) Aligning RN/LPN/HCA ratio (i.e. increasing use of LPNs & HCAs) and 2) reducing staffing levels with either external leading performer or internal median performer.	$231M-$322M

W8	Optimize clinical support staffing based on patient demand	Optimize staffing level for clinical support staff in both AHS and Covenant Health sites for areas including labs, pharmacy, and allied health professionals. Valuation is based on standardizing skill mix (e.g. use of lab techs versus lab assistants) across each functional area using a median target.	$8M
W9	Shift from PT to FT nursing positions	Shifting nursing headcount to move towards more full-time staff. Valuation is based on moving from a 43/57 FT/PT ratio (current ratio, excluding casuals) to a FT/PT ratio of 55/45. Savings are based on estimated $6842 annualized savings and $2848 one time saving; the average difference in cost of employing one FT RN in place of two part-time RNs. Savings are from legislated benefit premiums, AHS' paid health and dental benefit premiums and professional dues reimbursement and wages for attending compulsory training.	$15M
W10	Optimize constant care staffing model	Improve staffing model for "patient watch" patients ensuring the right role is used to perform these duties and technology (e.g. tele-sitting) supports efficiencies. Low valuation is based on reduction in costs for using HCAs for hours of constant care currently provided by LPNs, security or protective services where appropriate. High valuation is based on assumed coverage of 10 patients for tele-sitting and consideration of ongoing operating/technology costs.	$17M-$18M

Management review

This section includes findings, recommendations and opportunities related specifically to the AHS management structure, including the number and types of positions, the number of employees a manager directly supervises and alignment of responsibilities and accountabilities.

Context

Overview

AHS defines managers as positions where:

"Work is primarily achieved through others in subordinate reporting relationships. Management jobs have direct accountability for setting direction, planning, organizing, staffing (hiring/firing), managing performance and outcomes, leading/directing and controlling work and resources. Management roles generally spend greater than 50% of their time managing the work of others and typically do not perform that same work as their subordinates."

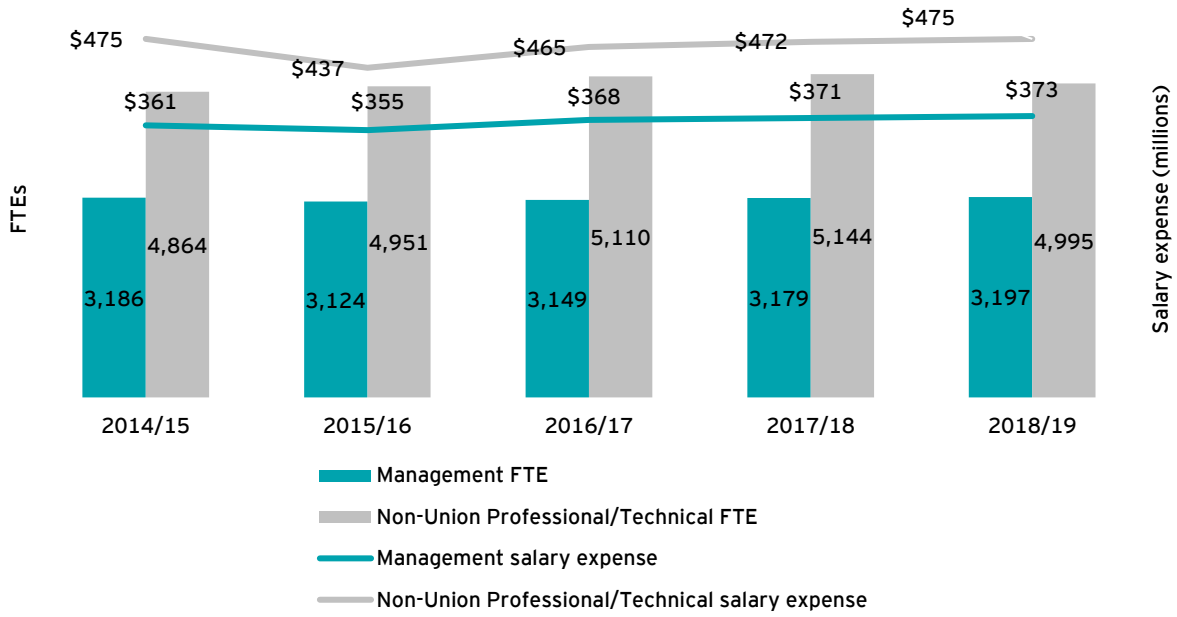
AHS has 3,296 management employees (3,197 FTE), comprising 3.2% of the total AHS workforce.[31]

In addition to management employees, there are 5,617 non-union professional/technical employees (4,995 FTE), making up 5.5% of the total workforce. These employees provide professional and administrative services to patients and those that provide direct patient care. They include positions such as legal counsel, human resource advisors and also include front-line staff such as patient navigators, nurse practitioners and high-level professionals such as researchers and scientists. While some professional/technical positions may provide supervisions (e.g. high-level professionals, charge nurses, etc.), AHS does not consider them to exercise managerial responsibility and therefore are not considered to be management.

[31] Based on percentage of total headcount.

Both the management and professional/technical workforce has remained relatively constant over time in terms of size and salary expense.

Figure 13. Management and professional/technical workforce FTEs and salary expense, 2014/15-2018/19



Source: Payroll data provided by AHS.

Another component of AHS' management structure are physician leaders. While some of these leaders are employees of AHS, the majority are not part of the traditional employment hierarchy and are contract positions. Many physicians are part of operational-medical leadership dyads, with shared decision-making. Physician leaders and the dyad model is discussed in the section on Physician Optimization.

Approach to compensation and classification

AHS' human resources team works with operational areas to document the accountabilities of non-union positions and determine position rationale, classification, and the appropriate pay grade. Each role is analyzed and measured against the AHS career framework, which assesses the position along several key dimensions. This framework has specific criteria that must be met to justify classification as a management position.

Other reviews of AHS' management structure

In addition to our analysis, we also reviewed the findings from the recently completed organization design assessment of the South zone conducted by an external firm. This assessment suggested several ways to further strengthen the organization design of the zone that are relevant to our findings, including:

- Improved alignment of accountabilities and authorities: Improving accountabilities and authorities of managers.
- Improved alignment of people to positions: The South zone review recommended a revised process for matching people to positions.
- Alignment of deliverables and tasks: The reviews suggested that AHS should look for ways to elevate the work of managers and ensure they are performing work that is appropriate for their levels and capabilities.

These reports have helped to inform our review.

Findings

Management span of control

1. AHS' percentage of management positions relative to its overall staff base is comparable to industry averages in Canada.
    - The Conference Board of Canada reports that the median management percentage for health care organizations in Canada is 3.4%. Depending the criteria used to determine the management cohort, AHS compares as follows:
        - 3.2% of AHS staff fall within the AHS management classification
        - 3.5% of AHS staff fall within the AHS management classification, or are within a different classification but have management related titles, such as manager or supervisor
        - 8.68% of AHS staff fall within the AHS definition of management or professional/technical
    - We suspect that the breadth of the professional/technical staff category and some titling inconsistencies may help explain the disconnect between these results and the AHS employee and Alberta public perception of a heavy management structure at AHS.
    - While more analysis needs to be done on determining an appropriate management cohort for proper comparison, we are comfortable that an appropriate range for comparison would be between 3.2% and 3.5%.

Our approach to assess number of direct reports

To compare across similar positions, we classified positions by:

1. Category: non-clinical, clinical, nursing
2. Position type: executives, directors, managers, supervisors

2. According to external benchmarking data, several AHS managers have fewer direct reports than managers in peer organizations.

- A series of benchmarks were compiled from comparator health and public sector organizations and serve as a useful guide for initial assessment of span of control of AHS' management.
- It is important to note that these benchmarks are only effective in identifying a cohort of management positions that should be individually assessed against AHS-developed criteria for appropriateness. In other words, this analysis tells you where to look for efficiencies, but does not provide any indication of the realizable savings.
- We compared the number of direct reports of each manager to benchmarks based on our experience working with peer hospital organizations in BC and Ontario, results from other government and public sector organizations and the Ontario Hospital Association's health human resource planning report. We used both a low and high benchmark to generate a range.
- Our assessment identified 741 positions with fewer direct reports than the low range of the benchmarks and 1269 with fewer direct reports than the high range of the benchmarks.[32]
- The table below includes the result of the benchmarking analysis, including the low and high benchmarks used for each category (i.e. non-clinical, clinical and nursing) and level of position, the number of positions with fewer direct reports than the benchmark and the percent of total positions with fewer direct reports than the benchmark.
- Again, it should be noted that these findings do not account for other factors that drive complexity of the work, which need to be assessed as part of a detailed position-by-position review.

"Directors are considered "people managers", however, there are many Directors that have less than five staff in their portfolio…Leaders that have less than twenty staff are not Directors; they are Program Managers, Managers, Team Leads."

Comment from AHS Employee Survey

"Where I work there are three units each with a unit manager. Two of these managers have at least 60 employees under them and the remaining manager has about eight. Most people seem to think that the smaller group could be easily divided and placed into the two larger groups eliminating unnecessary management positions and streamlining communication and workflow."

Comment from AHS Employee Survey

[32] The following positions were excluded from the analysis: casual positions, medical leaders, and positions on leave of absence (LOA).

Table 10. AHS span of control: comparison to external benchmarks

	Number of positions	Median number of direct reports	Low Benchmark	Number of positions with fewer direct reports	% of total positions with fewer direct reports	High Benchmark	Number of positions with fewer direct reports	% of total positions with fewer direct reports
Non-Clinical								
Executives	48	8	5	5	10.4	8	21	43.8
Directors	343	6	5	131	38.2	10	266	77.6
Managers	598	12	8	248	41.5	12	318	53.2
Supervisors	401	29	12	112	27.9	26	220	54.9
Clinical								
Executives	5	10	3	1	20.0	5	1	20.0
Directors	182	7	1	3	1.6	3	16	8.8
Managers	1008	35	8	148	14.7	12	199	19.7
Supervisors	72	34	12	14	19.4	26	28	38.9
Nursing								
Directors	17	7	1	0	0	3	2	11.8
Managers	451	57	12	75	16.6	47	192	42.6
Supervisors	7	18	25	4	57.1	65	6	85.7
Total	3132			741			1269	

Covenant Health: Analysis of Number of Direct Reports

We compared the number of direct reports of each manager at Covenant Health to the same low and high benchmarks used for AHS. We found that 35% up to 59% of management positions are not aligned with benchmarks, which is higher when compared to AHS' 24% to 41%.

Like AHS, the highest proportion of positions found to have fewer direct reports than the benchmark were in non-clinical areas including, non-clinical directors, managers and supervisors; 50% of directors, 59% of managers and 100% of supervisors were not in alignment with the low benchmark.

These findings do not account for other factors that drive complexity of the work, which need to be assessed as part of a detailed position-by-position review.

Table 11. Covenant Health span of control: comparison to external benchmarks

	Number of positions	Median number of direct reports	Low Benchmark	Number of positions with fewer direct reports	% of total positions with fewer direct reports	High Benchmark	Number of positions with fewer direct reports	% of total positions with fewer direct reports
Non-Clinical								
Executives	12	8	5	1	8	8	5	42
Director	36	5	5	18	50	10	30	83
Manager	105	5	8	62	59	12	69	66
Supervisor	4	1	12	4	100	26	4	100
Clinical								
Director	4	5	1	0	0	3	1	25
Manager	47	44	8	6	13	12	10	21
Supervisor	1	2	12	1	100	26	1	100
Nursing								
Director	2	6	1	0	0	3	0	0
Manager	112	41	12	22	20	47	70	63
Total	323			114			190	

3. There is variability in the number of direct reports for management positions at similar levels, particularly in lower-level management roles, such as supervisors and managers.

   - While the median number of direct reports for nursing managers is 57, 25% of nursing managers (approximately 113 positions) have fewer than 31 direct reports and 25% have a very high number of direct reports, more than 84.While we recognize that other factors (e.g. budget, location, specialization, and facility size) impacting the complexity of the work may explain some of the variation observed, the degree of variability warrants further investigation to ensure appropriateness.

   - The table below includes the 25th, 50th and 75th percentile number of direct reports across management positions of a similar level, as well as the interquartile range (the difference between the 75th and 25th percentiles).

Table 12. Variability in number of direct reports across similar roles, 25th, 50th and 75th percentiles and interquartile range

		Number of Direct Reports			
	Cohort Size	25th percentile	50th percentile	75th percentile	Interquartile Range[33]
Non-Clinical					
Executives	48	5	8	11	6
Directors	343	4	6	9	5
Managers	598	5	12	21	16
Supervisors	401	17	29	46	29
Clinical					
Executives	5	5	10	10	5
Directors	182	5	7	9	4
Managers	1008	17	35	53.25	36.25
Supervisors	72	22	34	51.75	29.75
Nursing					
Directors	17	5	7	8	3
Managers	451	31	57	84	53
Supervisors	7	10	18	40.5	30.5

[33] Interquartile range a measure of variability, being equal to the difference between the 75th and 25th percentiles.

Compensation and classification

4. There is a lack of standardization and consistency in the compensation and classification of management positions that leads to pay inequities and the potential for positions to be paid more than what is appropriate for the role.

   - The table below shows examples of management staff job descriptions where there is a significant degree of variation in classification. For example, Managers are classified at the M1-2, M1-1, M2-2, M2-1 and M3-1 salary grades.[34]

   - In British Columbia, position classification at the health authorities is tightly controlled by the Health Employers Association of BC (HEABC) to ensure all positions have the commensurate level of responsibilities and accountabilities and ensure standardization across the province's health authorities. All positions with the same job description are classified to a single salary grade.

"Managers know their business well and they genuinely want to be efficient with operations."

Comment from AHS Employee Survey

"Reduce the number of middle managers and empower front-line managers to make decisions and escalate to senior managers if needed."

Comment from AHS Employee Survey

Table 13. Management positions with a high degree of variability in job classification, by job description and number of positions at each salary grade

Salary Grade	M1-2	M1-1	M2-2	M2-1	M3-2	M3-1	M4-2	M4-1	M-5	Total
Executive Director						58	82	23		166
Director				92	111	217				424
Manager		145	776	834						1762
Supervisor	245	110	114							469
Lead				22						32

Legend:

<5 positions

[34] Salary grades are in order from lowest to highest pay from left to right.

Non-union professional/technical positions

5. While AHS does not consider professional/technical positions to be management and does not expect them to have direct reports, there are a number of non-union professional/technical staff that have job titles implying they should be considered as management.

   - Based on a review of AHS' employee data, we identified 287 positions with position titles that imply they should be managers or directors.

   Table 14. Example position titles: professional/technical employees with manager and director job titles

Examples of director titles	Example of manager titles
Clinical Director Program Director Director Planning Senior Project Director	Manager Strategic Clinical Network Program Manager Site Manager Provincial Manager Manager Support Services

> *"My manager does a lot of the same work I do as the Team Lead, so I wonder why she is my manager and not just a Team Lead and we all report directly to the director."*
>
> *Comment from AHS Employee Survey*

   - While we recognize the fact that AHS has allowed flexibility in titling to departments, the number of positions with management-like titles leads us to believe that there are inappropriate classifications in this category. Review and reclassification of positions would ensure these positions are held to the same expectations in terms of overseeing direct reports as their peers in the management category of staff and allow for an accurate reporting on the true size of management.

   - Additionally, there are approximately 704 team lead/supervisor positions within the professional/technical employee group. While these positions typically don't have staff who report to them, they receive a higher level pay for taking on additional supervisory responsibilities. AHS should review the effectiveness of these positions as there is often a lack of clarity within the role and perceptions that the work can be redundant with middle managers.

Administrative support

6. Most senior-level AHS management employees have dedicated administrative or executive administrative support. In other Canadian health care organizations, management and senior leaders are expected to share administrative support with at least one other position.

   - AHS has 167.6 FTE administrative support for 225.15 FTE director-level and above[35]; this means there is 1 FTE administrative staff for every 1.3 FTE director-level and above. With 49 FTE administrative support for 56.95 FTE director-level and above positions, Covenant Health has a similar ratio of 1 FTE administrative staff for every 1.16 leadership FTE.

   - AHS was unable to provide granular data regarding administrative support outside of senior corporate leadership. This leads to challenges with establishing and monitoring consistent and appropriate administrative support ratios throughout the organization.

[35] For the purposes of this analysis, director-level positions and above were considered to be those at the salary grade M4 and above.

Recommendations

Recommendation 5: Our initial analysis suggests that there may be opportunities to reduce the number of managers in some areas. AHS should review positions identified as having fewer direct reports than their peers in other organizations with the objective of identifying opportunities to consolidate portfolios and reduce management levels.

- While we recognize that number of direct reports does not capture all factors impacting complexity of work, it is a useful starting point for further review. We suggest that an in-depth assessment of positions that considers these broader factors would be appropriate. We recommend that Covenant Health also undergo this type of review process.
- Consideration should also be given as to how work can be redistributed to better support nursing managers that have very high numbers of direct reports.
- Achieving proper management levels will not only achieve financial savings but will improve organization efficiencies and realign work to better support managers that currently have too many direct reports.

Recommendation 6: AHS should review the way it classifies positions and ensure that the organization applies a rigorous and standardized approach moving forward.

- While we have removed professional/technical positions from our span of control analysis, further attention should be paid to this employee group. Professional/technical positions with management titles and management-like roles should be reclassified and subject to the same people-management requirements as other managers. Lower-level management positions should be assessed to ensure there is role clarity and distinction between their work and the work of their managers.
- Classification of positions should be consistently aligned to a smaller number of salary grades, where possible. This will improve standardization of roles across the organization and facilitate a more proactive approach to red-circling positions that are being paid at levels outside of the commensurate pay band.

Recommendation 7: AHS should look to optimize the use of administrative support by leaders.

- AHS should rapidly develop an inventory of administrative support positions and implement a process for tracking these positions on an ongoing basis.
- Senior leaders should share administrative assistants. Any optimization of administrative staff should be applied to both AHS and Covenant Health.

Opportunities

Table 15. Management review opportunities

#	Opportunity Name	Opportunity Description & Valuation Approach	Gross Valuation
MR1	Management position review and realignment	Realignment of management positions based on meeting benchmarks for number of direct reports (Covenant Health and AHS).	Unvalued
MR2	Share administrative assistants	Valuation is based on reducing the number of administrative assistants to a 2:1 or 3:1 ratio of director-level positions (M4 and above) to administrative assistants.	$6M-$9M

Physician optimization

Context

As the largest health care delivery organization in Canada, AHS has more than 8,600 physicians working in its facilities across a range of specialties. While most of the physician activity occurs on a fee for service basis and is paid by Alberta Health based on a provincial Schedule of Medical Benefits (SOMB), AHS does have a considerable operating budget for physician services within its Medical Affairs and Clinical Support Services portfolios.

The scope of this review is focused on the payments to physicians within the control of AHS. It does not comment on compensation to physicians paid directly by Alberta Health.

Table 16. AHS' medical affairs physician-related budgets

Budget category	2016-2017	2017-2018	2018-2019
Medical Leadership	40,682,115	47,325,923	50,324,858
Oncologists	63,365,820	64,705,564	68,239,623
Pathologists	41,288,465	41,571,778	18,279,791
Acute Care	157,552,549	159,513,123	156,681,400
Radiologists	154,936,436	154,936,436	160,494,202
Total	457,825,385	468,052,824	454,019,874

AHS has major physician-related budgets across the following categories:

1. Medical Leadership: Payments to physicians for non-clinical administrative services. This includes positions such as department heads and zone medical leadership positions. Many of these positions operate in "dyad" relationships, in which physician leaders are paired with operational leaders at various levels of the organization to enable joint clinical and operational accountability. These payments total approximately $60 million[36] across 996 distinct individuals.

2. Acute Care: Payments made to physicians as top-ups over and above fee for service billings, including stipends to hospitalist physicians providing general medicine services in acute care units.

3. Oncologists: Cancer physicians paid by AHS, either as salaried employees or as contractors. While most physicians are paid fee-for-service, it is a common model in Canada for oncologists to be paid an annual salary.

4. Pathologists: With the restructuring of Alberta Precision Labs, the costs associated with paying pathologists are being transferred from the AHS medical affairs budget to APL.

5. Radiologists: AHS pays radiologists directly for services completed within AHS facilities, as the Schedule of Medical Benefits does not cover these activities when performed within AHS.

[36] While most of these positions are paid from the medical affairs budget outlined in the table above, some positions are funded via other provincial or zone operational budgets.

Findings

Clinical payments

1. AHS has a large number of legacy contracts in place that provide clinical payments to physicians for services that can be billed through the Schedule of Medical Benefits.

    - The agreements were put in place to create incentives for physicians to provide specific clinical services in cases where the fee schedule was not enough to drive service delivery. For example, situations in which fee codes had not yet been created for new services, physicians were not available for under-serviced populations (rural/remote), or alternative practices were more financially favourable for physicians.

    - These programs have a net cost to AHS of approximately $76.1 million. 65% ($50 million) of that cost represents payments for services included in the Schedule of Medical Benefits.

    - Alberta Health has begun a consultation process with physicians on its plans to eliminate $50 million in supplemental payments.

2. Radiologists working at AHS are paid considerably more than in other provinces.

    - In Alberta, radiology services performed within an AHS facility are paid for by AHS, rather than Alberta Health, in part because MRIs and CT scans are not insured services in Alberta.

    - In 2014/15, the average radiologist in Alberta billed $1.4 million, versus $872,000 for the average radiologist in Ontario, representing a 59% difference.

    - Alberta pays radiologists 30% more than Ontario and 21% more than BC for X-rays, and 169% more than Ontario and 99% more than BC for ultrasounds.

    - AHS recently renegotiated its contracts with radiologists in Edmonton and Calgary, achieving 6% annual reductions in radiologist fees over 2 years (11.64% total reduction). At the time this agreement was made, AHS was in arbitration with the Alberta Medical Association over radiologist fees and this agreement represented a reasonable compromise given uncertainty over arbitration outcomes. Nonetheless, radiologists in Alberta continue to be significantly more highly paid than their peers.

    - Given the fiscal situation in Alberta and the recent MacKinnon report findings related to the high costs of physician services in Alberta, it will be important to include radiologists in any plans to further align physician payments with other provinces.

3. The amount that AHS pays physicians to interpret diagnostic tests is not consistently aligned with what Alberta Health pays for the same services outside of AHS. It is generally less costly for physicians to provide those services in AHS facilities, leading to an opportunity to standardize AHS payments at a lower rate than the Alberta Health Schedule of Medical Benefits.

   - As noted above, Alberta Health does not pay for diagnostic tests performed in AHS facilities. While the fees paid to radiologists are governed by a specific contract, AHS also pays physicians for other diagnostic tests performed within its facilities, including electroencephalograms, electrocardiograms, and pulmonary function tests.

   - The amount that AHS pays relative to Alberta Health is not standardized however, by standardizing the amount that AHS pays physicians for these services to 50% of the comparable amount paid by Alberta Health, approximately $7.5 million would be saved.

   - The lower cost is justified by the fact that by performing these services in an AHS facility, physicians are not incurring the overhead costs that would be associated with performing them in their private offices.

4. AHS does not consistently recover costs for space and other in-kind support provided to physicians operating within its facilities.

   - Across its facilities, AHS provides office and clinic space, as well as administrative support to various physicians and physician groups. In some, but not all cases, AHS does recover from the physicians some of the costs associated with providing space and other support.

   - AHS Medical Affairs is aware of 165 physicians or physician groups that are receiving space or other in-kind support. Of these:

     - AHS recovers some amount of the costs from 86, though the amount and mechanism is inconsistent.
     - 112 do not appear to have an agreement in place establishing the terms of this support.

   - There is no central repository of contracts and it is likely that the 165 physicians/physician groups that medical affairs is aware of is only a small subset of the total number of physicians receiving space or other in-kind support.

Medical leaders' payments

5. AHS' dyad-based medical leadership model aligns with practices in peer organizations, however there are many 'deputy'-level positions that are aligned with lower levels of operational management and are not explicitly required by the medical bylaws.

   - AHS has a dyad-based model of medical leadership, in which physician leaders are paired with operational leaders at various levels of the organization to enable joint clinical and operational accountability.

   - AHS' medical staff bylaws describe the specific medical leadership positions that AHS requires to have in place, at the provincial, zone, regional, and site levels.

- A review of the medical bylaws from the Fraser Health Authority in BC, Canada's second largest health authority after AHS, indicated that both organizations have substantially similar models.
- 45 positions, representing $2.5 million in annual spending, are at the 'deputy' level, which is not a formally required leadership position within the AHS medical staff bylaws.

6. Approximately 359 positions exist that are not explicitly required by the medical bylaws and should be assessed for rationalization or removal, while keeping in mind the critical role that integrated medical leadership plays in delivering quality care and executing on difficult transformational change.
   - Payments to these positions total approximately $17 million.
   - These include various administrative and consultative positions, including various knowledge leads, quality and safety positions, and champions.
   - Many of these positions may be delivering value and should be continued, but there is an opportunity to review and rationalize them while considering any potential impacts to patient care.
   - A number of these positions also appear to be related to the connect care project and may be temporary in nature.
7. 189 leadership positions are paid to work less than 0.1 FTE (less than four hours per week), which may not enable efficient use of leader's time or delivery of value.
   - Payments to these positions total approximately $2.5 million.
   - These include various positions, including community medical coordinators, physician scheduler, and co-deputy facility section head.
8. AHS pays for increases in salaries to physicians in academic positions, despite being under a salary freeze.
   - 378 faculty positions at the University of Calgary and the University of Alberta are cost-shared between AHS and the respective institutions.
   - These costs grown annually due to salary increases negotiated by the universities, even though AHS' non-union staff have been under salary freeze for several years.

Recommendations

Recommendation 8: Stop paying clinical stipends for services covered by the Alberta Health Schedule of Medical Benefits.

- AHS should not be paying physicians for services for which the physicians are already receiving payment from Alberta Health.
- Alberta Health and AHS have already begun consulting with the Alberta Medical Association on the removal of these payments.

Recommendation 9: In alignment with Alberta Health physician compensation negotiations and budget management initiatives, AHS should address radiology compensation and contracts.

- Given the significant amount that AHS continues to over pay to radiologists relative to other provinces, radiologists should not be exempt from overall management of physician budget growth that Alberta Health is addressing through consultations and negotiations with the broader physician community.
- AHS should seek to achieve further reductions in compensation from this specialty through re-opened contract negotiations or other means as allowed for in current contract.

Recommendation 10: Develop a consistent framework for paying physician interpretation fees by aligning payments to 50% of the Schedule of Medical Benefits rate as proposed by AHS.

- AHS has already identified this as a potential savings opportunity. The organization should move quickly to implement these standard rates across the province and achieve the identified savings.

Recommendation 11: Develop and implement a consistent framework for recovering physician overhead costs.

- Conduct a detailed inventory across all AHS facilities to gather a complete picture of all space and other in-kind support being provided to physicians.
- Based on market-rates and the actual cost of providing the in-kind supports, develop a standard framework for recovering overhead costs from physicians receiving space and other support from AHS.
- Enter into standardized contracts, stored and managed centrally within AHS.
- This recommendation may be phased over time as contracts expire and should be considered as part of a balanced plan to address compensation of physicians at AHS.

Recommendation 12: Review 'deputy'-level medical leadership positions, other positions not required by the medical staff bylaws, and positions with less than 0.1 FTE of effort.

- While some deputy positions may be required in particularly large programs or across large geographic zones, these positions should be assessed to understand if they are duplicative or unnecessary.
- Physician leadership is critical to a well-functioning health care services provider; however, some medical leadership positions appear to have been created inconsistently and ad-hoc over time. A comprehensive review of these positions should be conducted to assess their value.
- It can be difficult to deliver consistent value in small blocks of leadership time. Roles allocated less than 4 hours a week of effort should be reviewed to understand the actual workload and value being delivered and assessed for removal or rationalization/consolidation.

Recommendation 13: AHS and AH should work with government and academic institutions with the aim of reducing or eliminating increases in academic salaries, in alignment with AHS and broader government salary freezes.

- Stopping payment of planned freezes would result in approximately $5.9 million in cost avoidance over three years.
- AHS has identified a freeze as a potential savings opportunity. In addition to this, AHS should conduct a broader review of academic spending, given the current fiscal situation.

Opportunities

Table 17. Summary of physician optimization opportunities

#	Opportunity Name	Opportunity Description & Valuation Approach	Gross Valuation
PO1	Physician clinical contracts review	Reduce/remove supplementary payments for clinical services. Savings amount represents the payments made to physicians for service covered by the Schedule of Medical Benefits.	$50M
PO2	Interpretation fees reduction	Rationalize and standardize fees paid by AHS for non-invasive diagnostics tests. Savings amount is based on standardizing diagnostic interpretation fees to 50% of the amount paid by the Schedule of Medical Benefits	$8M
PO3	Medical leaders' stipends and payments review	Review positions not specifically required by the medical bylaws. Savings amount represents full payments to all positions which would be reviewed.	$17M
PO4	Academic funding review	Work with stakeholders to reduce or eliminate increases to academic position salaries and benefits. Savings amount is based on avoiding an annual 3.5% increase over three years.	$5M
PO5	Physician overhead costs recovery	Recover the cost of space and other overhead from physicians using AHS facilities. Savings amount is based on an AHS estimate of potential recoveries	$2M
PO6	Radiologist fee reductions	Further reduce AHS' radiologist billings to bring them in line with other Canadian provincial peers. Savings amount is based on AHS' estimate of difference between radiologist fees in Alberta and Ontario.	$42M

Improvement Theme: Clinical services

Clinical utilization

Context

Clinical Utilization focuses on the efficient and appropriate use of services, procedures and resources. The scope of this workstream includes clinical services provided across AHS' continuum of care, including acute hospital care (inpatient, critical care, surgical and ambulatory), post-acute, long-term care, as well as community-based and home care services. Within these services there are specialized areas, including for example, cancer, addictions and mental health, cardiovascular, kidney, and seniors care. Utilization of clinical supports including, labs, diagnostics imaging, and pharmacy are included in the section on Clinical Support Services.

The intent of this Review was not to conduct a detailed clinical review of each subspecialty, but rather to assess utilization across the system and identify where there are opportunities to optimize use of high-cost clinical resources. The improvements identified in this workstream are primarily focused on adjusting the resources and costs associated with beds and operating rooms across AHS. However, it should be noted that the findings and opportunities in this section are closely connected with those in the following section on Service Configuration, as the appropriate organization and deployment of services will support improved utilization across AHS.

Overview of AHS' clinical activity

Clinical care services are a major component of AHS' budget, with acute care representing the largest proportion at 32.9% of total AHS expenses. Over the past few years, AHS has made strategic efforts to curb acute care spending through shifting care to the community and has made investments in upstream services including community, home and continuing care. Care in the community has been supported by a 22% increase in spending since 2014/15 (now comprising 21.3% of clinical care services expenses); while acute care spending also increased by 5% over this same time, acute care spending as a proportion of overall expenditures has decreased.[37]

When assessing different types of AHS clinical activity, the number of home care clients, cancer visits and mental health discharges has seen significant growth over the three-year period between 2016/17 and 2018/19. Within the acute care setting, ED visits and inpatient activity remained relatively flat, except for births and urgent care volumes that decreased and increased respectively, by approximately 5%. The table below provides an overview of AHS' clinical activity.

[37] AHS Annual Report 2018-19.

Table 18. Overview of AHS' clinical activity

Clinical Activity	2016/17	2017/18	2018/19	3-Year Growth Rate
Primary Care/ Population Heath				
Ambulatory Care Visits	6,569,162	6,638,806	n/a	n/a
Number of Unique/Individual Home Care Clients	119,749	121,929	127,214	6.23% ▲
Number of People Place in Continuing Care	7,963	7,927	8,098	1.70% ▲
Acute Care				
ED Visits	2,079,688	2,101,629	2,055,864	-1.15% ▼
Urgent Care Visits	187,519	198,108	197,169	5.15% ▲
Hospital Discharges	403,958	400,909	401,179	-0.69% ▼
Births	53,647	51,692	50,793	-5.32% ▼
Total Hospital Days	2,837,865	2,862,324	2,852,480	0.51% ▲
Main Operating Room Activity	291,352	293,516	293,979	0.90% ▲
Cancer				
Cancer Patient Visits	641,856	639,449	668,817	4.20% ▲
Unique Cancer Patients	57,549	58,409	59,249	2.95% ▲
Addictions & Mental Health				
Mental Health Hospital Discharges	24,183	24,471	26,106	7.95% ▲
Addiction Residential Treatment & Detoxification Admissions	10,591	11,009	10,604	0.12% ▲

Source: AHS Annual Report 2018/19

Overview of AHS' clinical resources

AHS has 38,890 beds across acute care, continuing care and mental health. The acute care bed base has remained relatively stable, with AHS focused on increasing supports in the community. Last year, AHS opened 1,267 new continuing care beds bringing the total increase in continuing care beds to 7,463 since AHS was formed in 2009/10.

Table 19. AHS' beds by category and zone

Bed Category	South	Calgary	Central	Edmonton	North	Provincial
Acute Care (includes ICU, NICU, psychiatric sub acute and palliative in acute)	645	2,791	1,098	3,020	929	8,483
Continuing Care – Long Term Care	968	5,947	2,364	5,085	1,233	15,597
Continuing Care – Designated Supportive Living (DSL3, DSL4, Dementia)	1,892	2,865	1,897	3,677	986	11,317
Continuing Care - Community Palliative and Hospice	20	121	10	85	13	249
Continuing Care – Sub- acute in Auxiliary Hospitals	24	280	0	168	0	472
Addictions and Mental Health	124	913	427	1,185	123	2,722
Total	**3,673**	**12,917**	**5,796**	**13,220**	**3,284**	**38,890**

Source: AHS Annual Report 2018/19

For the purposes of this report, surgical services encompass main operating rooms and associated processes and flow. Across AHS, there are 252 working operating rooms (ORs) across 55 facilities with overall utilization reported at more than 90%[38]. For low risk, AHS has 51 contracts in place across 42 facilities to undertake additional surgical activity on its behalf. These non-hospital surgical facilities are covered in further detail within the clinical configuration workstream.

Table 20. Total OR procedures by zone, 2018/19

Zone	2018/19 Procedures
Edmonton	114,866
Calgary	102,108
Central	29,573
North	25,590
South	21,842
Total	**293,979**

Overview of select AHS clinical utilization performance indicators

Within Canada, AHS is the first and largest provincially integrated health system. Except for primary care, AHS has accountability and control across the provincial system, which is a key advantage compared to other Canadian provinces which are more fragmented in nature along the continuum of care. However, AHS lags comparators in key clinical utilization indicators signalling that there is more work to do to leverage its integrated system to fully realize improvements in clinical utilization.

Table 21. Clinical performance indicators

CIHI Statistics (2017/18)	Alberta	Ontario	British Columbia	Canada
Average Inpatient Length of Stay (age standardized, days)	7.7	6.2	7	6.8
Inpatient Hospitalization Rates (age standardized, per 100,000)	8,488	7,296	7,678	7,944
Alternate Level of Care (ALC) Rate	18.4%	14.6%	13.0%	15.6%
High Users of Hospital Beds[39]	4.8%	4.2%	4.8%	4.5%
Total Time Spent in ED for admitted patients (90% spent less, hours)	30.6	32.8	39	33.1
Frequent Emergency Room Visits for Help with Mental Health and/or Addictions (% with more than 4 visits /year)	10.3%	9.5%	8.4%	9.4%
Repeat Stays for Mental Illness	10.2%	12.7%	13.1%	12.1%
All Patients Readmission Rate	9.0%	9.2%	9.7%	9.1%
Joint Replacement Wait Times (% within 6 months)	68.0%	81.0%	62.0%	72.0%
Ambulatory Care Sensitive Conditions (per 100,000)	338	314	294	321
Hospital Stay Extended Until Home Care Services or Supports Ready (median, days)	11	7	7	7

Source: CIHI Quick Stats; CIHI Your Health System 2017/18

[38] https://www.albertahealthservices.ca/assets/about/scn/ahs-scn-surg-roadmap.pdf
[39] High users of hospital beds refers to the risk-adjusted rate of patients who had 3 or more inpatient acute care hospitalizations with a cumulative LOS > 30 days

AHS' clinical utilization strategies

Enhancing Care in the Community

AHS has strategically focused on its *Enhancing Care in the Community* strategy with the goal of providing appropriate community, long term care and home care through a variety of initiatives. While not exhaustive, below are some examples of current AHS initiatives:

- Emergency medical services programs, such as Community Response Teams that assess, treat and refer patients to provide safe medical treatment in the community and prevent hospital admissions.
- The Virtual Hospital Project in Edmonton delivers acute, specialized and integrated care in the home or community for patients with chronic or complex diseases.
- The Complex Care Hub at Rockyview General Hospital in Calgary connects complex patients to a multidisciplinary care team, with patients receiving daily care and monitoring in home, or in an outpatient unit.

Improving patient flow

In addition, AHS has implemented several initiatives with the aim of improving patient flow throughout the health care system, to facilitate timely and safe discharges, optimize length of stay and support quality patient outcomes. Some examples of initiatives underway across AHS include:

- The CoACT program that helps patients, families and care providers communicate and work together, including standard processes across patient intake, daily management and discharges through its Collaborative Care framework. The program is currently implemented across 205 units and 45 sites. CoACT discharge planning processes include the creation of discharge plans upon admission, an anticipated date of discharge for each patient, complex discharge rounds with community and transition case managers.
- Implementation of a home assessment policy in the Edmonton Zone where patients are returned home prior to assessment for continuing care placement. This reduces the length of stay in hospital and provides time for condition and functional improvements that could avoid or delay further placement.
- Development of patient pathways, including the Enhancing Recovery after Surgery pathway that has succeeded in reducing variability, length of stay and improved quality for elective surgery patients.

The Alberta Surgical Initiative

According to AHS, there are approximately 70,000 people in Alberta waiting for surgery. Of these patients waiting for surgery, 50% were deemed to be waiting longer than clinically appropriate. There is no overarching provincial program or entity that manages surgical activity or utilization across AHS. Efforts have been made to implement some elements of standardized wait times reporting, centralize intake and referral for hip and knees, and transition low acuity, day surgeries to non- hospital surgical facilities. AHS and AH have proposed a large-scale business case to improve access to surgical services, as well as the coordination and management of activity province wide. This business case, with $669M of required investments, has a goal of reducing wait times so that surgeries are provided within 4 months from the time the patient is ready for treatment. The cost of this initiative is expected to be absorbed with AHS' current budget.

Findings

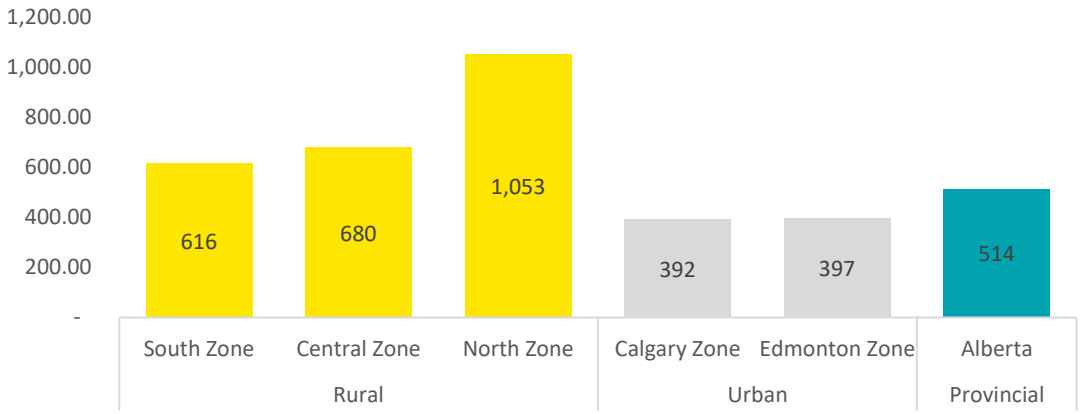
Acute care

Emergency department (ED) utilization

1. ED (including urgent care) utilization is higher in Alberta than other provinces with especially high rates in the North, South and Central zones.

   - Alberta has an average of 514 ED/urgent care visits per 1,000 population compared to 445 in Ontario and 452 in Quebec.[40]
   - The average number of ED and urgent care visits per 1,000 population is twice as high in the South, Central and North zones when compared to the Calgary and Edmonton zones.[41]
   - The North zone has on average more than one visit per person per year.

Figure 14. Number of ED visits per 1,000 people by zone



Source: AHS 2018-2019 Annual Report and forecasted population by zone. Includes both ED visits and urgent care visits.

[40] CIHI, *NACRS Emergency Department Visits and Length of Stay*, 2018-2019.
[41] AHS 2018-2019 Annual Report.

2. ED visits in the North, South and Central zones are typically lower acuity levels compared to those in Calgary and Edmonton, suggesting that some of these patients are visiting the ED in place of more appropriate care settings.

   - The South, Central and North Zones have an average 59% of visits associated with lower acuity levels (CTAS[42] 4, 5) compared to 29% for the Calgary and Edmonton Zones.
   - While the percentage of ED/urgent care visits for Family Practice Sensitive Conditions (FPSCs)[43] has decreased by 7.4% over the past ten years, 20% of ED/urgent care visits are still related to FPSCs with particularly high rates seen in the North Zone (32%).
   - This suggests that access to lower-levels of care (e.g. urgent care centres, primary care physicians) is a challenge particularly in the more rural, North, South and Central zones.

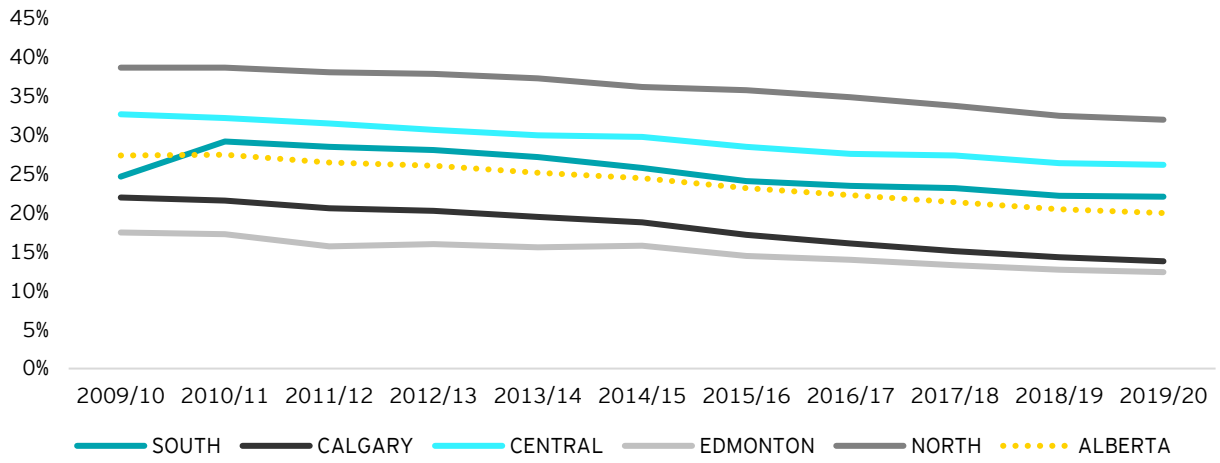
> *"Emergency Departments should be encouraged to dismiss non-emergent conditions back to the GP without fear of "missing something" or the person "being lost in the system."*
>
> *Comment from AHS Employee Survey*

Table 22. ED visits by CTAS level, by zone

CTAS Level	South Zone	Central Zone	North Zone	Rural	Calgary Zone	Edmonton Zone	Urban
CTAS 1, 2, 3	46%	43%	37%	**41%**	72%	70%	**71%**
CTAS 4, 5	54%	57%	63%	**59%**	28%	30%	**29%**

Source: AHS NACRS data and forecasted population, 2018/19. Excludes urgent care visits.

Figure 15. Percentage of visits to ED/urgent care for family practice sensitive conditions



[42] CTAS stands for the Canadian Triage and Acuity Scale triages patients based on severity and urgency. On a scale of 1-5 (1 is resuscitation, 2 is emergent, 3 is urgent, 4 is less urgent and 4 is non-urgent) typically scores of 1-3 are deemed to be high acuity where scores of 4-5 are low acuity.

[43] Family Practice Sensitive Conditions are specific conditions that could be appropriately cared for in a family physician's office.

Inpatient admissions

3. Alberta has a higher rate of hospitalizations when compared to other provinces[44]. There are particularly high rates in the more rural, North, South and Central zones where the rate is 41% higher than in Calgary and Edmonton zones.

   - This suggests that there is a lack of consistency in terms of how patient pathways[45] are managed across AHS.

Table 23. Age-standardized inpatient hospitalization rate per 100,000 population, 2017/18

	Rural (North, Central, South)	Urban (Calgary and Edmonton)	Alberta	Rural to Urban Zone Comparison
Inpatient Hospitalization Rate per 100,000	10,343	7,312	8,212	41% ▲

Source: CIHI

4. While the rate of hospitalization for Ambulatory Care Sensitive Conditions (ACSC)[46] has been reduced, Alberta admits 338 patients for ACSC per 100,000 which is above the Canadian average of 321 ACSC admissions per 100,000.

   - High rates in the Central, North and South zones highlight the continued challenges in providing access to primary care, coordinated disease management and support for patients to self-manage their own conditions.

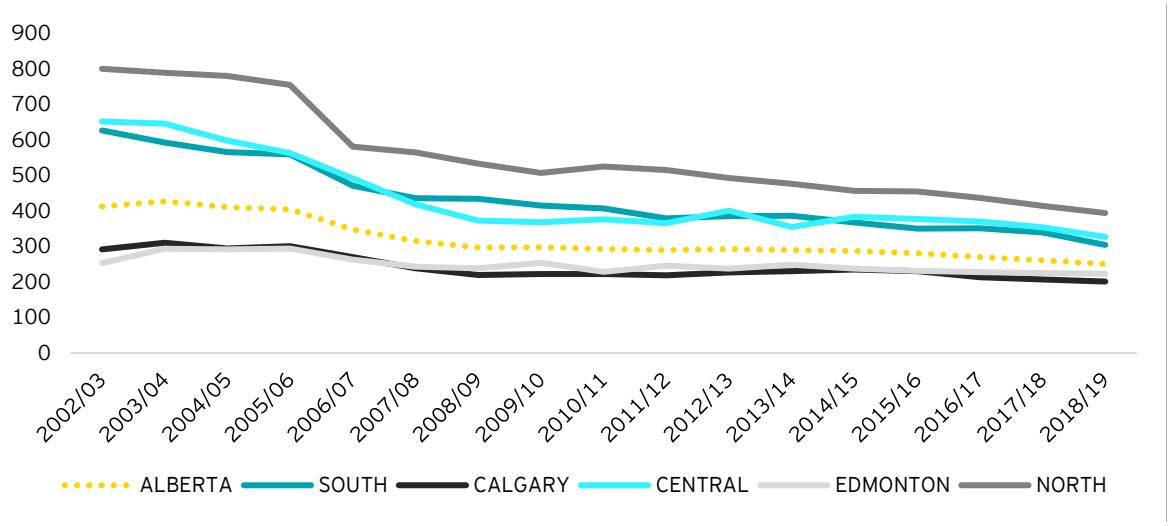
   - It should be noted that AHS has made appreciable efforts to improve care coordination between acute, primary and community providers through the implementation of integrated clinical pathways with the goal of reducing hospital use and avoiding admissions where possible.

[44] CIHI Quick Stats: CIHI Quick Stats: Inpatient Hospitalizations: Volumes, Length of Stay and Standardized Rates, 2017/18

[45] Patient pathways are the route or path a patient will take if they are referred for treatment from the first contact with the health system to the completion of their treatment, including the period the patient is in a hospital or treatment centre, right up until they leave.

[46] ACSC refers to 7 conditions that have are more appropriately managed in ambulatory or community settings as opposed to high cost, acute care. These conditions include: angina, asthma, chronic obstructive pulmonary disease (COPD), diabetes, epilepsy, heart failure and pulmonary edema, and hypertension.

Figure 16. ACSC Age standardized hospitalization rate per 100,000 by zone



5. A review of AHS' top 100 diagnoses admitted through the ED identified 15 specific diagnoses where patients could have been more appropriately managed in an ambulatory setting as per NHS Ambulatory Emergency Care (AEC)[47] guidelines.

   - Ambulatory Emergency Care is predicated on the notion that a significant proportion of adults requiring emergency care can be safely managed on the same day without hospital admission, or through a shortened length of stay. When successfully implemented, AEC becomes the norm for patient care unless otherwise clinically indicated. While originally focused on medical cases, these pathways have expanded across other subspecialties including trauma and orthopedics, general surgery, urology, and obstetrics and gynaecology.

   - The table below outlines the 15 diagnoses flagged for further review based on these guidelines, including the percentage of cases currently seen in ambulatory settings compared to the targeted NHS Ambulatory Emergency Care (AEC) guidelines.

   - During our consultation with operational leads, we were informed of examples in AHS where AEC-like pathways are being implemented. For example, in the Calgary zone, enhanced transitional services were created for specific interventions with a community support team consisting of 24/7 Nurse Practitioners to prevent admissions into the hospital setting. This is an example of leading practice that should be scaled-up across AHS.

[47] Ambulatory Emergency Care Network, *Directory of Ambulatory Emergency Care for Adults*, NHS Elect, 2018

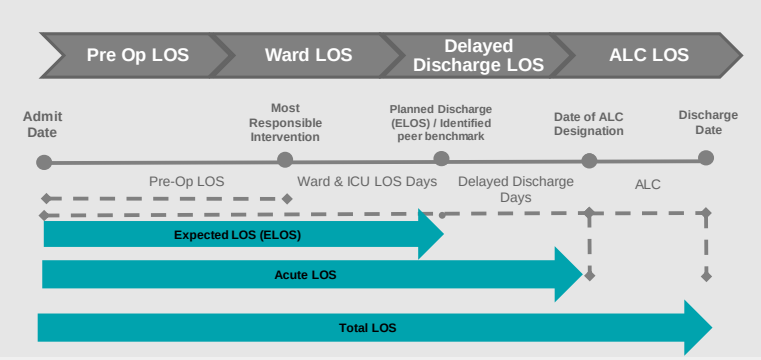
Table 24. AHS' ED diagnoses below NHS admission avoidance guidelines for AEC

ICD-10 Diagnosis Code	% Admission Avoided (AHS)	Targeted (NHS Guideline)[48]
N390 - Urinary Tract Infections	83%	90%
R55 - Syncope and Collapse	88%	90%
L031 - Cellulitis of Limb	82%	90%
R060 – Dyspnoea	83%	90%
I500 - Congestive Heart Failure	30%	60%
M796 – Pain in Lower Limb	97%	100%
K358 – Unspecified Acute Appendicitis	7%	60%
R5688 – First Seizure	78%	90%
K566 – Acute Abdominal Pain Not Requiring operative intervention	16%	60%
K8050 – Abnormal Liver Function	69%	90%
I269 – Pulmonary Embolism	53%	90%
G459 - Transient Ischaemic Attack	80%	90%
G4090 – Seizure in Known Epileptic	84%	90%
O039 – Early Pregnancy Bleeding	96%	100%
I802 - Deep Vein Thrombosis	92%	100%

[48] Target is based on top NHS Guideline performance per ICD-10 diagnosis code.

Understanding Length of Stay (LOS)

Length of stay (LOS) is an important indicator to help measure hospital efficiency. Reducing LOS improves hospital throughput, patient flow and care for patients in home and community settings. Reductions in length of stay will reduce the risk of hospital-acquired infections and the potential for in-hospital functional decline. However, patients whose stay is too short may end up being readmitted for additional care.



Key Terms:

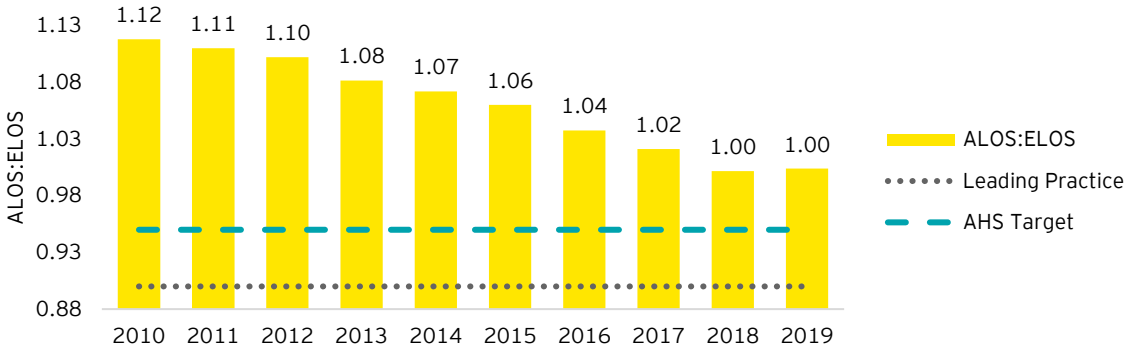
- **Pre-Op LOS:** The date from admission to the most responsible procedure.
- **Acute LOS**: The number of days a patient is receiving treatment required in the current care setting. Delays in this category are often referred to as a **delayed discharge**.
- **Alternative Level of Care (ALC) LOS:** The number of days associated with a patient occupying a bed with a resource intensity or services that are no longer required.
- **Total LOS:** The number of days between admission and discharge, including acute and ALC days.
- **Expected LOS (ELOS)**: Estimate of a patient's LOS based on similar clinical groups, age, comorbidities and other intervention factors. Estimates are provided by CIHI and based on national comparisons.
- **ALOS:ELOS Ratio:** For typical patients, the average number of acute days in hospital compared to expected length of stay. A ratio less than one indicates overall efficiency in LOS.
- **Designated Supported Living (DSL):** includes comprehensive services including nursing care for Albertans living in lodges, retirement homes and living centres. There are different levels of DSL including level 3 and 4 for patients requiring 24-hour nursing care and level 4- Dementia DSL for clients living with severe dementia or cognitive impairment.
- **Long Term Care (LTC):** is provided in nursing homes and auxiliary hospitals for patients with unstable, chronic and complex health needs. Health and personal care is provided 24/7 by allied health, RNs or LPNs.
- **Home Care:** provides health and personal care supports for clients to support independent living in their own homes. Depending on patient need, the care team may include a nurse, social worker, occupational therapist, physiotherapist and other professional services.

Inpatient bed utilization and management

6. AHS has improved length of stay (LOS) performance over time which is now in line with expected LOS; however, performance falls short of the AHS target and leading practices with patients in some services staying a greater number of days than expected for their condition.

- Figure 17 below shows a comparison of AHS' ALOS to ELOS performance over the past ten years, compared to the AHS internal target of 0.95 as well as a target of 0.90, which is the target set by leading health care organizations in Ontario.[49] Aligning AHS to a target of 0.90 would result in releasing 786 beds of capacity.

Figure 17. Typical patient ALOS:ELOS performance trend



Source: CIHI, Discharge Abstract Database (DAD).

- Medical patients are the largest cohort of patients representing almost half of typical patient days within the system and therefore, make sense to target for improvements as they will have the greatest impact on AHS' performance. Currently, significant site variability exists with specific sites being very challenged in effectively managing medical patients. For example, medical patients in Red Deer Regional Hospital (Central zone) and Medicine Hat Regional Hospital (South zone) are staying 20% and 13% longer than the ELOS respectively.

- Table 25 below shows the ALOS:ELOS performance by zone and program.

Table 25. ALOS:ELOS by zone and program

ALOS:ELOS	Medicine	Surgery	Mental Health	Maternity	Pediatric	Newborn	Total
South	1.08	0.86	1.28	1.01	0.87	1.08	1.05
Calgary	1.00	0.95	1.23	0.92	1.01	0.96	1.00
Central	1.12	0.88	1.14	0.94	0.96	1.00	1.06
Edmonton	1.00	0.99	0.95	0.93	1.07	0.94	0.98
North	1.01	0.89	1.31	0.95	0.82	0.91	0.98
Total	**1.02**	**0.96**	**1.13**	**0.94**	**1.00**	**0.96**	**1.00**

[49] Ontario performs significantly better than the rest of Canada in LOS and therefore compares against its own higher performing population data to calculate ELOS that is lower than CIHI (CIHI considers a target of 1.0). This is calculated through the HBAM Inpatient Grouper (HIG) methodology as opposed to CIHI's Case Mix Grouper (CMG).

7. Mental health patients experience on average a 13% longer than expected length of stay across the province.

   - We heard from operational leaders that particularly in rural zones, improving mental health LOS is hampered by a lack of community supports and resources available for patients outside of hospital.
   - The creation of complex community care centres such as Ambrose Place in Edmonton have supported more timely discharge of patients with mental health and complex needs.
   - In the Edmonton zone, a 24/7 access program for mental health and addictions has resulted in less emergency room and acute care utilization, while also improving the wait times for these critical patient services.

8. On average, AHS' elective surgical patients spend 6.3 hours in an inpatient bed before receiving surgery.

   - Leading practice seen in other jurisdictions shows that effective management of elective surgical pathways can eliminate pre-operative length of stay days.
   - Given that most patients proceed straight to surgery, these numbers seem to indicate that a proportion of patients spent several days in hospital prior to elective surgery.

9. Alberta has higher Alternative Level of Care (ALC) rates when compared with other provinces meaning that there are many patients being cared for in a higher-level care setting than what is clinically required. Although AHS has demonstrated recent improvements, ALC rates have continued to climb over the past 10 years.

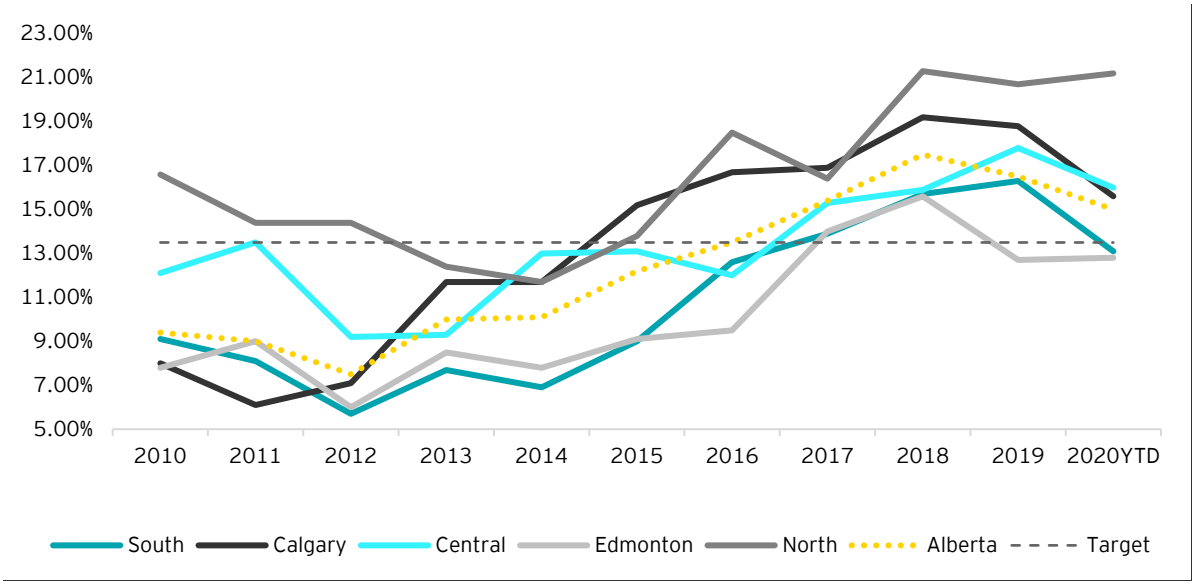
   - AHS had an ALC rate of 16.5% in 2018/19 compared to a target of 13.5% with variability across the zones. The Calgary and North zone have the highest ALC rates at18.8% and 20.7% respectively.
   - An estimated 1,478 bed equivalents are being occupied by ALC patients across the province. Achieving a 13.5% target would release approximately 315 beds.
   - The table below outlines the number of beds, on average, occupied by ALC patients by zone in 2018/19.

   Table 26. Average number of ALC beds by zone

South Zone	Calgary Zone	Central Zone	Edmonton Zone	North Zone	Alberta
98	554	162	511	153	**1,478**

   - The programs with the highest ALC rates are Family Medicine, Geriatrics, and Neurology at 31%, 19% and 18% respectively.

Figure 18. AHS ALC rate by zone, 2010-2020YTD



- We understand from operational leaders and the Clinical Operational Executive Committee, that sites attempt to cohort ALC patients waiting for LTC, DSL or home supports together so that unit staffing models can be adjusted to better align with patient needs. While the practice is appropriate and results in the use of more cost-effective staffing models for these patient groups, it is a temporary strategy as the root causes of ALC need to be addressed.

- Different zones have taken varied approaches to improve ALC rate by providing specialized services in community settings. For example, Calgary and Edmonton zones have created ALC units in the community by leveraging underutilized LTC beds.

10. As part of this review, we conducted a patient appropriateness study at Foothills Medical Centre (FMC) that identified a larger ALC count than was reflected in AHS' data.

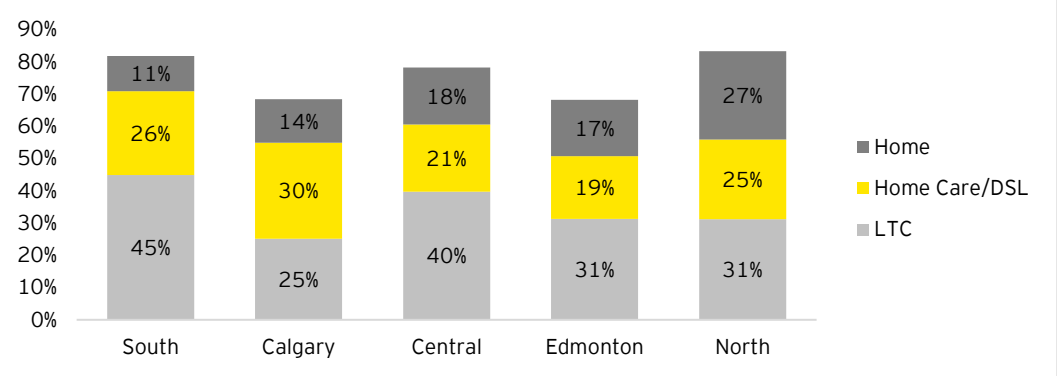
    - Refer to "Beyond ALC: Assessing Patient Appropriateness" featured later in this section, for the results of this study.

11. While many ALC patients waited for Long Term Care (LTC), Designated Supported Living (DSL) and home care supports, a significant proportion of patients could have been sent directly home from hospital.

    - This can be attributed to several factors including a potential mismatch between supply and demand of continuing care or community services or a lack of standardization or adherence to patient flow and escalation protocols.

        - It is important to note that AHS does not have control over the capital program for construction of continuing care spaces.

Figure 19. ALC patients waiting for discharge home, home care/DSL or LTC[50]



12. AHS has several clinical pathways, patient flow and LOS initiatives underway however, many initiatives are zone specific and the uptake and implementation of provincial initiatives varies.

- While tailoring initiatives within the local context can make sense, we have heard that this has also created large differences across various sites in terms of care delivery processes, strategies and resource deployment.
- Where provincial initiatives are deployed, it was acknowledged that implementation, uptake and sustainability vary greatly across sites and zones. Challenges lie with implementing initiatives across highly variable structures and processes.

"We should improve how we communicate between different zones within AHS in how they are delivering services, adapting from a program that has shown efficiency and better delivery of care"

Comment from AHS Employee Survey

[50] Note that ALC waiting for discharge into Home Care includes patients waiting for DSL. According to AHS data, patients waiting in this category are typically waiting for DSL.

Beyond ALC: Assessing Patient Appropriateness

Foothills Medical Centre (FMC)

What is the challenge

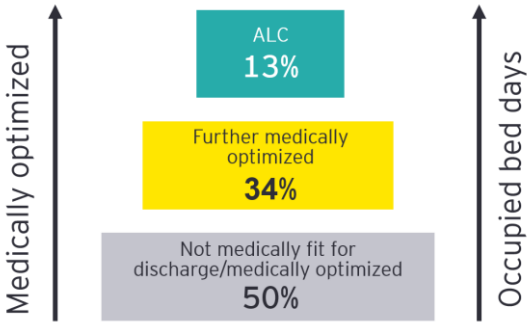
Improvement programs and KPIs need to go beyond ALC to tackle a larger cohort of delays for patients who are either medically fit for discharge or could be medically optimized and cared for in a more appropriate setting. Our experience shows that to truly address the root causes of patient flow challenges, organizations need granular clinical process data to identify the full range of improvements that exist both inside and outside a hospital. With this in mind, a detailed patient appropriateness review was conducted at FMC. Although FMC is one of many hospitals within AHS, we believe insights from this review can be translated across the system.

Using the MCAP tool

EY partnered with *vitalhub*, who applied their **The Making Care Appropriate for Patients (MCAP)** tool to assess 341 patients in October 2019. MCAP is an evidence-based tool that determines the medical necessity for patients to receive given level of care. Patients were assessed three times over their care journey to answer the following questions:

1. Is the patient at the appropriate level of care *(qualified)* to meet their care need?
2. If the patient is not at the correct level *(non-qualified),* what is the appropriate level of care?
3. What is the reason that the patient is not at the appropriate level of care?

Figure 20. Typical profile of qualified vs. unqualified patients



What we found

Medical Inpatients: The majority of patients reviewed, 297, were medical. These patients were often over the age of 60, admitted via the ER from a home setting and had co-occurring conditions. Only 4% of these admitted patients were deemed non-qualified for a hospital setting, while **one third of the patient's stay post admission could have been provided at an alternative level of care**. These non-qualified care days were associated facility and system-wide with discharge planning issues and almost half could have been provided at home with service support. In fact, **18% of patients were able to go straight home**.

Psychiatric Inpatients: Of the 44 psychiatric patients reviewed, the majority were under the age of 30 and admitted via the ER from a home-based setting. **All but one of these admitted patients were qualified for a hospital**. However, the review revealed that almost one quarter of the patients' stays post admission were non-qualified. **Almost half of these days were related to discharge planning issues**, and 33% were related to challenges placing patients in an alternate care setting. Most patients (77%) could have been discharged home with support services.

Discharge Planning: Findings identified areas for improvement in the discharge planning process at FMC. **Only one third of the patients reviewed had a discharge plan** created on or after admission. Psychiatric patients generally did not have discharge planning information included in their chart. Conditional discharge orders were present for 7% of medical patients, and absent for all psychiatric patients. Of reviewed charts, 77% of acute medical and only 14% of acute psychiatric patients had an anticipated date of discharge.

What does this mean for AHS

The MCAP builds on our findings to address ALC rates by identifying a larger patient cohort of **33% that could be medically optimized** than when compared with FMC's 18.8% ALC rate. AHS can leverage findings from the MCAP tool to set out a purposeful action plan that improves flow and allows patients to be cared for in the most appropriate setting.

13. On average, critical care patients wait 29 hours after the discharge decision was made before being sent to the ward or home.

- Across the 16 sites that capture ICU discharge/transfer delay data, Medicine Hat (92 hours in CCU and 63 hours in ICU) had the longest delay followed by Red Deer Regional Hospital Centre (86 hours in ICU and 51 hours in CCU) and Peter Lougheed Centre (69 hours in CCU and 52 hours in ICU).
- This delay equates to 85 bed equivalents out of 285 adult ICU beds. Reducing this delay would allow for the more efficient use of one of the systems most costly resources; nursing costs alone represent over $1,000 per ICU bed day.

"A lot of the time people will be sitting in the ICU ready for transfer for multiple days or even weeks but there will be no beds available on general wards or in the community. This creates a huge back up of patients in the ICU, it's expensive for patients to take up an ICU bed."

Comment from AHS Employee Survey

- Supported by the Critical Care Strategic Clinical Network, there has been demonstrated improvements in transfer delays between ICU and ward: delays have reduced from 34 hours in 2017/18 to 29 hours in 2018/19.

Surgical services

14. Across AHS, surgical services are locally owned and managed at a site level. Individual physicians have significant control over operating room (OR) scheduling, leading to variations in operational management.

- ORs are allocated to physicians in the form of OR timeslots, called "slates", which are in most zones, based on historical trends rather than actual utilization or changes in demand. While this practice is not unique to AHS, it creates significant challenges in OR resource management.
- In larger zones such as Calgary and Edmonton, they are developing new policies to regulate booking and are establishing Committees to review utilization and allocations across sites.

"Latent capacity exists across the system – operating rooms and interventional spaces – could these be better utilized in off hours vs creating new sites (e.g. running 24 hour per day)"

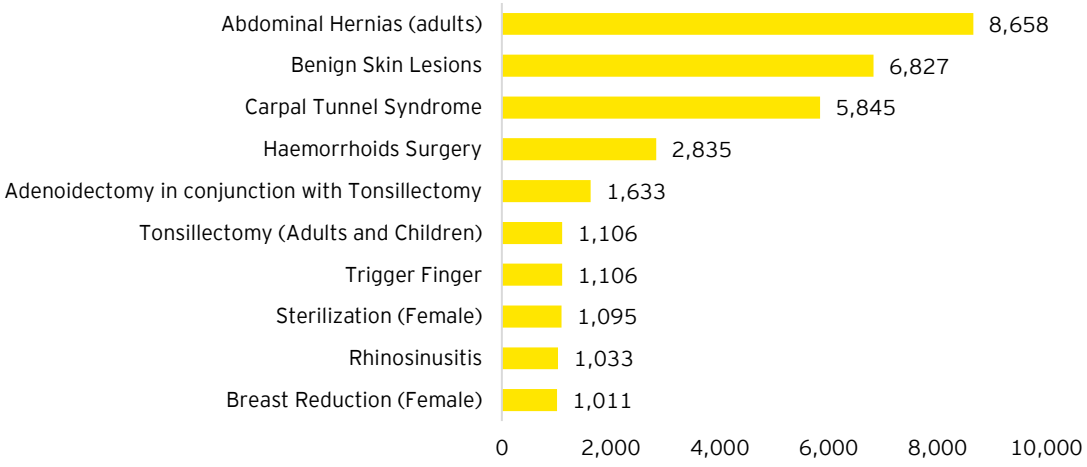
Comment from Operational Leader Session

- The scheduling of OR patients within slates at a site level is predominantly owned by the physicians who have been allocated the time. This results in variability in utilization of ORs. While this practice is not unique to AHS, it creates significant challenges in OR resource management.
- Across AHS there are currently four independent OR Management Systems (ORMS) covering 36 of the 55 OR facilities. The remaining 19 sites currently do not use a management system. This fragmentation leads to a limited ability for AHS to understand and influence the overall performance of the surgical services.

15. In 2018/19 AHS performed 50,050 cases across 44 different elective procedures that matched the NHS criteria of limited clinical value.[51][52]

- To determine the clinical appropriateness of procedures performed in the OR, we reviewed all 2018/19 elective procedures across AHS using the NHS Clinical Commissioning Group list of "procedures of limited clinical value".
    - Procedures of limited clinical value are defined as procedures where the evidence of clinical effectiveness is deemed to be weak or absent. Many times, alternative therapeutic approaches exist that reduce the risk of patient harm and promote more efficient use of OR capacity.
- The graph below illustrates the top ten procedures identified as procedures of limited clinical value. It is important to note that these cases require detailed clinical reviews, alongside AHS' clinical experts, to adequately assess appropriateness.

Figure 21. AHS procedures matching NHS procedures of limited clinical value criteria



16. Among physicians performing the same procedure, there is variability in whether it is performed as a day case. Supported by further clinical review, a conversion of select inpatient cases to day surgery would eliminate the accompanying LOS, releasing 71 beds of capacity.

- There are 1,288 procedures completed as both inpatient and day surgery cases across AHS. The table below illustrates the top five of these procedures with the highest volume that potentially could have been done in ambulatory setting.

[51] NHS Milton Keynes Clinical Commissioning Group, https://www.miltonkeynesccg.nhs.uk/referrals-and-priorities-policies/
[52] This represents approximately 40,156 outpatient, and 9,894 inpatient cases.

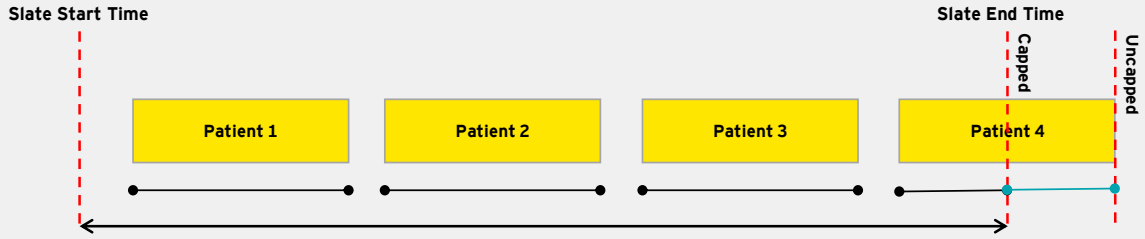
Table 27. Current and potential day surgery cases by procedure

Procedure	Day Surgery % (Current)	Median Target	Potential Day Cases	Physician Variation % Day Surgery
Repair by decreasing size, breast (1YM78)	65%	92%	467	61% - 100%
Excision total, vitreous (1CM89)	86%	98%	431	61% - 100%
Excision total, gallbladder (1OD89)	87%	95%	402	82% - 99%
Destruction, retina (1CN59)	82%	98%	371	48% - 100%
Excision total, tonsils and adenoids (1FR89)	80%	90%	352	61% - 100%

Understanding Surgical Utilization

Health systems are under continual pressure to maximize surgical throughput due to increasing patient populations and demand for surgical care. By improving OR utilization, acute care providers can increase the number of patients treated within the same level of OR capacity.

There are multiple ways to assess surgical utilization. For this Review, we looked at capped utilization, the percentage of surgical time used within a defined period of staffed resourced time. Capped utilization is considered leading practice as it measures utilization within the budget allowance.



Key terms associated with analyzing surgical utilization:

- ***Capped utilization:*** *The percentage of surgical time used (patient in to patient out time) within a defined period of staffed resourced time.*
- ***Uncapped utilization:*** *The percentage of total surgical time over the allocated resource time (this can be greater than 100%)*

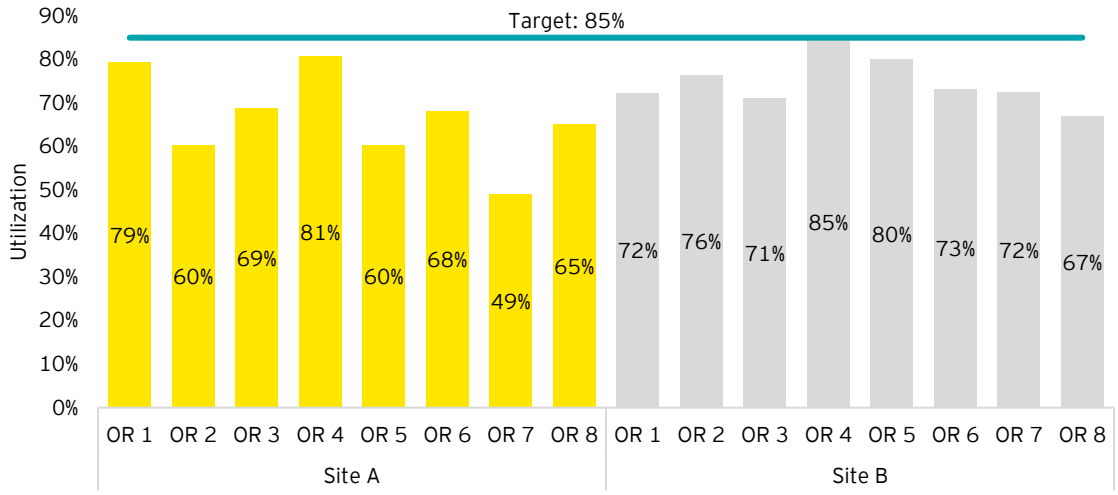
17. Opportunities exist to improve utilization within existing OR infrastructure and staffing.

- While AHS reports that its ORs are approximately 90% utilized, there are variations in the local definitions for utilization resulting in a lack of clarity on true overall OR performance.
- Leading practice would measure utilization of ORs as a function of staffed time. Currently AHS utilizes a variety of different definitions for OR utilization across each zone. Calgary zone is adopting an approach that most aligns with capped utilization.
- Our assessment indicates that operational OR capacity was utilized 71% of the time across AHS in 2018/19, indicating an additional 18,713 potential OR slates to be undertaken.

> "Why are operating rooms vacant from approximately 10 pm - 6 am? That's a productivity sinkhole equal to one-third for five days of the week and much more on weekends."
>
> *Comment from an Albertan*

- While AHS collects and records patient level data for all surgical care, there is no consistent reporting and performance management of surgical utilization across sites or zones. As an integrated organization AHS has significant opportunity to establish a consistent approach.
- We assessed capped utilization at two sites that did not include major trauma. As can be seen from the chart below, there is significant variation in overall utilization across each of the ORs.

Figure 22: OR utilization



- The surgical strategic clinical network is already addressing some of the variability across the zones by rolling out standard definitions to enable consistent planning and scheduling of patients across the system.

18. AHS and AH have developed the Alberta Surgical Initiative (ASI) to reduce wait times that is predicated on building net new capacity, including staffing and capital infrastructure. Our analysis suggests that surgical wait times can be reduced, in part, by maximizing existing capacity (as discussed above) and moving some procedures to non-hospital surgical facilities.

    - In total, AHS identified 79,511 additional procedures (or 27% of the current annual surgical volume) to be undertaken over the next four years to achieve waiting time targets ensuring patients are being treated within a clinically appropriate timeframe. This number consists of both existing patients waiting for surgery and anticipated population growth.

        - As identified above, there are opportunities to potentially absorb additional volumes within existing capacity (18,713 potential OR slates) as well as reduce the overall demand on AHS' resources.

        - Operational teams have identified that 30% of cases could potentially be undertaken outside of hospitals by independent providers, reducing the overall volume.

        - In addition, the business case is based on the current surgical volumes, which includes procedures of limited clinical value that are being performed. Eliminating these procedures would mean a reduction in the overall volume of procedures and waitlist.

    - There are also examples of leading practice where clinical services such as Oncology and Hip and Knee Replacements have already moved to a central intake model, affording AHS the ability to ensure patients are appropriately assessed and triaged throughout the surgical pathway.

        - A centralized intake model will also have the added benefit of allowing AHS to have a more complete understanding of the true waitlist volume and demand for surgical services across the province.

Ambulatory care

19. In newer AHS ambulatory clinics, policies and procedures have been put in place to manage the number and types of patients being seen. However, several historical AHS clinics, as well as several community providers remain outside of this framework with unclear definition and purpose.

    - Strategic direction needs to be provided on whether clinics run by community providers should remain within the fabric of AHS, be provided externally or a hybrid of both.

    - AHS should look to leverage leading practices from other jurisdictions such as booking practices, clinic template establishment, clinical appropriateness/ graduation of visits and KPIs to manage performance across the province.

20. While AHS has made recent progress with standardizing some clinic processes, key processes related to booking, scheduling, and referrals remain highly variable from clinic to clinic, resulting in underutilization of space and resources and limited coordination for patients.

    - Many clinics use manual processes and tools that vary significantly from clinic to clinic. In preparation for Connect Care go-live, AHS undertook a significant standardization initiative across wave one sites. This was positively received by many stakeholders; however, several clinics continue to use manual processes, which leads to challenges with managing patient visits.

    - Most ambulatory spaces are co-located with a generic layout that could enable multiple specialties to use the space and maximize facility utilization. Despite this, these spaces are often under-utilized due to lack of coordination across clinics and scheduling practices.

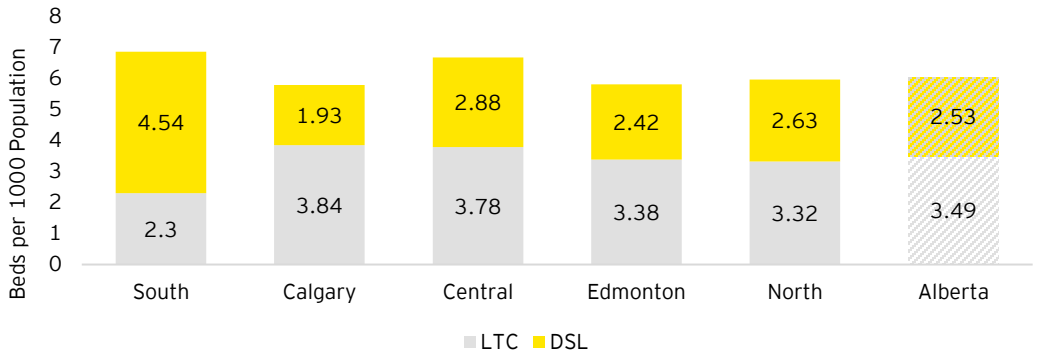
> *"I find the biggest waste of AHS services is the no show rate for clinic appointments, Imaging and procedures. Wasted spots that could have been used for patients that are willing to come in. This creates longer wait times, and everyone involved has to repeat the work that was already done."*
>
> *Comment from AHS Employee Survey*

Continuing & Community Care (LTC, DSL, Home Care)

Long term care (LTC)/ Designated supportive living (DSL)

21. Across AHS, there is variation in the mix and the number of LTC/DSL beds across zones, contributing to AHS' high ALC rates and challenges in moving patients through the system.

Figure 23. LTC and DSL bed capacity per 1000 population across AHS



22. A detailed review conducted by AHS revealed that a significant proportion of patients admitted to LTC would have been more appropriately cared for in DSL.

    - An AHS study of LTC patients between April 2014- October 2017 found only 30% of patients assessed for placement into Continuing Care were assessed as needing LTC. However, 62% of all assessed patients were placed into LTC. Extrapolating the above data indicates that 5,000 patients should have been placed into DSL instead LTC. This number was further adjusted to 1,300 patients to account for various factors such as geographic constraint and financial/ living constraints that prevented patients from being placed in DSL. These additional factors could be addressed by better aligning supply and demand.

23. AHS has a shortage of DSL beds to meet the current patient need and a potential surplus of acute and LTC beds. A realignment of this bed base would support a reduction in wait times, ALC rates and improve quality of patient care.

    - There are 506 patients waiting at home for DSL, 296 patients in acute care and 1,300 patients in long-term care that could be in DSL beds.

    - Most zones have identified LTC spaces that could be converted to DSL to better align supply and demand.

24. There is a mixed ownership model of LTC and DSL beds in Alberta where facilities are either AHS owned and operated, AHS subsidiaries, non-profits or contracted private third-party providers. AHS' dual role of commissioner of services from providers as well as a service provider itself has created confusion regarding its role within the system.

> *If the need is more for Designated Supportive Living and less LTC conversion should be allowed (i.e. communities with 2 LTC and no DSL)."*
>
> *Comment from AHS Employee Survey*

- Across AHS and its wholly owned subsidiaries (Carewest and CapitalCare), AHS owns a total of 4,604 LTC beds which is 30% of the total LTC spaces. AHS' ownership, particularly of Carewest and CapitalCare represent an opportunity to harness this large financial asset to improve its financial position. AHS owns a much smaller proportion of DSL beds (6.5%, 739 beds).

Table 28. LTC and DSL space by ownership type

Ownership type	LTC Space	DSL Space
AHS Owned	2,531	491
Subsidiary	2,073	248
Non-Profit	5,707	6,036
Private	5,176	4,542
Total	**15,487**	**11,317**

- AHS conducts audits on providers, including those that it directly operates. Alberta Health is also involved in audits of continuing care creating potential role duplication, and mixed messages within the system.

25. Long-Term Care providers are funded using a Patient Care Based Funding Model (PCBF) that aligns funding per resident with clinical, physical and psychosocial needs. The design and implementation of this funding model is a significant accomplishment. For AHS to continue to maximize the benefits from this model, there are several key improvements that could be made.

- When AHS shifted to PCBF, a no loss provision was implemented to support providers. This temporary measure should now be removed, and providers required to comply with the PCBF funding parameters.

- The current tool used to assess residents clinical, physical and psychosocial needs is challenged to accurately measure dementia and behavioural problems that are increasing in the complex LTC population. AHS is working to improve its assessment and case weight methodology to better reflect the nuances of patient acuity.

26. In LTC, the funding each organization receives is the same based on PCBF, however, the cost per resident day varies across the different ownership models. This requires further investigation to understand patient acuity and other drivers of cost differences.

- AHS is not able to currently delineate exactly how much it spends per resident day. This is in part, due to resource sharing across co-located hospitals and LTC facilities, and how these resources are financially reported. AHS is in the process of conducting a detailed costing exercise to better understand the true cost of its owned LTC facilities.

- While AHS subsidiaries has the highest patient acuity, it is only slightly higher than the private providers.

- A Health Quality Council of Alberta (HQCA)[53] survey on Long-term Care Services found that there was "no strong evidence to suggest any different experiences across ownership types".

[53] Health Quality Council of Alberta, *Long-term Care Family Experience Survey Report: Provincial Results,* Apr 2018.

27. AHS has made a significant effort to standardize LTC contracts by bringing providers under a single Master Service Agreement with a variety of performance tracking mechanisms such as KPIs and quality measures, however, the organization has not exercised its full rights within these agreements.

    - AHS has stated that savings could have been recovered due to unmet standards, including hours of care and occupancy rate.

Home care

28. There is a lack of standardization and consistency in terms of the delivery and availability of home care services. Operational leaders told us that there are challenges in the distribution of home care services and that comprehensive home care services are not readily available in all parts of the province.

    - Approximately one third of home care services are contracted out to third-party providers. AHS has an oversight role, as well as professional care and case management. In some cases, particularly in rural areas, AHS directly provides home care services.

    - We heard from stakeholders that in some cases, services are restricted to predetermined areas of health and personal care services that do not always align to the needs of the individual and family. AHS case managers are, at times, not able to authorize some of the services the patient needs to remain in the community.

> *"Current home care vendor contracts are not benefiting patients. Patients are not receiving needed care as assessed by AHS professional staff due to a business model that relies on a casual workforce (double booking and missed visits) and not being held accountable for the care provided"*
>
> *Comment from AHS Employee Survey*

29. Outcomes-based performance monitoring is not a consistent component of the management of third-party home care providers by AHS.

    - There are currently 48 homecare contracts, 67% of which are managed through a standard Master Service Agreement (MSA). All contracts are monitored by AHS procurement.

    - AHS requires contracted providers to periodically report performance data, however 16.5% of contracted providers do not regularly provide the required information.

    - While AHS tracks system-level indicators for home care performance (e.g. readmissions, ALC, ED visits), home care performance monitoring targets are not consistently focused on assessing quality and optimal patient outcomes for those directly served.

        - Many of the performance indicators used to measure vendor performance are more transactional and financial in nature as opposed to patient outcome focused based. While this may incentivize the operators to provide cost effective care, it doesn't hold them accountable to provide the best quality care to the clients they serve.

    - As of September 2019, 77% of the Home Care providers are accredited.[54] However, only 55% of the providers reported having implemented quality improvement initiatives in home care.

[54] Source: CPSM Contract Monitoring annual report, 2018/19.

Recommendations

Recommendation 14: AHS should prioritize the further provincial standardization of clinical care pathways and protocols to ensure all Albertans have access to evidence-based, outcomes focused and cost-effective care.

- Varied rates of emergency, inpatient and surgical utilization across zones indicate that there is an opportunity to better manage patients along a standard care pathway.
- An AHS wide approach should be taken to the development and implementation of standardized clinical care pathways; and the optimized use of clinical capacity.
- Many of these pathways are supported by streamlined access to diagnostic services, early decision making and treatment by emergency clinicians as well as coordination with primary and community services to optimize and integrate care.
- AH should consider establishing a provincial medical appropriateness committee to review leading practices, establish clinical standards and recommend changes to the procedures performed within AHS.
- Work with AH to remove procedures of limited clinical value from the Schedule of Medical Benefits and set new policy direction to support required changes.

Recommendation 15: AHS should continue to strengthen its integration with primary care through the expansion of community-based and home care programs to care for patients in the most appropriate setting.

- Continue to partner with PCNs and primary care providers to improve access and co-develop appropriate pathways to reduce the amount of family practice sensitive conditions treated in EDs.
- Leverage digital tools that can improve access to care (e.g., virtual care, patient portals and online visit scheduling) alongside processes for information sharing across care providers. Digital tools have great potential, especially in remote areas.
- Leverage population health management approaches to target specific interventions, including case management, for chronic disease patients based on patient level risk stratification.
- Integration efforts should align to direction, policy and strategies from Alberta Health, who has primary responsibility for primary care.

Recommendation 16: AHS should expand a bed flow program, such as the CoACT Collaborative Care Framework, to standardize and manage beds effectively across the province, improve LOS and allow for the patient care in the right place, at the right time.

- Continue to expand the CoACT framework to drive standardized discharge planning processes across inpatient units and support interprofessional, patient centred care models. Scaling of these processes province-wide will be a critical enabler for success.
- Consider investing in real time and predictive data analytics to allow for a more proactive approach to bed management. By predicting potential surges or bottlenecks, staff can more quickly resolve and alleviate challenges to improve the overall quality of care patients receive.
- AHS should target leading length of stay performance in line with a best-in-class health care system which will support an overall reduction within the acute inpatient bed base. As an integrated health care system, AHS has the opportunity to be a system leader in efficient clinical utilization and reduce the time patients spend in hospital.

Recommendation 17: AHS should internally establish a province wide performance monitoring and management framework for the governance, accountability and reporting of surgical services.

- Take a provincial approach to OR management and standardize policies and procedures to enable optimal OR capacity across AHS. Work with physicians to develop a more proactive and flexible allocation of OR slates to better meet clinical demands. This could be enabled through the provincial program framework used by Pharmacy, Labs and Diagnostic Imaging.
- As an integrated system, develop a standard definition for utilization across AHS, and incorporate it into a provincial dashboard to support early identification and resolution of operational challenges.
- Consider moving additional clinical services to a central intake model to maximize the scheduling of surgical patients and reduce wait times. In addition, this will improve the accuracy and visibility of AHS' waiting list.

Recommendation 18: Within a provincialized surgical framework, AHS should reassess the level of investment needed to achieve the Alberta Surgical Initiative volumes based on utilization improvements and potential for alternate treatment pathways for patients.

- Leverage additional capacity created by driving improved utilization rates to reduce the overall cost of undertaking additional volumes. In reducing the overall backlog, consider a number of focused, one-time initiatives, including utilizing evening hours and weekend operations, enabling AHS to expedite achievement of the wait list targets.
- Assess the demand against the procedures of limited clinical value, as a number of patients could potentially be considered for alternative clinical pathways reducing the demand on surgical services and procedures that could be better provided in NHSFs. Ensure capacity to meet the additional growth volumes is built into the annual planning cycle and forms part of the on-going operational budgets.

Recommendation 19: AHS should create a fit for purpose operating model for ambulatory care and outpatient clinics and develop a strategic vision and governance model to support AHS' objectives both in the hospital and the community.

- Clearly incorporate oversight and management of ambulatory and outpatient clinics within the structure of AHS, including the monitoring of performance and utilization.
- Continue to standardize clinic processes across booking, scheduling and referrals to maximize the use of space, resources and improve the patient experience.
- AHS is well positioned to implement these strategies and doing so would make the organization a leader in Canada with respect to managing ambulatory care as an integrated component of the continuum of care.

Recommendation 20: AHS should consider realigning bed resources within Acute, LTC, Designated Supportive Living (DSL) and community, to support an immediate reduction in ALC, ensuring the patient is cared for in the most appropriate setting.

- Re-designate acute and LTC spaces to less acute more community-based services such as DSL restorative care, or transitional care that can provide the right level of care and support for the patients.
- This is consistent with what we have heard from operational zone leaders, who have identified opportunities where LTC beds could be better leveraged as DSL.
- Continue to conduct detailed planning for LTC, DSL and community beds that consider the unique needs of patients across all zones to ensure the right supply of beds are aligned with the needs of the local geographical areas.
- Continue to identify and validate unmet demand and predicted growth to factor into future bed demand requirements.

Recommendation 21: AHS should reconsider LTC facility ownership in cases where private delivery may be more efficient and appropriate.

- Transition away from facility ownership where appropriate, beginning with assessing the viability of selling Capital Care and Carewest.
- Clearly distinguish between AHS' role in oversight and the delivery of LTC services to provide clarity across roles in the system. This includes roles and responsibilities for audit processes which are currently duplicative in nature.
- In the interim, AHS should:
    - Understand its true LTC cost base to better manage within funding constraints.
    - Optimize the Patient Based Care Funding Model by removing 'top up' provisions.

Recommendation 22: Transition from volume based and transactional home care oversight model to one where providers are held to account for patient outcomes and quality of care for those that they serve.

- Review the current suite of patient outcome and quality measures for home care patients and identify any potential gaps in outcome measures.
- A particular emphasis should be placed on patient reported outcome and functional measures to better understand the quality of care and experiences of the patients directly served.
- Hold service providers accountable for patient outcomes by integrating quality and safety measures into service level or accountability agreements for home care.

Opportunities

Table 29. Summary of clinical utilization opportunities

#	Opportunity Name	Opportunity Description & Valuation Approach	Gross Valuation
CU1	Reduce avoidable admissions for ambulatory care sensitive conditions	Maximize existing "Ambulatory Care Sensitive Conditions" guidelines and expand to include additional pathways that can be treated through ambulatory emergency care setting vs. being admitted. Valuation based on reducing inpatient admissions as per the NHS Ambulatory Emergency Care (AEC) guideline's target range multiplied by bed days reduced.	$1M-$14M
CU2	Acute LOS improvement	Bed reductions based on driving down length of stay for typical and long stay patients through improved clinical pathways and supporting flow processes. Valuation based on reducing the LOS of typical patients to an ALOS: ELOS target of 0.9 and reducing LOS of long stay patients by 10% based on external leading practice.	$71M
CU3	Reduction of ALC in acute setting	Reduction of ALC to meet the AHS 13.5% target by improving out of hospital assessment and managing patients in the community. Savings based on acute bed reductions. Valuation based on reducing the inpatient ALC LOS associated with reducing the ALC rate down to AHS' internal target of 13.5% for each site.	$34M
CU4	ALC cohorting	Shift 554 acute level of care beds to different care model (i.e. LTC) to provide the optimal care to patient needs. Valuation based on reduction of cost associated with providing lower level of care for those beds. Valuation assumes each site meets the 13.5% ALC rate target.	$29M
CU5	ICU discharge delay	Reduce and eliminate the delay in patient discharge for ICU units across hospital sites based on time between transfer decision made and patient discharge. Valuation based on the delayed ICU LOS multiplied by the cost differential between an ICU unit and ward unit, assuming all delays can be eliminated for all ICU units (excludes NICU).	$20M

CU6	Day case conversion	Increase the number of procedures done in day case as opposed to inpatient, where appropriate, to reduce overall reliance on acute beds. Valuation based on a reduction in cost of inpatient beds associated with inpatient procedures being converted to a day case procedure. Target number of procedures has been set at the internal median rate for day case for each procedure.	$13M
CU7	Reduce procedures of limited clinical value	Targeted reduction of the number of procedures with limited clinical value being undertaken across AHS. Valuation based on reducing the cost associated with not undertaking procedure identified within the UK NHS Commissioning Group guidelines. Range of valuation based on reducing only ambulatory procedures through to all procedures.	$47M-$100M
CU8	Surgical wait time	Reassess level of operational and capital investment required as part of Alberta Surgical Initiative based on utilization improvements, wait times strategy and alternative patient pathways (i.e. NHSF).	
CU9	OR suite & procedure room utilization	Maximize the utilization of OR capacity by reducing turnaround times, enhancing on-time starts and finishes and structuring days aligned to case lengths.	
CU10	LTC to DSL reconfiguration	Convert LTC beds to DSL beds. Staff converted beds as DSL, e.g. with a less intense staffing level. Valuation based on the reduction of cost from the change in care model associated with transitioning the 1,300 patients that AHS has identified to the most optimal level of care.	$32M
CU11	Rightsizing LTC care models to Patient Care Based Funding Model	Remove funding floor protections put in place in FY2010/11 to enable LTC facilities to right size their model of care with Patient Based Funding model. Valuation based on AHS' estimate of the funding floor removal impact.	$21M
CU12	Sale of Capital Care and Carewest LTC	Divest and sell Capital Care and Carewest to third party provider. This represents one-time revenue for AHS. There are no operational savings. Valuation based on Discounted Cash Flow model with a 13.5% profit margin and a 0.5% growth rate, using a 7% discount rate. Valuation range based on no ramp up period and a 3 year ramp up period.	Estimated in hundreds of millions of dollars
CU13	Optimize home care contracts	Improve the current home care contract terms through performance/ quality measures-based contracts and potential further outsourcing opportunity.	

Service configuration

Context

Service configuration refers to how and where care is delivered in the province, with the goal of organizing resources so that patients receive the most appropriate care in the right place and at the right time. The demand for care in Alberta will only continue to increase as its population grows and ages over time.

> *"Why does Alberta have so many more hospitals than every other province?"*
>
> *Comment from AHS Employee Survey*

New technology is evolving the way that care is delivered, and at the same time, patients are increasingly expecting to be able to be treated closer to their homes. Leading jurisdictions are responding to these trends by 'shifting care left' – focusing on maximizing out of hospital care and ensuring the hospital system is truly for the most unwell.

Alberta's single provincial system gives the province an advantage over other, more decentralized provincial systems: because AHS is the most significant provider of acute care services, it can act as a facilitator of care across a single integrated system. This puts Alberta in a strong position to deliver on the vision of true patient-centred care.

Throughout this report, we've identified opportunities to continually improve productivity to make our system more affordable. In a time of fiscal constraint, however, increases in productivity alone won't be enough. In this section, we assess how the system can be configured to deliver care in a safer and more efficient way.

The configuration of clinical services in Alberta is influenced by its unique geography and population distribution. Achieving a sustainable provincial health care system will require:

a) Delivering services in areas of low population density in a way that balances patient access with the critical mass of patient volumes needed to provide safe patient care.
b) Appropriately allocating services between regional hospitals that can care for less acute patients and larger hospitals in urban centres that can deliver tertiary and quaternary care.
c) Creating centres of excellence for complex specialty care to enable deep specialization and avoid costly duplication.
d) Expanding the use of efficient, high-volume private facilities that can best deliver common surgeries and clinical procedures.

For the purposes of this review we have predominately considered acute service configuration. LTC and DSL have been included with the Clinical utilization section.

The table below describes Alberta's current configuration of acute care facilities across its five zones.

Table 30. The number of acute care hospital facilities in Alberta by zone[55]

Number of Facilities	South	Calgary	Central	Edmonton	North	Total
Population (2018)	306,577	1,669,272	479,435	1,404,498	482,635	4,342,417
Urban		5		5		10
Regional	2		1		2	5
Community	10	8	29	7	31	85
Grand Total	12	13	30	12	33	100

Service configuration outside main population centres

Alberta has 85 small/medium community hospitals (with 24/7 emergency departments - EDs), 83 of which are outside the main urban population centres. Unlike larger community and regional acute care hospitals, these 83 hospitals often have varied medical and staff models. Many of the sites are run by general practitioners (GPs) or family practitioners (FPs) and the acute services are co-located with outpatient centres, long-term care, and designated supportive living facilities, with staff often being shared across each of these areas. These facilities serve approximately 830,000 Albertans and cost approximately $880 million per year.

Quick Overview of Small/Medium Hospitals outside major population centres

1. No. of hospitals: 83
2. No. of EDs: 83
3. Net expense: $880M/ year
4. Population in rural areas: 830,000

Table 31. Distribution of small/medium community hospitals outside major population centres across five zones in Alberta (sites containing acute beds)

Calgary	Central	Edmonton	North	South
8 sites	28 sites	4 sites	32 sites	11 sites

Determining the configuration of services that meets the needs of smaller more remote communities generally involves balancing enabling timely access to care against the need to ensure appropriate quality. These communities expect to have reasonable access to emergency departments, acute inpatient beds, and obstetrical care to support delivery of babies in the surrounding areas. At the same time, servicing a community with a small, low-volume facility can lead to both quality and cost effectiveness challenges. Physicians and other care providers require ongoing exposure and experience with certain types of procedures, such as complex births, to maintain proficiency. Likewise, underutilized hospitals lead to inefficient use of staff and facilities.

AHS has developed frameworks for reviewing clinical service provision. Specifically focused on the remote locations of EDs, acute beds, and maternity, to help inform an assessment of their clinical viability. For ED, the framework can help to determine if a facility could be reclassified as a daytime-only unit or be consolidated with another hospital nearby. The framework evaluates EDs on three criteria, outlined in the table below.

[55] 2018-19 Alberta Health Services Annual Report. Total number of acute care facilities is 106. Excluded from the table above includes four (4) stand alone emergency departments and two (2) surgical centre hospitals.

Table 32. ED configuration criteria for reclassification consideration

1 Utilization	2. Visit appropriateness	3. Proximity to other acute sites
Assess the level of activities overnight and the need for 24/7 infrastructure	Assess the and level of acuity seen in local ED	Availability of other acute sites within 30 mins as per AHS' ED access guideline
▸ Overnight volume (11pm - 7am) <10 visits/day	▸ Family practice sensitive conditions[56] > 30% ▸ CTAS 4-5[57]> 50% (more than half of patients are low acuity)	▸ Nearest ED is within 30mins

Likewise, the framework for evaluating the clinical viability of remote acute-care hospitals sets out key assessment criteria. The table below describes that framework.

Table 33: hospital configuration framework

	Hospital configuration criteria			
Configuration Options	Acute bed count	Travel time to nearest acute site	ALC %	Acute Occupancy %
Maintain: *No change*	Any	-	<30%	>70%
Repurpose: *Remodel acute to LTC/ DSL/Community*	Any	-	>30%	>70%
Right size capacity: *Close beds*	Any	-	-	<70%
Consider for closure: *Close acute facility*	<10 beds	<45 mins	-	<5 utilized beds

[56] Family Practice Sensitive Conditions (FPSC) are conditions that could be actively managed within the community and are tracked to identify ED visits which could have been potentially avoided.
[57] The Canadian triage acuity scale (CTAS) is a nationally-accepted measure of patient acuity. Scores of 4 and 5 indicate less urgent and non-urgent visits which could potentially be seen in a lower acuity/ alternate setting

Service configuration in metro and urban areas

Approximately 81% of Alberta's population resides within an urban area, with the notable majority living along the Calgary-Edmonton corridor. There are 16 facilities in Alberta which are classified as "metro/urban" hospitals with 6,323 acute beds. Making up over 74% of the province's beds, these hospitals serve both the local population of 3.5M in local catchment areas, as well as provincial patients for defined specialties. AHS has developed a structured and evidenced system for classifying these facilities, depending on the level of care that they provide:

Table 34. AHS Metro/Urban hospital classification definition[58]

Classification	Definition
1A: Tertiary and Quaternary Care	• Tertiary care generally refers to a major teaching hospital, with academic affiliation • Need to maintain the case volumes needed to sustain expertise and effective use of advanced human resources' skills, diagnostic and treatment support • Tertiary services are only offered in larger urban hospitals with a province-wide mandate. • Require specialized (advanced practice) clinicians, high tech diagnostic and medical/surgical equipment, and the infrastructure capabilities to support highly specialized service units. • There are skilled providers [i.e. neurosurgeons, thoracic surgeons], trauma services, intensive care / neonatal intensive care, and advanced diagnostic imaging delivering specialized services in these centres.
1B: Specialty Care (Specialty Hospitals and Psychiatric Facilities)	• Provide province-wide services dedicated to a specific patient population and/or subspecialty of care. • Examples include pediatric hospitals, cancer treatment hospitals, and rehabilitation hospitals.
1C: Regional / Urban - Secondary Care	• Secondary care provides access to medical specialists who generally do not have first contact with patients, for example, cardiologists, urologists, and orthopedic surgeons. • The bed capacity of Alberta's secondary level care hospitals is currently greater than 100 beds. • These facilities are resourced to deliver diagnostic and treatment programs that require specialized equipment and infrastructure (treatment areas) to support service delivery by medical/surgical specialists, also skilled nursing and allied health professional support. • In addition to providing general surgery services, these facilities provide some specialist surgical services, e.g., orthopedics, otolaryngology, plastic surgery, gynecology.

Since its formation, AHS has focused on establishing and enhancing integrated 'corridors of care' that connect smaller populations, regional and tertiary/provincial centres together and support the flow of patients across the system. The hospital classification system for acute facilities enables the creation of these care corridors by mapping the pathways for directing less acute patients to regional and community hospitals – closer to home - where they can receive appropriate secondary care, and more acute patients to larger urban hospitals for more complex tertiary and quaternary care – where there is a critical mass of patients to maintain clinical skills and quality.

[58] Peer Group Classification of Facility Based Acute & Primary Care Services in Alberta (2014).

Configuration of specialty tertiary and quaternary services

Beyond the broad configuration of core services at the local, metro, and urban levels, it is important for the health system to consider how it provides effective and appropriate specialized tertiary and quaternary care. Leading practices from the UK and other jurisdictions suggest that driving towards consolidated centres of excellence for specialist services enables a critical mass of expertise and resources, which in turn leads to improved patient care[59]. Integrated health systems such as Alberta are better positioned to be able to adopt this model. AHS has consolidated many specialty services into regional centres with most tertiary/quaternary services provided in Calgary or Edmonton. As part of this review, we considered the following specialized services:

- Medical Genetics
- Gynaecologic Oncology
- Radiation Oncology
- Infectious Diseases
- Vascular Surgery
- Paediatric Psychiatry
- Paediatric Cardiology
- Paediatric Haematology/Oncology
- Thoracic Surgery
- Medical Oncology
- Cardiac Surgery
- Haematology
- Neurosurgery
- Neurology
- Neonatal-Perinatal Medicine
- Plastic Surgery
- Trauma

Non-hospital surgical facilities

In addition to providing services in AHS operated hospitals, Alberta currently allows several procedures to be delivered in non-hospital surgical facilities (NHSF). NHSFs are publicly funded, privately operated facilities that perform scheduled surgeries (i.e. not emergent care cases) in a specialized surgical centre with its own clinical and support staff. The types of cases performed in NHSFs vary from province to province, but in most circumstances are for stable and low-risk patients not requiring advanced levels of care that is usually provided by hospital operating rooms. Alberta is one of the leading adopters of NHSFs across Canada. The table below summarizes the use of NHSFs across Canada.

[59] https://www.kingsfund.org.uk/publications/reconfiguration-clinical-services.

Table 35. Summary of types of procedures performed in NHSFs across Canada

Surgical Category	BC	AB	SK	MB	ON	QC	NB	PEI	NS
Dentistry	•	•		•					•
Dermatology	•	•	•		•		•	•	
Endoscopy		•	•	•				•	
Ear, Nose, Throat	•	•		•		•			
General Surgery	•	•	•			•		•	
Gynecology	•	•	•			•	•	•	
Neurosurgery	•								
Ophthalmology	•	•	•	•	•	•	•		
Orthopaedics	•	•	•	•	•	•	•	•	•
Otolaryngology	•	•	•						
Plastics	•	•	•	•			•	•	
Podiatry	•	•							
Urology	•	•	•				•	•	
Vascular	•				•	•	•		

Source: CADTH environmental scan.

Alberta has done substantial work in developing processes and accreditation standards for out-of-hospital surgical cases. Each NHSF must receive approval (and designation) by the Minister, enter into an agreement with AHS, and be accredited by the College of Physicians and Surgeons of Alberta (CPSA). AHS currently has 51 contracts across 42 of these facilities to conduct approximately 40,000 surgical procedures annually (this represents 15% of all AHS surgical procedures – 293,000 total cases), for a combined spend of $24M.

Alberta Health and AHS plan to expand the use of NHSFs over the next four years, both in terms of the volume and types of cases.

Findings

Small/Medium hospital configuration

1. AHS has established a transparent classification framework for defining hospital levels of service and access guidelines that indicate where these services may be located.

   - A classification system, developed by a strategic clinical network, has been applied to all acute hospital facilities, EDs and Maternity services across AHS. This framework enables AHS to ascertain what levels of service provision it has across all zones. The framework segments the acute facilities into Metro/Urban and lower population centres.

   - The classification system is a robust framework through which to define and assess acute services across the province

   - AHS has also developed clinical access guidelines for EDs, acute care and elective care relating to small/medium community hospitals. These guidelines have been developed by a Clinical Service Access Standards Advisory Committee. The overarching planning goal is that at least 95% of Albertans living in more remote areas should have access to ED and acute medical inpatient services based on defined population density and travel time.

Table 36. AHS' clinical access guidelines, ED and acute medical inpatient service

Density	Emergency Department	Acute Medical Inpatient Service
High Density >5000 people/400km^2	30 mins	45 mins
Moderate Density 1001 – 5000 people/400km^2	45 mins	60 mins
Low Density ≤ 1000 people/400km^2	60 mins	120 mins

- AHS has done a good job of developing and assessing its hospital configuration against these access guidelines, however these guidelines have not yet been used to implement any widespread provincial configuration strategies.

- While service volumes in ED, acute inpatient care and maternity are recorded as part of the AHS acute hospital assessment framework, there are no minimum volume standards set. consequently, volumes do not form part of the configuration assessment.

2. Of the 83 small/medium facilities outside the main population centres, 77 emergency departments within small/medium community facilities in Alberta meet the criteria to be considered for reclassification or consolidation.

   - The table below summarizes an assessment of Alberta's small/medium community EDs using AHS' ED configuration framework.

Table 37. Potential reconfiguration sites and the assessment criteria

Option	Number of Sites	Average of ED visits/ day	Average of Overnight (11pm-7am) activity per night	% CTAS 4-5	Average % Family Practice Sensitive Conditions
Maintain	2	40	5.8	42%	26%
Reclassify	73	32	2.6	62%	33%
Unknown*	4	47	N/A	55%	27%
Potentially consolidate	4	10	0.4	73%	38%
ED Facility Total	**83**	**32**	**2.6**	**61%**	**33%**

*unable to report due to insufficient data availability in overnight visits data.

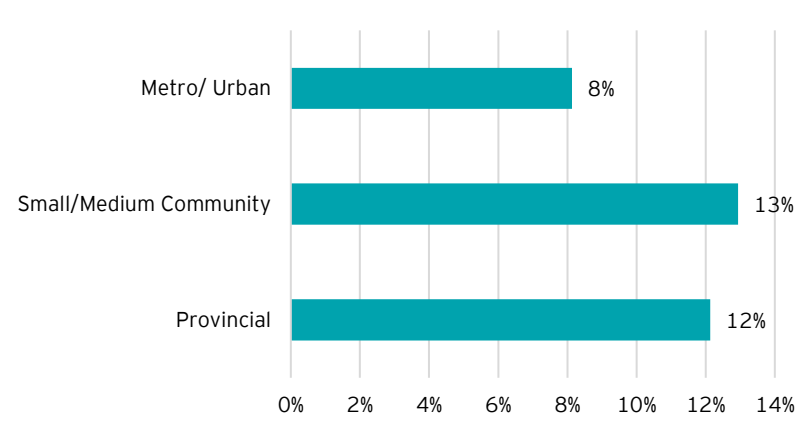
- Two sites fall under the "maintain" category. One site met the framework criteria, where the acuity and the level of activities were higher than the configuration criteria cut-off. Another site was isolated and nearest acute site was 78 minutes away.

- The reclassify sites are characterized by very low overnight visit volumes (average three per night) and high proportions of CTAS 4-5 and FPSC.

- For the 73 sites that fall under the "reclassify" category, an emergency care service provided through an urgent care model or ambulatory clinic setting with reduced hours of operation (typically around 16 hours per day) could be more suitable.

- More than half of small/medium sites have higher 30-day ED readmission rates compared to the provincial average, which could be an indication of clinical quality and safety challenges.

Figure 24. 30-day ED readmission rate by hospital classification, 2018/19



3. 36 acute sites do not meet the criteria for clinical viability in their current configuration.

   - The table below summarizes an assessment of Alberta's small/medium acute-care facilities using AHS' assessment framework.

Table 38. Potential reconfiguration sites and the assessment criteria

Option	Number of sites	Average acute bed count	Average ALC %	Average Occupancy %	Bed impact
Maintain	47	25.0	18.9%	81.1%	0
Repurpose	10	17.8	33.6%	74.4%	42
Right size	21	19.5	13.5%	56.9%	141
Consider for closure	5	4.6	9.4%	41.0%	23
Total for potential configuration	**36**	**17.0**	**18.5%**	**59.6%**	**206**
Grand total	**83**	**21.5**	**18.7%**	**71.8%**	**206**

   - Based on this assessment, 36 of Alberta's 83 small/medium acute-care facilities meet the threshold to be considered for reconfiguration, including 5 facilities where occupancy and patient acuity is sufficiently low that they would be considered for closure. There was an additional assessment on the impact for sites identified as "Close" ensuring alternative access to nearest acute facility was within a 45-minute drive.

4. AHS is making notable progress in establishing virtual care, telehealth and other technology enabled solutions to support care to remote populations.

   - There are 51 local, zone, or provincial initiatives related to community-based virtual care, technology-enabled care, and telehealth programs currently in progress across AHS. In many cases the projects are highly innovative, and AHS is potentially leading when compared to its peers.

   - Most of these projects are in pilot phases and while local outcomes are being assessed, it is important to further understand the potential to scale across broader geographies.

   - Funding for these projects comes from a range of different sources and in some cases is time limited, which could be an impediment to potential expansion. AHS should rapidly establish a business case process through which to evaluate the impact and cost effectiveness of these projects.

   - The IT infrastructure on which telehealth and virtual care is implemented requires updating and, in some cases, expanding (e.g. WIFI availability and reliability in certain remote sites).

   - For some projects, limitations in physician payment models has been highlighted as a current impediment to greater physician adoption and uptake. For example, patients need to be present at an AHS site for physician to be able to bill for activity. Other jurisdictions are working to address these barriers. In Manitoba, for example, there are no defined eligibility requirements for virtual-care services, with appropriate use determined by providers and through consultation with MBTelehealth.[60]

5. Small/Medium sites which provide 24/7 access to maternity surgical services deliver an average of 201 cases per year per site, which may not be high enough volume to ensure appropriate quality and patient safety.

   - The table below outlines the AHS classification for maternity services in its facilities.

   Table 39. AHS facility maternity service level definition

Level	Maternity Care Services
0	No facility in Community, but may have primary heath care services
1	No maternity care services at local facility
1A	Basic (low risk) maternity care services 24/7 but no surgical access
1B	Maternity services at local facility 24/7 and surgical access offered 24/7
1C	Specialist maternity service access 24/7 and surgical access offered 24/7
1D	Maternity service required due to geography
2	Specialist maternity services 24/7 and surgical access and NICU services offered 24/7
3	Major referral centre for all maternity care

   - A total of 28 of AHS' small/medium sites have full or specialist obstetrical services that are available 24hrs a day. On average there are 201 births annually in these facilities.

[60] Rapid Synthesis - Understanding the Use of and Compensation for Virtual-care Services in Primary Care (27 July 2018): McMaster University.

- Clinical evidence indicated that less than 250 births annually would be deemed sub-optimal and may result in clinical quality concerns for the facility. AHS' Maternal Newborn Child & Youth strategic clinical network has suggested that a minimum of 300 obstetrics patients per year per site would reduce clinical risk through increased clinical competency.

- Furthermore, in addition to volume, travel time and access have been considered, consistent with the acute clinical access guidelines outlined in Table 35.

- The obstetrical trauma rate at these sites is higher at 7.7% compared to the 5.4% provincial average.

Table 40. Rates of obstetrical trauma C-sections for low risk patients in small/medium 1B/C sites

	# of sites	Rate of Obs. Trauma	Rate of C-Section for Low Risk
Low Obstetrics =<300	22	7.7%	13.9%
High Obstetrics >300	6	5.3%	9.7%
Provincial average		**5.4%**	**12.2%**

Service configuration

6. AHS has a largely well-consolidated tertiary and quaternary service portfolio that supports patients across the province.

- When compared to other jurisdictions and standardized for population, the number of service centres for specific tertiary and quaternary specialties are in line with expectations. Furthermore, AHS has broadly allocated these services evenly across Edmonton and Calgary, to ensure appropriate coverage for the north and south of the province respectively.

Table 41. Heat map of the number of tertiary and quaternary services across zones

Specialty	Calgary	Central	Edmonton	South	Total
Plastic Surgery	5	1	4	1	11
Neonatal-Perinatal Medicine	4		4		8
Neurology	2	1	3		6
Neurosurgery	1		3		4
Haematology	2		1		3
Thoracic Surgery	1		2		3
Medical Oncology	1		1		2
Cardiac Surgery	1		1		2
Radiation Oncology	1		1		2
Infectious Diseases	1		1		2
Vascular Surgery	1		1		2
Paediatric Psychiatry	2				2
Paediatric Cardiology	1		1		2
Medical Genetics	1				1
Gynaecologic Oncology	1				1
Paediatric Haematology/Oncology	1				1
Paediatric Haematology	1				1
Total	27	2	23	1	53

- Based on the current allocation of services, there are some relevant areas where AHS could consider further consolidation. This would include plastic surgery, neonatal-perinatal medicine and the configuration of Neurosciences across Edmonton.

Provincial trauma program

7. Edmonton has two adult major trauma centres (level I and level II), while receiving similar case volumes of major trauma as Calgary, which has one level I centre.

   - The table below summarizes the level I and II trauma centres in Alberta. Clinical guidance would suggest that one Level I or Level II adult trauma centre and one Level I or Level II paediatric trauma centre will be required in a trauma system serving population of up to 2 million within an anticipated caseload in the order of 500 to 1,000 major trauma cases.[61]

Table 42. AHS Level I and II trauma sites and volumes of major and minor cases

			FY18/19 Trauma Case Volume		
Zone	Institution Name	Trauma designation site level (1,2,3,4, 5)	Number of cases ISS >=12 "major"	Number of cases ISS 0-11[62] "minor/moderate"	Total Number Trauma of Cases (Data Source: DIMR)
Edmonton	University of Alberta Hospital	1	569	2,942	3,511
	Stollery Hospital	1	93	911	1,004
	Royal Alexandra Hospital	2	422	3,008	3,430
		Edmonton Zone Subtotal	1,084	6,861	7,945
Calgary	Foothills Medical Centre	1	851	3,143	3,994
	Alberta Children's Hospital	1	56	780	826
		Calgary Zone Subtotal	962	3,923	4,820
	Grand Total	13	3,046	16,909	19,890

   - Edmonton treated 991 adult major trauma cases in 2018/2019 across two sites, where Calgary treated 851 cases across a single site.

   - Experience from other jurisdictions highlights that running two separate trauma sites in close proximity can lead to duplication of the tertiary and quaternary services needed to support a trauma program. In assessing the current state in Edmonton, this appears to be the case, with a number of tertiary services provided across both centres. Associated on-call rotas are also independently provided on each site for select tertiary services through which major trauma coverage is provided. The table below provides an overview of the duplicated services across the two Edmonton sites.

Table 43. List of trauma-related services in Edmonton zone at RAH and UAH

Trauma and related services	RAH (Level II)	UAH (Level I)
Trauma surgery	✓	✓
Burn		✓
Cardiac Surgery - perfusion/ECMO Support	✓*	
Vascular		✓*
Transplant Surgery		✓
General	✓	✓
Orthopaedic	✓	✓
Ophthalmology	✓	✓
Thoracic	✓*	
Plastic	✓	✓
Neurosurgery	✓	✓

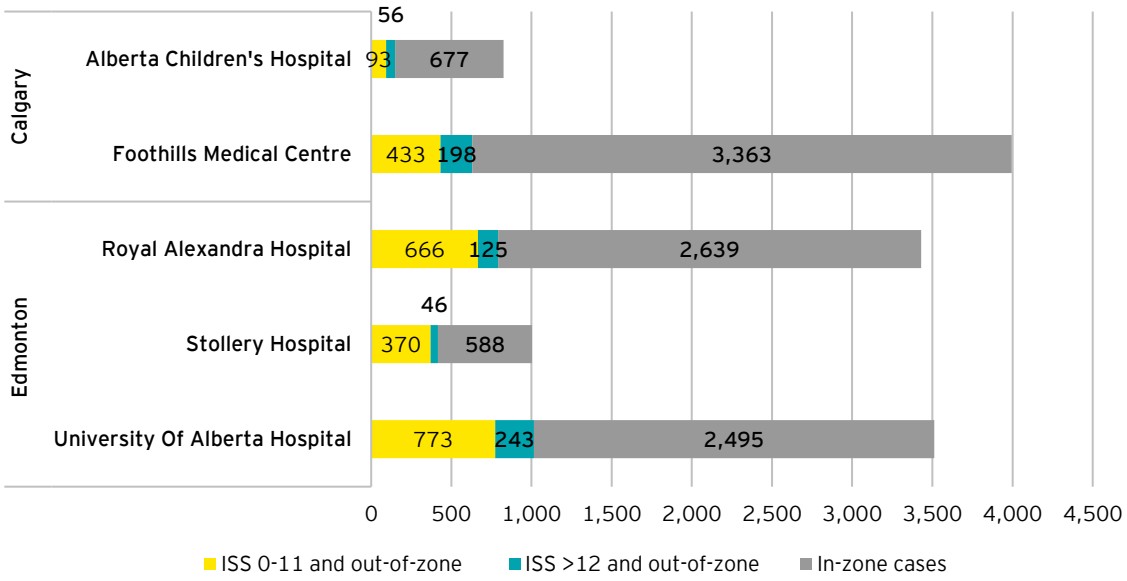
* For Cardiac/ Vascular / Thoracic, these medical teams travel to the other site as necessary. Thoracic and vascular surgeons are shared call coverage for both sites

[61] Trauma Association of Canada, Trauma Accreditation Guidelines (2011)
[62] The "Injury Severity Score" is an internationally accepted model for classifying traumatic injuries

- The Edmonton centres run independent site based on call rotas for select tertiary services through which major trauma coverage is provided.

8. 15% of patients seen at the level I and II trauma centres are minor/intermediate trauma patients from out of zone. These cases could be treated at local level III and IV trauma centres.
   - Currently 15% of the cases seen at the level I and II sites are ISS <12 trauma cases from outside of the Edmonton and Calgary zones.
   - While both EMS (local) and Referral, Access, Advice, Placement, Information & Destination (RAAPID) (out of zone) triage trauma cases to be allocated to a relevant and available trauma centre (with RAAPID also coordinating repatriation and capacity management of the ICU and trauma beds), a notable volume of patients bypasses regional centres equipped to receive minor/intermediate trauma and are treated at the level I or II in Calgary or Edmonton.
   - While this pathway does not result in suboptimal care, there is potential for cases to be treated in more local regional trauma units rather than the provincial trauma centres.

Figure 25. Level I and II Trauma centre cases - major (ISS>12) and minor (ISS<12) case distribution within and out-of-zones



Non-hospital surgical facilities

9. NHSFs in Alberta and in other Canadian jurisdictions are conducting procedures at lower cost than in acute settings.
   - Based on available data, a cost comparison of cases performed in AHS acute care settings and Alberta NHSFs was conducted using the Comprehensive Ambulatory Classification System (CACS), a national grouping methodology for ambulatory care patient data. The cost efficiency percentage reflects the discount that can be applied to the AHS case-cost to perform the procedure in a NHSF facility. The table below shows example CACS groups and associated cost efficiencies.

Table 44. Cost efficiency realized in NHSF setting by CACS group

AHS CACS Group	Cost efficiency (%) realized in NHSF setting
Termination of Pregnancy	55%
Repair Retinal Tear	39%
Therapeutic Respiratory Intervention	36%
Minor Eyelid Intervention	35%
Major Eyelid Intervention	33%
Major skin intervention	27%
Soft tissue intervention	26%
Minor Laser Eye Intervention	24%
Application/Removal Dental Wiring	23%
Cataract Removal/Lens Insertion	18%
Complete & Partial Mastectomy	17%
Removal another internal fixation device	15%
Dilation Lacrimal System	13%
Reconstruction/Transplant Cornea	13%

Source: AHS NACRS data

- Additional evidence from Canadian jurisdictions such as British Columbia and Saskatchewan, indicate cost efficiencies of up to 70% by performing appropriate cases NHSFs. The table below shows example procedure types and associated cost efficiencies observed in Saskatchewan's private surgical centres.

Table 45. Cost efficiency observed in private surgical environment by procedure type

Procedure Type	Cost efficiency (%) observed in private surgical environment
Tympanmastoidectomy	69%
Tympanoplasty	59%
Cataract	52%
Knee Arthroscopy	30%
Shoulder Arthroscopy	22%
Abdominoplasty	14%
Rhinoplasty	5%
Gynecomastia	5%
Tonsillectomy	4%
Breast Reductions	3%

Source: Learning from the Saskatchewan surgical initiative to improve wait times in Canada, Janice MacKinnon

- Jurisdictions across Canada have specific criteria when selecting which surgical procedures are performed in private surgical facilities. Nova Scotia, Prince Edward Island, New Brunswick, Alberta,

Manitoba, and British Columbia indicated that the type of anesthesia required for the procedure guides where it should be performed.

  - Alberta considers anesthesia requirements, expected length of stay (day case vs overnight stay), post-operative monitoring requirements, need for intravenous sedation, patient American Society of Anesthesiologists Classification (ASA) scores, age and disposition of patient. This is in line with other jurisdictions.

- Further evidence from around the world supports the use of private hospitals and surgical facilities to provide highly efficient surgery and clinical procedures.

  - In Australia, for example, there are several private surgical and medical facilities that are in place to provide increased patient access and provision of care which could be considered by Alberta. Some of these services include:

    - General surgery
    - Plastic and reconstructive surgery
    - Cosmetic surgery
    - Orthopedic surgery
    - Sports medicine
    - Pain management
    - Pediatrics
    - Oncology
    - Endoscopy

10. There is significant geographic variation in the use of non-hospital surgical facilities across zones in AHS, particularly for cataract procedures.

- For example, 96% of cataract procedures in the Calgary zone are done in NHSFs, compared to only 18% of procedures in the Edmonton zone.

Table 46. Percent of cataract procedures performed in NHSFs by zone

Zone	Acute Cases	NHSF Cases	NHSF Cases as % of Total
Calgary	486	13,083	96%
Edmonton	12,947	2,748	18%
North	1,183	968	45%
South	3,099	0	0%
Central	4,215	0	0%
Total	21,930	16,799	

- Calgary's greater use of NHSFs may be in part due to the model for managing and overseeing NHSF contracts. The Calgary zone has a specific portfolio dedicated to NHSF contracts, while Edmonton NHSF activity and contracts are overseen by AHS' procurement and supply chain team.
- As some NHSF contracts have been in place since prior to AHS' consolidation, there is an additional opportunity to review existing contracts and procure new rates based on market availability.

Recommendations

Recommendation 23: Alberta Health and AHS should establish provincial clinical access guidelines and further develop clinical standards to enable an affordable and safe configuration of acute care facilities across the province.

- Working with Alberta Health, develop and publish access guidelines for ED, Acute care and Obstetrical services across the province. Defining the optimal levels of care provision to reflect need, access times, patient safety and cost effectiveness.
- Using AHS' clinical service classification and hospital configuration framework as a baseline, AHS should establish provincial guidelines on small/medium community hospital configuration, focused on the safe clinical outcomes and standardized service delivery approach. these guidelines would align with clinical best practice and the corridors of care established within zone.

Recommendation 24: AHS should reconfigure small/medium community sites based on the validated and agreed access guidelines.

- Reconfigure ED, acute care, and obstetrics services based on the relevant AHS clinical frameworks.
- Work with clinical leaders to validate the proposed configuration framework and engage zonal stakeholders to develop a detailed plan for future state reconfiguration, including appropriate capacity planning.
- EMS will be a critical partner in building reconfiguration scenarios, which may require the EMS teams to modify or advance their service models to support the reconfiguration effort.
- Community engagement will be a critical element of developing a small/medium hospital configuration plan.

"A public education campaign should be developed, focused on the cost of health services delivery, the realities of making difficult decisions (e.g. service configuration) and their role in a public system (e.g. secure access to a family doctor)"

Comment from Operational Leader Session

Recommendation 25: Review existing virtual health initiatives and consider development of a provincial plan to leverage virtual health technology to provide care across remote populations.

- Review and evaluate the 51 initiatives related to community-based programs, virtual health and telehealth currently in progress across AHS to identify overlapping projects and opportunities for rationalization or consolidation.
- Where relevant, establish a plan to scale pilot projects across the province, and support mainstreaming of enabled clinical service improvements.
- Balance prioritization of initiatives against any potential required investments in infrastructure and equipment to enable technology-based solutions. Some remote areas have indicated that infrastructure issues such as wi-fi and equipment access are an issue.
- Work with Alberta Health to consider changes to the physician renumeration model for virtual care visits through the Schedule of Medical Benefits. The current model requires visits to take place in AHS-approved facilities in order for the telehealth visit compensation to be approved. Align priorities in the development of enhanced virtual care to reconfiguration initiatives in Recommendation 15.

Recommendation 26: Ensure trauma is managed as a provincial service, with stronger adherence to trauma triage and referral protocols to avoid bypass of regional centres where not clinically appropriate.

- Further strengthen the role of RAAPID and EMS service in the pre-hospital phase of trauma care, specifically triage and case allocation, to maximize access to level III and IV regional trauma units.
- Leverage the provincial trauma program coordination and activity analysis to monitor and address out of zone minor and intermediate trauma cases.

Recommendation 27: Consider consolidating Edmonton's two major trauma centres into a single site.

- Undertake a comprehensive caseload, capacity and demand review for Edmonton's 2 trauma centres.
- Consider consolidation of supporting clinical programs required to support major trauma care, and map service configuration to reduce duplication between facilities while enabling a single site trauma centre.
- Consolidate on call requirements for trauma and associated tertiary services.
- Further strengthen provincial trauma program to enable better coordination between level I/II centres and level III/IV units and enhance the regional management of out of zone minor and intermediate cases.

Recommendation 28: AHS and Alberta Health should assess opportunities to expand the use of non-hospital surgical facilities (NHSFs) across the province.

- Identify candidate procedures for increased private delivery, and rapidly set expectations and protocols for directing activity to NHSFs.
- To enable consistent and appropriate use of NHSFs and to achieve maximum efficiencies, NHSF commissioning should be provincially coordinated, commercially disciplined, and evidence-based. The commissioning organization proposed and discussed in the functional duplication section should be accountable for the procurement of these services.
- Alberta Health could consider reviewing the criteria for delivery of procedures in NHSFs to identify opportunities to deliver additional services, including potential those that require overnight stays.

Opportunities

Table 47. Summary of service configuration opportunities

#	Proposed Opportunity Name	Opportunity Description & Valuation Approach	Gross Valuation
SeC1	Small/medium ED configuration	Reconfigure current in-scope small/medium hospital EDs based on visit volumes and appropriateness, this includes options for ED hours modification and reclassification or closure. Valuation based on a reduction of 1/3 of ED operating costs and associated on-call costs for DI and labs considering where services may run reduce hours of operation.	$32M
SeC2	Small/medium hospital configuration	Consolidate/ repurpose in-scope small/medium hospitals based on defined access and hospital classifications as a function of underutilization or occupancy. Valuation based on cost of either reclassifying or reducing inpatient beds across sites.	$29M
SeC3	Maternity service consolidation	Consolidate maternity services in small/medium community areas to support maintenance of clinical competency and appropriate level of care, where appropriate. Valuation assumed to be part of small/medium hospital configuration.	
SeC4	Urban area service configuration	Reconfigure and reduce duplications of services across quaternary service sites. Optimize tertiary and quaternary services through consolidation and reduction of duplication of services between neighbouring sites.	
SeC5	Provincial trauma program optimization	Optimize the Trauma provincial program through better utilization of specialty services in tertiary and quaternary hospital sites. Valuation based on potential rationalization and standardization of Trauma program staff only; it does not include any potential savings related to consolidation of clinical trauma services.	$0.4M-$1M
SeC6	Non-hospital surgical facilities (NHSF) procedure expansion across zones	Expand the usage of NHSF procedures across each zone. Implement new procedures in NHSFs based on jurisdictional comparators (ON, BC, SK, QC). Valuation based on providing AHS day surgery cases at 10-20% lower support costs.	$32M-$65M

Clinical support services

Context

The section includes findings, recommendations and opportunities that focus on the provision of laboratory, diagnostic imaging, pharmacy, and emergency medical services across AHS. These clinical support services are an essential part of the health care system and critical to delivering safe, efficient and effective patient care. Structurally, these functions are organized into provincial programs that provide overarching strategy, clinical and operational oversight and set standards across AHS. The provincial leadership teams from each function work closely with AHS zone leadership to support locally based operations and initiatives.

"Provincial Services under the Clinical Support Services areas have seen numerous successes & strengths. Standardization of education, training, best practice have been implemented across the province in all of these areas"

Comment from Operational Leader Session

This section will highlight opportunities within clinical support services related to clinical appropriateness, utilization, service delivery models and cost effectiveness. The purchase of drugs and supplies is also an important cost driver for these services and will be addressed in the supply chain section of this report.

Table 48: Clinical Support Overview

Clinical Support Area	# Locations	Activity	FTE	Expense
Laboratory Services	210	81M tests	3,819	$800M
Diagnostic Imaging	299	2.9M exams	1,137	$457M
Pharmacy	146	N/A	1,837	$507M drug $210M department
Emergency Medical Services	204	560k events	3,600	$506M

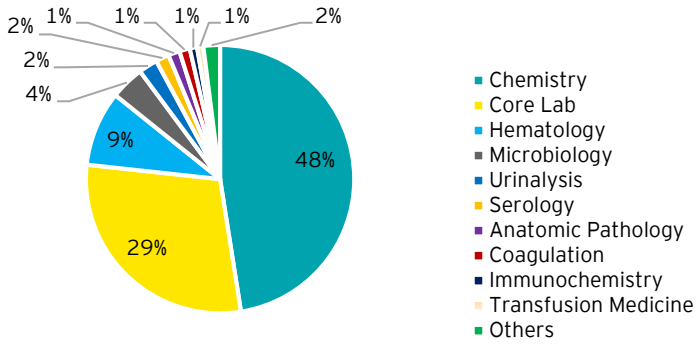
Overview of clinical supports: Laboratory Services

Across Alberta there are 210 laboratory and collections sites[63] which performed more than 81M tests in the previous year. Lab services are predominantly focused on hospital and community-based lab tests, but also include mobile collections, specimen transportation, and specialized and public health laboratories. Two thirds of laboratory testing occurs in the community, the remainder are within AHS operated health care facilities (i.e. EDs, hospitals and long term care).

The Calgary and Edmonton zones are responsible for 78% of all laboratory tests in Alberta. Chemistry lab tests make up almost half of provincial test volumes. Lab test volumes grew on average 4% per year, with specialized genetic testing experiencing significant growth, increasing by 20% over the last year.[64] The figure below shows the distribution of the test volumes by lab discipline in FY 2018/19.

[63] Of these sites 174 are APL run and 36 are operated by the private provider.
[64] Genetic testing is included in 2% of "other tests" in Figure 26. While we have seen a 20% increase, it is still a small proportion of total lab volume.

Figure 26. Lab test volumes by discipline (including public health), 2018/19 [65]



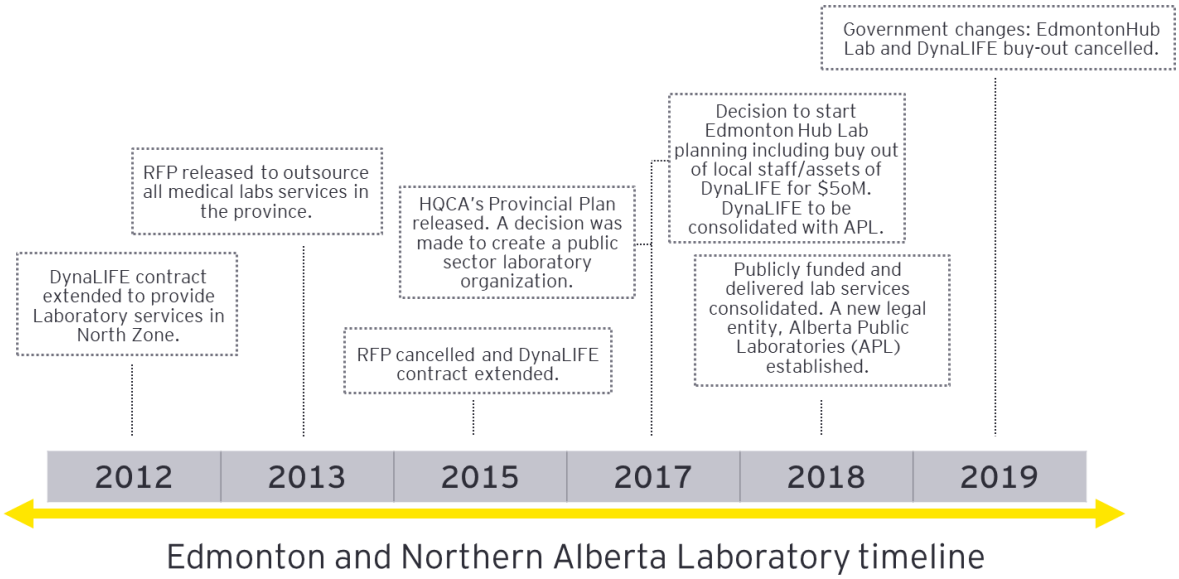
Over the past several years, laboratory services in Alberta have been the focus of several significant re-structuring and integration efforts, marked by multiple reviews and attempts to transform the laboratory services business model. These transformation agendas have been shaped by government strategy and direction and have been impacted substantially by electoral changes in 2015 and 2019. Figure 27 depicts significant decisions and milestones since 2012, including: a provincial RFP to privatize labs across the province that was issued, awarded and then cancelled; an existing contract for lab services in Northern Alberta that was extended, terminated and then reinstated; a consolidated provincial lab service – Alberta Precision Labs – that was created; and construction of an expensive public super-lab that was started and then cancelled. It would be an understatement to suggest that lab services in Alberta have endured a sustained period of turmoil marked by interrupted and competing transformation agendas.

Consistent with the clear mandate provided for our review, our intention in this section is not to further analyze the decisions that led us to this point, but to assess the prudent and most efficient path forward. We will assess the operations of laboratory testing by Alberta Precision Laboratories (APL), the public agency with oversight responsibilities for all publicly funded laboratory services in Alberta and consider the most efficient mix of public/private service delivery in the province.

In conducting this work, we have relied on many comprehensive reviews and assessments that have been made available to us including the Health Quality Council of Alberta (HQCA) commissioned plan for integrated lab services. This plan provides important context, data and analysis related to the integration and consolidation of services, the need for clear leadership structure and transparent decision-making processes, an integrated province-wide strategic plan, and innovation and investment into new technology.

[65] Distribution shows APL lab volumes only, does not include private provider.

Figure 27. Timeline of critical decisions and milestones in Laboratory Services

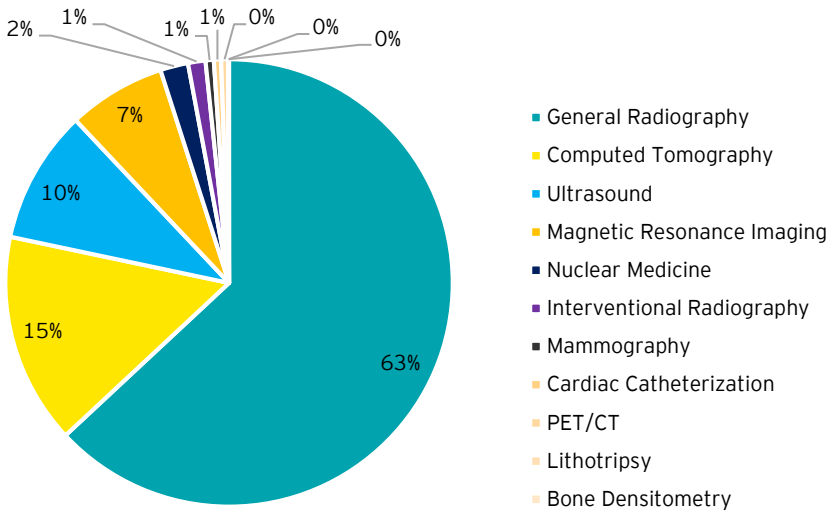


Alberta Precision Labs (APL), created as Alberta Public Labs in 2018 and renamed in 2019, is a wholly owned subsidiary of AHS. APL is led by a Chief Operating Officer and a Chief Medical Laboratory Officer. This public organization represents the consolidation of laboratory services previously provided by AHS, Calgary Lab Services, Covenant Health, and Lamont Health Care Centre. APL has two distinct operating models: the North sector is a hybrid of private and public providers whereas the South sector is fully public. Overall, APL outsources 23% of its tests to private providers.

Diagnostic Imaging

AHS performs diagnostic imaging (DI) at 299 hospital-based facilities across Alberta. The program delivers over 2.9M exams per year across multiple modalities including CT, X-Ray, Radiography, Nuclear Medicine, Ultrasound, and Lithotripsy. General Radiography represents the highest volume of exams at 63% of provincial activity. The Edmonton and Calgary zones account for the majority of exams making up 35% and 32% of volumes respectively.

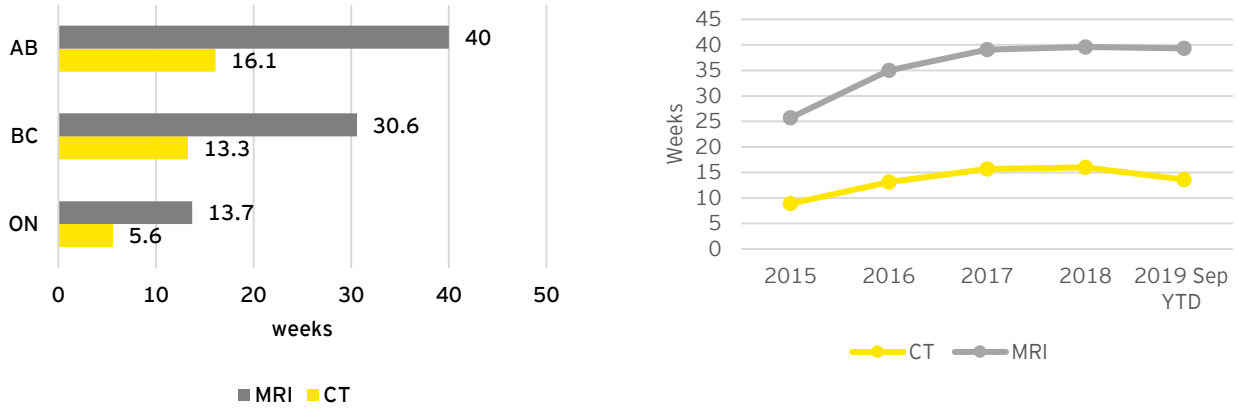
Figure 28. Diagnostic Imaging test volumes by modality, 2018/19



The overall growth rate of diagnostic imaging exams is relatively flat, growing by 1% per year. Within DI, MRI and CT have seen significant investment with AHS focused on improving access in these areas. From 2017/18 to 2018/19 MRI and CT exams increased by 5% and 6.3% respectively. While MRIs and CTs are mainly provided within AHS, they are also available within private clinics across Alberta. However, when provided in a private setting these tests are not covered by the Alberta Health Care Insurance Plan and patients are required to pay out of pocket.

Alberta's CT and MRI wait times are significantly higher than other provinces. Figure 29 provides a view of provincial wait times for these tests and compare performance to other Canadian provinces. One in every ten patients in Alberta waits more than 40 weeks for an MRI which is months longer than the wait times experienced by residents of BC or Ontario.

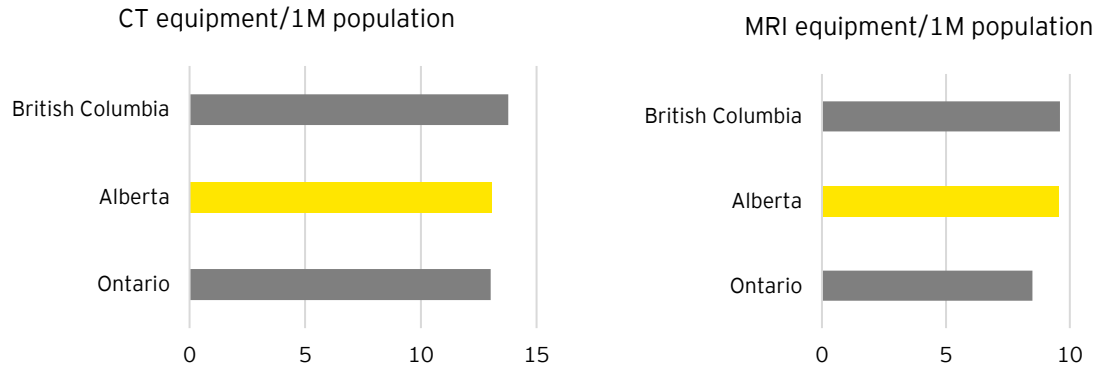
Figure 29. a) CT and MRI wait times by province, 2018; b) CT and MR wait times in Alberta at 90th percentile



Source: CIHI.

While wait times and access to CT and MRI pose a persistent and significant challenge to the quality and accessibility of health care in Alberta, it is important to note that the differential in access between Alberta and Ontario and BC cannot be attributed to the availability of MRI/CT equipment. This is depicted in Figure 30.

Figure 30. a) CT equipment per 1M population; b) MRI equipment per 1M population



Pharmacy

The pharmacy provincial portfolio is responsible for drug production, distribution and direct patient care in hospitals and other AHS facilities. Across AHS there are 146 pharmacies including 12 outpatient pharmacies, 16 Covenant Health pharmacies and 118 inpatient pharmacies. There is one centralized production and distribution centre with five hubs.

In fiscal 2018/19, AHS spent $507M on drugs with most of the costs incurred in acute care facilities. Drug expenses represent a significant cost pressure, and since 2017/18 AHS' spend on drugs and gases has increased by 8.5%; largely due to the advent of new biologics and the approval of new cancer drugs. To support these high cost cancer, and other specialty drugs, Alberta Health provides AHS separate grant funding which accounted for $355M of the total drug spend. In addition to these drug expenses, the provincial pharmacy program has an operating expense of $210M which covers staffing and supply related costs.

In Alberta, medications are paid for by different parties depending on how and where the medications are administered. Medications provided in hospitals and long-term care are provided to patients at no cost and are funded by AHS, or in the case of specialty cancer drugs, by Alberta Health. In the community many Albertans rely on insurance coverage provided through supplementary plans, often sponsored by their employer or the Government of Alberta through various programs (e.g. the Seniors Benefit Program).

Emergency Medical Services

AHS' Emergency Medical Services (EMS) provides out-of-hospital response, treatment and transport to patients requiring urgent and immediate care. EMS works with public partners including hospitals, communities and public safety organizations to provide quality care in a timely manner. EMS also performs inter-facility transfers and non-emergent patient transport across AHS (this will be discussed in the non-clinical support services section).

Services are provided through ground ambulance, non-ambulance transfer vehicles, and rotary and fixed-wing air ambulance. AHS has 10 air ambulance bases with 11 aircraft that service the entire province. EMS requests are coordinated through seven dispatch centres (three AHS and four municipal contracted centres). EMS has 2,737 AHS staff and 2,065 contracted staff across 204 stations. AHS (including contracted staff) has nearly has a 50:50 ratio breakdown between advanced care paramedics (ACP) and primary care paramedics (PCP). ACPs receive additional training and have an expanded scope of practice than PCPs, including being certified to handle more medications. AHS' EMS system is structured to provide flexible resources to match peak demands.

This past year, EMS responded to 560,434 events, which has increased by 9% over the last three years. AHS owns 400 ambulance fleets and 110 paramedic response units. EMS' capital asset base is approximately 2.6% of total AHS assets. AHS' EMS group also provides community paramedic services as part of a Mobile Integrated Health Program that trains community paramedics to provide short-term treatment for low-acuity illnesses. Some examples of this program include Community Response Teams, City Center Teams, Crisis Response and EMS, and the Assess Treat and Refer (ATR) Program.

Findings

Clinical appropriateness

1. AHS has begun to adopt and implement recommendations from the national "Choosing Wisely" appropriateness program. While appreciable progress has been made, targeted reductions are often lower than Choosing Wisely guidelines.

Choosing Wisely

Evidence has found that up to 30% of tests, treatments and procedures in Canada are potentially unnecessary. While reducing these inappropriate services can save money, most importantly, it will decrease wait times, improve patient safety and the overall patient experience.

Choosing Wisely Canada is the national voice for reducing inappropriate tests, working with health systems, providers and patients to create recommendations, tools and clinical guidance for implementation.

Source: Choosing Wisely Canada

- Currently, there are 53 initiatives in-flight across AHS, of which 28 are led by the clinical support services and 25 are led by the strategic clinical network teams. Approximately half of these initiatives have quantified savings or efficiencies totaling $42M-$62M. Further quantification of initiatives could provide additional savings opportunities for AHS.

Table 49. Overview of existing clinical appropriateness initiatives

Initiative Owner	# of Initiatives	Potential Savings/Efficiency
Labs	8	$14.4M
DI	4	$1M
Pharmacy	16	$11.6M
Strategic clinical network	25	$15M-$35M

- In some cases, targets are not fully aligned with Choosing Wisely recommendations or could potentially be pushed more aggressively. Examples include:
  - A pharmacy initiative to reduce antibiotic use in Asymptomatic Bacteriuria patients has a current reduction target of 25%, whereas Choosing Wisely recommends 100% elimination of use within this patient group[66].
  - Within DI, reductions in CT and MRI for back pain has exceeded the initial AHS target of 15% and is forecasted to achieve a 35% reduction. While this progress is significant and should be congratulated, targets should be reassessed to drive further benefits.
  - Laboratory services created a utilization-specific Physician Report Card, which it has piloted at two Calgary sites. Physicians were given information on their ordering practices and cost per patient, as well as peer comparisons. This

"My family doctor declined my request for an MRI when I had a herniated disc in my back. I needed physio to get better and his diagnosis of the problem was 100% correct. I did not need an expensive MRI. More education for doctors around using knowledge and experience without adding to already lengthy waits for imaging that are costly to the system is needed.

Comment from AHS Employee Survey

[66] http://www.choosingwisely.org/clinician-lists/infectious-diseases-society-antibiotics-for-bacteruria/

reporting tool resulted a 14.2% reduction of targeted tests. This is an example of leading practice that should be expanded. AHS intends to scale this initiative across 4,500 family physicians in 2020.

- AHS established the Improving Health Outcomes Together (IHOT) team, a provincial governing body to oversee the delivery, spread, engagement and monitoring of clinical appropriateness initiatives. Even with this team in place, many initiatives remain localized to sites or departments, and initiative owners have varied approaches to target setting, return on investment assumptions and overall implementation.
  - Individual initiative owners have estimated the potential benefits, but it is unclear if there is consistency around how the benefits are calculated and scaled to maximum. Furthermore, it does not appear that benefits are tracked and measured on a regular basis against targeted achievement.
  - Most of the savings identified have been deemed cost avoidance by AHS, rather than budget savings.

Laboratory services

2. Alberta Precision Laboratories (APL) deploys a mixed service delivery model for lab services in Alberta, delivering laboratory services in some parts of the province, while managing an outsourced delivery model in others. When comparing similar tests within this hybrid model, there is a cost differential of $1.29 per test between APL ($9.61/test) and the private provider ($8.32/test)[67].
   - APL performs public health ($25/test) and genetic laboratory testing ($88/test) across the province. Both are more specialized, higher cost services relative to the bulk of testing activities, and so were not included in the calculation of the price differential noted above.
   - Excluding public health and genetic testing, APL conducted a total of 60M tests at a cost of $576M, with the private provider undertaking 19M tests costing $158M. Based on this data and comparing like for like tests there is an evident price differential in favour of the outsourced solution.
   - Included within the overall $576M APL expenditure are $46M of costs to cover overhead including shared services agreement with AHS as well as corporate support functions. AHS is incurring this APL overhead cost predominantly for their service delivery function (although presumably a small portion would cover their contract management function), as the current capitated contract with the private provider includes all of their management and overhead costs.
   - Based on the 2017 HQCA report, the outsourced lab provider has invested $19M in capital equipment from 2013/14 – 2017/18, which is 84% more than AHS (i.e. APL)[68]. In addition, 71% of APL's laboratory equipment beyond its recommended replacement year suggesting a significant capital avoidance opportunity from expanded outsourcing.

Diagnostic imaging

3. Diagnostic imaging utilization (e.g. exams/hour) can vary greatly within the same modality and can be further optimized to increase capacity and reduce wait times where appropriate.
   - There is significant variability across all modalities with large differences between low and high performing sites. AHS is achieving its internal target for MRI utilization, but CT utilization is falling

[67] APL Cost and Volume Analysis Sept 2018 – Aug 2019.
[68] Health Quality Council of Alberta, Provincial Plan for Integrated Laboratory Services in Alberta (February 2017).

behind internal targets. However, wait times for these exams are significantly higher than other provinces.

- Currently, AHS is responsible for all costs associated with DI activity, including radiologist compensation. As a result, an increase in volumes may lead to an increase in radiologist fees that needs to be considered. As discussed in the physician optimization section of this report, radiologists are paid significantly more in Alberta than in other provinces.
- The table below outlines the average exams per hour performance, along with the performance of the highest and lowest performing sites. Internal AHS targets were provided for CT and MRI.

Table 50. Diagnostic Imaging exam volume per hour

DI Modality	Average Exams/Hour	Low Exams/Hour	High Exams/Hour	AHS Target
CT	1.69	0.85	5.56	3.80
MRI	1.85	1.00	2.5	1.60
Ultrasound	1.05	0.44	2.36	N/A
Radiography	1.72	0.65	3.20	N/A
Nuclear Medicine	0.54	0.30	0.73	N/A

4. AHS has identified 6 radiography sites that could be consolidated or closed because of low utilization.
   - AHS developed the following site-based utilization guidelines to identify these 6 sites:
     - Performing less than 1,500 scans per year and less than 1 scan per hour
     - Sites are not servicing nearby AHS sites
     - Patients could travel to other sites within 20 minutes
   - There could be further opportunity to consolidate an additional 5 radiography and 1 ultrasound site if the above guidelines, specifically travel time, were aligned to AHS acute care access guidelines of 45 minutes.[69]
     - The two consolidation scenarios above are separate from DI consolidations associated with site closures as part of the *Service Configuration Workstream*.
   - The sites identified have aged equipment and would therefore likely yield limited financial value from a sale of assets; however, financial benefit would come from reduced staffing/operating costs as well as the avoidance of future capital purchases.

5. Diagnostic imaging at AHS is challenged by aging equipment, 32% of which is past its recommended replacement year.
   - With no allocated capital funding in 2019/20 and significant expenses related to service/maintenance costs, AHS could consider alternative models such as a Managed Equipment Service (MES) arrangements, which are being adopted in other Canadian hospitals (e.g. William Osler Health System and Humber River Hospital).
   - With majority of AHS' DI equipment due for replacement in the next 5-10 years, the pressures associated with capital equipment will continue to build.
   - Managed Equipment Service would provide AHS with timely replacement of the equipment as part a long-term contract (typically 10-15 years). In addition, vendors would provide services related equipment purchasing, installation, maintenance, and staff training.

[69] AHS Rural Service Access Guidelines for Emergency Department & Acute Medical Inpatient Service Planning (2013)

- Many vendors have invested heavily in the development of AI technology that improves automation, productivity and standardization within DI. Moreover, vendors are using advanced data analytics to support the interpretation and analysis of images. Leveraging a MES model could provide AHS with expedited access to these types of new innovations.

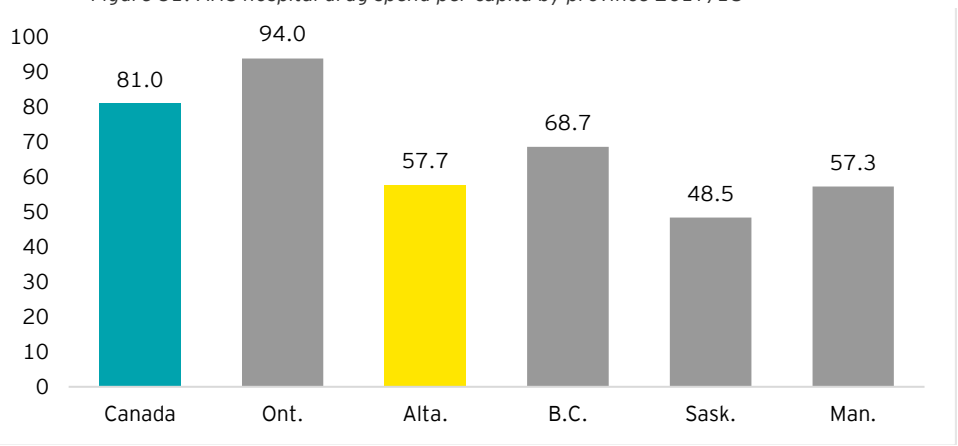
Pharmacy

6. Alberta spends less per-capita on hospital drugs than many other provinces.

- Alberta has a province-wide formulary, which has allowed AHS to drive down drug costs through controls on what can be prescribed and the use of generic medications.
- As part of the formulary process, AHS reviews new drugs for approval against what is provided on formularies across Canada enabling cost effective, and evidence-based access to medications.

> *"Provincial pharmacy has saved millions by streamlining provincial formulary and drug optimization initiatives."*
>
> *Comment from AHS Employee Survey*

Figure 31. AHS hospital drug spend per capita by province 2017/18[70]



7. AHS has controls in place for the approval and ordering of drugs that are not on the provincial formulary. As evidenced by a relatively small non-formulary spend, AHS performs well in this area

- AHS' spend on non-formulary drugs in 2018/19 was $2M across the top 25 drugs. While this is a small spend, it has doubled from the previous year, with AHS actively reviewing these variances to reinforce its controls and processes where necessary.
- There is also significant variation across AHS zones, with Edmonton zone representing half of the non- formulary spend, suggesting an opportunity to improve controls in that zone and drive further savings.

[70] Canadian Institute of Health Information - Canadian MIS Database (CMDB). *Hospital Expenditure by Type of Expense*, 2018

Table 51. Top 5 non-formulary drug spend

	FY 2018/19						
Top 5 drugs	Calgary	Central	Edmonton	North	South	Total	FY 17/18
Dalteparin		$115,975	$239,607	$128,090	$17,032	$500,704	$0
Ceftolozane - tazobactam	$43,858		$352,423			$396,281	$214,951
Blinatumomab			$229,326			$229,326	$380,496
Elapegademase	$169,775					$169,775	$0
Agalsidase			$112,500			$112,500	$0
Others	$368,774	$82,925	$247,855	$12,719	$3,268	$715,541	$414,960
Total (Top 25)	$582,407	$198,900	$1,181,711	$140,809	$20,300	$2,124,127	$1,010,407

8. AHS conducts quarterly reviews of its drug spend across the top 25 drugs to address increases in spend as well as to investigate variations across zones. Although this is effective at identifying broad issues, the existing reporting capability does not allow AHS to analyze variation at the service or provider level limiting its ability to provide specific feedback to outlier prescribers.
    - Understanding the importance of provider level feedback, AHS is improving its drug database and partnering with the Faculty of Pharmaceutical Sciences at the University of Alberta to apply advanced analytics alongside leading research in the review of its practices. This will allow AHS to dive deeper into drug spend variation within specific care pathways and at the provider level to support targeted education and training on clinical appropriateness.

9. AHS has a variable approach to retail pharmacy in its facilities across the province and has not fully leveraged its size and scale to maximize existing retail pharmacy arrangements.
    - There is a mix of outsourced arrangements including leasing and profit-sharing agreements. Pharmacies in rural areas are mostly AHS owned and operated.
    - We have heard from operational leaders that vendor arrangements can be problematic with providers opting out less profitable services or areas.

10. The Calgary zone has consolidated pharmaceutical services for long-term care with three private providers, saving $670,000 per year
    - The Calgary zone has an agreement with three community pharmacy providers for 4,600 LTC beds in non-AHS operated facilities, which has resulted in lower cost rates, a streamlined capitation-based cost model (vs. fee for service), and improved performance monitoring.
    - Adopting this model in other parts of the province could allow for similar benefits to be achieved.

11. In Alberta, there is no co-pay for drugs for LTC clients and many non-prescription medications are 100% covered by AHS. AHS can explore alternative options for drug payments that align with similar patient populations within AHS, and provinces such as Ontario[71].
    - Historically, legislative directives were intended to create equity in drug costs between clients in auxiliary hospital based LTC and clients in nursing home settings. This resulted in the elimination of the co-pay for nursing home residents. However, with the introduction of DSL spaces, there is now a perceived inequity between LTC and DSL clients, who are responsible for their own medication costs.

[71] Ontario Drug Benefit Program. https://www.ontario.ca/page/get-coverage-prescription-drugs

- Many clients are eligible for Seniors Drug Benefit Plan where the client co-pays 30% of the medication cost if the medication is on the Drug Benefit List.
- Non- prescription medications (e.g. Tylenol) are currently paid by AHS in LTC at no costs to the client, even though this is not a requirement of legislative directives. This equates to approximately $2M for AHS.

Emergency medical services and air ambulance

12. Four of the province's air ambulance bases are significantly underutilized.

Table 52. Air ambulance base volumes

Community	Air Ambulance Volume	Volume from Base Community	Volume from Other Communities	Percent Pick-up away from Base
1. Lac La Biche	761	74	687	90%
2. Peace River	1439	259	1180	82%
3. Slave Lake	799	152	649	81%
4. Fort Vermilion	537	206	331	62%
5. High Level	*583*	*253*	*330*	*57%*

- In these facilities, most transports do not originate in the aircraft's community base location. An assessment of volumes, transport routes, and costs suggests that some of these bases could be consolidated with higher utilized bases. These communities would continue to have air ambulance services to maintain service delivery, with aircrafts relocated to nearby locations.
- The remaining air ambulance bases (Calgary, Edmonton, Grande Prairie, Medicine Hat) serve large urban and metro communities with high aircraft utilization rates, which can provide air ambulance services to the communities listed in the table above.
- However, it is important to note that air ambulance service delivery contracts (inclusive of aviation and air medical crew providers) are only one year into an existing 10-year contract. Therefore, changing base locations or the operational model at this point could incur penalties or require some form of buy-out.

13. AHS has identified an opportunity to consolidate four contracted EMS dispatch centres into EMS managed communications centers to reduce costs.

- The workload currently handled through service agreements with the City of Calgary, City of Lethbridge, City of Red Deer and the Regional Municipality of Wood Buffalo Dispatch Services is duplicative of what AHS' EMS communications centers currently provide and can be consolidated and managed by AHS.
- From an efficiency perspective, AHS would spend less time administering agreements and working with four external agencies on dispatch operations and performance management.

Recommendations

Recommendation 29: AHS should expand and scale clinical appropriateness initiatives to reduce unnecessary tests to improve patient safety, experience and access across Alberta.

- Expand IHOT team mandate to accelerate the scale and spread of clinical appropriateness initiatives across AHS.
- Refine appropriateness initiative targets to reflect Choosing Wisely guidelines or other leading-practice standards. In cases where initiatives have already met or exceeded their initial targets, reassess possible benefits and set more appropriate and ambitious goals.
- Develop a benefit tracking and realization approach that enables AHS to track actual savings due to reduced diagnostic volumes and make appropriate budget adjustments.

Recommendation 30: AHS should further leverage private contracts for the provision of laboratories services across Alberta. While an initial focus should be on community-based testing, subsequent consideration should be given to expanding to specialty test options.

- Undertake a detailed options appraisal for expanded outsourcing of laboratory testing, with an initial focus on community-based testing.

Recommendation 31: AHS should optimize capacity across DI services by consolidating underutilized radiography facilities and increasing throughput of CT and MRI modalities to help manage wait lists where appropriate.

- AHS should immediately seek to consolidate Radiography sites that do not meet AHS' access criteria.
- Complete a capacity and future-demand review of DI modalities across the province to provide a complete perspective of resource needs and productivity opportunities.
- Leverage the additional capacity created from optimizing the utilization rate to help manage the wait lists where appropriate.

Recommendation 32: AHS should consider and assess options related to a Managed Equipment Service (MES) approach to major DI equipment to provide more timely equipment replacement and access to innovations that can drive further efficiencies.

- Undertake a detailed cost benefit analysis of the potential for a Managed Equipment Services (MES) model. This would include potential outsourcing of major diagnostic equipment to a third-party providing services related to the purchasing, installation, training, managing and maintenance of a portfolio of equipment.
- Potential financial and quality benefits of such a model include:
    - Discounts related to purchasing of equipment from a larger MES agreement
    - Lower cost of replacement and timely refreshment of equipment
    - A single contract managed with one MES vendor, streamlining the procurement and management of the DI equipment
    - Add-ons such as artificial intelligence to drive improvements and efficiencies
    - Reduced capital expenditure

Recommendation 33: AHS should review and optimize its commercial business models for pharmacy including retail pharmacy options (e.g. owned, lease, profit share) and LTC delivery models. Consideration should be given to co-pay options and expanding the Calgary private LTC model.

- Build a provincial strategy for AHS retail pharmacy that leverages the size of the provincial market to maximize revenue opportunities and reduce the "opting-out" of vendors from perceived low margin markets (i.e. rural settings).
- Within a provincial strategy, assess potential costs and benefits related to the following models:
  - AHS owned and operated
  - Profit sharing
  - Leasing
- Consider reviewing payment models for LTC patients related to non- prescription drugs and co-pay options.
- Consider scaling of Calgary's private pharmacy delivery model to other zones. AHS could achieve more streamlined process and seek compliance to the formulary through the contractual agreement with the pharmacy vendors.

Recommendation 34: AHS should rationalize EMS dispatch and air ambulance operations including the relocation and decommissioning of underutilized airbases and a review of service agreements where services can be more efficiently delivered by AHS.

- Consider the relocation and decommissioning of underutilized airbases: Vermilion, Lac La Biche, Slave Lake and Peace River and consolidate with higher utilized bases that have aircraft capacity.
- Review service agreements for dispatch services with City of Calgary, City of Lethbridge, City of Red Deer and the Regional Municipality of Wood Buffalo ending arrangements where services can be more efficiently and seamlessly delivered by AHS, consolidating workload into EMS Communications Centers.

Opportunities

Table 53. Summary of clinical support services opportunities

#	Opportunity Name	Opportunity Description & Valuation Approach	Gross Valuation
CSS1	Improve adherence to test appropriateness	Reduce redundant/ unnecessary tests based on clinical appropriateness. Savings identified by AHS clinical appropriateness initiative leaders. Valuation challenged to incorporate province-wide scale or maximum target informed by leading practice, where possible.	$43M-$62M
CSS2	Improve DI utilization	Improve efficiency and productivity across DI modalities, driving higher utilization and potential rationalization. Valuation based on reduction in cost through increased utilization to targets set by either AHS or median performer.	$7M-$15M
CSS3	Closure of underutilized DI sites	Rationalize DI sites where volume is low (<1500 per year) and is close (within 45 min) to another hospital that offers the same service. Valuation based on removal of DI function for underutilized sites as per the budgeted costs.	$2M
CSS4	Outsourcing lab activities	Maximize current outsourcing model across remaining laboratory services. Valuation based on the cost differential between current insource vs. outsource cost per test (excluding genetics and public Health) multiplied by current in-house AHS volumes.	$102M
CSS5	Managed Equipment Service - private partnership model	Explore a private partnership model for Managed Equipment Service (MES) to improve overall cost effectiveness and maximize additional technology to drive productivity. Valuation based on industry benchmarks with reductions to capital and service costs. This would be applied to all identified DI equipment.	Unvalued
CSS6	Outpatient and private LTC pharmacy business model	Assess options to determine best approach to deliver retail and private LTC pharmacy services. Assess options for clients to pay for non-prescription drugs and co-pay for other drugs.	Unvalued
CSS7	Underutilized air ambulance bases closure	Decommission underutilized air ambulance bases and consolidate aircrafts to existing bases. Valuation based on AHS estimate of decommissioning air ambulance base operational costs.	$2M
CSS8	Consolidate regional dispatch operations into EMS communications centers	Confirm and validate two separate EMS dispatch savings initiatives to terminate City of Calgary, Lethbridge, Red Deer and Wood Buffalo Dispatch Services. Valuation based on AHS estimates.	$5M

Improvement Theme: Non-clinical support services

Non-clinical support services

Context

The non-clinical support services section includes findings, recommendations and opportunities related to key support functions that are essential to the health and wellbeing of patients, but do not generally require the expertise of a doctor or nurse. Outsourcing, also known as Alternative Service Delivery (ASD), has been widely used in other jurisdictions and has resulted in lower cost, higher quality services. With over one billion dollars spent every year on these services, AHS continues to assess ASD as an option for achieving greater system sustainability.

Our analysis considers how services are currently delivered (in-house, hybrid or outsourced) and assesses the viability and benefit of alternative models based on jurisdictional comparators, EY's experience and market intelligence.

Overview

The following non-clinical support services were reviewed, and a breakdown of total AHS spend and FTEs for each service is summarized in the table below.

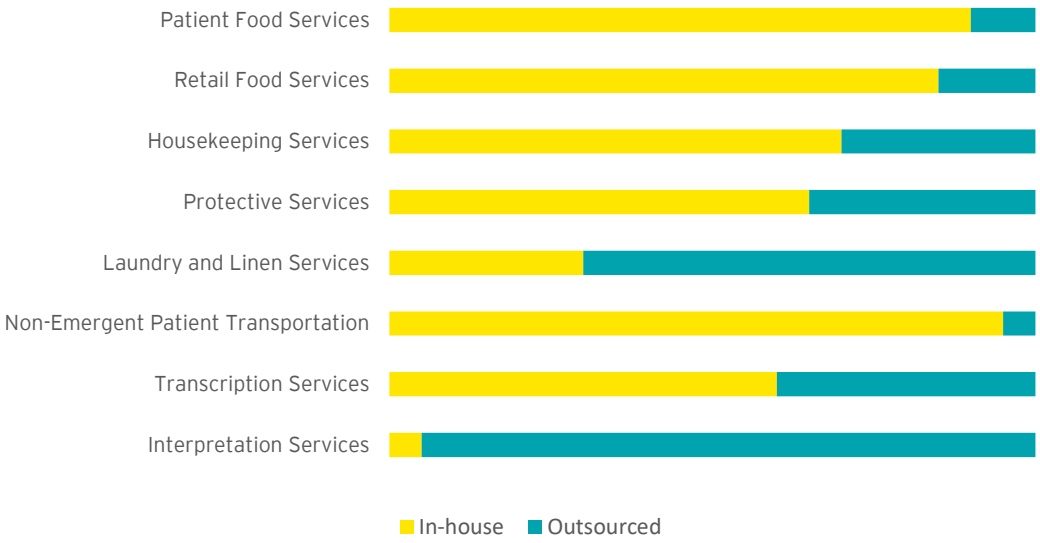
Table 54. Non-clinical support services: breakdown of AHS spend and FTEs

Service	# FTE	Size of Budget
Patient Food Services	1,330	$205,618,488
Retail Food Services	172	$26,301,430
Housekeeping Services	2,355	$198,560,379
Protective Services	418	$71,324,855
Laundry and Linen Services	235	$60,138,385
Interfacility transfers and non-emergent patient transportation (part of EMS operations)	3,600[72]	$506,000,000
Health information management	1,999	$159,994,275
Interpretation and translation services	2.4	$1,561,091
Facilities management and real estate	1,190	$412,086,168

[72] Non-emergent patient transport FTE and budget is integrated within EMS total operations.

Across various non-clinical support services, AHS uses a mixed model of in-house and outsourced service delivery. This breakdown is described in the figure below.

Figure 32. Summary of in-house versus outsourced model for non-clinical support services



AHS' work to date

AHS has done substantial work in reviewing housekeeping, retail food and laundry services to identify potential alternative service delivery models for the province. The work has highlighted potential cost savings and service improvements and provides a strong analytical base for consideration of an expansion of their ASD portfolio. In this section, we have assessed the work completed by AHS and have in some cases augmented opportunities based on market intelligence and our experience with other jurisdictions.

Findings

Review of Non-Clinical Support Services

Patient food services

1. AHS' average cost per day for patient food across several sites benchmarks higher than industry comparators with outsourced delivery models. The table below indicates food and total costs per inpatient day. Food costs are only food and raw materials, while total costs are inclusive of food, supplies and labour costs.

Table 55. Cost per day for patient food across 13 sites

Facility Type	Facility Name	Net Food / IP Day	Site Net Costs / IP Day
Acute	Alberta Children's Hospital	$11.91	$41.11
Acute	Chinook Regional Hospital	$13.81	$37.63
Acute	Medicine Hat Regional Hospital	$13.11	$41.44
Acute	Queen Elizabeth II Hospital	$13.23	$36.62
Acute	Red Deer Regional Hospital	$11.54	$39.85
Acute	South Health Campus	$10.42	$34.39
Acute	Sturgeon Community Hospital	$13.37	$39.97
Acute	Peter Lougheed Centre	$10.78	$29.60
Acute	Rockyview General Hospital	$10.46	$27.97
Acute	Royal Alexandra Hosp	$11.30	$36.25
Acute	U of Alberta and Stollery Hospital	$10.61	$31.18
Acute	Foothills Medical Centre	$11.50	$28.36
Mixed	Northern Lights Regional Health Centre	$16.60	$54.17
Outsourced Benchmark 1	*Site in Ontario*	*$7.90*	*$27.80*
Outsourced Benchmark 2	*Site in Ontario*	*$8.33*	*$30.68*
Outsourced Benchmark 3	*Site in British Columbia*	-	*$28.00*

- In addition to reducing operating costs associated with food provision at hospitals, there is a material opportunity to reduce/avoid capital costs associated with current operations across 106 sites with a variety of meal delivery systems.
- When assessing alternative service delivery of patient food in rural areas, this service needs to be combined with retail food services to provide enough volume for food production.

2. Other jurisdictions such as Ontario and British Columbia have outsourced their patient food operations to third party vendors. These organizations have achieved an increase of patient satisfaction by 5-15% while reducing food costs per patient day of 5-20%.

   - Vendors have offered more flexible and customer centered options to drive higher quality and improve patient experience. Patient satisfaction according to some surveys has risen by 5-15% while reductions in total cost per patient day of 10-35% and food costs per patient day of 5-20% have been achieved.
   - Market sources have also identified potential improvements in automation, advanced tools to track food usage, food delivery logistics, and fulfillment of patient dietary restrictions as additional benefits available to AHS.

Retail food services

3. Retail food services, largely delivered through in-house delivery models, are not profitable across AHS.

- The existing retail food services model does not allow operational funding as per the Regional Health Authorities Regulations:
  - *'No regional health authority shall use general grants provided by the Crown, or health services fees or charges that the regional health authority is authorized to collect to subsidize an ancillary operation unless the money comes from accumulated surplus as defined in section 2.9 (1) (b)'*
- While retail food sales (referred to as ancillary services) in the table below, generate an operating deficit of $1.3M, AHS' vending, leasing and catering operations provide approximately $3M in revenue with limited or no incremental operating costs satisfying compliance to the regulation.
- However, AHS has begun exploration of alternative service delivery options for retail food services as it is likely that the financial performance of these services can be improved to a profitable position.

Table 56. Retail food services revenue and expenses (FY 2017/18)

AHS Retail Food Services Revenue and Expenses (FY 2017/18)			
	Expenses ($)	Revenues ($)	Net Income/ (Loss) ($)
Ancillary	26,690,801	25,346,882	(1,343,919)
Vending		1,012,233	1,012,233
Leases		1,166,600	1,166,600
Catering		810,407	810,307
Recoveries		22,882	22,882
Total	**26,690,801**	**28,358.904**	**1,668,103**

- Self-operated retail services are in continuous competition with third party and volunteer run retail operations, reducing overall market share for potential revenue. They also require capital investment from scarce public funds to maintain operations and stay competitive. There is opportunity to explore various commercial models transfer risk and investment to the private sector while returning more predictable revenue streams to AHS.
- AHS-operated food services have struggled to maintain market-based food services in rural areas and have identified a hesitancy by the private sector to provide retail food operations in these lower volume sites. With AHS' buying power, AHS could address private sector hesitancy to provide services in rural areas by bundling these under-serviced locations into large procurements or inpatient ASD
- Other jurisdictions such as Ontario and British Columbia have outsourced their retail food operations to third party vendors to reduce operating costs and generate revenue in new and innovative ways.
- Providers have optimized site layouts and renderings based on volume and footprint to best allocate retail vendors to meet consumer demand.

- Leveraged existing kitchen and serveries' equipment where possible to reduce overhead and infrastructure costs.
- Allocated and provided retail marketing to increase sales, as well as offered innovative health and wellness opportunities as part of guest and visitor menus.
- Provided extended hours of service at lower costs, increasing potential revenue.

Housekeeping services

4. The sites in which AHS has outsourced housekeeping services, such as Chinook Regional Hospital, are less expensive and are of same or better quality when compared to AHS sites with in-house delivery models.

   - AHS has entered into ASD agreements for housekeeping services, also referred to as environmental services, at Chinook Regional Hospital and approximately 400 other clinics.
   - There is a cost differential of $24.74 per cleanable square metre between AHS' outsourced service provider and the average cost of the 12 largest insourced sites.
   - By expanding its alternative service delivery model to other sites, AHS can further reduce the cost of housekeeping services and can implement quality and service improvement standards that will keep hospitals clean and reduce infection risk.

Protective services

5. AHS' protective services model, leveraging the unique role of Community Peace Officers, is a higher cost model compared to other jurisdictions.

   - AHS' Protective Services Community Peace Officer Training Program is the first program outside the Government of Alberta to be an accredited program by Justice & Solicitor General. Community Peace Officers (CPO) receive their appointments from the Solicitor General after 120 Hours (CPO Level II) or 240 Hours (CPO Level I) of intense accredited training.
   - The average cost of a CPO at AHS is approximately $18K higher than a contracted security guard (not inclusive of training).
     - Outsourced and hybrid models alleviate several costs such as overall hourly rate and benefits, management model, training, corporate support services such as HR and finance, uniforms and equipment, and supplies.
   - There is also some zonal variation in staffing models across AHS for protective services. For example, at the Foothills Medical Centre in Calgary protection services is fully insourced and utilizes only higher trained, more expensive CPOs, whereas other sites leverage a mixed model. While local considerations should to some degree determine the staffing model at individual sites, it is not clear why full CPO coverage would be necessary at a large urban site.

6. Other jurisdictions such as Ontario, Nova Scotia and British Columbia have a mixed model between in-house and outsourced security and protective services staff where they effectively utilize an 80:20 or 90:10 model of contracted security guards to higher trained or skilled protective service resources.

   - In-house resources used by other jurisdictions include security staff, Commissionaires, Special Constables or a combination of all.
   - In other jurisdictions, police services are brought in to assist with certain mental health patients in compliance to legislative authorities required by various health acts. For example, at Surrey Memorial Hospital in British Columbia, the RCMP is called upon to fulfill these requirements. In Alberta peace officers are authorized to provide these services.
   - AHS is supporting and collaborating with representatives from various BC Health Authorities, Saskatchewan Health Authority, Newfoundland Regional Health Authority and the Nova Scotia Health Authority in work that could lead to a national health care protective services benchmark.

Laundry and linen services

7. AHS has a mixed model for laundry and linen services with approximately 68% of services outsourced across the province. The current outsourced arrangements generate several benefits to AHS.

    - Laundry outside Calgary and Edmonton is provided through six AHS-operated regional processing plants and 44 dedicated on-site facilities. The equipment and plant infrastructure at several AHS-run facilities is nearing or past end of life and would require an investment estimated at over $200M to maintain operations. This aging infrastructure has resulted in additional challenges for AHS:

        - There are frequent equipment downtimes and required emergency equipment maintenance for the existing plants. There are equipment parts that manufacturers don't carry any longer or have been decommissioned which make replacing and maintaining the facilities very difficult.

        - There have been frequent staff safety near misses and injuries that result due to 'work arounds' from equipment break downs. Current disabling injury rates for laundry and linen services are 5.88 (YTD average of all zones as of February 2019) vs. rest of AHS average of 3.59.

        - There is increasing challenge in maintaining infection prevention and controls with the aging infrastructure that has not been upgraded to meet required standards.

    - Expanding outsourced services to AHS-operated sites would reduce overall cost of service, take advantage of modern, higher quality processes offered by the private sector, and significantly avoid capital expenditure required to maintain the current AHS operations.

8. While the same vendor serves both the Calgary and Edmonton regions, two contracts exist with a difference in unit cost.

    - The difference in unit cost between the Calgary and Edmonton contract is $0.34 per cleanable kilogram.
    - There may be an opportunity to negotiate a lower overall cost for these services to the province, considering this unit cost differential and the fact that there remains additional allowable capacity on the Edmonton contract at the lower rate.
    - Other jurisdictions such as British Columbia, Saskatchewan, Manitoba and Ontario have outsourced their laundry and linen services to third party vendors to reduce operating costs and capital equipment required to maintain in-house operations.

Non-emergent patient transportation

9. Interfacility transfers (IFT) across AHS sites are largely provided by AHS Emergency Medical Services (EMS). This has been a historical trend where patient transfers (medically required or not) have been provided by EMS using a mix of high cost ambulance vehicles with medically trained staff and a much smaller fleet of non-ambulance transport (NAT) units.

    - There is currently one existing contract in Red Deer that provides AHS non-ambulance transport resources to support interfacility transports. This contract supports approximately 1,500 transfers.

- AHS is unable to provide the current cost per trip of IFTs carried out by EMS across the province. It is therefore difficult to understand the cost-differential and magnitude of savings that could be achieved by transitioning to a lower cost provider that fully services all non-ambulance transportation calls in the three cities.
- However, as the volumes below indicate, over 30,000 annual trips could be provided through a dedicated NAT service through an alternative service arrangement. Such an agreement has resulted in a significant cost reduction across BC's lower mainland health authorities. This would also result in capital cost avoidance as the burden on the more expensive ambulance fleet is reduced.

Table 57. Resource level required at booking (transport count), January to December 2018

Resource Level Required at booking (Transport Count) From January 2018 to December 2018				
Pick Up Location Municipality	Advanced Life Support (ALS)	Basic Life Support (BLS)	NAT	Total
Calgary	6,627	17,937	12,896	37,460
Edmonton	5,161	16,825	17,253	39,239
Red Deer	1,261	2,659	1,954	5,874
Total	13,049	37,421	32,103	82,573

- In addition to cost savings, a fully dedicated non-emergent transportation operation will increase on-time performance as the current system routinely experiences diversions of ambulances to emergency cases causing delays for booked non-emergent trips. In turn this will reduce the cost and service impacts of missed appointments and procedures.
- IFT events in the suburban/rural and rural communities in all AHS zones are completed by ambulances that perform both emergency response and IFT work along with a small number of dedicated NAT vehicles. Outsourcing these services may not result in the same benefits as lower volumes may be best served by a mixed model.
- AHS should, however, continue to mitigate the impact of this model on wait times in rural areas as EMS crews are providing patient transports across regional areas or into urban centres, leaving remote areas unattended or scattered with a lack of available response options.

10. Other jurisdictions such as British Columbia and Ontario have outsourced their interfacility patient transports to third party providers to reduce costs and infrastructure requirements.

- In British Columbia, studies showed that approximately 30% or 130K ambulance events in the Lower Mainland were interfacility transfers, and approximately 75% did not require a paramedic in attendance. The Lower Mainland saved over $50M from 2014 – 2017 using non-emergent patient transport providers.
- Over a 5-year period, the number of BC interfacility transfers provided by ambulances (as deemed medically necessary) declined from 65% to 29%. 911 response times were improved by allowing emergency medical services groups to devote their limited and costly resources to be a first responder role.
- Avoided patients missing or being late for essential treatments or diagnosis, as well as improved patient flow with timely and reliable discharges.

- Guidelines for separation of medical and non-medical transfers have been developed for local units and sites to assist ward and nursing staff to ensure patients are using the most appropriate transportation method.

11. AHS EMS services are sometimes not used for intended purposes or in lieu of community transportation.

Non-emergent and interfacility transfer survey responses

"A large percentage of inter facility transfers travel by ambulance. In some cases, no care is required in any capacity and the ambulance is simply a ride. This transport costs fuel, x 2 employee wages, mileage on an expensive piece of equipment, and contributes to "code reds" across Alberta. Many of these NAT trips could be completed by single employee vans/SUVs for much cheaper or by teleconferencing with pt's at their rural facilities."

"...Stable patients who can walk or sit are often taken by ambulance with family or friends following behind. Patients often don't see the need to go by ambulance and prefer going with friends or family, this option is never even presented to the patient by the sending hospital, and transfers are booked without their knowledge..."

"We used to have rural patient transport ambulance service that would take in patients to routine appointments. Now we are being dispatched ALS crews for routine patient appointments. This takes ALS crews out of service for indeterminate lengths of time for routine appointments that could be handled by BLS crews"

"Ambulances staffed by two paramedics are often assigned to take one patient to things such as doctors' appointments, follow ups and routine diagnostics such as imaging and procedures..."

"Do not force EMS to transfer patients that they have medically cleared on site to the hospital. Many people use them as a taxi."

"Not all patients need an ambulance to travel to appointments at other sites"

"Due to paramedic shortages in rural areas it is not uncommon that that there is only one Advanced Care Paramedic (ACP) in a 2-hour radius. Yet they are frequently sent on interfacility transfers greater than 6 hours (not including wait times at the receiving hospital) for a non-emergent patient who requires no interventions en route and little monitoring. Leaving the surrounding areas without ALS coverage for little to no reason. Working a core-flex schedule, it is common for them to "fatigue" after these transfers are completed due to reaching high hours, resulting in a mandated 8 hours rest period. So, a stable patient requiring an antibiotic or electrolyte replacement (or more often, no treatment at all) can put an ALS unit out of commission for 14+ hours"

Health information management

12. AHS has achieved significant savings through a contracted service provider for transcription services and could realize additional savings through expansion of alternative service delivery in this area.

    - The cost differential of in-house transcription versus contracted transcription services is $1.30 per dictation minute. AHS transcribes more than 5M minutes per year in house.
    - There is also an opportunity to further consolidate and optimize transcription services for several programs that use transcription services not provided by/through AHS Health Information Management (HIM) services.
    - Covenant Health and Lamont Health Care Centre operate their own transcription services using AHS' dictation platform and should be included in any consolidation or alternative service delivery assessments. Several areas of HIM will be impacted by the implementation of Connect Care with associated benefits identified as part of implementation.
    - Savings related to AHS Health Information Management services are expected to be realized as part of the implementation of Connect Care - a province-wide electronic health record system. These savings will offset operating costs of the new system and will need to be netted out of any savings opportunities referenced above. AHS will need to carefully monitor realization of these anticipated benefits which include:
        - Patient care benefits:
            - 10% reduction in patient length of stay and better coordination of care
            - 7% reduction in lab expenses and reduction of duplicate testing
            - 5% reduction in pharmacy expenses and automation efficiencies to reduce duplicate entries
            - 10% reduction in radiology expense
        - Administrative benefits include:
            - 30% reduction in HIM operations
            - 50% reduction in off-site document storage
            - 50% reduction cost to produce paper-based forms

Interpretation and translation services

13. AHS has transitioned a significant amount of face-to-face interpretation services to a contracted over-the-phone provider for a lower cost. Further transition would result in additional savings.

- AHS has negotiated a contract price of $0.88 per minute for a third-party telephone service to reduce the cost of interpretation services across the province.
- In comparison, the contracted face-to-face interpretation service is charged at $1 per minute on a per visit basis with a minimum 2 hour/$110 charge which is substantially longer than the average requirement. This cost also must be paid in the case of no-shows and late cancellations.
- Usage of interpretation services varies significantly by zone. Only Edmonton and Calgary have access to paid face-to-face interpretation. AHS is actively working to shift usage to the telephone model. They also earn additional revenue from the sale of contracted telephone translation services to organizations outside of AHS at a premium.

Table 58. Cost of interpretation services, Calgary and Edmonton

	Calgary	Edmonton
Phone Interpretation	$549,824.03	$201,303.90
Face to face interpretation	$10,222.00	$177,177.84

Real estate and facilities management

14. AHS has recently initiated sustainability measures related to their facilities and their operations including exploring the consolidation of leases and a corporate utilities management plan, which have the potential to reduce costs across the organization.

- A review conducted on behalf of AHS of their owned and leased buildings will support AHS' lease consolidation efforts to reduce footprint and overall space costs.
- AHS has identified owned land and real estate that can be leased or sold, such as the south tower of Seventh Street Plaza in Edmonton.
- AHS is also considering sustainability initiatives such as the use of a utilities management plan that could further reduce operating costs.

Alternative service delivery (ASD)

15. There are significant opportunities to achieve greater system sustainability through an expansion of ASD at AHS.

- Alberta can take a "fast follower" approach to other jurisdictions that have achieved significant savings and enhanced services in commonly outsourced areas.
- Markets and providers in these service areas are mature and can assist with system wide, or phased transition, allowing benefits realization in the early years of contracts.
- While there are recognized wage and benefit differentials between the private and public sector, savings can also be obtained from technology investments, productivity enhancements and economies of scale.

- The benefits of ASD are not limited to reduced cost and include capital avoidance, technology refresh, modernization, risk transfer and a reduced burden on management and corporate support.
- Additional efficiencies have been gained through strategic procurement, enhanced vendor performance management, and jointly managed utilization reduction programs.

16. AHS does not have any integrated support models across its current outsourced arrangements.

    - Hospitals in British Columbia and Ontario, for example utilize an integrated support services model where there is end-to-end third-party service provision of services that lower overall administration costs and share common support platforms such as help desk and service management tools.

17. AHS does not have a central structure managing existing ASD relationships or future service delivery partnerships. The management of AHS' current ASD arrangements falls under the same division and executive leader but is part of an extensive operational portfolio that includes provincial laboratories and the province's cancer program.

    - The Business Initiatives and Support Services (BISS) office in BC has overseen a portfolio of ASD initiatives that have achieved industry leading results in efficient, high-quality services throughout the province.
    - The centre of excellence has established key performance metrics and benchmarks across contracted services, introduced innovative public sector procurement approaches that allow for outcomes-based solutions, and provides independent challenge and deal support from within to ensure that health authorities gets the best contracts possible.
    - In our view a dedicated ASD COE would greatly assist any expansion of ASD at AHS.

"Current contracts don't support innovation or quality incentives."

"Previously have had poor experiences with outsourcing in terms of quality outcomes"

Comments from AHS Operational Leader Session

Recommendations

Recommendation 35: A dedicated function should be established within AHS to support the qualification, service design, procurement, negotiation and management of alternative service delivery partnerships.

- The establishment of a dedicated, commercially disciplined centre of excellence can serve to develop strategy and capacity to quickly assess and implement alternative delivery arrangements at AHS.
- The function can leverage successes in other jurisdictions, and build upon expertise that already exists at AHS, to provide financial modelling, solution design, negotiation and innovative procurement support to AHS. It should also build capacity in the organization to manage the expanded portfolio of ASD partnerships to realize the benefits that have been negotiated.
- The centre should offer some degree of independence from existing operations to facilitate respectful challenge and leading practice into ASD planning and solutioning.
- This specialized structure should be focused on enhancing current contracted-out services with vendors, as well as supporting the identification of new relationships, based on a clear understanding of service standards and procurement best practices.

Recommendation 36: AHS should develop an enterprise-wide alternative service delivery strategy, and actively pursue opportunities to reduce costs, and improve services through outsourcing non-clinical support services.

- Given the many ASD opportunities under consideration within AHS, and new opportunities discussed in this report, it will be important to develop a coordinated approach to qualifying, valuing and pursuing new service delivery partnerships. Entering into any of these long-term arrangements requires significant effort and it is not possible to pursue them all at the same time. Seeking arrangements that offer the highest value and service improvements will be a critical element of the ASD program.
- We recommend the development of an assessment and prioritization framework, along with a phased strategy for pursuing prioritized service areas that sets out a timeline for successful expansion of the AHS ASD portfolio. It should address required investments, expected benefits and the approach that will be taken to realize them.
- Each of the opportunities referenced in this report should be assessed and prioritized along with any others that have been developed or are under consideration by AHS.
- Consideration should also be given to developing strategic procurement approaches that allow for joint solution design and negotiation of effective risk transfer. This form of procurement has significantly advanced value and performance of ASD partnerships in other jurisdictions.

Recommendation 37: As part of, or in parallel to, the ASD strategy AHS should fully assess opportunities to optimize and strengthen existing non-clinical support services.

- Areas of focus could include:
  - Alternative commercial models for retail food services which attract market-based retail offerings, provide profit share revenue, and require full regional coverage rather than just the most attractive high-traffic locations;
  - An evidence-based assessment of current staff mix, cost and outcomes for the current protective services model that provides required protection, and appropriately divides protection responsibilities across policing, in-house and contracted security forces;
  - Fulfilling the government direction to expand alternative service delivery of laundry and linen operations to current AHS operations thereby reducing cost, improving and modernizing service and avoiding replacement costs for end of life equipment;
  - The creation of a dedicated non-emergent patient transportation service in major urban areas and wherever viable to reduce costs and minimize the disruption of regularly diverted or delayed calls to patients who require transportation to appointments. This work should include the development of appropriateness and accountability protocols that reduce improper use of transportation resources; and
  - Conduct further due diligence on energy management, consolidation, space management and the potential sale of AHS' real estate assets.

Opportunities

Table 59. Summary of non-clinical support services opportunities

#	Opportunity Name	Opportunity Description & Valuation Approach	Gross Valuation
NCSS1	Inpatient food services outsourcing	Outsourcing patient food services operations to third-party. Valuation based on market intelligence and jurisdictional comparators. Investment will be required.	$100M-$146M
NCSS2	Housekeeping services outsourcing	Outsourcing housekeeping services operations to third-party. Valuation based on market intelligence and jurisdictional comparators. Investment will be required.	
NCSS3	Protective services outsourcing and resource rationalization	Transition protective services model to an 80% contracted and 20% in-house model (using CPOs). Valuation determined by scaling in-house and contracted provider costs to 80:20 model (low range) and 90:10 model (high range).	
NCSS4	Transcription services outsourcing	Transition remaining in-house minutes to existing contracted service. Valuation based on calculating difference of in-house transcription minutes to contracted provider rate.	
NCSS5	Laundry and linen services outsourcing	Transition remaining laundry and linen services to existing contracted provider. Valuation based on AHS estimate and market intelligence. Investment will be required.	
NCSS6	Interpretation services outsourcing	Transition remining face-to-face interpretation services to contracted telephone provider. Valuation based on calculating difference between face-to-face operational cost to telephone provider rate.	

NCSS7	Non-emergent patient transportation outsourcing	Transition interfacility transfers and non-emergent patient transportation to contracted provider.	
NCSS8	Implement comprehensive retail strategy	Outsource retail operations to third party vendor to assume all retail operational costs. Revenue from lease and profit share model to AHS.	
NCSS9	Implement AHS-wide sustainability management program	Program to reduce utility and energy costs in electricity, natural gas and water, based on external plan. Valuation based on AHS estimates received. Investment will be required.	$25M-$28M

Corporate and back office services

Context

Corporate Support Programs

AHS has a several corporate and back-office services, including human resources, finance, information technology, and other support functions. AHS' consolidation has enabled these services to be delivered through centrally-managed provincial programs, which are more efficient and enable integrated and consistent service delivery. AHS is a leader in this area; other jurisdictions in Canada continue to struggle with duplication and are putting tremendous effort into creating centralized provincial shared services organizations.

While these programs are centrally managed, they often have staff embedded in the local zones or sites, depending on service demands. These staff work in a partnership model with the clinical and/or operational areas, to ensure that the adequate degree of corporate and back-office support can be provided to that area. This drives a high degree of responsiveness to the most in-demand areas and enables local operational teams to establish relationships with embedded corporate and back-office staff, while still maintaining a centralized reporting structure for these functions. Table 60 below summarizes the functions considered in this review.

Table 60. Corporate and back-office services at AHS

Function	Sub-Functions	# FTE	Size of Budget	Staff Supported[73]
Human Resources	Business partnerships, talent and workforce strategies, HR shared services, workplace health & safety	1,005	$112,711,968	125,241
Finance	Financial reporting, business advisory services, finance shared services, forecasting and analytics, budgeting	679	$73,075,000	125,241
Information Technology	Enterprise information exchange, technology services, clinical and non-clinical applications, provincial support services	2,033	$499,201,032	125,241
Communications	External communications, innovation and digital solutions, community and external relations, foundation relations, issues management	113	$19,576,487	102,717
Legal and Privacy	Commercial law, health law, labour and employment, litigation, information and privacy	85	$15,209,317	102,717
Education and Learning	Clinical and nursing education, leadership and development, health and safety, ethics and compliance and others	1,030	$171,900,000	102,717
Analytics	Zone analytics and reporting, enterprise data warehouse, strategic analytics, clinical analytics and clinical quality	216	$21,700,000	102,717

[73] Finance, human resources and information technology functions at AHS support staff at Covenant Health and AHS' subsidiaries. This is reflected in staff supported.

As part of our analysis, we benchmarked each of the above functions to other comparative organizations. This was done to provide an initial point of view on the scale of opportunity and to direct the investigation of AHS' service delivery models in these areas in a greater level of detail.

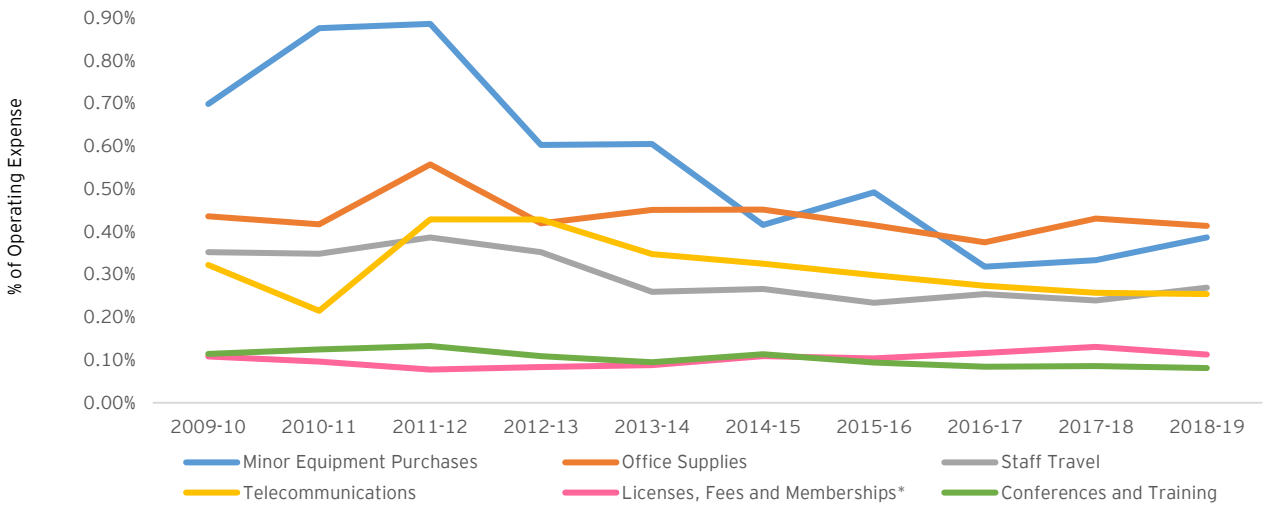
The sources for these benchmarks are the American Productivity & Quality Center (APQC) and Computer Economics. Benchmarks from both sources are from health care organizations across North America of comparable size and function to AHS. The outputs of this benchmarking process are summarized in the findings section aligned to the relevant functional area.

Tactical measures

Tactical measures refer to a broad category of actions AHS can take in the short term to reduce costs or increase revenue. From a savings perspective, we use the term 'discretionary spend' referring to areas of spend that do not relate to direct patient care. These are areas that can be either reduced or eliminated with the right controls and governance processes.

The total size of spend in categories that we would describe as discretionary is $232M. We acknowledge that some of the spend within these categories may be required to support operational activities. As illustrated below, spend in these common discretionary categories has decreased or remained relatively consistent over the last 10 years.

Figure 33. Ten-year trend of discretionary spend categories



EY reviewed commonly used tactical savings measures and controls with AHS management to identify the areas of greatest potential opportunity. Based on this review, major spend categories were grouped as follows:

1. Optimized: Areas in which AHS has already achieved substantial benefits through focused processes, policies, and controls.
2. In-progress opportunities: Areas in which AHS has begun to realize benefits, but that can be pushed further.
3. New priorities: Areas where AHS can focus to realize significant incremental benefits.

Automation

The final aspect of our assessment involved reviewing key back-office processes from an automation perspective. Health care organizations across Canada are actively pursing automation programs that leverage tools such as Robotic Process Automation to achieve savings of 20% to 35% in functional areas that typically rely on redundant manual processes, while also improving data quality, employee moral, retention and other benefits. These programs are widely used in other industries and represent substantial efficiency opportunities in health care.

To assess the current degree of automation that exists across AHS, as well as the scale of any future automation opportunity, we conducted a series of workshops. These workshops contained operational staff in HR, Finance, IT and Supply Chain, and involved a rapid assessment of more than 50 existing processes to determine whether they would be good candidates for automation. Our focus was on processes that are high volume, highly manual, repetitive and labour intensive. Workshops were guided by process heat maps developed by peer health organizations that have begun executing automation programs. Key findings are summarized in the following section.

Findings

Corporate support programs

Finance

1. AHS' finance function benchmarks favourably, with a lower cost proportional to the overall operating budget, compared to peer organizations.

2. The total cost to perform the finance function per finance function FTE is higher than comparative organizations. This suggests that there could be internal opportunities to streamline services within the function. For example, AHS' accounts receivable function utilizes more than 12 Accounts Receivable (AR) systems.

Table 61. Finance benchmarks

	Finance			
	AHS	25th Percentile	50th Percentile	75th Percentile
Total cost to perform the finance function as a percentage of total operating expense	0.46%	1.30%	1.64%	2.79%
Number of finance function FTEs per $1 billion operating expense	43.30	31.73	155.75	284.62
Total cost to perform the finance function per finance function FTE	$107,621	$83,752	$124,792	$357,143

AHS' finance function in comparison with Ontario provincial hospital benchmarks - % of total operating expense	AHS	Ontario
	0.46%	1.00%

Information Technology

3. AHS' centralized IT function performs better than benchmark medians, and in some cases better than 25th percentile, which should be expected in a large consolidated organization that benefits from economies of scale and integrated services.

Table 62. Information technology benchmarks

	IT			
	AHS	25th Percentile	50th Percentile	75th Percentile
IT spending as a percentage of total operating expense	3.41%	3.00%	4.30%	5.90%
Total IT cost, including depreciation/amortization, per AHS FTE	$5,992	$6,875	$15,143	$21,244
Total IT cost, including depreciation/amortization, per $1,000 operating expense	$32.37	$31.62	$42.86	$64.84

AHS' IT function in comparison with Ontario HIT tool benchmarking - % of total operating expense	AHS	Ontario
	3.41%	3.90%

- Rationalizing IT applications could drive further improvements in performance. AHS has more than 1000 applications, which could be reviewed for potential rationalization based on business requirements and cost reduction.
    - Significant application rationalization is planned as part of the Connect Care implementation. The new EHR will enable the retirement of 400-500 applications.
- AHS has also identified 28 groups (167 FTEs) of "shadow IT" that sit outside of the centralized IT function.

4. AHS has a predominantly in-house model for IT services and infrastructure such as data centers, networks, mobility services, and desk side support.

   - Other jurisdictions are moving towards increased use of cloud and other managed services providers to improve quality, reduce the need for capital investment, and realize overall cost savings.
   - AHS can evaluate and leverage large existing Government of Alberta standing offers or contracts based on service requirements for areas such as mobility services and networks.

Human Resources

5. Like finance and IT, AHS' consolidated human resources function performs well against benchmarks, considering the number of HR FTE and the scope of the organization they support.

Table 63. Human resources benchmarks

		Human Resources		
	AHS	25th Percentile	50th Percentile	75th Percentile
Number of AHS employees per HR function FTE	104.93	90.06	196.77	208.31
HR function cost per AHS FTE	$734	$1,732	$1,996	N/A
Number of HR FTEs to all AHS FTEs (ratio)	164.6 to 1.0	71.7 to 1.0	55.6 to 1.0	N/A
Total cost to perform the HR function per HR function FTE	$114,220	$83,635	$91,979	$107,500

AHS' HR function in comparison with Ontario HIT tool benchmarking - % of total operating expense	AHS	Ontario
	0.77%	1.30%

   - Some HR portfolios could potentially be consolidated based on service scope to improve organizational productivity and achieve some cost efficiency. Examples include consolidating Abilities Management with Workplace Health and Safety, and consolidating Workforce Strategies, Talent Management and Employee Relations into a combined portfolio.

Legal and Privacy

6. With an annual budget of $13 million, 38 lawyers and 15 paralegals, AHS' legal services operation is significantly larger than similar support functions in peer organizations and offers specialized legal services that are not provided by other health provider organizations.

   - Given the relative size differential between AHS and peer organizations, and AHS' predominantly in-house staffing model, it is difficult to assess whether the cost of these services is disproportionately high without deeper analysis. AHS does have unique services related to system responsibilities not common amongst its peers that must also be considered in any assessment.
   - While the in-house approach mitigates against the higher costs expected from re-procuring expiring long term external legal contracts, it also poses risks of over-staffing, changing and expanding scope of services, and lawyers and paralegals working on activities that could be performed by non-legally trained staff (e.g. risk management). In our view the model, budget and staffing should be regularly evaluated.

- The reporting relationship of the chief counsel – through to the VP People – is uncommon among peer organizations and may warrant assessment to ensure independence, availability and appropriate participation of the Chief Counsel is maintained.
- The staffing model should be reviewed and adjusted if necessary.

Learning and Education

7. Learning and education at AHS is highly decentralized, and benchmarks higher than peer organizations, considering the costs of this function relative to the size of the overall operating budget.
   - AHS spends more than $170 million and has more than 1,000 FTEs dedicated to learning and education across multiple parts of the organization. Of those employees, approximately 650 are clinical nurse educators, with the remaining responsible for a variety of knowledge management activities.
   - AHS also has 10 learning-related IT systems, providing duplicative functionality. For example, there are multiple licenses for different versions of Adobe Connect (an e-learning program) held by teams across AHS. This lack of coordination has resulted in a variety of similar software products in use, different versions of the same software, and in some cases, different pricing from the same vendor.
   - Learning and education benchmarks above the 75th percentile, relative to peer comparators.

Table 64. Education and learning benchmarks

		Education and Learning		
	AHS	25th Percentile	50th Percentile	75th Percentile
Total Knowledge Management cost per $1000 operating expense	5.73	2.09	3.29	4.20

   - The AHS benchmark may be understated as it does not include the expenses related to the 10 learning systems or professional development spend.

Analytics

8. AHS has 80 analytics functions embedded within provincial programs and sites, in addition to a centrally delivered analytics program.
   - AHS estimates approximately 300-350 data analyst roles operate independently of the centralized analytics function.
   - There is an unequal distribution of data analysts across programs. Some programs, such as cancer and mental health, have large analytics teams, while other programs make greater use of the centralized function.

Other

9. AHS' wholly-owned subsidiary Alberta Precision Laboratories (APL) has a number of corporate back-office functions, as well as management that have not been reviewed or consolidated during the integration of APL into AHS. In total, there are approximately 88 FTE that fall into this category.

Table 65. APL corporate back-office functions

APL Function	Management / Admin FTEs	Staff FTEs	Total
Finance	2.00	10.00	12.00
Accounts Receivable	1.00	4.00	5.00
Employee Compensation & Benefits Management	3.00	5.00	8.00
Exec Office People & Transformation	2.00		2.00
Occupational Health and Safety	2.80	11.82	14.62
Personnel Services	1.00	10.90	11.90
Communications	4.00		4.00
Planning and Special Projects	2.00	4.00	6.00
Business Intelligence	1.00	14.00	15.00
Other	10.20	-	10.20
Total	**29.00**	**59.72**	**88.72**

- These back-office functions and management positions should be reviewed and right-sized to reflect service levels provided to other clinical support programs, such as Diagnostic Imaging and Pharmacy.

Tactical measures

Revenue generation

10. Alberta captures less potential revenue for private and semi-private rooms in acute-care hospitals than other provinces.

- AHS is only capturing 2.3% of potential preferred accommodation revenue, whereas in Ontario we have observed large academic hospitals achieve a capture rate of more than 25% with similar clinical and operational structures as AHS.
- As per the Hospitals Act, Hospitalization Benefits Regulations, Alberta has legislated requirement requiring that 60% of each hospital's bed base be allocated for non-preferred accommodation. AHS hospitals are generally structured with private and semi-private rooms – not allowing AHS to charge patients for a significant proportion of these rooms reduces AHS' ability to capture potential revenue. We have not observed similar legislation in other jurisdictions; Alberta Health could consider updating the legislation to remove these provisions. The specific clause states:

- Notwithstanding anything in this section, for the purpose of levying authorized charges in an approved general hospital the board shall treat not less than 60% of the accommodation in the hospital as if it were standard ward accommodation[74].

11. The rates that Alberta charges for private and semi-private rooms in acute-care hospitals are on par with the Canadian average. However, there are several other Canadian health care providers that charge significantly higher rates in comparison to AHS.

- Table 66, below, summarizes preferred accommodation rates in other organizations.

Table 66. Comparison of preferred accommodation rates

Hospital / Health Authority	Province	Semi-Private Accommodation Rate	Private Accommodation Rate
AHS	Alberta	$150	$187
Vancouver General Hospital	British Columbia	$165	$195
Eagle Ridge and Peace Arch Hospitals	British Columbia	$165	$195
Grand River Hospital	Ontario	$247	$290
Strathroy Middlesex General Hospital	Ontario	$210	$250
North Bay Regional Health Centre	Ontario	$220	$245
Joseph Brant Memorial Hospital	Ontario	$250	$290
Mount Sinai Hospital	Ontario	$310	$410
Cape Breton Healthcare Complex	Nova Scotia	$160	$180
South Shore Health	Nova Scotia	$160	$180

12. Alberta's legislated co-pay rates for long term care (LTC), designated supportive living (DSL) and alternate level of care (ALC) beds are lower than those in Ontario.

- Updating the legislation to bring long-term care rates in-line with other provinces could offset the costs of providing these beds.

Table 67. Monthly accommodation LTC and DSL rates, 2018

Monthly Accommodation LTC and DSL rates for 2019[75]			
Province	Standard Room	Semi-Private Room	Private Room
Alberta	$1,705	$1,795	$2,074
Ontario	$1,891	$2,150	$2,474
Quebec	$1,189	$1,596	$1,910
BC	$3,377		
Saskatchewan	$2,829		

"I feel that there should be a system in place when a patient is placed in an AHS Continuing Care Facility to have payments set up and ready to go. Currently we have upwards of 20 residents who do not pay their AHS monthly rent, so AHS is losing $30,000 every month ($360 000 per year). This money doesn't seem to be recouped with accounts going to collections either."

Comment from AHS Employee Survey

- AHS also has an Alternate Level of Care (ALC) accommodation charge for patients occupying hospital beds while awaiting admission into an LTC/DSL facility. As with most provinces, the Alberta's ALC rate is equivalent to its LTC. If Alberta increased its LTC rate, its ALC revenue would increase correspondingly.

[74] http://www.qp.alberta.ca/documents/Regs/1990_244.pdf
[75] Alberta Health, Continuing Care Accommodation Rate, 2019

13. AHS has optimized its collection of parking revenue, with over $40m collected annually and rates that are set in a 5-year strategy in alignment with market comparators.

    - Parking rates at AHS facilities are in line with Alberta public parking market rates. Parking rates for public and staff are continuously adjusted to reflect market rates through a 5-year parking strategy.

14. The fees that AHS collects through enforcement of the Public Health Act offset only a small proportion of the cost of performing enforcement activities.

    - AHS spends approximately $39.58 million per year on its Safe, Healthy Environments program, which is responsible for monitoring and enforcing Public Health Act and supporting regulations in a variety of settings, including restaurants, grocery stores, pools, etc.
    - The Public Health Act and supporting regulations could be modernized. Consideration should be given to allowing for alternative enforcement techniques such as those used in other provinces. Furthermore, the amount of the fines prescribed for violating the Act and supporting regulations should be increased to bring the Act in line with other similar legislative schemes, and to ensure an appropriate deterrent.

Discretionary spending

15. AHS has put in place effective policies and processes to reduce or control discretionary spending in several areas.

    - AHS has effectively limited staff travel through corporate policy to users who require travel to complete day-to-day business requirements, such as home care, protective services, and clinical support services.
    - AHS has strong controls in place through the supply chain function regarding what can be purchased in the "minor equipment" category, (i.e. capital expenses under $5,000), however local sites have discretion in terms of how many approved items can be purchased.
        - Minor equipment includes items such as laptops & accessories, speakers, infusion pumps, furniture, wheelchairs, cabinets, monitors, etc.
        - AHS has a Delegation of Approval Authority (DOAA) control built into its procurement system, which automatically enforces sign-offs and approvals for purchases.
        - While front-line staff may not be able to directly order minor equipment, managers with the appropriate DOAA are able to approve purchases.
    - AHS has put in place controls for mobile telecommunications services to reduce and maintain low costs.
        - AHS has negotiated an unlimited pooled data plan for mobility and does not pay for data overages.
        - Roaming has been disabled from all AHS cell phone plans.
        - AHS mobility users are only provided with the lowest cost devices, meaning they do not receive the newest available models of cell phones.
    - AHS has put in place a process to consolidate purchase orders of high-volume items. Its purchasing system combines minimum orders from the same vendor to reduce delivery costs

    - In addition, AHS' corporate mail centres in Edmonton and Calgary, as well as several large sites, have set standard mail delivery pick-up times to reduce multiple delivery charges for items going to the same place.

- Large technology subscriptions are managed through the centralized IT function instead of at a zone or site level.

16. AHS can further implement discretionary spending controls, including through the use of a bring-your-own-device policy, leveraging a provincial courier contract and actively managing the 'spike' of discretionary spending we have observed at AHS towards the end of the fiscal year.

    - AHS has opportunity to move towards a provincial courier contract based on a tiered-volume rate. Currently, zones and sites used preferred vendors, but AHS could explore the use of a provincial model.
    - Several organizations in other provinces have implemented "bring your own device" models for cell phone usage, reducing the required spend on device costs.

        - At AHS 40% of the total smartphone expense is allocated towards device costs.

    - In most AHS discretionary spend areas, there is a spike in spending each March. This is common in public sector organizations at fiscal year end and could potentially be reduced through targeted spending controls.

Strengthening the budgeting process

17. AHS' current practices for budget management and accountability impact the ability to identify and address cost pressures, to understand root causes of budget variances and to drive enhanced capture of revenue.

    - Budgets are typically rolled over from prior year with select adjustments made for strategic investments and corporate saving initiatives (such as OBP targets).
    - Currently, AHS is running an overall budgetary deficit with a large negative "savings target" being held corporately to balance out the deficient. This negative variance is addressed through in-year underspends. Strengthening budgetary process and aligning budgets according to actual spending will allow AHS to more effectively identify and address cost pressures.
    - Cost pressures that are significant and require mitigation outside of a single VP portfolio are managed through a corporate Budget Executive Leadership Team (BELT) process. These are put forward at the discretion of a VP. This process is not used for smaller cost pressures that emerge through operations, such as long-term vacancies, which VPs are expected to manage within their portfolio.
    - AHS' Business Advisory Services team works closely with budget owners to identify and document explanations of budget variances for financial reporting. However, these explanations are often a blend of approved/justified and unjustified and are not always translated into a clear mitigation strategy with a documented action plan.

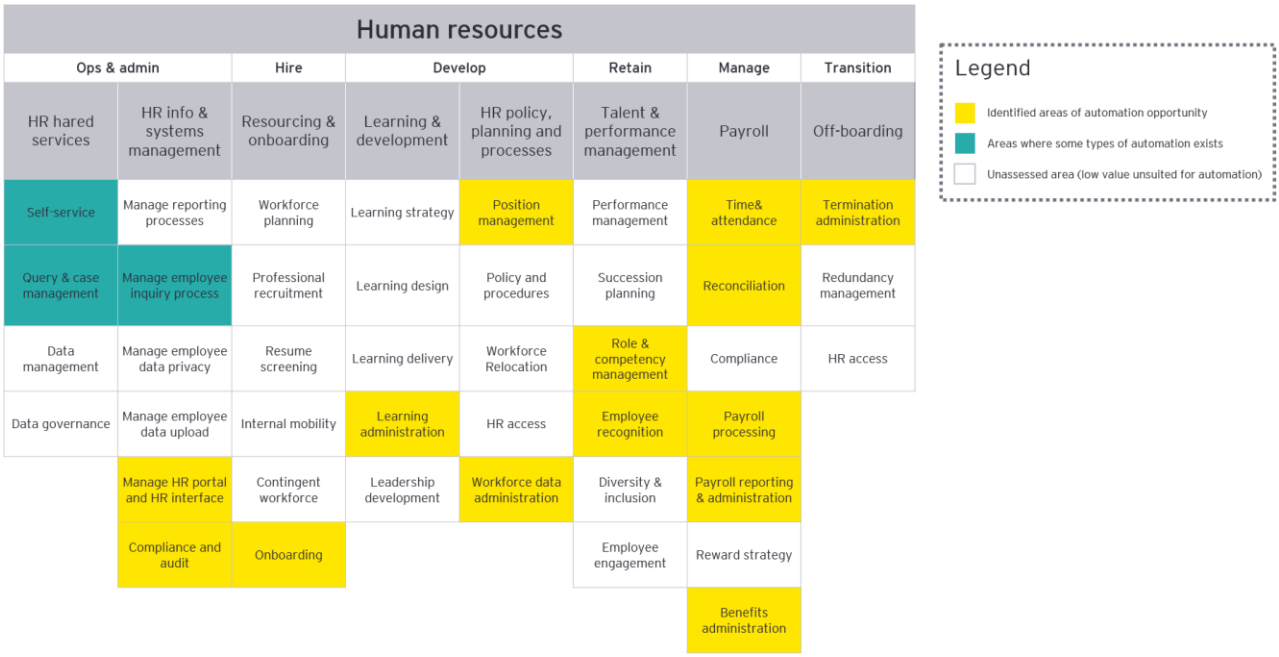
        - Examples of these variances include: executive approved unbudgeted items (such as beds, procedures, new clinics or programs), unbudgeted FTEs (typically stemming from unachieved OBP targets) and significant variances to contracted services.

- Finance also operates distinct teams to support budget planning, budget analysis/advisory, and revenue, leading to uncoordinated strategies. This fragmentation further challenges finance to have an overall understanding of respective programs' performance. There is an opportunity to review how finance supports programs, moving from a tactical to a more supportive and strategic partnership role.
- As part of the organization's accountability agreements, AHS leaders and budget owners are held to account for expense budgets only, therefore, revenue is not a significant area of focus.

Automation

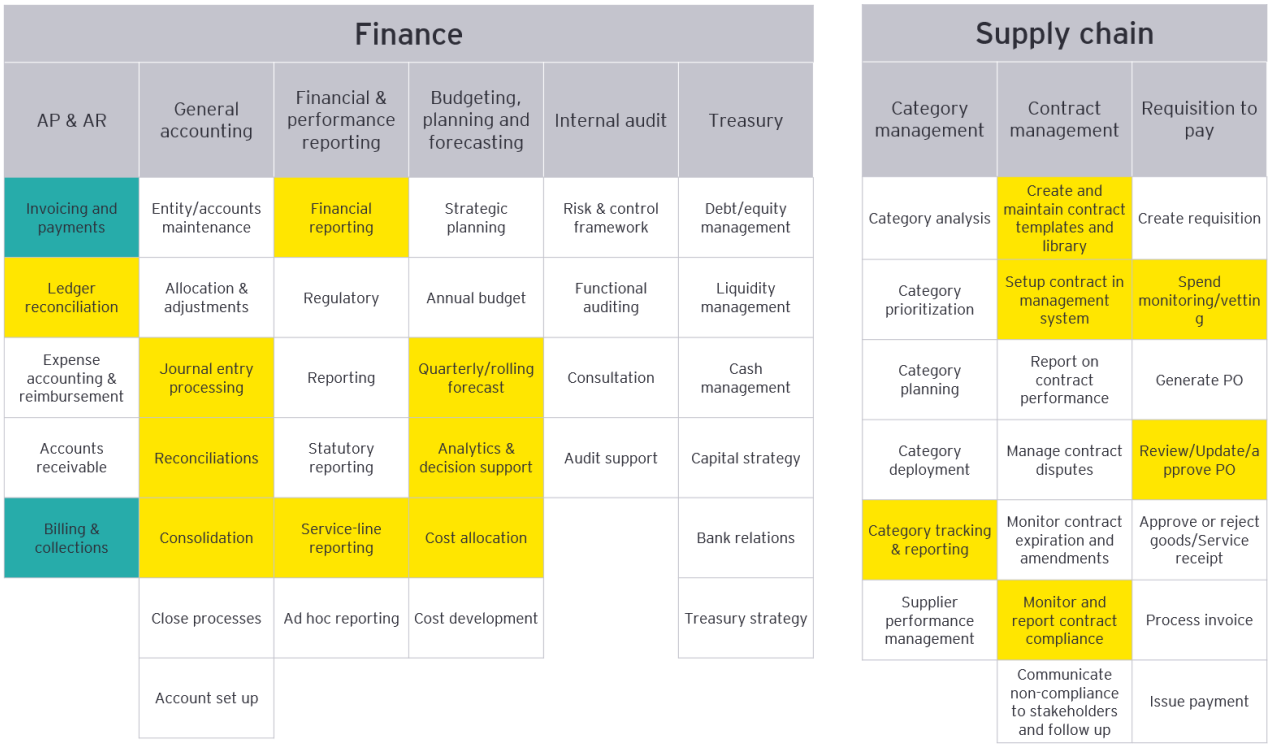
18. Through joint workshops with AHS, 47 manual processes across HR, Finance and Supply Chain, accounting for 172 FTE, were identified as candidates for potential automation. These include the staff onboarding process, balance sheet reconciliation and data management processes.
    - Through the workshop, HR identified an initial list of 30 processes with an associated effort of 66 FTEs for potential automation. Many of these processes are in HR Shared Services, including onboarding, offboarding, leave of absence processing.

    Figure 34. Automation opportunities: human resources



- The Finance workshop identified an initial list of 9 processes with an associated effort of 25 FTEs for potential automation. These include bank/ balance sheet reconciliation and report creation.
- The supply chain workshop identified an initial list 8 processes with an associated effort of 81 FTEs for potential automation, including master data management and the enhanced vetting process.

Figure 35. Automation opportunities: finance & supply chain[76]



- Automation opportunities in IT were not fully assessed during the workshop and need to be further evaluated.
- To the extent that AHS has explored automation, it has been done through local initiatives. Health care organizations across Canada are moving towards a centre of excellence model for identifying, implementing and sustaining automation opportunities across the organization, which allows them to maximize benefits and target organization-wide processes.

[76] See legend from Figure 34.

Recommendations

Recommendation 38: AHS should explore opportunities to optimize corporate programs to achieve or exceed performance levels of comparative organizations.

- Challenge in-house IT service delivery model and investigate options for leveraging external providers for IT services and infrastructure.
- Review and assess potential consolidation benefits for HR portfolios, including:
    - Occupational Injury and Abilities Management
    - Workforce Strategies, Talent Management, and Employee Relations
- Review legal services, budget, staffing and reporting relationship against requirements and peers and establish regular mechanism for evaluation.
- Consider development of a centralized learning portfolio with oversight across corporate and local training and education requirements.
- Review scope and activities of decentralized analytics groups across AHS. Consolidate duplicative functions and streamline oversight to central analytics department where appropriate.

Recommendation 39: AHS should develop a corporate automation program and pursue automation opportunities across HR, Finance, CPSM, IT, and others.

- Create an automation Centre of Excellence at AHS. The Centre of Excellence should develop an automation strategy, provide support and governance for a corporate-wide automation program, drive the ongoing identification of candidate processes, and support the implementation of automation initiatives.
- The Centre of Excellence should develop a centralized automation intake and identification/prioritization process with representatives from both IT and relevant business teams to manage new automation opportunities emerging across AHS.
- Prioritize and select several pilot process candidates from the identified list of automation opportunities for design, development, and deployment within the organization.

Recommendation 40: AHS should aggressively pursue revenue generation initiatives in non-clinical, auxiliary categories, in alignment with peer organizations.

- Immediately pursue rate increases for preferred accommodation to align with other provinces and organizations, working with Alberta Health to resolve any legislative barriers.
- Strengthen processes for capturing accommodation preferences and extended benefits information at the point of admission and other relevant points.
- Explore parkade and patient entertainment advertising. Procured revenue rates should be based on market advertising rates.

Recommendation 41: AHS should look to refine its overall budgetary process to ensure departmental budgets are aligned with the actual operating model of each department, along with instituting an immediate review of discretionary spending controls to drive immediate savings.

- AHS should rapidly conduct a financial budget review at a cost centre level to identify drivers of any large positive or negative variances. In identifying cost pressures, the organization will be able to determine whether these need to be managed down operationally or require additional budget to reflect confirmed operational needs.
- AHS should establish a coordinated, corporate approach to tactical budget opportunities. These include realigning local budgets to reflect corporate policies for areas such as non-patient travel.
- An immediate review of discretionary spending controls should be undertaken to enable in-year savings, building on work started by AHS already.

Opportunities

Table 68. Summary of corporate and back office services opportunities

#	Opportunity Name	Opportunity Description & Valuation Approach	Gross Valuation
CBO1	AHS-wide budget review	Review and challenge spending patterns against budgets to identify tactical opportunities and true cost pressures. Savings based on 0.5% of total operating budget based on EY experience conducting these reviews.	$70M
CBO2	Preferred accommodation rate and capture increase	Increasing preferred accommodation rates based on jurisdictional comparators and increasing capture. Valuation based on increasing private and semi-private accommodation rates to provincial comparators, increasing capture rate to 10-20%, and removing 60% legislative requirement for standard accommodation.	$40M-$83M
CBO3	Robotic process automation - back office services	Automation of repetitive, high transactional processes in HR, Finance, CPSM, and IT. Valuation based on reducing FTEs currently associated with executing the processes that were identified for potential automation.	$16M
CBO4	LTC/DSL accommodation fee increase	Alberta's LTC/DSL accommodations fee is lower than other provinces. Opportunity to increase fees to align with what Ontario is charging and reduce the LTC/DSL funding by the same amount. Valuation based on revenue increase associated with aligning with Ontario's rate based on the current occupancy rate with the assumption that 42% of the clients will require income support.	$57M
CBO5	Stop/limit discretionary spending	Strengthen controls and reduce discretionary spend across AHS.	
CBO6	Reduce redundancies between AHS and APL	Reduce duplicative management and corporate functions between AHS and APL. Savings amount determined by calculating total cost of APL corporate support and management functions.	$3M-$8M
CBO7	Application rationalization	Over thousand applications currently housed within AHS - opportunity to rationalize based on total users and active licensing agreements.	
CBO8	Data centres/hosting, help desks, networks outsourcing	Consider outsourcing for data centres / hosting, service help desks, and networks based on similar models in other jurisdictions.	

Supply chain

Supply chain refers to the way that products and services are procured, managed and distributed to clinical and non-clinical customers across AHS. The assessment reviewed the AHS supply chain operating model and its six major end-to-end functions, including: planning, category management, strategic sourcing, purchasing, materials management, and supplier relationship management, with a goal of identifying opportunities to reduce supply chain cost provincially. The scope of our supply chain review included aspects of the AHS supply chain specifically managed by the Contracting, Procurement & Supply Management (CPSM) team.

Context

Overview of AHS Supply Chain operating model

AHS' supply chain is centrally managed by CPSM. CPSM is organized along the major supply chain functions as follows: zone operations, sourcing & supply management, business operations and systems support, capital & IT contracting, direct patient care consulting, innovation and provincial services and risk & internal controls. CPSM also provides supply chain services, such as procurement and materials management to Covenant Health.

CPSM currently employs approximately 1,000 FTEs across the province in more than 40 different roles with the following seven roles accounting for close to 90% of all FTEs: stores (material handling), procurement specialists, administration, supervisors/leads, drivers, service workers, and supply coordinators. Approximately 80% of CPSM staff are unionized.

CPSM operates through a physical distribution network which has two large distribution centres in Edmonton (EDC) and Calgary (CDC) and eight smaller regional warehouses through which CPSM warehouses and distributes products to its health service provider customers (HSPs) across the province. The CPSM regional warehouses are in High Level, Grand Prairie, Westlock, Red Deer, Drumheller, Ponoka, Lethbridge, and Medicine Hat.

Ongoing efforts by the CPSM team have helped to improve planning, procurement, materials and supplier management at AHS. CPSM recognizes that while they have effectively centralized most supply chain activities and driven significant benefits and efficiencies over the past decade, additional opportunities exist where further improvements can be made to supply chain performance across AHS.

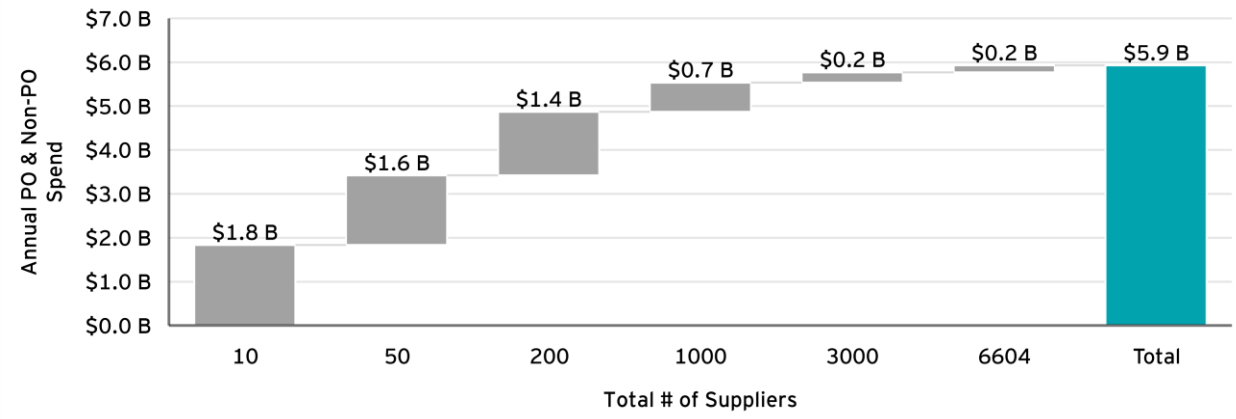
CPSM provides the following services:

- Category management: More than 100,000 unique products and services provided by more than 6,600 suppliers are managed in 88 CPSM-defined categories. This enables CPSM to develop category-specific purchasing strategies that help to maximize quality and value in specific operational areas.
- Strategic sourcing: AHS procured more than $5.9B in products and services in the F2018/19 fiscal year. CPSM manages the spend by helping operational areas identify their product and services needs and then supporting them through the procurement process to achieve best product at the best price.
- Purchasing: This function connects requisitions for products and services, the creation of Purchase Orders (POs) or other forms of authorization, and the payment of invoices. Processes must be well-

defined to be efficient with financial controls and appropriate segregation of duties. CPSM processed more than 2,500,000 individual transactions in the last fiscal year. AHS' CPSM function also purchases for Covenant Health and other subsidiaries.

- Supplier relationship management: CPSM procures products and services from 6,604 suppliers globally. The chart below illustrates the total number of suppliers that make up the $5.9B of spend.
  - The top 10 suppliers, ranked by spend, account for approximately $1.8B (30%) of total spend
  - The top 50 suppliers (inclusive of the top 10 suppliers), ranked by spend, account for approximately $3.4B (58%) of total spend.
  - The remaining 6,554 suppliers account for $2.5B of total spend with the smallest 3,604 suppliers only accounting for $0.2B of spend.

Figure 36. Number of total suppliers versus cumulative supplier spend



Findings

Strategic sourcing

1. CPSM has many suppliers in several product and service sourcing categories. A large number of suppliers can drive increased workload and impact the ability to get the best pricing.

   - There are an average of 15 suppliers serving each of the top 18 spending categories. The table below illustrates these sourcing categories and the number of vendors currently supplying each category.

   Table 69. Number of vendors by sourcing category

Sourcing Categories	Annualized Spend	Annualized Addressable Spend	# of Suppliers making up 80% of Total Category Spend
LAB.REAGENTS	$ 72,804,967	$ 43,359,301	26
LAB.SUPPLIES	$ 41,231,900	$ 41,231,900	20
MED SURG.MEDICAL FACILITY	$ 38,287,128	$ 38,287,128	21
LAB.EQUIPMENT & INSTRUMENTS	$ 21,102,576	$ 21,102,576	17
MED SURG.CARDIOLOGY	$ 68,053,048	$ 21,005,409	11
MED SURG.CARE & TREATMENT	$ 23,156,912	$ 19,457,900	16
DIAGNOSTIC IMAGING	$ 48,625,439	$ 19,450,176	11
MED SURG.SURGICAL	$ 31,120,609	$ 15,000,000	23
EQUIPMENT MAINTENANCE.NON-BIOMEDICAL	$ 12,741,586	$ 12,741,586	36
MED SURG.SURGICAL EQUIPMENT	$ 11,493,493	$ 11,493,493	8
MED SURG.EXAM & MONITORING	$ 10,612,535	$ 10,612,535	18
OPHTHALMOLOGY	$ 10,332,750	$ 10,332,750	8
MED SURG.NEEDLES & SYRINGES	$ 16,426,517	$ 10,081,508	8
MED SURG.IV	$ 41,291,253	$ 10,000,000	10
MED SURG.ORTHOPEDIC	$ 45,176,877	$ 9,035,375	8
APPAREL, CLOTHING, PPEs	$ 16,398,976	$ 5,000,000	6
SURGICAL INSTRUMENTS.PACKS & SINGLES	$ 16,239,492	$ 3,000,000	16
MED SURG.SURGICAL IMPLANTS	$ 12,915,925	$ 2,000,000	8
TOTAL	$ 538,011,984	$ 303,191,636	295

   - The large number of contracts identified across lab sourcing categories are based on the recent transition of these contracts from Calgary Laboratory Services to CPSM. CPSM has begun the work to consolidate these contracts. There is also active work being undertaken in other sourcing categories, such as Cardiology.

- There is an opportunity to further reduce the number of suppliers in selected categories, including hips and knees (orthopedics), soft tissue products, and surgical instruments, to leverage greater buying power. An optimal number of suppliers per category can be maintained to increase buying power and, at the same time, mitigate the risk of being too reliant on a single vendor recognizing that AHS size and scope of services makes it challenging to consolidate past a logical point.

2. Based on a comparison of similar items purchased by AHS and a group of shared service organizations (SSOs), we identified 1,381 items where AHS pays more than the price benchmark. For these items, the price differential averaged 16%.

   Note: This analysis also identified approximately 845 items that AHS pays less than the price benchmark, suggesting that in many cases, AHS is performing better than its peers.

   Table 70. Price differential by item count

Price Differential	Item Count	% of Sample
0% - 5%	251	18%
5% - 10%	269	19%
10% - 15%	210	15%
15% - 20%	148	10%
20% - 25%	144	10%
25% - 30%	132	9%
30% - 35%	121	9%
35% - 40%	136	10%
40% - 100%	0	0%
Total	**1411**	**100%**

   - It is expected that a more in depth, manual review will identify additional AHS items that match the benchmark dataset and can be assessed.
   - With appropriate approvals and sharing agreements with other SSOs, AHS could leverage this information to negotiate lower prices. Additionally, CPSM could partner with these other jurisdictions (provincially or nationally) to aggregate their volumes and drive further unit price savings.

Non-contract spend

3. Of the $5.9B of spend CPSM manages, approximately $422m is not on a contract. Of this non-contract spend, $156m is not associated with a purchase order.

   - There is some PO spend and non-PO spend occurring that is not on contract, which when migrated to contracts is expected to generate cost savings. To achieve this for non-PO spend, the detailed information captured at the transaction level will have to be expanded to enable additional oversight and the identification of specific cost reduction opportunities. This is currently not possible due to system limitations.
   - Migrating non-contract spend to contract will also result in improvements to visibility, audit, and accountability.

- Currently (based on a large sample of representative transactions and annualized), most of AHS' PO spend is tied to a contract. Similarly, the vast majority of non-PO spending is linked to a contract or is not commercial contracting spend, such as physician payments and employee benefits. In addition, a significant amount of non-PO spend is also contracted payments for pharmacy and food items that use the suppliers' online ordering portal (e.g. Sysco). Table 71 below provides a detailed breakdown.
- This leaves $230-$422M of spending that is not tied to a contract, and therefore provides a cost reduction opportunity. This represents 3.8%-7.1% of AHS' total purchasing spending, which exceeds industry peer performance.

Table 71. PO and non-PO spend, FY 2018/19

PO & Non-PO Spend FY18/19	Contract	Non-contract	Total
PO	$1.6B - $1.7B (86% - 92%)	$152M - $266M (8% - 14%)	$1.9B (100%)
Non-PO	$3.7B - $3.8B (96% - 98%)	$78M - $156M (2% - 4%)	$3.9B (100%)
Total	$5.3B - $5.5B	$230M - $422M	$5.9B

- Spend that is not on contract can result in:
  - Increased cost due to higher item/service pricing;
  - Increased and/or duplication of effort from having to negotiate with suppliers on an individual or ad hoc basis; and
  - Potential risk from non-standard or unfavourable terms and conditions.
- Additionally, non-PO spend suffers from a lack of detailed purchasing information, which hampers detailed analysis and thus efforts to identify, audit, and remedy non-compliant activity as well as limiting the ability to look for cost reduction opportunities.

4. CPSM has multiple agreements with a number of major suppliers. Our analysis identified 55 suppliers with six or more contracts each. Together, these 55 suppliers represent $981M (or 17%) of the total annual spend across 1,994 contracts.

- AHS can achieve cost savings by better leveraging its bargaining position with selected suppliers to reduce the number of contracts and negotiate optimized terms and conditions, total supplier spend and earned volume rebates (EVRs), and pricing using an MSA framework.
- Other supplier initiatives could include:
  - Improving the tracking and sharing supplier performance with balanced scorecards reviewed regularly;

    - Working together with suppliers on Kaizen (i.e. continuous improvement) efforts; and,
    - Implementing gain-sharing arrangements.
- Contract consolidation under a master services agreement (MSA) should be considered for many existing supplier contracts to provide cost savings by aggregating spend by supplier, securing earned volume rebates, and reducing contracting complexity.
- AHS executes select contracts through a group purchasing organization (GPO), so therefore not all instances of multiple vendor contracts may be consolidated.
- $345M of the $981M spend is across 3 large pharmacy distributors accounting for 1136 contracts. The majority of these contracts are procured via an external Group Purchasing Organization that assigns a unique contract number to each family of drugs rather than at a vendor level. As such, the level of supplier fragmentation may be overstated. We have therefore excluded the $345M from the addressable spend when calculating the gross opportunity value of the associated opportunity referenced below.

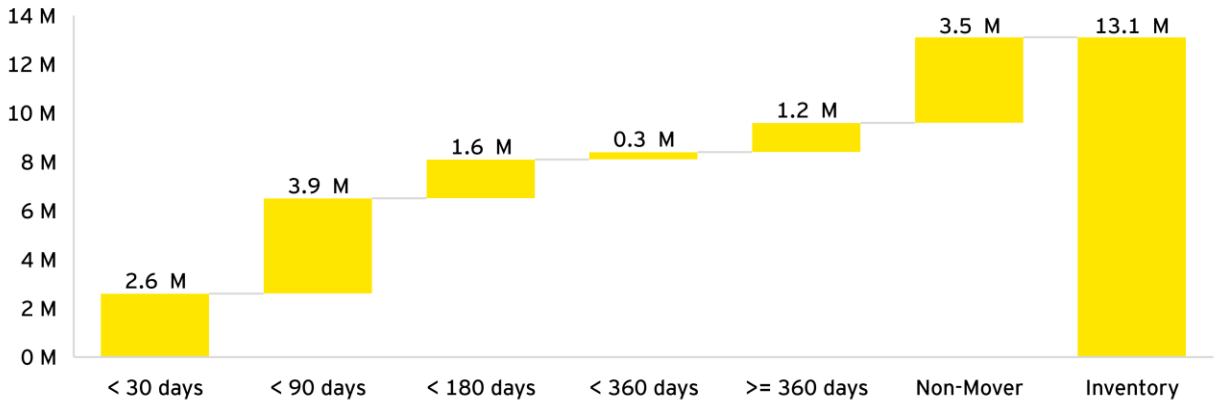
Inventory management

5. The current process for determining the minimum and maximum quantities of stock to be held within distribution centres is based on historical use and order patterns. While this process is generally effective at the organization level, it does not provide forward-looking or predictive forecasting.
    - Other organizations have begun to leverage more predictive tools such as machine learning to enable better forecasting of supplies required. These technologies leverage historical usage data, but also enable inventory levels to be set based on surgical schedules, shortages vendors have reported on social media, or even the weather.
    - Implementing predictive forecasting could yield a more optimal inventory position, resulting in a reduction in total overall inventory value and reduced stockouts.

Slow moving and obsolete inventory

6. Reducing slow moving and obsolete inventory (SLOB) avoids incurring holding costs for items that will effectively never be used. These items can be transferred to other locations where they are still in demand, sold off to generate revenue, or transferred back to suppliers for credit.
    - CPSM has at least $4.7M of slow moving and obsolete inventory:
        - $1.2M is slow moving with over 360 days of inventory
        - $3.5M is obsolete and has not had demand in the last 720 days (2 years)

Figure 37. AHS inventory coverage



Note: Pandemic stock has been removed from this analysis

Warehousing and logistics

7. CPSM has made several positive physical distribution network and personnel changes in the past years but their network is not yet optimized.

   - Satellite sites are used to service AHS facilities outside of the major urban areas. Each of these satellites manages its own inventory, transportation, and staff. Some of these smaller satellite DCs are integrated directly into existing hospitals. There are also a few hospitals that carry small centralized, program specific inventories.
   - Amalgamating smaller sites into the larger DCs can result in overall cost savings due to economies of scale (inventory and transportation), more efficient processes (less double handling), and fewer fixed costs related to operating physical facilities. Benefits will also include facilitating standardization of product mix by promoting the use of CPSM's warehousing and distribution capability and in turn, reducing direct product ordering (DPO) spend, including DPO-related transportation costs.
   - CPSM management has been working to improve the productivity at the Calgary DC, as it is not as efficient as the distribution centre in Edmonton. Implementing best practices from Edmonton will optimize and reduce inventory levels. Doing so will also improve working capital and reduce stockouts, will also result in improved productivity and free up new capacity. EDC has doubled its picking productivity in the past two years.
   - There is an opportunity to better optimize the distribution channel for different items based on usage, value, urgency, criticality, vendor source, and reliability. Ensuring that each procured item is assigned the appropriate distribution channel will maximize service and further reduce costs.
   - There is also an opportunity standardize products to a greater degree across CPSM's distribution centres as currently there is only a 60% match between the Calgary and Edmonton sites.

Supply chain activities outside of CPSM

8. Procurement of capital equipment is currently being done in a disparate and uncoordinated manner by both the equipment planning group as well as 23 other decentralized groups outside of direct control by CPSM.

    - The capital equipment procurement process allows clinical programs and zone operations leaders to create their own equipment priorities independently of each other. This results in an allocation of provincial capital equipment spending that is not always reflective of the true needs.
    - This approach does not allow the organization to effectively develop and leverage specialized expertise in capital equipment procurement, which may lead to challenges with negotiating the best prices or sourcing the most appropriate products.
    - Biomedical engineers are not always included in zone-based capital equipment planning processes, and therefore equipment can sometimes be purchased without proper input on equipment servicing and maintenance needs.
    - The lack of coordination across zones and programs does not allow for leveraging of provincial buying power across all equipment categories. In some cases, pieces of equipment that are needed across the organization are purchased in quantities of one or two.
    - There is no single asset inventory for the province and no AHS policy for life cycle management.
        - There is no single provincial inventory of capital equipment assets resulting in situations where inventory on books is far less than actual inventory value.
        - Individual departments (e.g. Biomedical Engineering, Diagnostic Imaging, Labs, etc.) hold their own lists of the equipment they maintain and service. Outsourced equipment servicing is not well-tracked.
        - Teams sometimes rely on vendors to provide information on the quantity and location of equipment purchased by AHS in order to plan equipment maintenance and upgrade cycles.

Capital construction contracting

9. Construction contracting is currently not subject to the same governance, policies and controls as products and services purchasing through CPSM, leading to the potential for both procurement and execution costs to be higher than necessary, with lower quality than could be achieved via the application of the governance, policies, and processes used within CPSM.

    - The capital management and construction contracting group procures all construction purchases valued at less than $5M. These include items such as new construction, renovation, and equipment installation. This group runs their own tendering process using their own templates and contracts.

10. There are staff with supply chain titles that do not report to CPSM.

    - CPSM effectively manages end-to-end supply chain operations for AHS with a lean team when benchmarked against other centralized health care supply chain organizations. However, there are

pockets of supply chain activities (e.g. planning, procurement, materials management) being performed within larger hospitals outside of the oversight of CPSM.

- 52.0 FTE (24.0 FTE Supply Coordinators and 28.0 FTE Stores I personnel) that perform supply-chain related tasks outside of CPSM were identified. These staff may not follow processes and policies established by CPSM in key areas such as how goods are sourced, how vendors are engaged, or how inventory is managed. While the number of these staff is relatively small, the decisions made by such staff could have significant financial implications and contribute to variable clinical practice.
- Absorbing these roles into CPSM, as appropriate, will enable cost avoidance through more streamlined and standardized purchasing, as well as savings through more efficient service delivery.

Recommendations

Recommendation 42: AHS should improve strategic sourcing to realize cost savings, including reducing the number of suppliers per category and converting purchases currently not made on contract to contract.

- Reduce the number of suppliers per category where appropriate, increasing purchase volumes per supplier to drive reductions in unit pricing and improvements in terms and conditions.
- Utilize price benchmarking against other jurisdictions to ensure that CPSM achieves the supplier "best price", leveraging AHS' significant buying power.
- Convert purchases currently not made on contract to contract, which will result in lower prices and better terms and conditions.
- Sign Master Services Agreements (MSAs) with larger strategic suppliers to strengthen supplier relationships, take advantage of earned volume rebates, and secure mutual benefits.
- AHS should work to gather more detailed information for non-PO transactions. This will enable deeper analysis, provide better visibility, and drive further improvements.

Recommendation 43: AHS should continue to drive improvements to the provincial planning and materials management functions and should integrate supply chain functions across AHS that are not currently within CPSM.

- CPSM should consider implementing a proactive and predictive demand planning process to improve inventory performance, reduce inventory costs and improve service while supporting ongoing growth.
- CPSM should continue to optimize its physical distribution network through warehouse consolidation, distribution channel adjustments, and further performance improvement initiatives. In particular, CPSM should consider the following consolidations to optimize the CPSM network:
    - Red Deer and Westlock warehouses into the Edmonton DC
    - Drumheller warehouse into the Calgary DC
    - Medicine Hat warehouse into Lethbridge regional warehouse

- AHS should assess supply chain activities being performed outside of CPSM for potential integration into the central function. This will allow previously disparate groups to take advantage of CPSM's more mature policies, processes, economies of scale, contracting and controls – thus leading to cost savings, improved clinical service, and reduced risk.

Recommendation 44: AHS should consider integrating the contracting and management of capital equipment and capital construction into the CPSM function.

- CPSM management and coordination of capital equipment purchasing using a single consistent process could help AHS benefit from larger, bulk capital buys and timelier replacement of equipment at the end of its economic life.
- AHS should create a single provincial inventory of capital equipment assets to improve equipment oversight and coordinate equipment procurement, maintenance and servicing.
- Independent of the decision regarding consolidation of these functions, they should assess opportunities to leverage CPSM's governance, policies, processes, and templates to better manage procurement of equipment and services.

Opportunities

Table 72. Summary of supply chain opportunities

#	Opportunity Name	Opportunity Description & Valuation Approach	Gross Valuation
SuC1	Reduce supplier fragmentation in selected procurement categories	Reduce the number of suppliers per category where appropriate, increasing purchase volumes per supplier to drive reductions in unit pricing and improvements in terms and conditions. Valuation based on reduction of the number of suppliers per category, resulting in a cost savings of 3-6% on total spend (per selected category).	$9M-$18M
SuC2	Benchmark item purchase prices against other jurisdictions, identifying opportunities for joint cost savings	Utilize price benchmarking against other jurisdictions to ensure that CPSM achieves the supplier "best price" that leverages AHS' buying power. Valuation based on a comparison between AHS and Canadian health care item price database. Savings were calculated for matched items only.	$4M-$8M
SuC3	Migrate non-contract spend to contract. Capture additional transaction data for non-Purchase Order purchases	Convert purchases currently not made on contract to contract which will result in lower prices and better terms and conditions. Ensure that more detailed information is available for purchase transactions (especially non-PO). Valuation based on a 5-10% reduction in pricing for items that were previously not on contract being migrated to contract.	$9M-$34M
SuC4	Consolidate agreements with selected major suppliers	Sign Master Services Agreements (MSAs) with larger, strategic suppliers, to strengthen supplier relationships, take advantage of Earned Volume Rebates and secure mutual benefits. Valuation based on a 0.5-1.0% reduction in total spend for top selected suppliers with more than 5 contracts.	$3M-$7M
SuC5	Build a more proactive demand planning/forecasting process	Implement a predictive demand planning process (leveraging machine learning) to improve inventory performance, reduce inventory costs and improve service while supporting ongoing growth. Valuation based on inventory holding cost savings resulting from a 10-20% reduction in CPSM and in-hospital supplies inventory.	$1M

SuC6	Reduce slow moving and/or obsolete inventory	Address slow moving and/or obsolete inventory to free up space and recover resources. Valuation based on a 25% cost recovery for obsolete items at the CPSM DCs.	$0.2M
SuC7	Optimize CPSM's physical distribution network, improve Calgary DC and optimize distribution channels	Continue to optimize CPSM physical distribution network through warehouse consolidation, distribution channel adjustments, and further performance improvement initiatives. Valuation based on a 20% operating cost savings from consolidated sites and 15-20% savings from continuous improvement initiatives at CDC.	$2M
SuC8	Integrate non-CPSM in-hospital supply chain team into CPSM	Non-CPSM in-hospital supply chain functions can be done more consistently and efficiently if integrated into CPSM. Valuation based on operating cost savings from identified in-hospital supply chain personnel.	$0.5M
SuC9	Integrate and improve the capital equipment procurement process into CPSM	CPSM should be charged with managing and coordinating capital equipment purchasing in a single consistent process, province-wide, to fully benefit from larger, bulk capital buys and timelier replacement of equipment at the end of its economic life. Valuation based on a 5-10% savings on identified capital spend.	$8M-$16M
SuC10	Improve construction contracting procurement, management and control	Leverage CPSM's governance, policies, processes, and templates for construction contracting. Valuation based on a 7.5-10% savings on identified construction contracting spend.	$8M-$15M

Improvement Theme: Governance

Functional duplication and accountability

Context

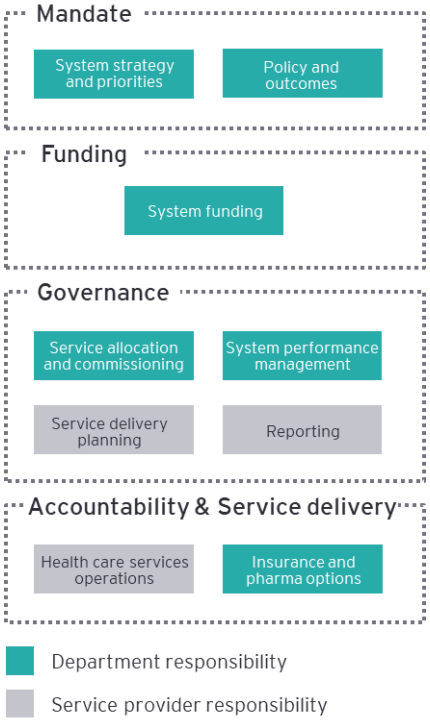
In many ways, Alberta's care delivery model is ahead of its provincial peers. Across Canada, jurisdictions are struggling to manage fragmented systems that are making increasingly expensive and duplicative investments in new technologies, clinical protocols, facilities, and equipment. As care becomes more complex and dependent on technology, this fragmentation is accelerating, leading health systems across Canada to move towards consolidation in response. For example:

- Saskatchewan and Nova Scotia have followed Alberta in the creation of single health authorities.
- British Columbia is centralizing major pillars of service delivery, including IT and digital health, laboratory services, and diagnostic imaging into its Provincial Health Services Authority (PHSA).
- Manitoba has created a new provincial organization, Shared Health, to serve a similar purpose as PHSA in BC.
- Ontario has recently introduced Ontario Health Teams and has created a "super agency", Ontario Health, to begin coordinating the activities of the more than 150 independent hospitals and hospital networks in the province.

Alberta has done significant and challenging work to build a consolidated health care system with a single major provider of acute care services. While some specific areas of duplication have been identified, the nature of Alberta's consolidated system means that the overall level of duplication between Alberta Health and its service provider is significantly lower than in Canadian jurisdictions with multiple health authorities or independent hospital networks. Alberta Health has essentially a one-to-one relationship with its major care provider, which allows Alberta Health to avoid the work of negotiating and coordinating the activities of multiple service providers to ensure consistent access and quality of care across the province.

AHS has a $15.4 billion annual budget and more than 102,000 employees. AHS' massive size relative to Alberta Health creates the opportunity for a power imbalance between the two organizations. The structure of Alberta's system also impacts Alberta Health, as it does not need to play the role of broker, funder, and coordinator across multiple regional organizations. To address the potential imbalance and the unique relationship, the roles and expectations of Alberta Health, AHS, and other players in our complex system need to be clearly defined. Figure 38 outlines a framework for considering and defining the delineation of these responsibilities.

Figure 38. Health System Accountability Roles and Responsibilities



In a system such as Alberta's, the role of Alberta Health should generally be focused on three high-level functions:

- **Mandate:** Articulating a clear strategic vision for the system, developing enabling policies, and defining expected outcomes.
- **Funding:** Allocating the provincial health budget in such a way that it effectively and efficiently enables the achievement of outcomes.
- **Governance:** Commissioning the achievement of desired policy and outcomes to the most appropriate service provider, defining expected service levels, and managing delivery against clearly understood performance expectations.

Conversely, the role of service providers is to operationalize the achievement of Alberta Health's strategy and policy. They do this through:

- **Accountability:** Developing an operational plan to achieve Alberta Health's expected outcomes and providing Alberta Health with the data and analysis necessary to measure progress.
- **Service delivery:** Executing on the operational plan and providing services to Albertans.

The accountability interface that connects Alberta Health's governance responsibilities with AHS' service delivery responsibilities is critical to this model succeeding. It is built on several components:

1. Clearly defined roles and responsibilities;
2. Clearly understood priorities, policies, and expectations;
3. Transparent processes for communicating Alberta Health's expectations and developing the service provider's operational plan;
4. Budgets and oversight approaches that enable financial accountability while preserving flexibility for the service provider to determine how it operationalizes the achievement of Alberta Health's objectives; and
5. Transparency to Alberta Health on the service provider's operational performance

With the current fiscal situation and the significant transformation that is planned for the health system, Alberta Health's need to have a highly effective relationship with AHS and other service providers will only become more important. The remainder of this section:

1. Provides findings related to the effectiveness of the accountability interfaces in Alberta's health system, as well as a number of specific areas of functional duplication identified throughout the review; and
2. Provides recommendations for strengthening the interfaces and resolving some areas of duplication.

Findings

Accountability interface

1. Alberta's governance model has not fully evolved to align to a single provider/administrator model

   - Within Alberta Health, policy portfolios are not always clearly aligned with significant areas of AHS operations. This can sometimes lead to unclear, duplicative, or uncoordinated requests from Alberta Health to AHS.
   - While efforts have been made to more clearly define the roles and responsibilities between the two organizations, they have not resulted in lasting clarity or consistent understanding, particularly as it relates to operational oversight and policy development.
   - Alberta Health and AHS do not consistently work in partnership to develop and operationalize provincial policies through a formalized approach. In a single-provider system where the government does not need to coordinate across multiple health authorities or hospitals, Alberta Health should be focused on system-wide strategy and priority setting. Given that Alberta Health is not responsible for providing top-down policy guidance to multiple health authorities, it has the ability to leverage AHS' clinical expertise to assist in the development of specific policies in a collaborative manner. The joint development of a provincial policy related to new Medical Assistance in Dying (MAID) legislation was cited as an example of where the two organizations worked well together in this regard.
   - Alberta Health does not have a formal policy manual or other centralized repository of policies.

2. In FY 18/19, Alberta Health provided AHS with a $13.9 billion financial transfer, most of which it expects AHS to manage within a small number of high-level funding envelopes. This system appears to strike a reasonable balance between providing operational flexibility to AHS while enabling accountability.

   - AHS leadership has indicated that this funding mechanism works well. AHS is expected to stay within 5% of its funding envelopes, except for the acute care envelope, which is limited to 2% variation. AHS administration costs may not exceed 3.3% of total expenses, and the Regional Health Authorities regulation will not allow AHS to run an operating deficit.

3. AHS receives an annual accountability letter outlining Alberta Health's expectations for the year, however there is an opportunity for increased coordination and collaboration in the development of the annual plan and ongoing performance management approach.

   - Stakeholders from both Alberta Health and AHS suggested that the letters reflect specific priorities and requirements, rather than an integrated provincial health system strategy.
   - Given the significant challenges ahead for AHS and the health system, it will be critical for an effective and streamlined approach to be in place to enable joint planning between Alberta Health and AHS. In addition to an annual planning process, processes for identifying, funding, and executing mid-year priorities will be important given the expected pace of change.

- Executives across both organizations consistently noted that they had effective working relationships with their counterparts. While this has enabled a degree of successful organizational collaboration, relationships can change in the long term due to natural turnover of positions. The ambitious upcoming change agenda may at times strain existing relationships, further reinforcing the importance of effective planning and governance processes and mechanisms.

4. Achieving the government mandate of increased use of non-hospital surgical facilities will require enhanced and sophisticated health care services planning and contracting capabilities.

    - To effectively qualify, contract, and manage private providers, the province will need the capabilities to deliver the following functions:

        - **Service planning:** Critically assessing patient/population needs and services provided, and designing services and priorities to be achieved, in collaboration with clinical experts.
        - **Strategic procurement**: Reviewing and designing flexible service provisions and contracts to pay for required outcomes, working with senior procurement leadership within Alberta Health.
        - **Financial and commercial management:** Economic and financial modelling, understanding public sector comparators, reviewing deals and making sure financial objectives are being achieved.
        - **Contract performance management:** Monitoring performance of service providers to make sure highest value for money is being achieved.

    - These are skillsets that are not always consistently available in the public or health sectors, necessitating the building of capability and capacity. Providing these functions through a dedicated team would allow for these skillsets to be applied using a 'centre of excellence' approach, enabling other parts of the health system to draw on them as appropriate.

5. The agreement and relationship between AHS and Covenant Health does not allow AHS to exercise effective oversight over Covenant Health as a part of an integrated health system.

    - The relationship between the two organizations is governed by a Cooperation and Services Agreement. The Agreement makes Covenant Health accountable to AHS for the provision of services, but also asserts the independence of Covenant Health. The agreement necessitates negotiation for changes in contracted services, restricting AHS' ability to manage the province as an integrated system.

    - AHS provides Covenant with block funding, but there is no agreed upon funding mechanism that enables AHS to tie funding to defined outcomes or activities.

    - The current agreement has been ineffective in achieving agreement on changes to services, funding, and accountabilities between the two organizations. Disagreements over major issues have led to internal audit reports, independent reviews, informal and formal mediation, and escalation to the Deputy Minister.

    - This issue becomes particularly challenging in relation to matters such as integrated system planning that involve Covenant Health facilities. For example, AHS has identified an opportunity to achieve ICU operational efficiencies in the Edmonton zone, but is challenged with implementing it as it would impact ICU facilities at Covenant run hospitals.

6. Alberta's consolidated system has enabled it to reduce the duplication seen in other jurisdictions; however, some specific areas have been identified.

   - There is a general sense from Alberta Health that AHS oversteps its operational mandate and takes on policy development in areas that would be more properly within the scope of Alberta Health.
   - We've heard from AHS, on the other hand, that Alberta Health can sometimes become too involved in operations. This may be in part due to a desire from Alberta Health to exercise its accountability for system oversight in the absence of a clear accountability framework.
   - Relative to other provincial systems, Alberta does not have significant functional duplication, however several specific areas were identified throughout the review and are considered later in this section.

7. Having achieved an impressive level of consolidation, zone-based siloes are beginning to re-emerge

   - While AHS is a consolidated organization, there continue to be variations in practices, policies, and service delivery across the zones. This was a consistent theme throughout our stakeholder consultations.
   - There can be confusion regarding the role of provincial programs vs zone-operations. For example, during the operational leader engagement sessions it was noted that mental health has a provincial program, a strategic clinical network, and zone-based operational teams, which results in a lack of coordination and confusion over accountabilities.
   - Some functions, such as analytics, have core centralized services being supplemented by independent local teams that report to zone-based leadership.

Areas of identified duplication

Throughout our report, specific areas of potential duplication between Alberta Health and AHS were identified to us for consideration. Based on a rapid assessment of the potential impact and materiality of those areas, we considered the following areas:

- Analytics
- Public Health
- Primary Care
- Strategic Clinical Networks
- Infrastructure
- Information Technology

Analytics

1. It is reasonable for both organizations to have dedicated analytics functions to support their mandates.

   - AHS leverages analytics for supporting operations and internal planning, including clinical decision support, clinical performance management, capacity management, operational performance management, and human resource management.
   - Alberta Health requires analytics to support health system planning, health system performance management, resource allocation, health economics, population health analytics.

- Analytics leads from both organizations have developed a vision for a provincial analytics strategy and framework that would formalize the roles and responsibilities articulated above.
- AHS' analytics function is among the most mature and sophisticated we have seen in comparable Canadian organizations. Alberta Health could consider leveraging AHS' analytics capabilities to meet some Alberta Health needs, with strong data governance protocols in place.
- Governance and contracting of vendors was also raised as an issue that has led to potential duplication in this area. Stakeholders at AHS identified a major Alberta Health contract with a technology vendor as an example of an area where they could be more efficient if they worked together. While we found that the specified contract was largely for Department-specific IT services, with a small proportion supporting necessary analytics-related licenses and hosting, enhanced cooperation in contracting would benefit both parties in the future.

2. Both Alberta Health and AHS have mature analytics functions that work collaboratively together.

- The leaders of the Alberta Health and AHS analytics functions are working to develop and implement a modern, federated provincial health data system and framework that would enable effective sharing and use of data across both organizations, as well as with researchers and other third parties, as appropriate.
- This collaborative relationship is due in part, however, to the effective personal relationship between the two leads, rather than a formal governance model with clearly defined roles and responsibilities.

Public Health

3. Public health was identified as an area of potential duplication, in part due to the presence of provincial public health medical officers in both Alberta Health and AHS.

- The Alberta model is comparable to public health systems in other Canadian Jurisdictions, as there is necessity to separate the development of provincial public health policy from the operationalization of that policy.
- AHS' model of having zone medical officers of health could potentially be considered for consolidation, however having regional medical officers of health is common in other jurisdictions due to the need to have close relationships with local municipalities and stakeholders. Consolidation would not result in material savings.

Primary Care

4. Alberta has invested heavily in the creation of a system of Primary Care Networks (PCNs), intended to improve access and quality of care, and to facilitate more coordinated transitions along the continuum of care.

- The first PCN was put in place in 2005, and there are now 42 PCNs in place across the province. Alberta Health provides approximately $238 million in funding to PCNs annually, exclusive of associated physician billing.
- Each PCN is governed jointly between the physician leadership of the PCN and AHS.

- AHS has 88 staff supporting primary care-related planning, strategy, and coordination, with a large focus on providing support to the PCNs.

5. In response to a 2015 review of the PCN program by Alberta Health, the province has put in place a new provincial governance model. This governance model articulates a reasonable delineation of roles and responsibilities between Alberta Health and AHS.

    - This governance model is intended in part to address challenges identified through the review, including a lack of policy direction and limited connections between PCN services and desired population health outcomes.
    - The governance model is based on a provincial PCN committee, reporting to the Deputy Minister of Health. Each zone has a zone PCN Committee, consisting of an AHS Senior zone Leader, a PCN Physician Lead, and a Patient/Community Rep. The zone PCN Committees are intended to play a planning and coordination role, to provide a more direct connection between the policy decisions made at the provincial level and the delivery of services in the individual PCNs.
    - As part of this new governance model, each zone PCN Committee is developing zone-wide service plans to outline how the PCNs will align their service delivery with the intended provincial outcomes as well as the needs of their local populations.
    - If implemented properly, this new model should help to address concerns that AHS is developing primary care policy that is more appropriately within the scope of Alberta Health.
        - Alberta Health's role is largely limited to setting provincial policy, defining the desired outcomes, and monitoring progress and performance.
        - AHS plays a strong role in operationalizing the achievement of those outcomes through its role in the PCN Zone Committees and the governance of individual PCNs.
        - The framework calls for clear performance measurements to be in place, with appropriate monitoring and reporting to enable management of PCN performance.

6. While AHS plays an important role in managing the PCNs, focused on the integration and delivery of care across community and the acute care sectors, ultimate responsibility for the primary care system falls with Alberta Health. Alberta Health's primary role in funding PCNs and physicians, as well as developing system policy, desired outcomes and broader provincial strategies is important and appropriate.

    - Alberta Health maintains the relationship with Alberta's doctors and coordinates all funding for primary care. It is also responsible for overall system design of health information technology that must span across acute and community sectors.
    - Alberta Health plays a system coordination role that translates government priorities and commitments into strategies that are implemented by various components of our complicated health care system.
    - In these roles, AH is often required to manage and resolve competing priorities, funding and overlap between acute and community care or amongst various sector stakeholders.
    - AHS has a significant number of resources dedicated to primary care strategy and coordination. AHS and AH will need to ensure that those resources are working in alignment with AHS' areas of

primary care responsibility. In cases where they may not be, their activities should support AH in developing broader primary care policy and strategy.

Strategic Clinical Networks

7. AHS has 16 Strategic Clinical Networks, each with a specific area of clinical focus:
   - Addiction and mental health
   - Bone and joint health
   - Cancer
   - Cardiovascular health and stroke
   - Diabetes, obesity, and nutrition
   - Seniors health
   - Critical care
   - Emergency
   - Surgery
   - Respiratory health
   - Maternal, newborn, child, and youth
   - Digestive health
   - Kidney health
   - Population, public, and Indigenous health
   - Primary health care integration
   - Neurosciences, rehabilitation, and vision

8. Since 2012, AHS has spent $116.26 million on strategic clinical network operations. The strategic clinical networks have spent a further $124 million on specific projects, $65.8 million of which has come from outside of Alberta.
   - Project funding is largely grant-based, with $58.2 million originating from sources within Alberta, while $65.8 million has come from outside of the province.

9. AHS senior leadership is strongly committed to the strategic clinical network model and highlight the significant value they have brought to the health system. Examples include:
   - Reducing the time between suspicious breast imaging and surgical consult by 60%.
   - Reducing the 'door to needle' time for stroke victims from 70 to 39 minutes in Edmonton and Calgary.
   - Reduced bed-days for diabetes-related foot amputations by half and implemented new pathways with limb-preserving approaches.
   - Based on evidence, discontinued fetal fibronectin testing for preterm labour. AHS estimates this has saved $5 million per year.

10. While the strategic clinical networks have demonstrated valuable outputs, they represent a complex and costly model to do so, which may warrant reconsideration given the sector's fiscal challenges.

    - Each strategic clinical network has a medical leader and an operational director, along with supporting staff and overhead costs.
    - Having 16 subject-matter specific networks may result in sub-optimal use of funding:
        - Each strategic clinical network will be actively looking to conduct research within their specific domain, regardless of if that domain is a provincial priority.
        - There is no flexible structure for conducting similar activities in other priority areas, short of creating a new strategic clinical network.
    - While there are obvious merits to having groups of experts dedicated to developing new pathways and approaches, elements of that role potentially overlap with the medical leadership and governance structures in place at AHS.
    - Within AHS, there can be confusion regarding the operational accountability of strategic clinical networks versus program medical leadership.

11. Strategic clinical networks have wide latitude to determine their own priorities, and do not generally align to provincial priorities set by Alberta Health.

    - The process for setting SCN priorities is largely bottom up, with SCNs generating ideas and then bringing them to AHS leadership for approval. A more top-down priority setting process could allow for closer alignment of SCN activity to Alberta Health and AHS priorities. Alberta Health would likely benefit from the significant expertise of strategic clinical networks in the development of provincial health strategy and policy. This is especially true in the case of the primary care SCN, where they have overall system oversight responsibility.

Information Technology

12. AHS and Alberta Health both have extensive IT responsibilities, however system governance, planning, and delivery is not always optimally coordinated.

    - Alberta Health mandates and funds AHS to develop and implement some of the largest IT systems in the country. These complex, multi-year implementations have high delivery and cost risk associated with them.
    - While AHS is often best suited to deliver them, it is essential that Alberta Health have the ability to provide prudent oversight on behalf of the Government of Alberta.
    - Along with AHS, they have established gated grant processes for large projects, which require fulfillment of project deliverables to unlock further funding.
    - While this approach is effective for large projects, Alberta Health has less visibility into how grant funds are used in other projects.
    - Alberta Health plays a system coordination role to ensure that there is an integrated technology strategy that connects all parts of the health care system and manages competing priorities and funding needs.

Infrastructure

13. For capital investments over $5 million, Alberta Infrastructure takes the lead role on project management and delivery, working with Alberta Health and AHS.

    - This model can create some additional complexity; however, it enables Alberta Health and AHS to draw on existing government major capital project expertise, rather than maintaining that expertise in-house or building it up each time a new capital project is initiated.
    - During the stakeholder engagement sessions, participants suggested that the $5 million threshold could be raised to enable more streamlined management of projects that do not meet the complexity of a new hospital or major renovation.
    - Stakeholders also noted that there can sometimes be confusion over who has decision-making authority between Alberta Infrastructure, Alberta Health, and AHS in major infrastructure projects.

Recommendations

Recommendation 45: Strengthen the accountability interface between Alberta Health and AHS to clarify responsibilities, put in place a coordinated annual planning process, and develop an effective performance management framework.

- Clearly align the roles of Alberta Health and AHS to the model discussed above. Most Alberta Health ADMs should primarily be responsible for setting policy, defining strategic objectives, and supporting system planning within specific policy portfolios.
- Put in place a coordinated annual planning process, executed jointly with Alberta Health and AHS, to clearly communicate Alberta Health's desired outcomes to AHS and to allow AHS to provide a high-level plan to achieve those outcomes.
- Develop a performance management framework, based on regular and meaningful reporting from AHS, to hold the organization accountable to priority outcomes.

Recommendation 46: Consider assigning a senior leader within Alberta Health with primary responsibility for strengthening and managing the accountability interface between Alberta Health and AHS.

- This leader should be the primary interface between Alberta Health and AHS from an operational accountability perspective and should be appropriately resourced to manage the relationship and the performance management framework.
- The function under this leader would support Alberta Health in developing coordinated strategic priorities, objectives, and policies, and communicating the desired outcomes to AHS.
- It would also be responsible for developing and executing the performance management strategy for holding AHS accountable for achieving the desired outcomes.
- Locating these responsibilities in a single portfolio enables Alberta Health to present a clear and coordinated strategy to AHS and reduces the need for other departmental portfolios to become involved in operational oversight.

Recommendation 47: Create a dedicated independent providers secretariat.

- This secretariat would be accountable the service planning, strategic procurement, financial modelling, and contract performance management related to delivery of health services from independent providers, such as non-hospital surgical facilities.
- The team within this function would need specific skills and experience, including:
    - Private sector commercial discipline
    - Strategic planning
    - Vendor management
    - Negotiation
    - Data analysis
    - Economic modelling and financial analysis
    - Innovative procurement and solution design
    - Communication and relationship management
    - Knowledge of health services + operations
    - Ability to partner with clinical specialists

- Project management

- As this function will assess services and volumes for independent delivery, and to manage real or perceived conflicts of interest with service delivery, consideration should be given to hosting this function outside of AHS, which is the most significant provider of publicly-provided health services.

Recommendation 48: Alberta Health should develop a funding model that separates system funding into three categories: global budgets, targeted grants for priority areas, and funds for independent provider services.

- Global budgets: Continue to fund AHS with a global block budget. In a health system with a single large health authority, more granular funding models (including activity-based funding) create significant administrative burden with little actual impact in improved accountability. Rather, holding AHS accountable for its activities should be accomplished through the accountability interfaces described in the recommendations above.
- Targeted grants: This fund will most often be used to direct spending on provincial priority initiatives. Once the priority initiative has been achieved and transitioned to regular operations, the associated funding could then be transferred to the appropriate service provider global budget.
- Independent provider services: Informed by the independent providers secretariat, allocate a specific budget to fund surgical and clinical procedures delivered by independent providers.

Recommendation 49: End the current Covenant Health Cooperation and Services Agreement and develop a new agreement that enables more effective system coordination by AHS.

- While Covenant will continue to be a significant service provider in the province, AHS needs to be able to effectively integrate it in to the broader health system. This will involve service coordination, funding allocation frameworks that reflect shared responsibility for fiscal sustainability, and mechanisms for standardized service delivery.
- The relationship between AHS and Covenant should be similar in nature to the relationship between Alberta Health and AHS. AHS should be able to set clear expectations for outcomes to Covenant and have the ability to hold Covenant accountable to achieving those outcomes.
- Consideration could be given to including a mechanism for resolving disputes through escalation to the Deputy Minister.

Recommendation 50: Develop and formalize clear operational accountability frameworks for Primary Care and Information Technology

- These functions include significant areas of joint responsibility yet remain the primary responsibility of Alberta Health.
- Due to the level of overlap and the importance of these functions, it is critical that the specific accountabilities are well understood and that a governance framework is in place to enables enhanced collaboration and effective delivery of services.

Recommendation 51: Reconsider the number, mandate, and governance of strategic clinical networks to more efficiently leverage them to achieve health system priorities.

- Assess each strategic clinical network based on criteria such as cost, outputs, and alignment with provincial and system clinical and policy priorities.
- Ensure remaining structures are responsive to the research, policy, and innovation needs of the system, as identified by AHS from an operational perspective and Alberta Health from a policy perspective, emphasizing the important role of physician leadership in driving appropriateness, standardization, and clinical quality across AHS.
- Consider if the role of strategic clinical networks could be delivered through a more flexible structure based on specific policy challenges, rather than subject matter domains.

Recommendation 52: AHS should be diligent in completing the consolidation of the provincial health system and should actively seek to avoid retrenchment to unnecessary local variation in care delivery.

- Alberta leads the nation in delivering integrated care across the full provincial health care system, which is foundational to sustainable, high-quality patient care. It should continue to reduce unwarranted geographic variation, consolidate support services to reduce costs, and establish consistent zone governance and operating models.

6 Opportunity prioritization

The opportunities put forward in the previous section suggest that significant fiscal improvement can be driven across Alberta's health system. Unfortunately, the task is not as simple as saying "go." Each opportunity requires thoughtful planning and strategic support from the Executive, ownership from operational leaders and physicians, project management support to ensure key performance metrics are achieved, consultation with health system stakeholders including unions, and for certain opportunities, dedicated investment to fully realize the degree of benefits set out. Simply put, opportunities cannot be implemented without a clear plan of attack.

The first step in navigating the various opportunities put forward is undergoing a prioritization process. This is based on an objective evaluation of benefits realization, complexity and value, at the opportunity level. This will help to clarify opportunities which are quick wins, and should be prioritized for immediate implementation, as well as longer-term opportunities, which may also have merit in commencing in the short term due to the degree of planning and consultation required, as well as the potential impact to the organization.

This section offers an initial point of view on opportunity prioritization. Note that this is a view based on an objective evaluation of each opportunity from our engagement and analysis at the workstream level. It is not based on a collaborative planning process with Alberta Health and AHS, which will provide a much more valuable view of opportunity viability and phasing. This is the hard work that can begin once the report is finalized and assessed by those who will need to drive implementation forward.

This prioritization should inform AHS' implementation planning process, based on a clear articulation of strategic and financial goals from Alberta Health. This is further described in the final section of this report.

Prioritization Approach

Each opportunity has been prioritized based on a high-level assessment of two factors:

1. **Speed to value**, or the estimated timeframe to achieve the stated savings target for the given opportunity, and

2. **Implementation complexity,** based on the level of effort and/or investment, as well as resources required and strategic risk, associated with implementing the opportunity.

As stated, the prioritization has been informed by our experience working with organizations to implement and sustain similar opportunities. The size of each opportunity illustrated is based on the gross opportunity valuation described at the beginning of the previous section.

Prioritized opportunities are grouped into four domains

The output of the opportunity prioritization is illustrated below. Each chart represents the opportunities for a workstream (management review and workforce have been combined). The charts include the opportunities summarized at the end of the workstream summaries in the previous section of this report.

Each matrix includes four domains based on the scoring completed by the review team.

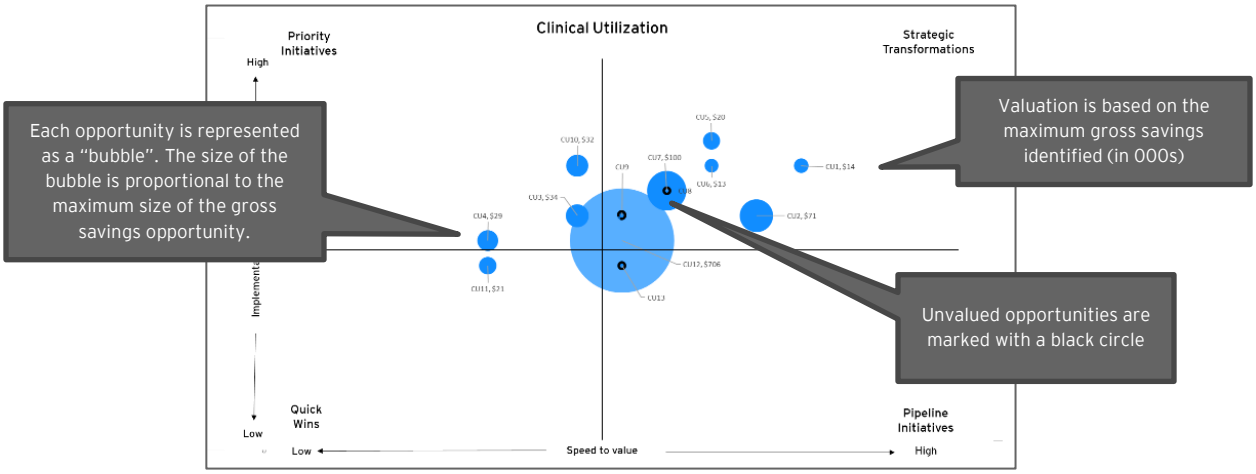
1. **Quick wins** are opportunities that can be implemented rapidly, with savings generated within the first year of implementation.

2. **Priority initiatives** are those that are more complex to implement, based on potential union considerations or external approvals, however once implemented savings can be generated within the first two years of implementation.

3. **Pipeline initiatives** are less complex, but take a longer time to implement, potentially based on the scale of the impact across AHS. The should therefore be planned to be realized as part of a multi-year implementation effort.

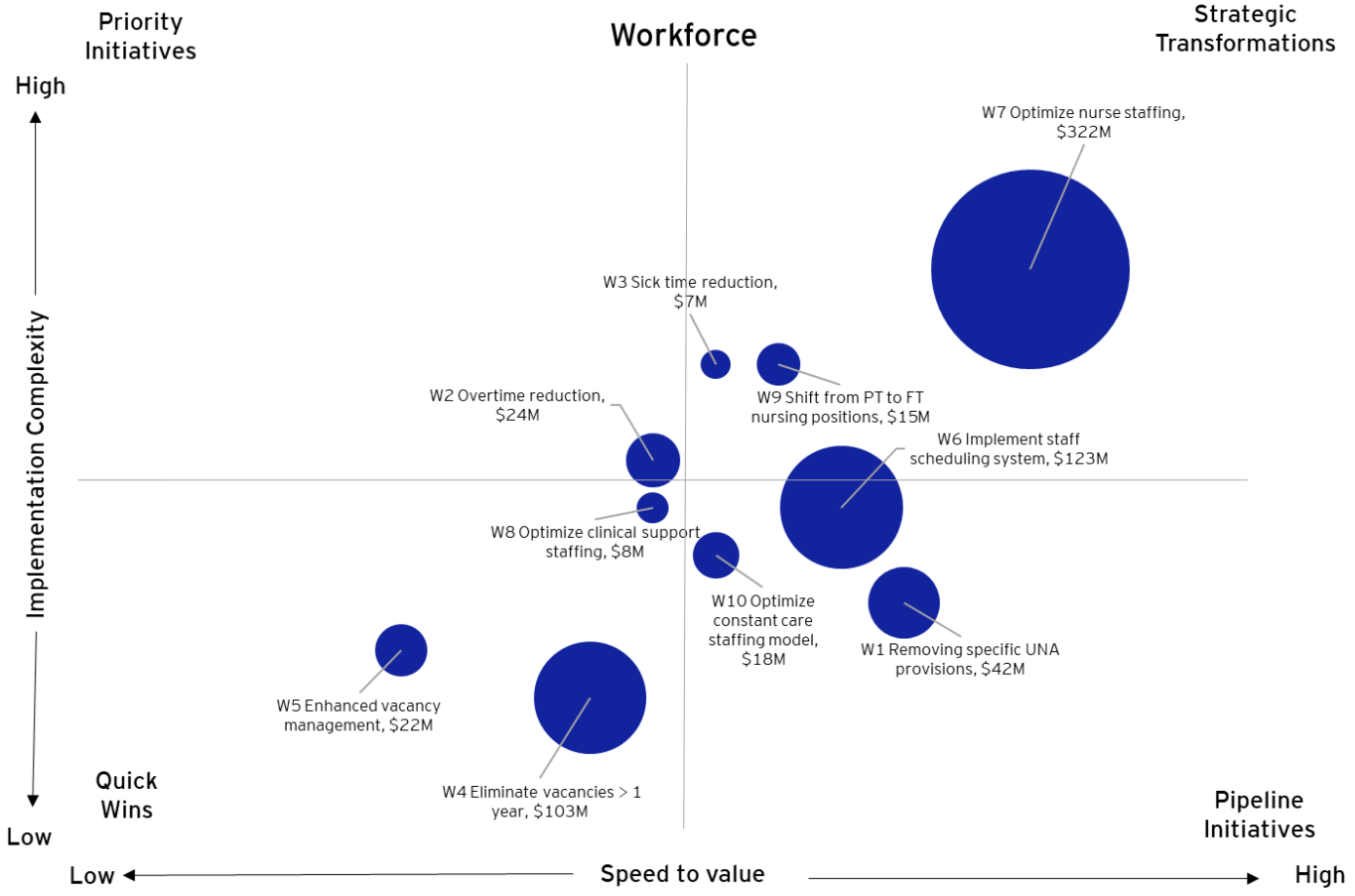
4. **Strategic transformation initiatives** are those high value initiatives that are the most complex and create some strategic risk to the organization. These initiatives require close consultation with government and should commence planning at the beginning of an implementation program based on the time and resource required for implementation.

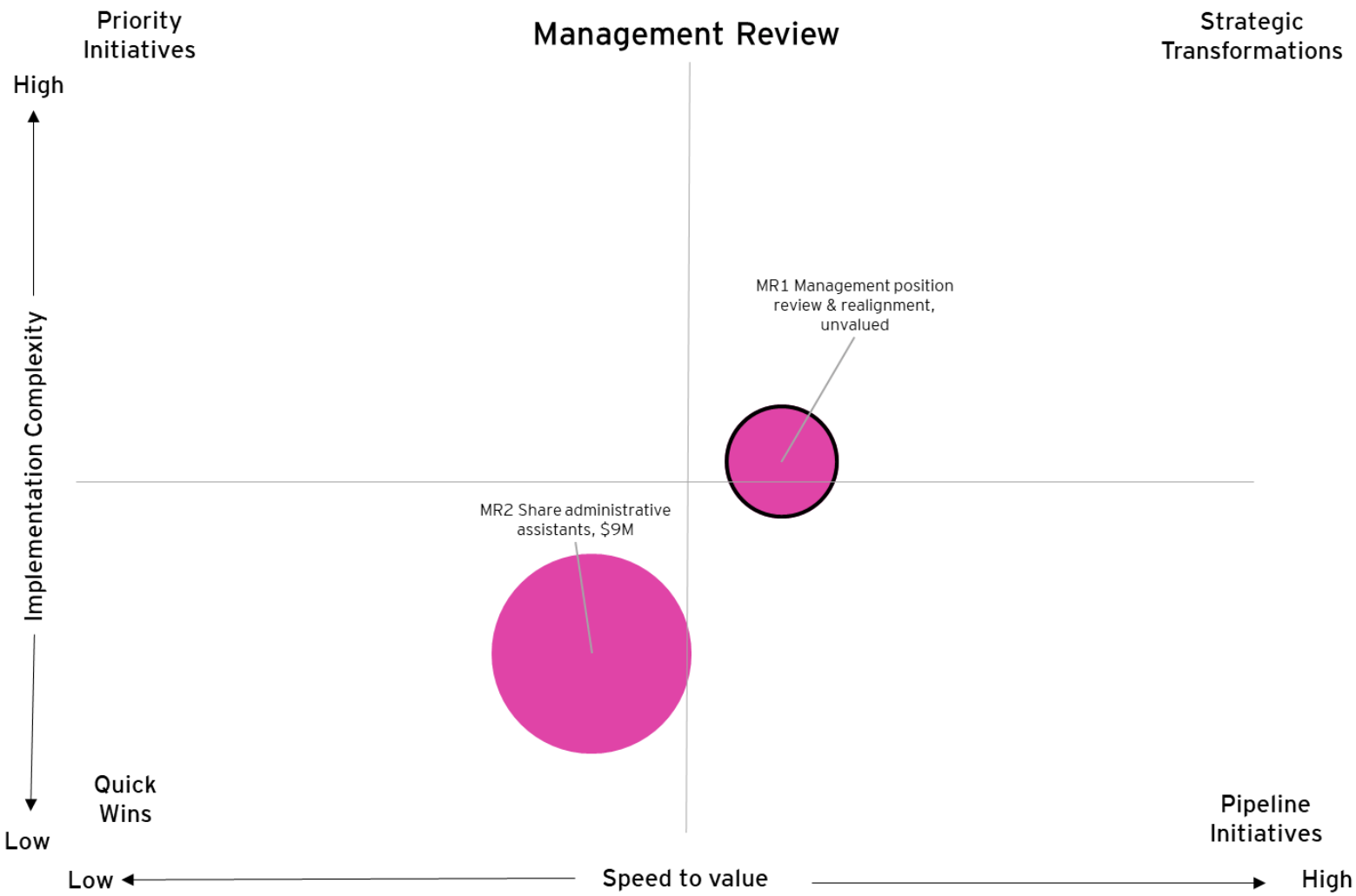
How to read the prioritization matrices

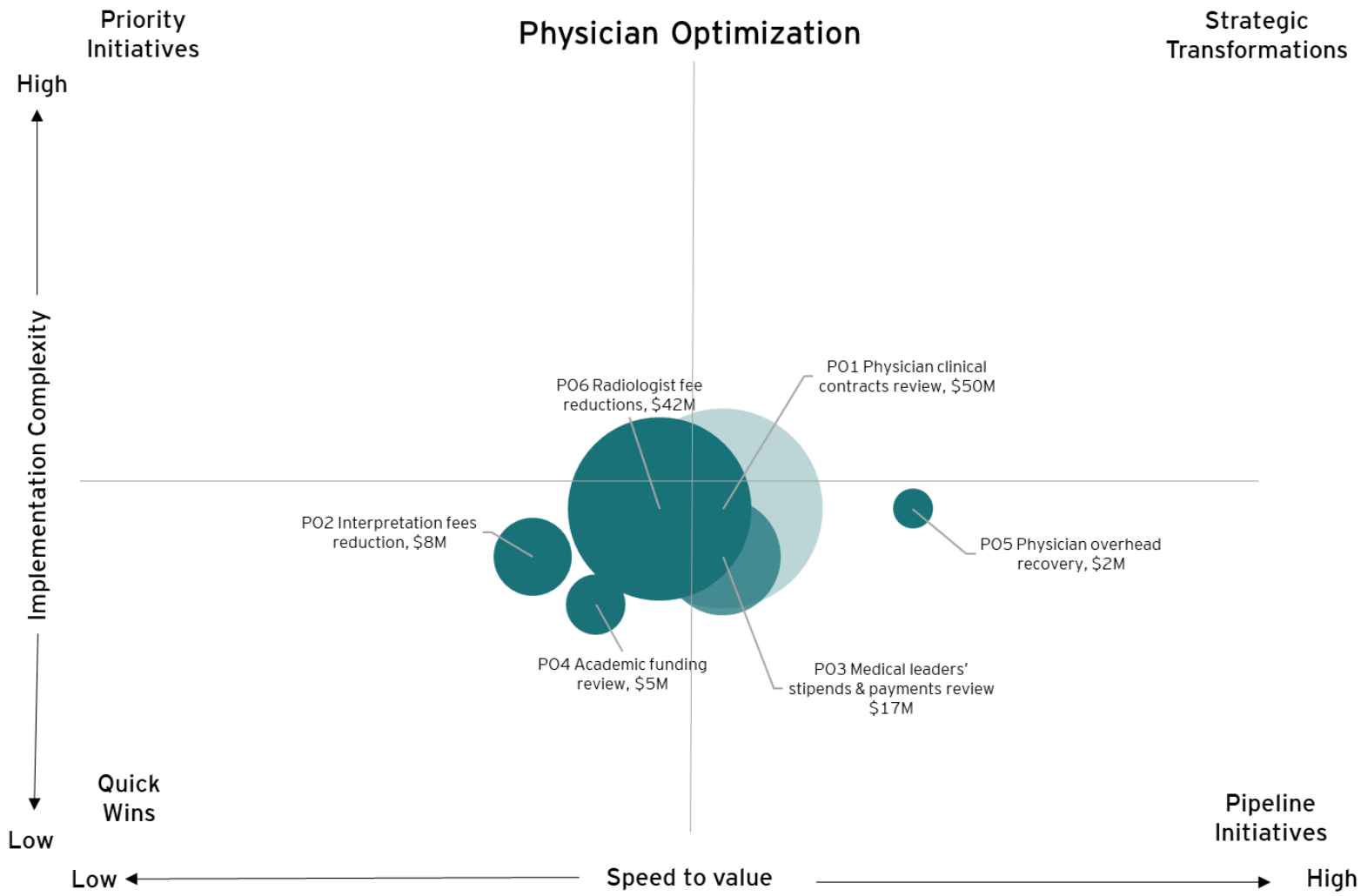


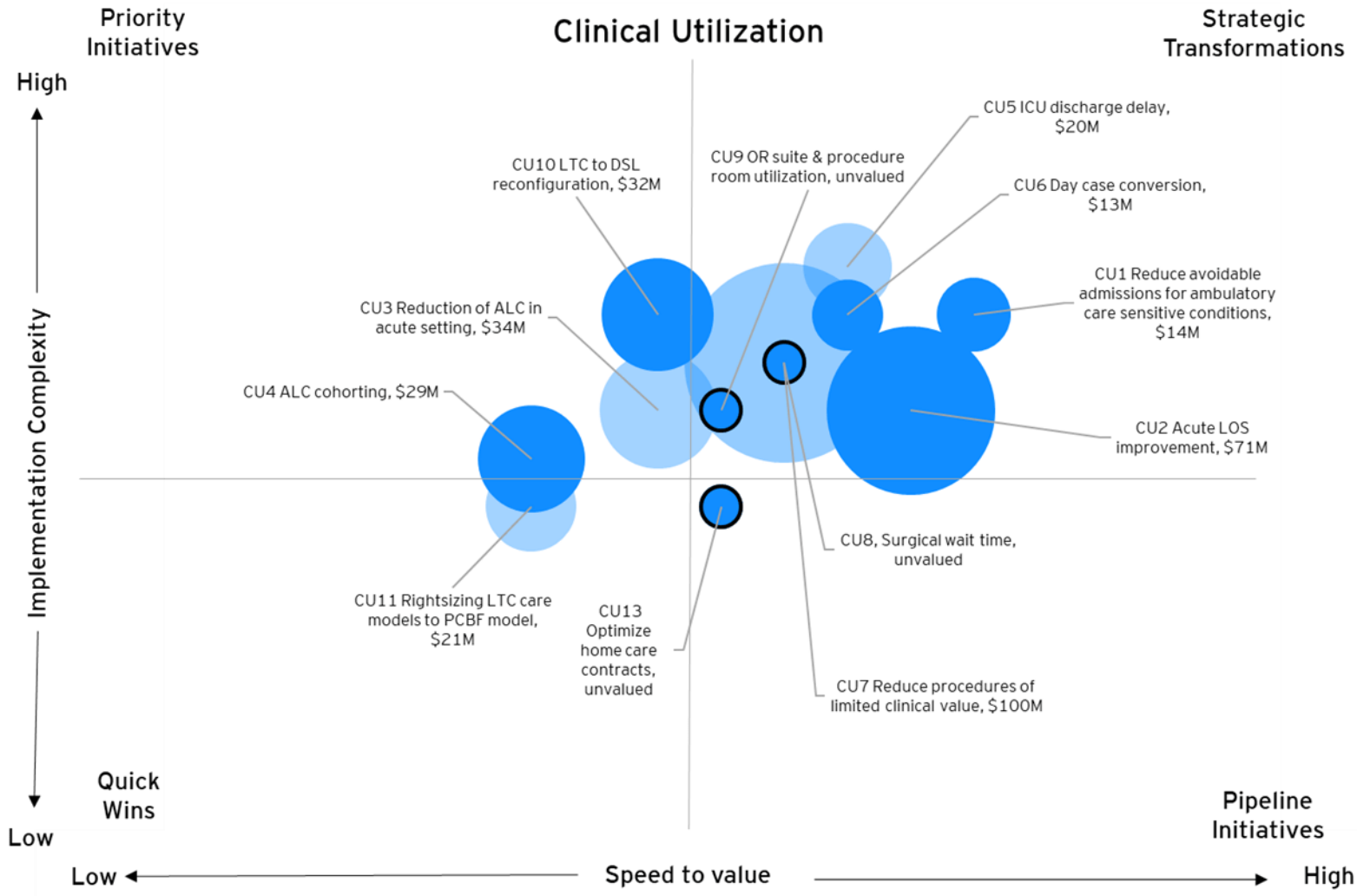
Opportunity names, values and corresponding workstreams, are outlined in Appendix B.

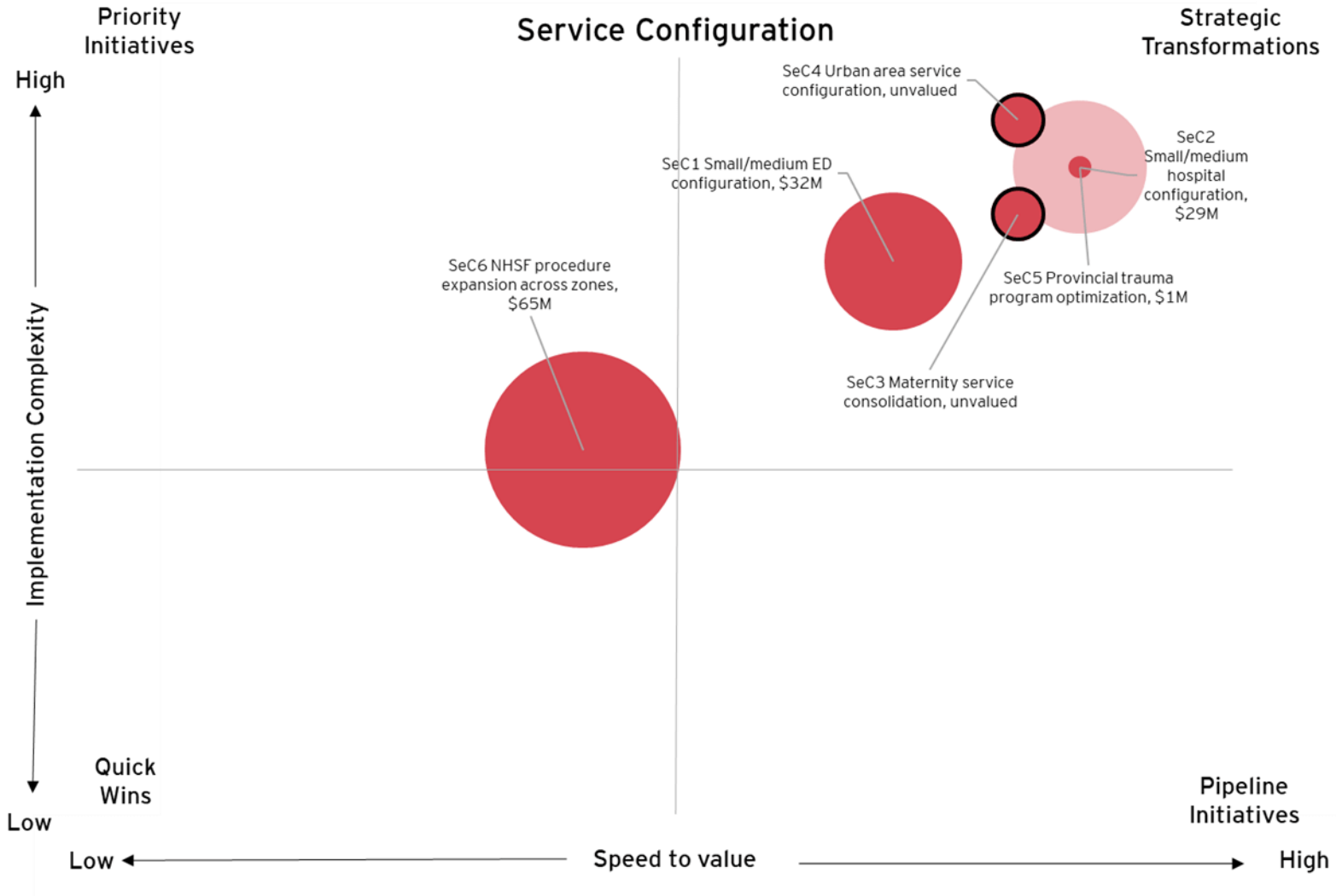
Workstream prioritization matrices

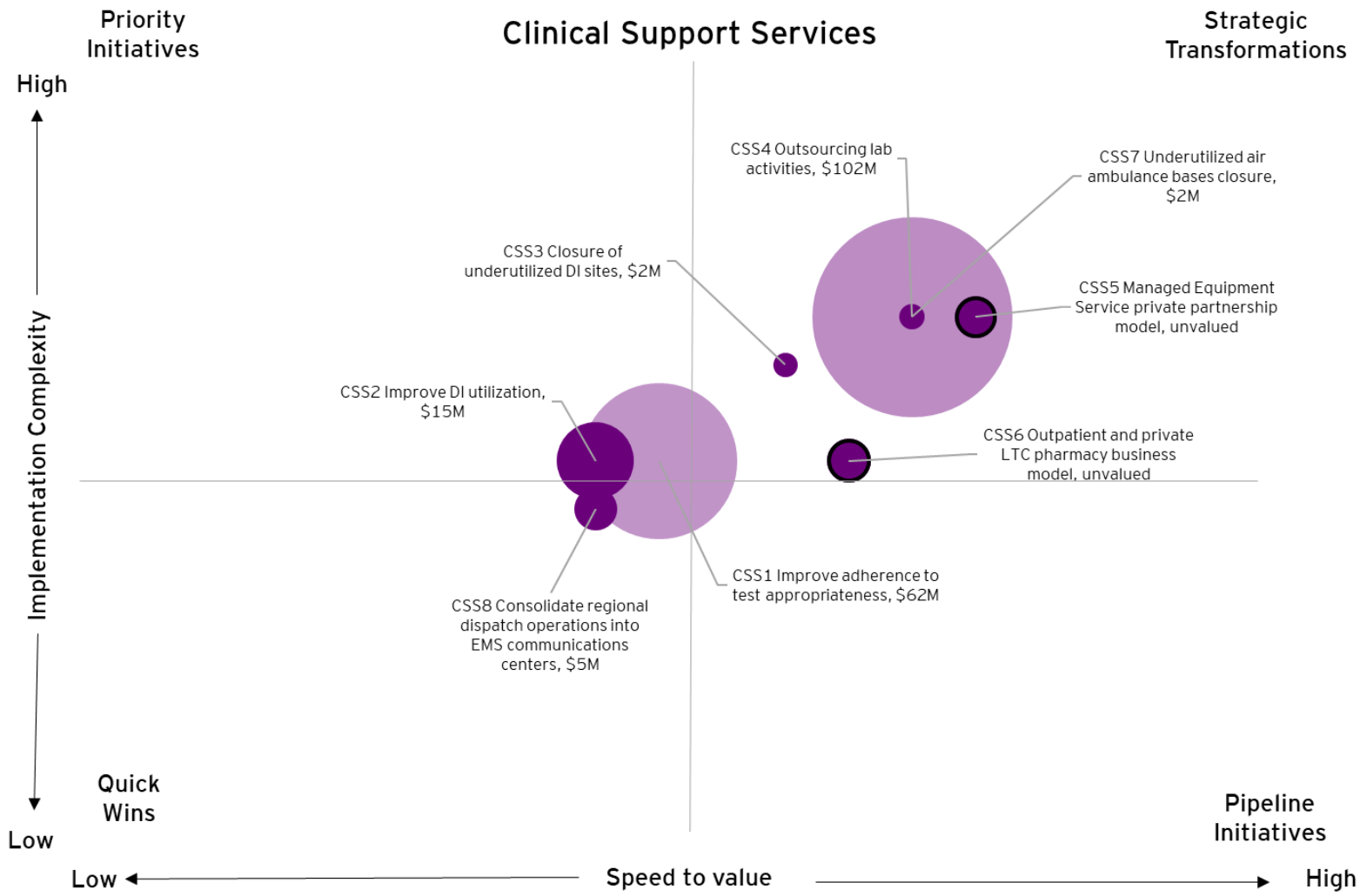


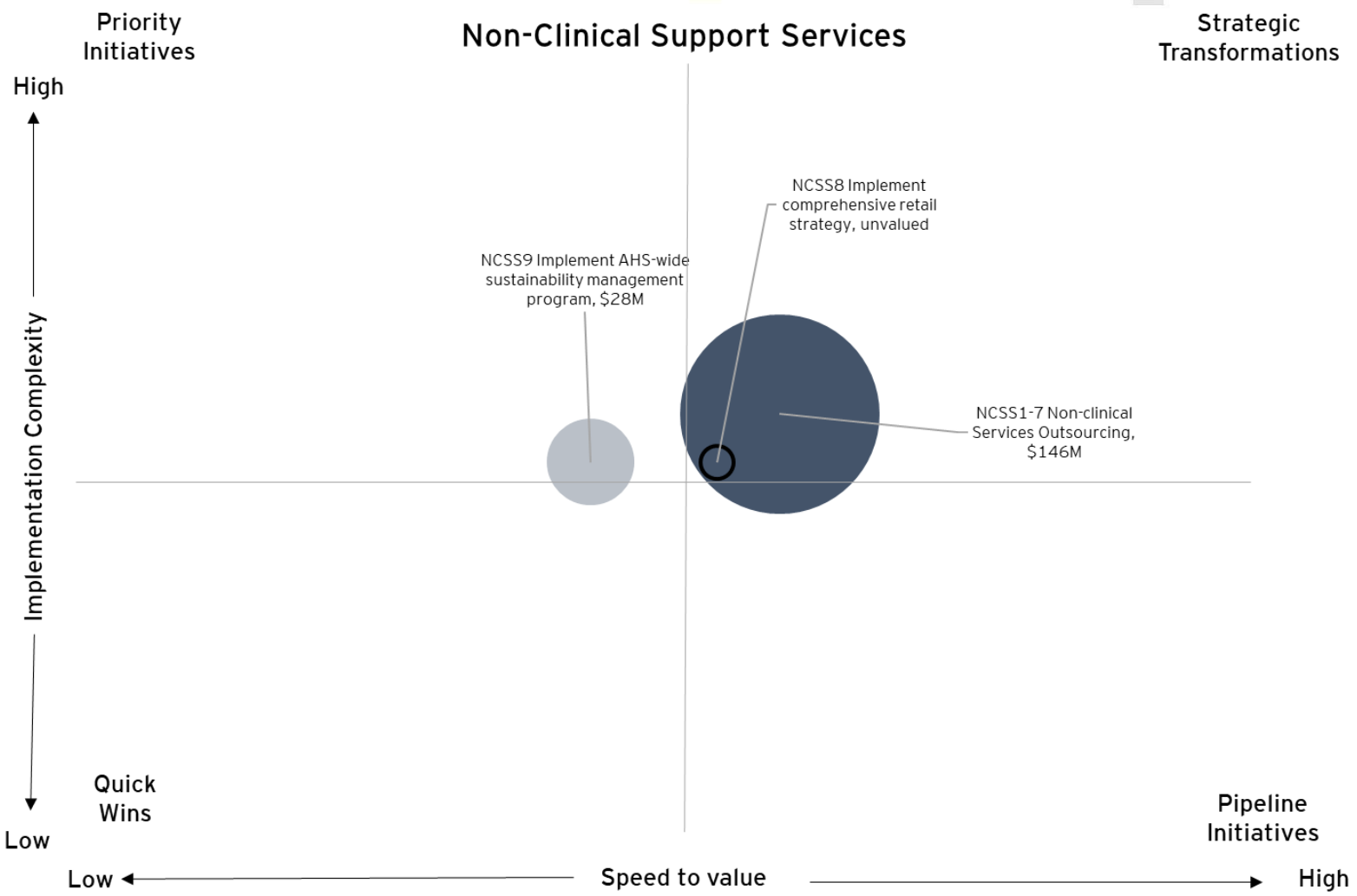

Management Review
Priority Initiatives
Strategic Transformations
High
Implementation Complexity
Low
Quick Wins
Pipeline Initiatives
MR1 Management position review & realignment, unvalued
MR2 Share administrative assistants, $9M
Low
Speed to value
High

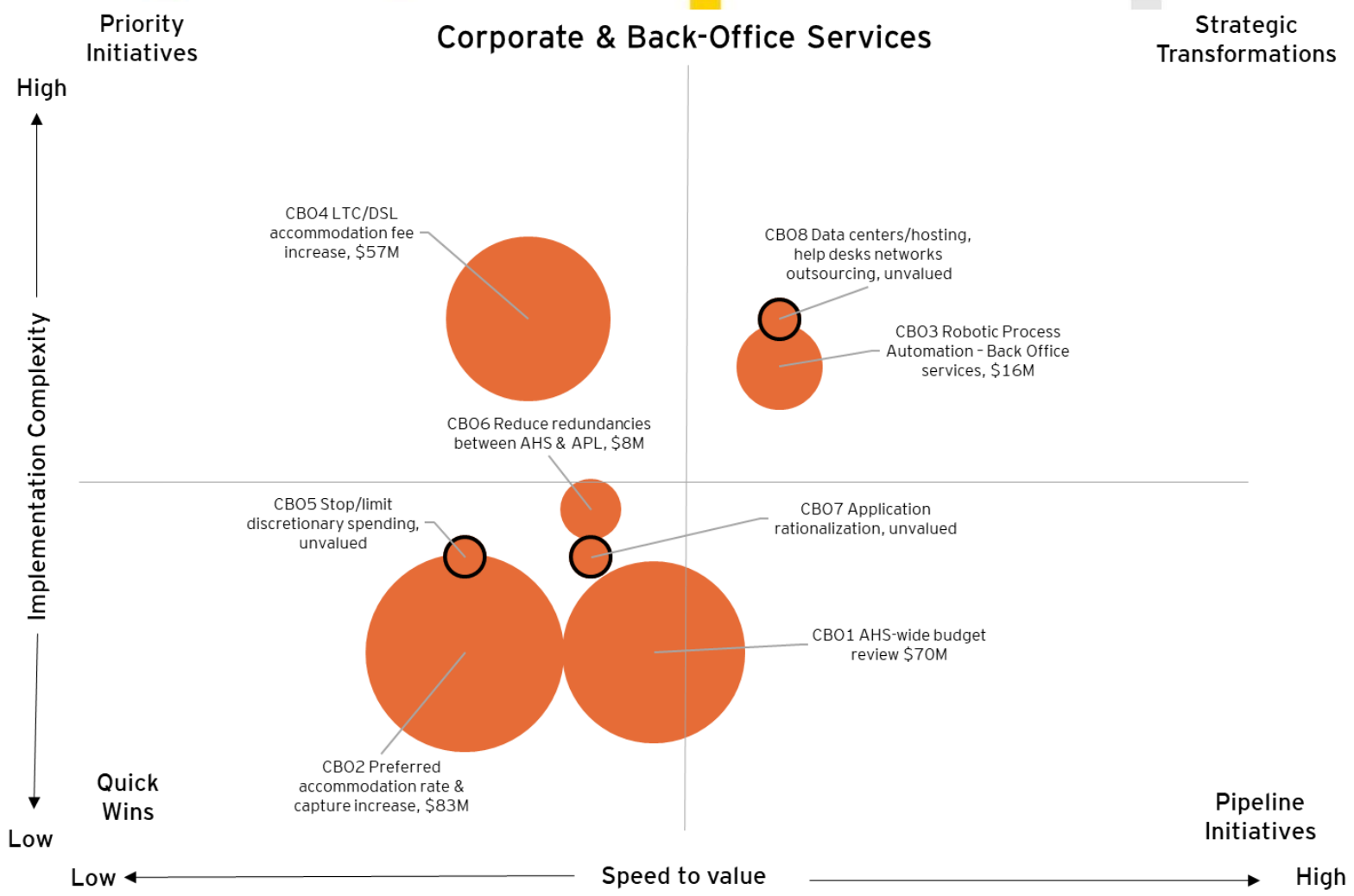

Priority Initiatives
Physician Optimization
Strategic Transformations
High
Implementation Complexity
Low
Quick Wins
Pipeline Initiatives
Low
Speed to value
High
PO6 Radiologist fee reductions, $42M
PO1 Physician clinical contracts review, $50M
PO2 Interpretation fees reduction, $8M
PO5 Physician overhead recovery, $2M
PO4 Academic funding review, $5M
PO3 Medical leaders' stipends & payments review $17M

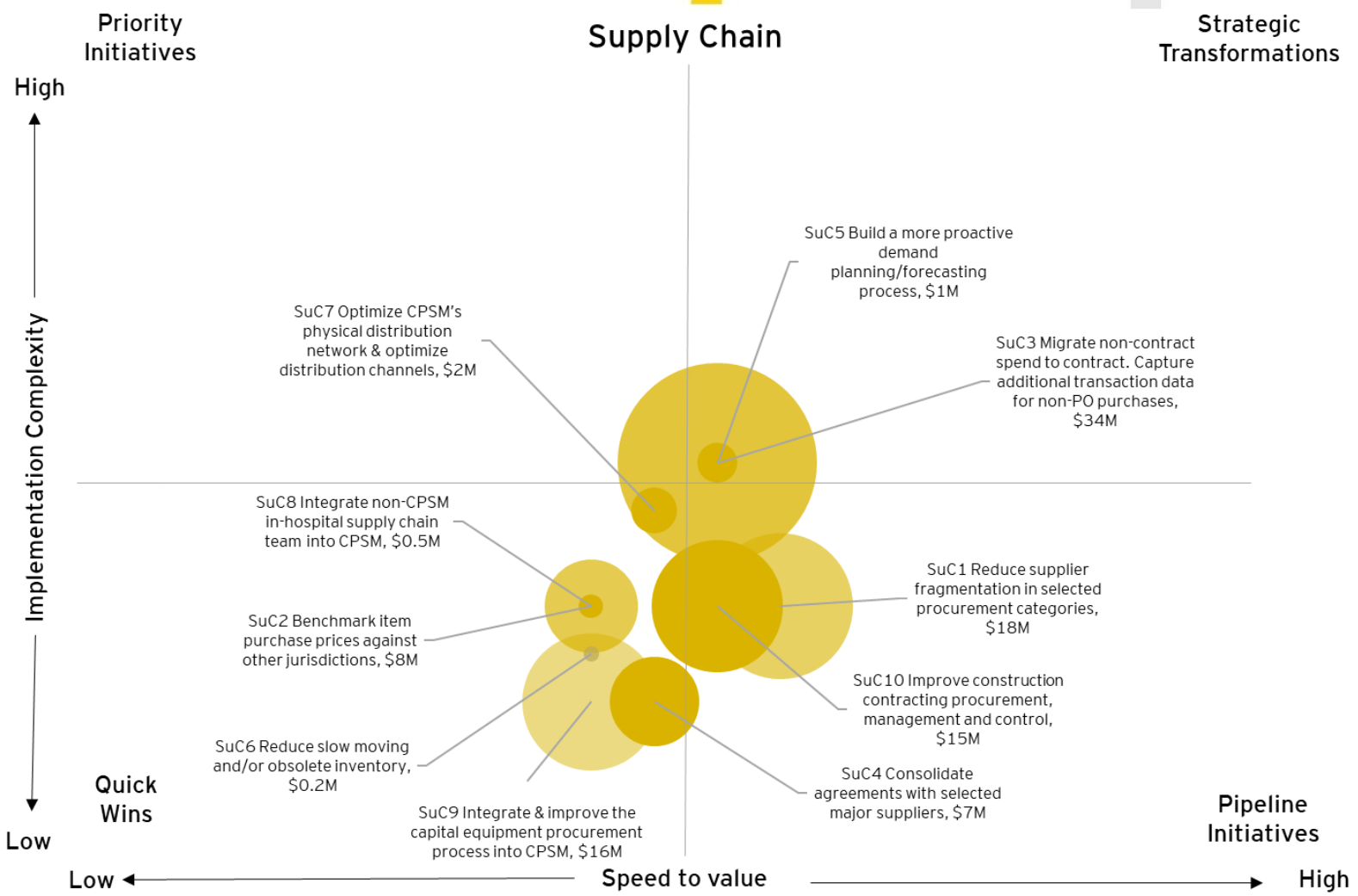

Clinical Utilization
Priority Initiatives
Strategic Transformations
High
Implementation Complexity
Low
Quick Wins
Pipeline Initiatives
Low
Speed to value
High
CU10 LTC to DSL reconfiguration, $32M
CU9 OR suite & procedure room utilization, unvalued
CU5 ICU discharge delay, $20M
CU6 Day case conversion, $13M
CU1 Reduce avoidable admissions for ambulatory care sensitive conditions, $14M
CU3 Reduction of ALC in acute setting, $34M
CU4 ALC cohorting, $29M
CU2 Acute LOS improvement, $71M
CU8, Surgical wait time, unvalued
CU11 Rightsizing LTC care models to PCBF model, $21M
CU13 Optimize home care contracts, unvalued
CU7 Reduce procedures of limited clinical value, $100M


Service Configuration
Priority Initiatives
Strategic Transformations
High
Implementation Complexity
Low
Quick Wins
Pipeline Initiatives
Low
Speed to value
High
SeC4 Urban area service configuration, unvalued
SeC2 Small/medium hospital configuration, $29M
SeC1 Small/medium ED configuration, $32M
SeC6 NHSF procedure expansion across zones, $65M
SeC5 Provincial trauma program optimization, $1M
SeC3 Maternity service consolidation, unvalued


Priority Initiatives
Clinical Support Services
Strategic Transformations
High
Implementation Complexity
Low
Quick Wins
Pipeline Initiatives
Low
Speed to value
High
CSS4 Outsourcing lab activities, $102M
CSS7 Underutilized air ambulance bases closure, $2M
CSS3 Closure of underutilized DI sites, $2M
CSS5 Managed Equipment Service private partnership model, unvalued
CSS2 Improve DI utilization, $15M
CSS6 Outpatient and private LTC pharmacy business model, unvalued
CSS1 Improve adherence to test appropriateness, $62M
CSS8 Consolidate regional dispatch operations into EMS communications centers, $5M


Non-Clinical Support Services
Priority Initiatives
Strategic Transformations
High
Implementation Complexity
Low
Quick Wins
Pipeline Initiatives
Low
Speed to value
High
NCSS8 Implement comprehensive retail strategy, unvalued
NCSS9 Implement AHS-wide sustainability management program, $28M
NCSS1-7 Non-clinical Services Outsourcing, $146M


Priority Initiatives
Corporate & Back-Office Services
Strategic Transformations
High
Implementation Complexity
Low
CBO4 LTC/DSL accommodation fee increase, $57M
CBO8 Data centers/hosting, help desks networks outsourcing, unvalued
CBO3 Robotic Process Automation - Back Office services, $16M
CBO6 Reduce redundancies between AHS & APL, $8M
CBO5 Stop/limit discretionary spending, unvalued
CBO7 Application rationalization, unvalued
CBO1 AHS-wide budget review $70M
CBO2 Preferred accommodation rate & capture increase, $83M
Quick Wins
Pipeline Initiatives
Low
Speed to value
High


Priority Initiatives
Supply Chain
Strategic Transformations
High
Implementation Complexity
Low
SuC5 Build a more proactive demand planning/forecasting process, $1M
SuC7 Optimize CPSM's physical distribution network & optimize distribution channels, $2M
SuC3 Migrate non-contract spend to contract. Capture additional transaction data for non-PO purchases, $34M
SuC8 Integrate non-CPSM in-hospital supply chain team into CPSM, $0.5M
SuC1 Reduce supplier fragmentation in selected procurement categories, $18M
SuC2 Benchmark item purchase prices against other jurisdictions, $8M
SuC10 Improve construction contracting procurement, management and control, $15M
SuC6 Reduce slow moving and/or obsolete inventory, $0.2M
SuC4 Consolidate agreements with selected major suppliers, $7M
SuC9 Integrate & improve the capital equipment procurement process into CPSM, $16M
Quick Wins
Pipeline Initiatives
Low
Speed to value
High

How this prioritization should be used

This prioritization offers a starting point for implementation planning. It is based on an objective assessment of value, the speed to realize value, and the associated complexity during implementation. This assessment has been done by based on the collective experience of our review team designing and implementing similar opportunities with health care organizations and systems like AHS.

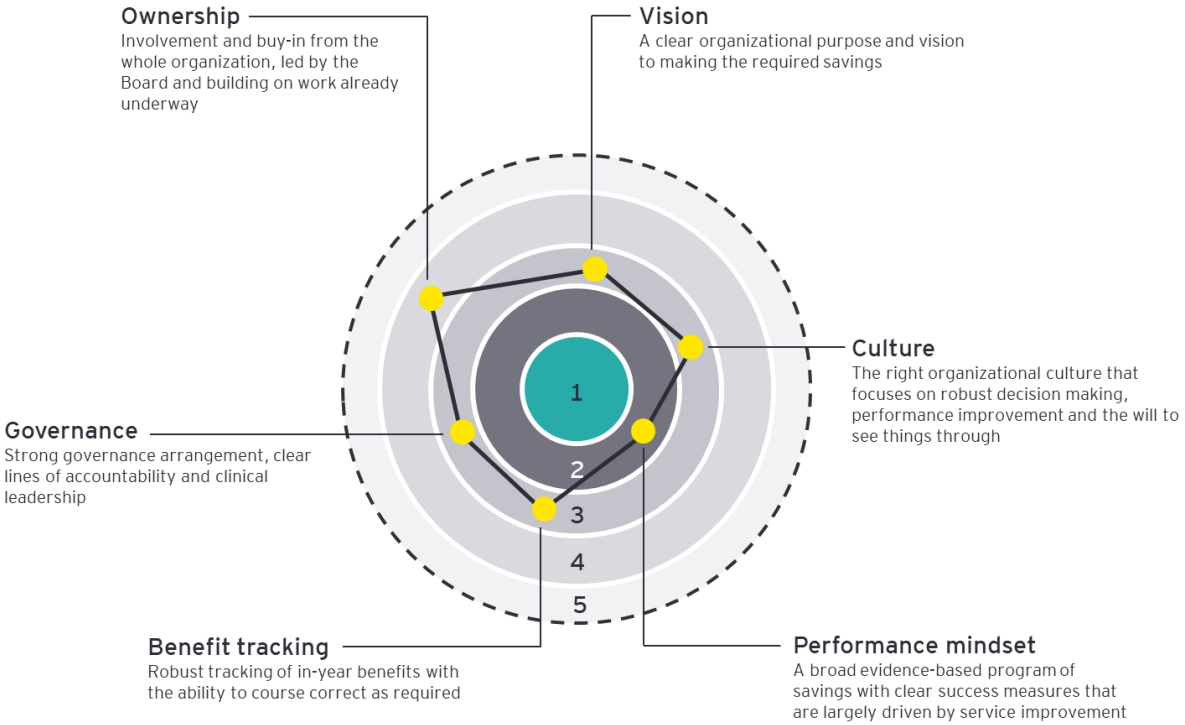
This prioritization is meant to inform the design of an implementation plan. This needs to be based on key factors that are currently not known. The timeframe that savings may be required from AHS is something that that requires further direction from government upon the review of this report and a clear articulation of budgetary targets to AHS. Knowledge of this will help to inform which of the opportunities proposed should be prioritized for planning and ultimate implementation. For example, if AHS is challenged with more of a short-term objective to find savings, opportunities we've classified as quick wins may be prioritized over those associated with strategic transformations.

7 Implementation recommendations and the path forward

The scale of the challenge facing the Alberta health system is significant. Albertans pay more for their health care than other comparable provinces and bringing costs into line will not happen overnight – nor will it happen easily. But despite the challenge, making these financial improvements are necessary for the long-term viability and wellbeing of the health system. Responding to the challenge will require new thinking, new capabilities and new ways of working for Alberta Health and AHS. Simply put, it will require creating a "new normal" where sustainability is at the core of the provincial health system.

To establish this new normal, AHS needs to understand the change, be ready for the change, and have the right leaders to take the change forward. As part of the set-up of the Sustainability Program Office discussed in recommendation 55, a maturity and change readiness assessment should be undertaken. This should include key dimensions required for success, such as AHS' vision, culture, sustainability mindset, benefit tracking processes, and governance. As part of this assessment, it will also be important to ensure that AHS' leadership has the capabilities and commitment to deliver the level of change anticipated.

Figure 39: Dimensions of change readiness assessment



Lessons from other provinces and global jurisdictions have shown that making changes of this scale comes down to building momentum and maintaining a relentless focus on successful execution. As stated, AHS needs to act on a range of opportunities to meet their budget targets, or to keep expenditures flat. The opportunities we've put forward offer a starting point for an actual plan to be formed that begins the process of designing savings and targets that are clear and reasonable. The remainder of this section provides recommendations related to implementation.

Recommendation 53: AHS should complete a formal leadership review of the executive leadership team, including its structure, capabilities, and readiness to deliver a large transformation program. The review should be actioned expeditiously so that the results can inform the development of the implementation plan.

Any organization facing the level of change that AHS is anticipating needs to assess and enable its leadership prior to commencing a program of this scale. While the size and makeup of AHS' current executive leadership team are, in our view, appropriate given the scope and complexity of AHS' current operations, it will be critical to assess AHS' leadership structure against future state operations, changing priorities, and the significant transformation required to get there. Similarly, AHS needs to ensure that its leaders have the skills, capacity, and commitment to deliver this change.

Recommendation 54: AHS should develop an implementation plan, based on the fiscal targets and strategic priorities set by Alberta Health. AHS should lead the development of this plan in coordination with Alberta Health within the first 100 days of implementation.

Within the first 100 days of implementation, AHS should provide Alberta Health with a clear plan around taking the recommendations and opportunities identified in this report forward for implementation. This plan should be built from three key elements: prioritization, opportunity selection, and an internal assessment of capacity.

First, AHS should rapidly identify and understand all currently in-progress and planned strategic initiatives. Given the scale of change that the organization will be facing, it will be critical to start with a complete picture of everything happening across AHS. This will help to avoid duplication of effort, as well as to fully understand the capacity of the leaders and staff that will be essential to delivering the sustainability program. Existing initiatives will have to be considered and prioritized alongside the recommendations and opportunities identified in this review. Generating an understanding of what should stop, what can be reorganized, and where additional capacity will be needed will be critical to developing an achievable plan.

In parallel, AHS will need to assess each of the opportunities presented in this report, further validating the potential savings, identifying risks and constraints, and understanding any investment, interdependencies, or other implementation considerations. This should include an assessment of the effort and resources required for delivery.

Building on this work and the initial prioritization included in this report, AHS will need to assess the opportunities along with current or planned AHS initiatives against AHS-specific criteria that balances between value, complexity, and the time needed to achieve benefits. These prioritized opportunities can then be sequenced as an input into a comprehensive multi-year implementation plan. This plan will need to reflect organizational capacity, provide a multi-year view of AHS sustainability program, and include a schedule of anticipated benefits realization, by year.

It will be important to include Alberta Health in this process to ensure that the forming plan meets financial expectations and aligns to the priorities of Alberta Health and government.

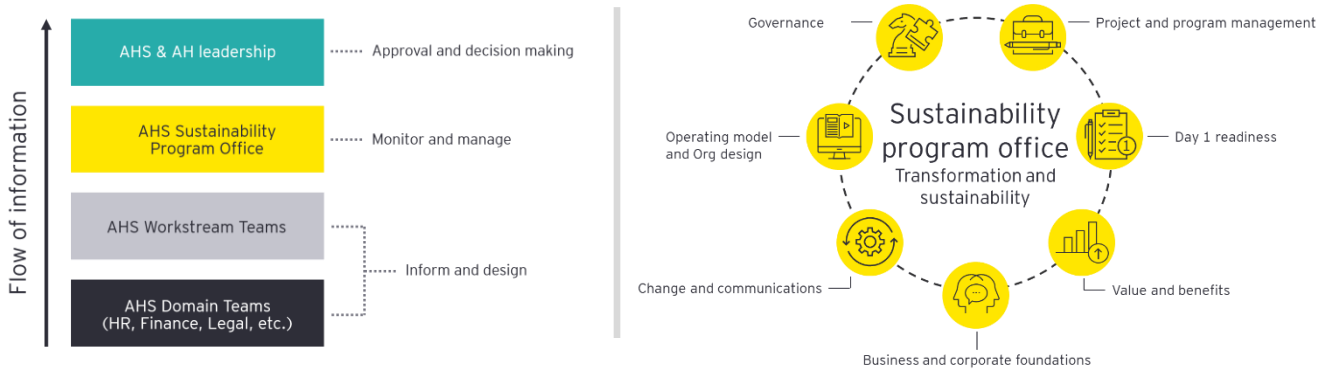
Given the pressing fiscal reality, AHS should continue to execute any in-progress savings initiatives and rapidly commence any "quick win" opportunities that have been identified, in parallel to the development of the longer-term implementation plan.

Recommendation 55: Establish an AHS Sustainability Program Office to deliver the change program, with dedicated resources, reporting processes, and executive accountabilities.

The scale of change we've articulated, as well as the need to re-establish priorities and set accountabilities, calls for a programmatic, coordinated approach. We have found that organizations that attempt to deliver large sustainability programs on a project by project basis are much less likely to achieve the scale of potential sustainable savings required.

To address this, we recommend that a Sustainability Program Office (SPO) be established within AHS. This office should be accountable for driving all aspects of the improvement program forward. This program should provide the organization with the right level of change management support, put in place a clear governance and accountability structure, as well as a performance management framework to track progress, report on benefits realized and address potential implementation concerns proactively. AHS will be able to leverage the experiences, tools, templates, and models successfully used by several of its peers in Ontario to deliver large sustainability programs.

Figure 40. Sustainability program office model



The key roles of the Sustainability Program Office recommended for implementation at AHS are as follows:

- **Central leadership and implementation team.** AHS' Sustainability Program Office will need to bring together the right leaders to steer and shape opportunities, with a dedicated team to drive improvement projects forward. This group should possess the right blend of project and change management, process improvement, and health system experience to develop and implement opportunities that achieve the intended outcomes.
- **Corporate coordination, prioritization and execution.** Access and availability to the right corporate support will be imperative as opportunities are designed, prioritized, implemented and sustained. Functions such as HR, finance, labour relations, legal and privacy, and technology are all key operational areas that should be embedded into the structure to accelerate the implementation of initiatives and achievement of benefits.

> *"We have 'super users' that are on-the-ground, working shoulder-to-shoulder with us for ConnectCare. Why don't we have this level of support when we try and implement operational change initiatives?"*
>
> *Comment from AHS Operational Leader Engagement Session*

- **Decision-making and governance.** Access to and transparency of decision making is critical to achieving the maximum benefits of a program of this scale and ambition. A key role of the SPO is to coordinate and drive decision-making at key junctures in the execution of each opportunity. The SPO will be the connection between the AHS CEO, executive, and the sponsors and delivery teams who are delivering the opportunities. This often includes dedicated time at each executive leadership team meeting where senior leaders are presented with clearly-defined options for decision.
- **Change management, capacity building, and communications.** As discussed in recommendation 55 below, change management and communication will be critical to helping the organization succeed. Working with AHS leadership and delivery teams, the SPO will develop and drive strategies to empower front line employees and foster a culture of collective responsibility and continuous improvement.

Recommendation 56: Develop an integrated change and communications strategy that will enable appropriate clinical and operational ownership of initiatives.

The implementation plan and the associated program should be clearly articulated and understood by those driving the change, the staff being impacted by it, and the patients it is designed for.

A robust change and communications strategy is key to creating a culture of ownership and accountability for organizational sustainability. This should be thoughtfully designed by AHS with the intention of sharing insights on why the improvement program has been established, what it is seeking to achieve, and how various stakeholder groups can be involved in the effort.

The strategy should impact key groups across the province in different ways:

- **Patient / Public.** AHS prides itself on being a patient-centric organization. This should manifest in providing patients with awareness around the transformation, what is being planned and by when, how services may change, and the strategic rationale for the changes. Establishing a Patient Charter, that clearly outlines expectations for patients and AHS, could be a tool to support bridging the gap between expectation for services and making best of valuable resources within AHS.
- **Front-Line Staff.** Front-line staff want and expect to be involved in change. They run the system, care for patients, and know where improvements can be made. There should be clear opportunities for staff to inform and support the delivery of improvement projects. This will require open and ongoing dialog, both formally and informally.
- **Management / Leadership.** The managers and senior leaders at AHS will be accountable for delivering this ambitious program and leading the organization through difficult change. At the same time, they have their existing day-to-day responsibilities, which aren't going away. Delegating clear accountabilities will enable ownership of initiatives while allowing the significant overall effort of the program to be spread broadly across the organization. Simply put, the program must be delivered by the organization, not by the executive.
- **Board.** Our experience with similar organizations suggests that while improvement efforts fall to operations, the Board has a fundamental role in providing strategic support and risk assurance for the overall implementation plan and associated strategy. The Board should be made aware of key financial, operational and strategic measures of performance, as the implementation plan moves forward.

Recommendation 57: Alberta Health should educate and regularly update Albertans, providing ongoing reporting to taxpayers to build increased awareness and understanding of the cost and performance of Alberta's health system, establishing an important accountability interface with citizens for achieving value for money.

The public plays a pivotal role in the long-term sustainability of Alberta's health care system. Albertans expect high quality, accessible health care and have a vested interest in knowing how the system is performing.

We recommend that Alberta Health, working with AHS, establish ongoing communications with the public on AHS' long-term strategy towards greater health system sustainability, the services the public can expect, and the rationale for decisions that strike the right balance of patient access and efficiency. Albertans will want to know the progress that has been made in getting more for what they pay, and whether the over spend compared with other provinces is closing. They have a significant stake in the future of health in Alberta.

With the right enablers in place, as well as the right implementation plan, Albertans should feel optimistic that the level of health system transformation needed for long-term sustainability can be achieved.

8 Appendices

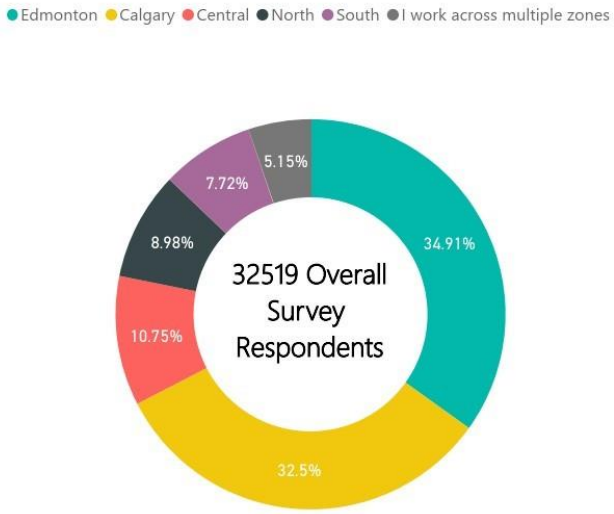
Appendix A: AHS employee survey results

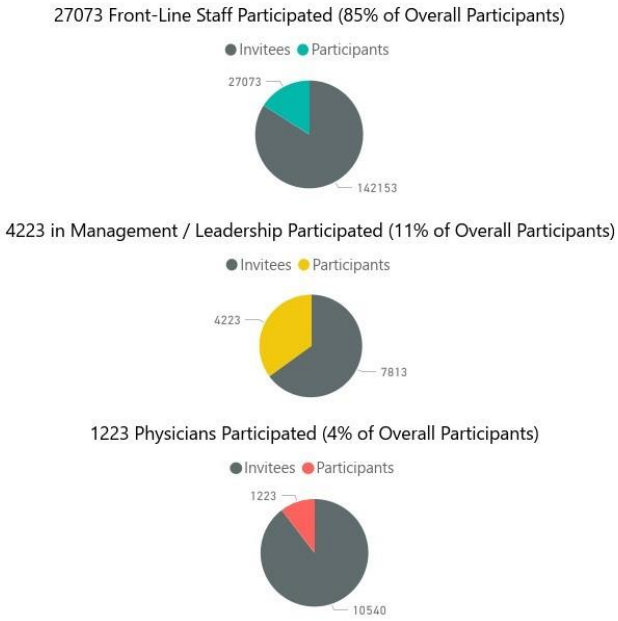
The AHS employee survey was a component of how AHS employees are being engaged as part of the review to provide insight into AHS' vision, culture and performance, along with ideas to improve service delivery. The survey was open to all AHS employees, including front-line staff and management, Covenant Health employees, physicians working within AHS, Carewest employees, and Alberta Precision Laboratories employees.

Below are the survey results documenting the overall number of survey respondents, respondent breakdown by zone and stakeholder-group, and responses to each question aggregated by overall respondents and stakeholder group-specific responses (i.e. front-line staff, management / leadership, and physicians).

AHS Review Employee Survey - All Zone Respondents

Overall Survey Participation per Stakeholder Group and Zone

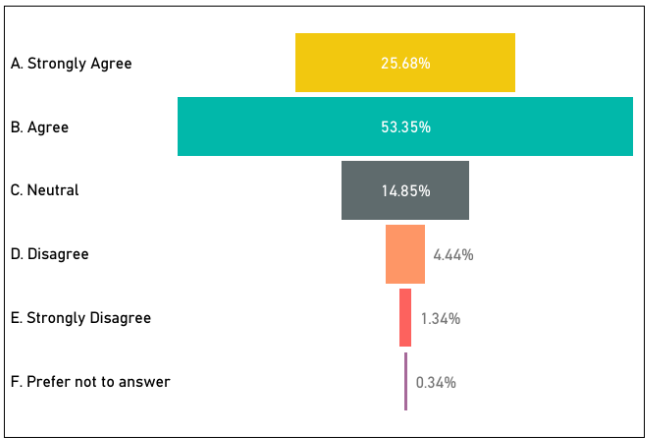




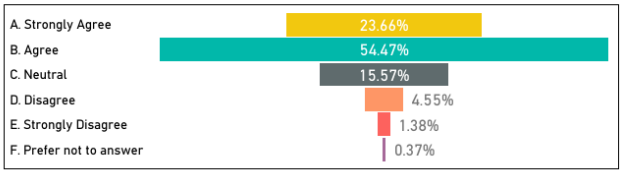
AHS Review Employee Survey - All Zone Respondents

I have a clear understanding of AHS' purpose and vision.

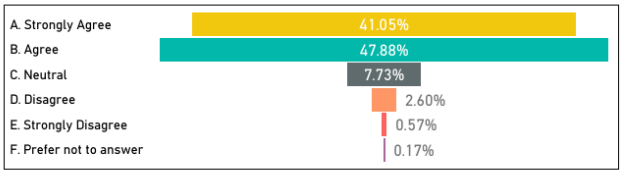
Overall Results



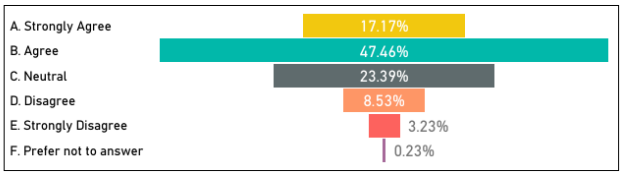
Front-Line Staff Responses



Management / Leadership Responses



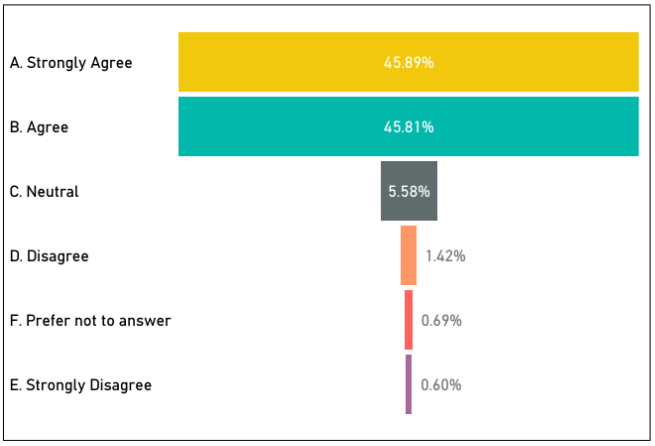
Physician Responses



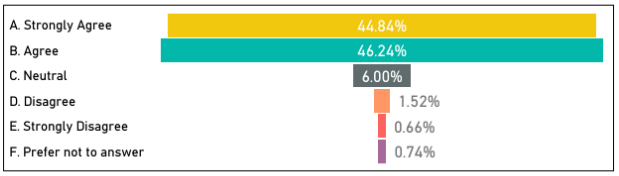
AHS Review Employee Survey - All Zone Respondents

Protecting the affordability and sustainability of Alberta's health care system should be an important part of AHS' purpose and vision.

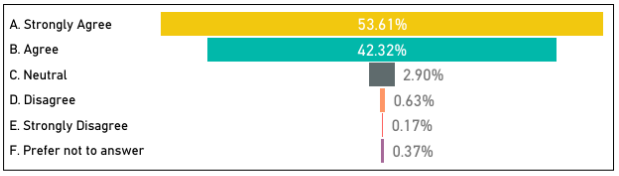
Overall Results



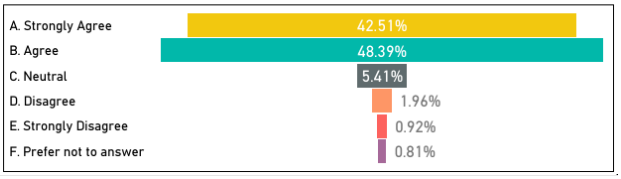
Front-Line Staff Responses



Management / Leadership Responses



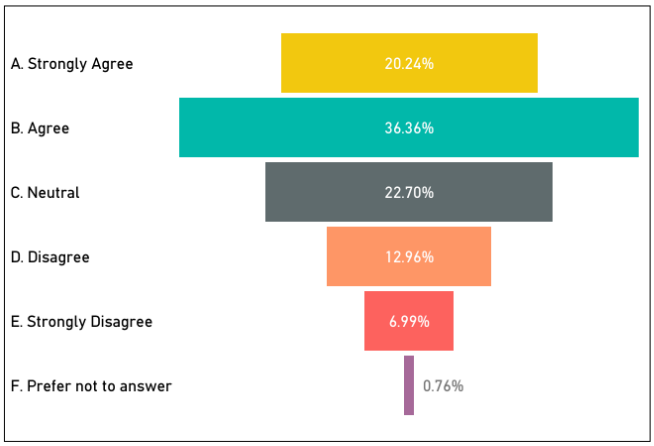
Physician Responses



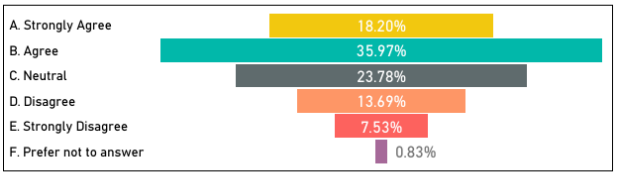
AHS Review Employee Survey - All Zone Respondents

AHS leadership is committed to achieving a more efficient health system.

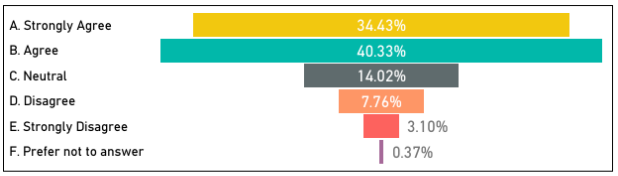
Overall Results



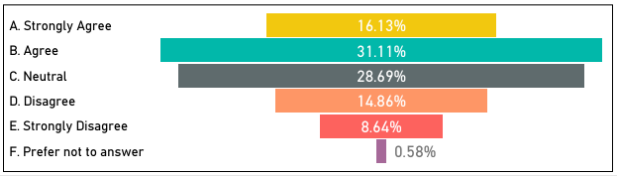
Front-Line Staff Responses



Management / Leadership Responses



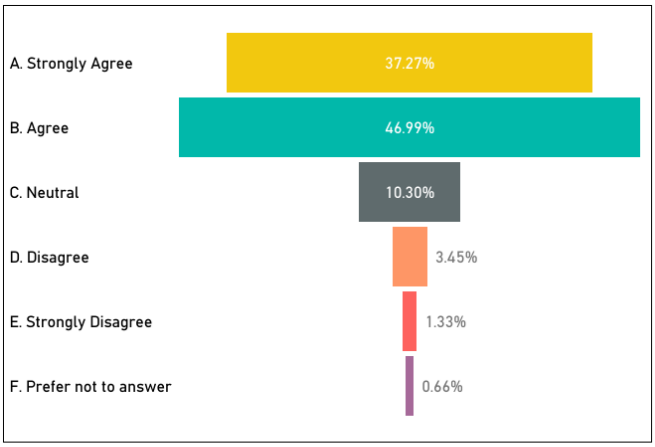
Physician Responses



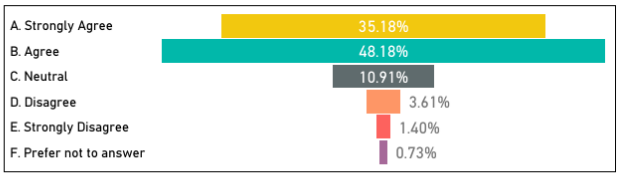
AHS Review Employee Survey - All Zone Respondents

In my job I am expected to increase the efficiency of care / service delivery at AHS.

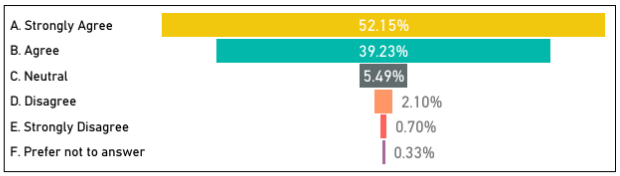
Overall Results



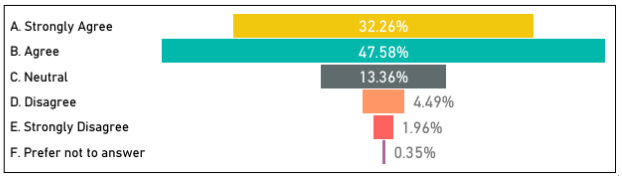
Front-Line Staff Responses



Management / Leadership Responses



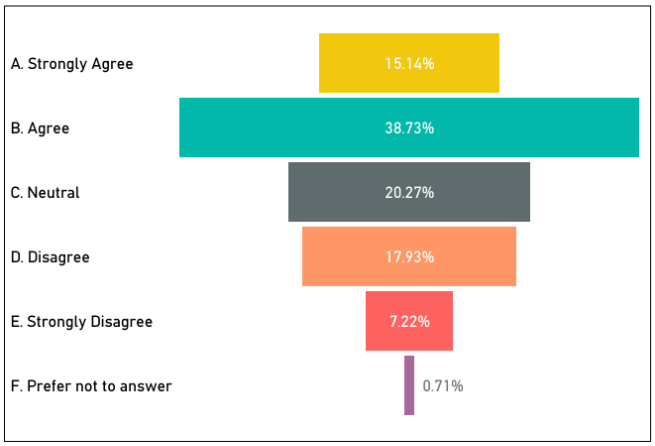
Physician Responses



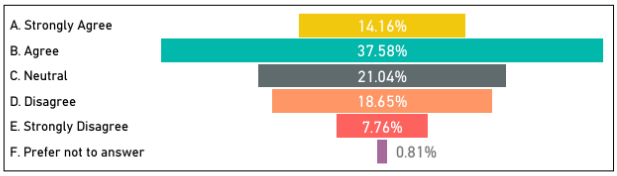
AHS Review Employee Survey - All Zone Respondents

I have the information, tools, and training to understand the financial impact of decisions I make in my job.

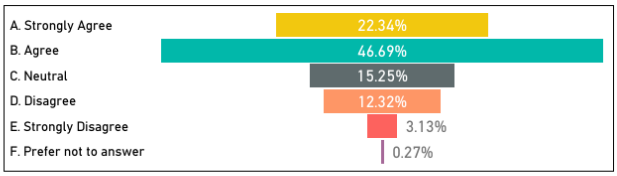
Overall Results



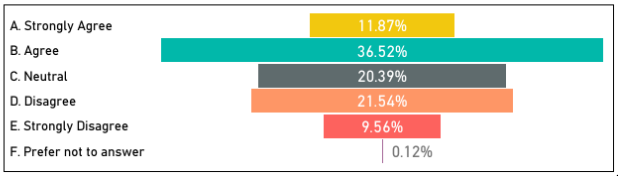
Front-Line Staff Responses



Management / Leadership Responses



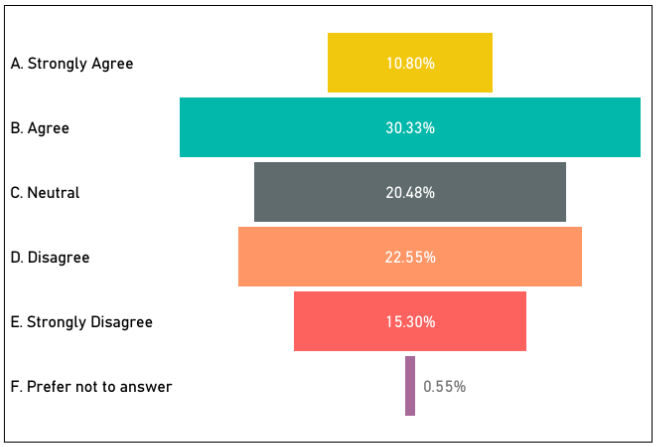
Physician Responses



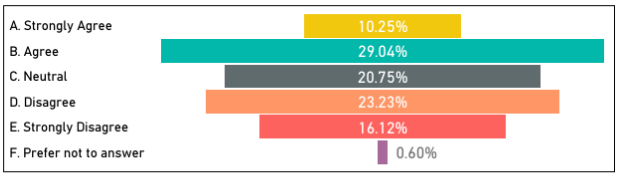
AHS Review Employee Survey - All Zone Respondents

I have the ability to implement changes and make decisions that will enhance the efficiency of the work I do.

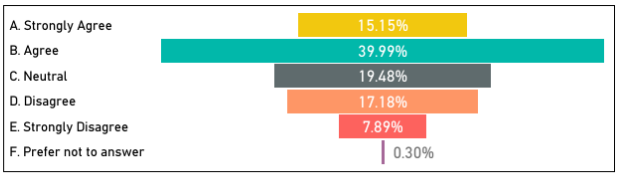
Overall Results



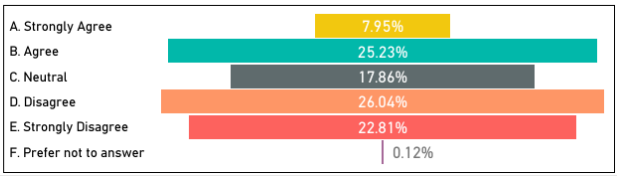
Front-Line Staff Responses



Management / Leadership Responses



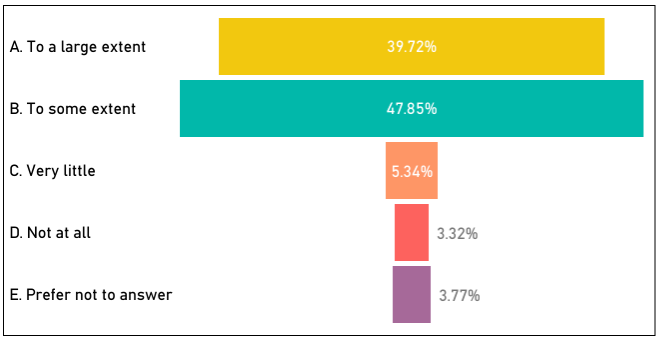
Physician Responses



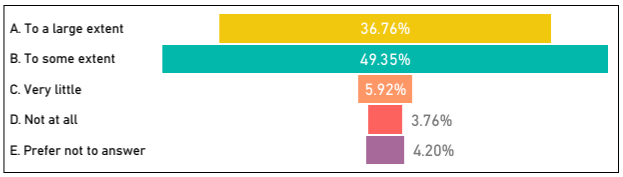
AHS Review Employee Survey - All Zone Respondents

Managing the costs of health care services should be an important priority for: Physicians.

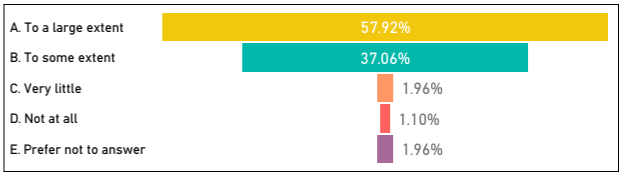
Overall Results



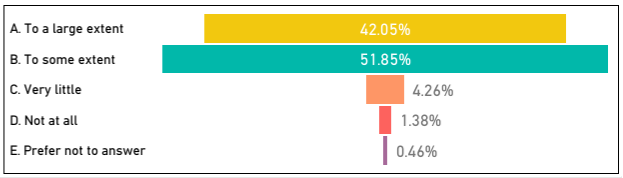
Front-Line Staff Responses



Management / Leadership Responses



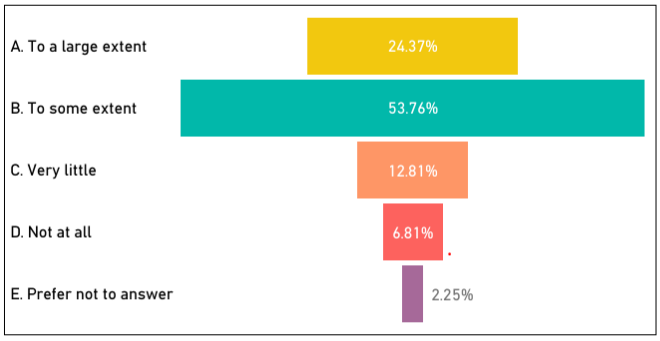
Physician Responses



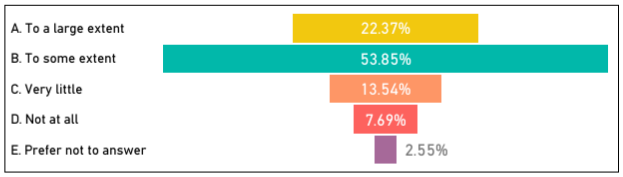
AHS Review Employee Survey - All Zone Respondents

Managing the costs of health care services should be an important priority for: Front-Line Staff.

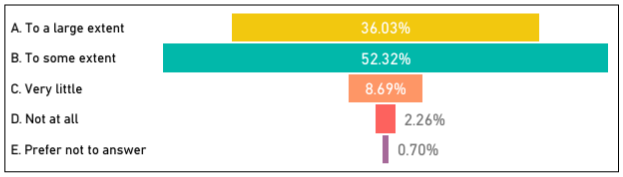
Overall Results



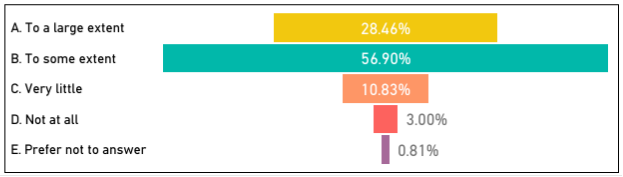
Front-Line Staff Responses



Management / Leadership Responses



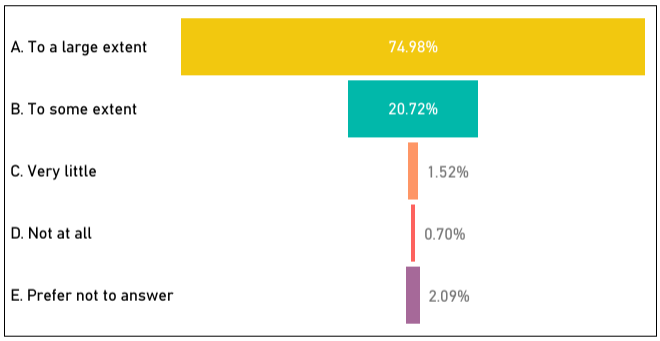
Physician Responses



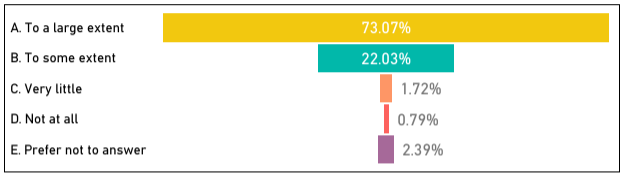
AHS Review Employee Survey - All Zone Respondents

Managing the costs of health care services should be an important priority for: Management / Leadership.

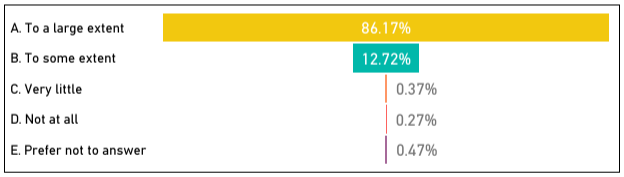
Overall Results



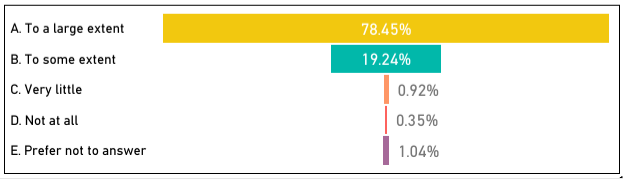
Front-Line Staff Responses



Management / Leadership Responses



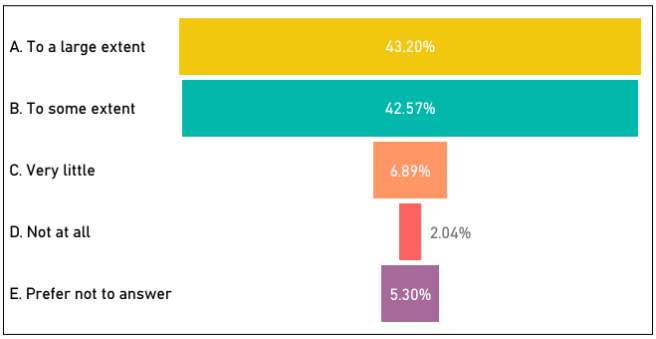
Physician Responses



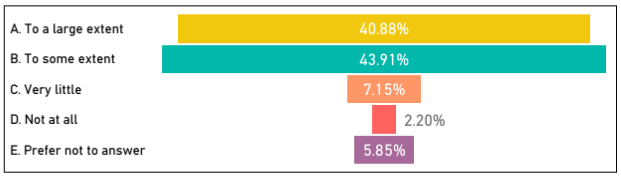
AHS Review Employee Survey - All Zone Respondents

Physicians have the ability to influence the cost of delivering services.

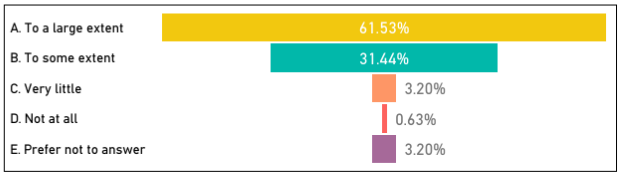
Overall Results



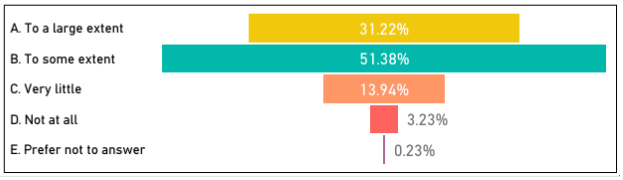
Front-Line Staff Responses



Management / Leadership Responses



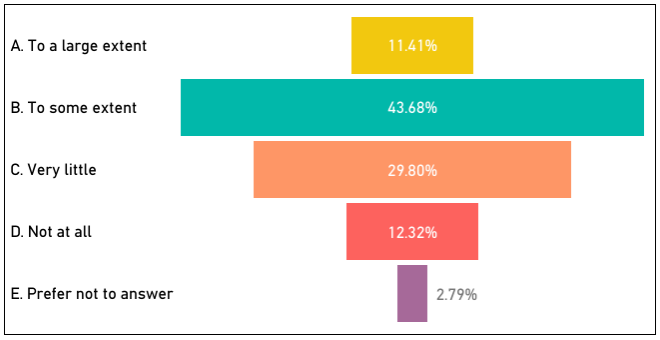
Physician Responses



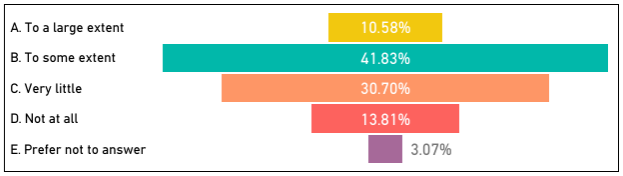
AHS Review Employee Survey - All Zone Respondents

Front-line Staff have the ability to influence the cost of delivering services.

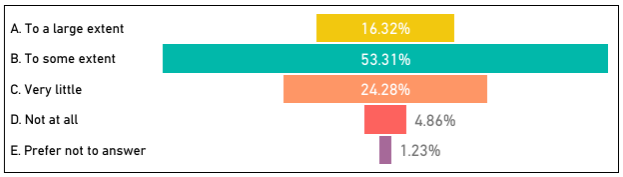
Overall Results



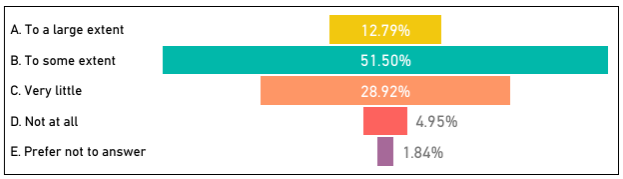
Front-Line Staff Responses



Management / Leadership Responses



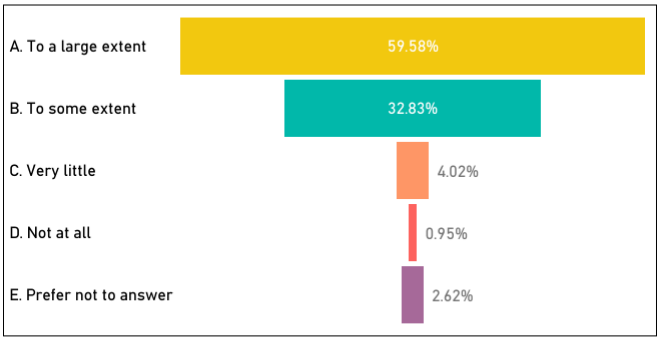
Physician Responses



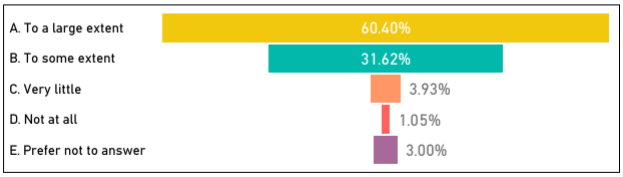
AHS Review Employee Survey - All Zone Respondents

Management / Leadership have the ability to influence the cost of delivering services.

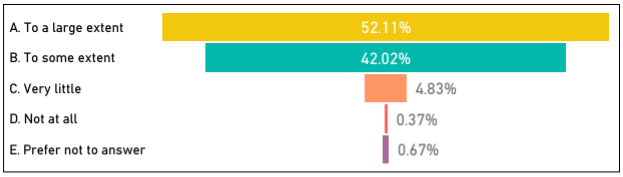
Overall Results



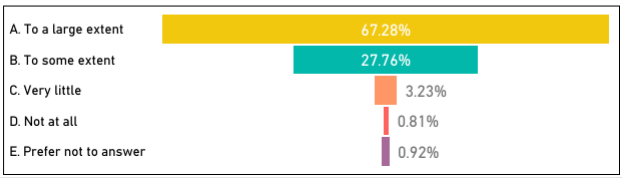
Front-Line Staff Responses



Management / Leadership Responses



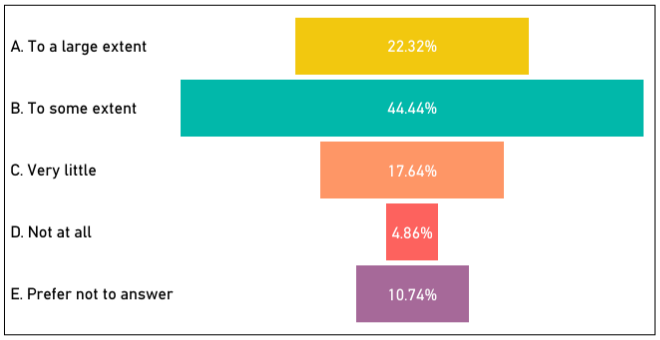
Physician Responses



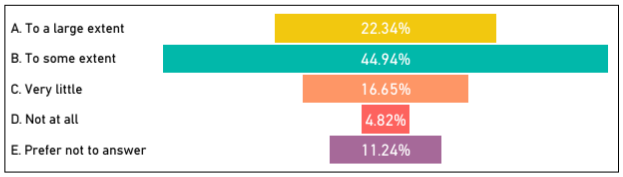
AHS Review Employee Survey - All Zone Respondents

Physicians are committed to improving efficiency.

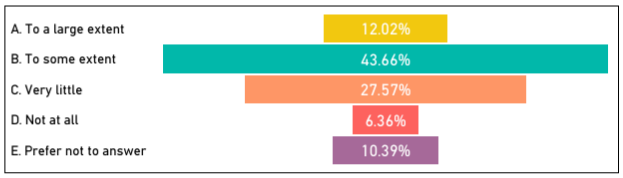
Overall Results



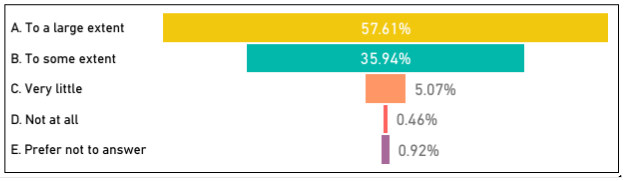
Front-Line Staff Responses



Management / Leadership Responses



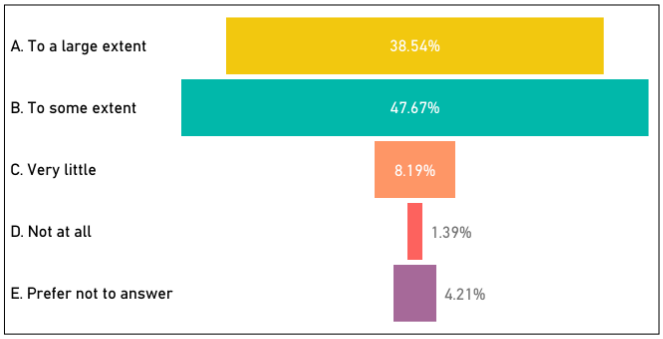
Physician Responses



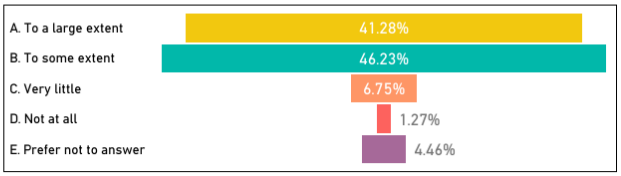
AHS Review Employee Survey - All Zone Respondents

Front-Line Staff are committed to improving efficiency.

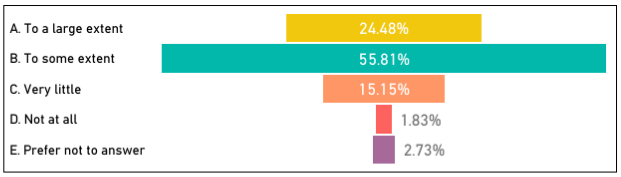
Overall Results



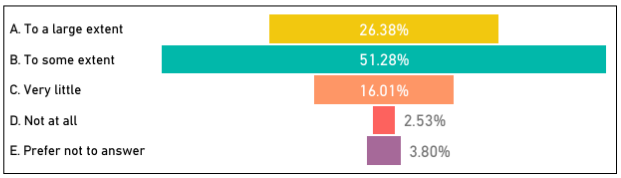
Front-Line Staff Responses



Management / Leadership Responses



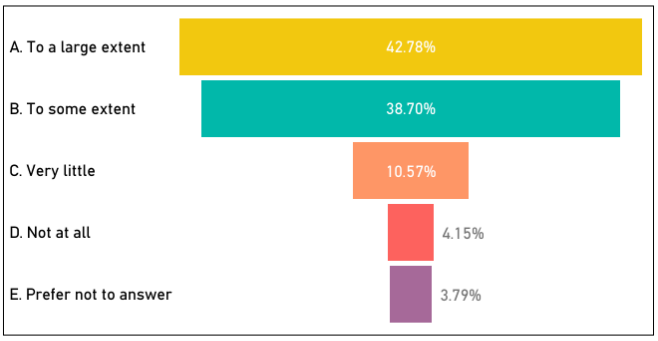
Physician Responses



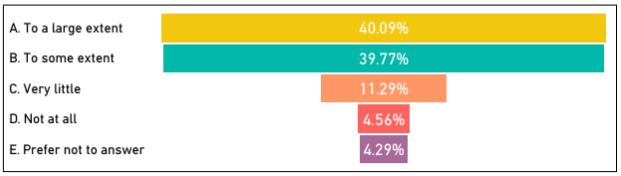
AHS Review Employee Survey - All Zone Respondents

Management / Leadership are committed to improving efficiency.

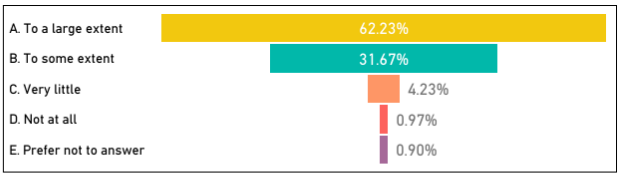
Overall Results



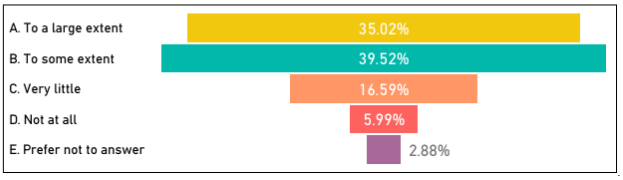
Front-Line Staff Responses



Management / Leadership Responses



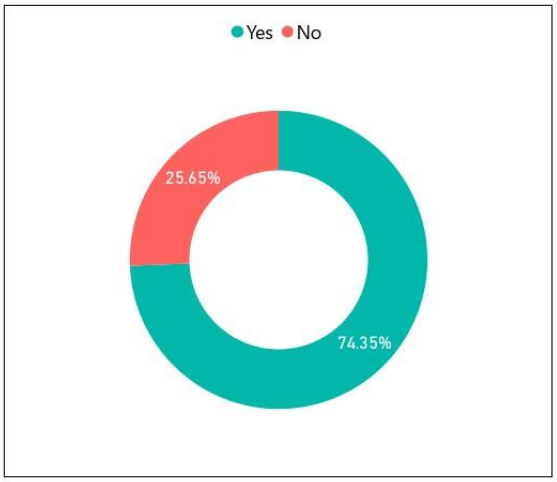
Physician Responses



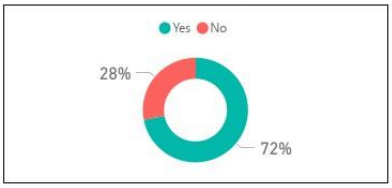
AHS Review Employee Survey - All Zone Respondents

In my job I am aware of opportunities to deliver services more efficiently.

Overall Results



Front-Line Staff Responses



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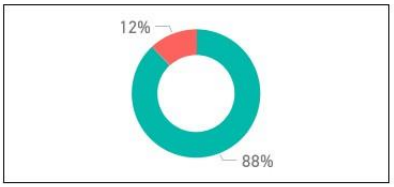

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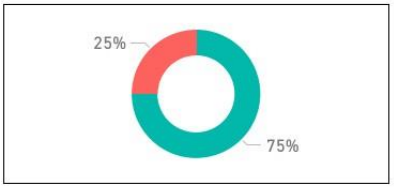
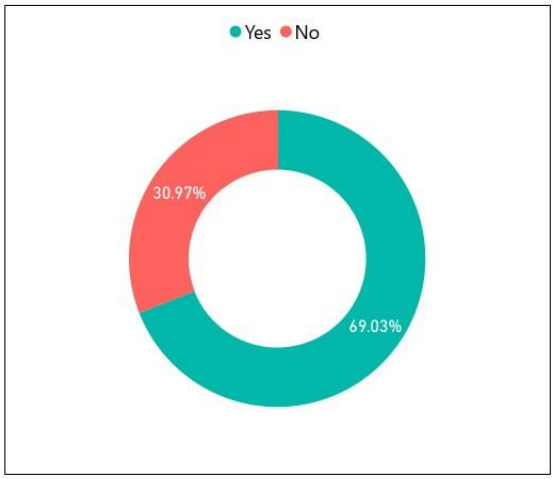


AHS Review Employee Survey - All Zone Respondents

In the past, I have raised to my manager opportunities to deliver services more efficiently.

Overall Results



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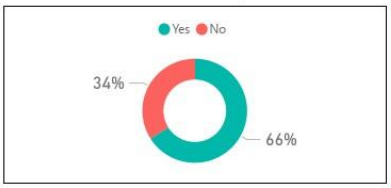
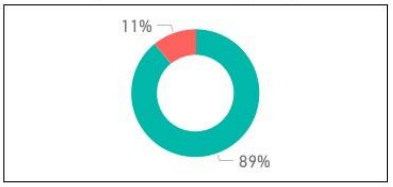
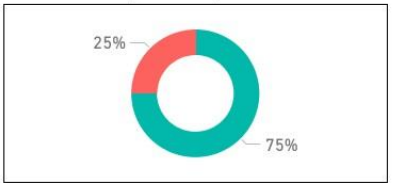


Management / Leadership Responses



Physician Responses



Appendix B: Summary of recommendations

Improvement Theme #1: People

1. Workforce

Recommendation 1: AHS should work with the unions and government to remove or revise collective agreement provisions that impede sustainability without providing any patient benefit.

Recommendation 2: AHS should review its workplace policies and processes to strengthen controls where required to achieve incremental benefits.

Recommendation 3: AHS should expand the use of the Provincial Staffing Services, as well as consider a technology strategy to enable automation and positive time keeping.

Recommendation 4: AHS should optimize staffing levels and skill mix across the organization in both nursing and clinical support services through the use of evidence-based approaches such as acuity-based staffing.

2. Management review

Recommendation 5: Our initial analysis suggests that there may be opportunities to reduce the number of managers in some areas. AHS should review positions identified as having fewer direct reports than their peers in other organizations with the objective of identifying opportunities to consolidate portfolios and reduce management levels.

Recommendation 6: AHS should review the way it classifies positions and ensure that the organization applies a rigorous and standardized approach moving forward.

Recommendation 7: AHS should look to optimize the use of administrative support by leaders.

3. Physician optimization

Recommendation 8: Stop paying clinical stipends for services covered by the Alberta Health Schedule of Medical Benefits.

Recommendation 9: In alignment with Alberta Health physician compensation negotiations and budget management initiatives, AHS should address radiology compensation and contracts.

Recommendation 10: Develop a consistent framework for paying physician interpretation fees by aligning payments to 50% of the Schedule of Medical Benefits rate as proposed by AHS.

Recommendation 11: Develop and implement a consistent framework for recovering physician overhead costs.

Recommendation 12: Review 'deputy'-level medical leadership positions, other positions not required by the medical staff bylaws, and positions with less than 0.1 FTE of effort.

Recommendation 13: AHS and AH should work with government and academic institutions with the aim of reducing or eliminating increases in academic salaries, in alignment with AHS and broader government salary freezes.

Improvement Theme #2: Clinical Services

1. Clinical utilization

Recommendation 14: AHS should prioritize the further provincial standardization of clinical care pathways and protocols to ensure all Albertans have access to evidence-based, outcomes focused and cost-effective care.

Recommendation 15: AHS should continue to strengthen its integration with primary care through the expansion of community-based and home care programs to care for patients in the most appropriate setting.

Recommendation 16: AHS should expand a bed flow program, such as the CoACT Collaborative Care Framework, to standardize and manage beds effectively across the province, improve LOS and allow for the patient care in the right place, at the right time.

Recommendation 17: AHS should internally establish a province wide performance monitoring and management framework for the governance, accountability and reporting of surgical services.

Recommendation 18: Within a provincialized surgical framework, AHS should reassess the level of investment needed to achieve the Alberta Surgical Initiative volumes based on utilization improvements and potential for alternate treatment pathways for patients.

Recommendation 19: AHS should create a fit for purpose operating model for ambulatory care and outpatient clinics and develop a strategic vision and governance model to support AHS' objectives both in the hospital and the community.

Recommendation 20: AHS should consider realigning bed resources within acute, LTC, designated supportive living (DSL) and community care, to support an immediate reduction in ALC, ensuring that patients are cared for in the most appropriate setting.

Recommendation 21: AHS should reconsider LTC facility ownership in cases where private delivery may be more efficient and appropriate.

Recommendation 22: Transition from volume based and transactional home care oversight model to one where providers are held to account for patient outcomes and quality of care for those that they serve.

2. Service configuration

Recommendation 23: Alberta Health and AHS should establish provincial clinical access guidelines and further develop clinical standards to enable an affordable and safe configuration of acute care facilities across the province.

Recommendation 24: AHS should consider reconfiguration of small/medium community sites based on the validated and agreed access guidelines.

Recommendation 25: Review existing virtual health initiatives and consider development of a provincial plan to leverage virtual health technology to provide care across remote populations.

Recommendation 26: Ensure trauma is managed as a provincial service, with stronger adherence to trauma triage and referral protocols to avoid bypass of regional centres where not clinically appropriate.

Recommendation 27: Consider consolidating Edmonton's two major trauma centres to a single site.

Recommendation 28: AHS and Alberta Health should assess opportunities to expand the use of non-hospital surgical facilities (NHSFs) across the province.

3. Clinical support services

Recommendation 29: AHS should expand and scale clinical appropriateness initiatives to reduce unnecessary tests to improve patient safety, experience and access across Alberta.

Recommendation 30: AHS should further leverage private contracts for the provision of laboratories services across Alberta. While an initial focus should be on community-based testing, subsequent consideration should be given to expanding to specialty test options.

Recommendation 31: AHS should optimize capacity across DI services by consolidating underutilized radiography facilities and increasing throughput of CT and MRI modalities to help manage wait lists where appropriate.

Recommendation 32: AHS should consider and assess options related to a Managed Equipment Service (MES) approach to major DI equipment to provide more timely equipment replacement and access to innovations that can drive further efficiencies.

Recommendation 33: AHS should review and optimize its commercial business models for pharmacy including retail pharmacy options (e.g. owned, lease, profit share) and LTC delivery models. Consideration should be given to co-pay options and expanding the Calgary private LTC model.

Recommendation 34: AHS should rationalize EMS dispatch and air ambulance operations including the relocation and decommissioning of underutilized airbases and a review of service agreements where services can be more efficiently delivered by AHS.

Improvement Theme #3: Non-Clinical Services

1. *Non-clinical support services*

Recommendation 35: A dedicated function should be established within AHS to support the qualification, service design, procurement, negotiation and management of alternative service delivery partnerships.

Recommendation 36: AHS should develop an enterprise-wide alternative service delivery strategy, and actively pursue opportunities to reduce costs, and improve services through outsourcing non-clinical support services.

Recommendation 37: As part of, or in parallel to, the ASD strategy AHS should fully assess opportunities to optimize and strengthen existing non-clinical support services.

2. *Corporate and back office services*

Recommendation 38: AHS should explore opportunities to optimize corporate programs to achieve or exceed performance levels of comparative organizations.

Recommendation 39: AHS should develop a corporate automation program and pursue automation opportunities across HR, Finance, CPSM, IT, and others.

Recommendation 40: AHS should aggressively pursue revenue generation initiatives in non-clinical, auxiliary categories, in alignment with peer organizations.

Recommendation 41: AHS should look to refine its overall budgetary process to ensure departmental budgets are aligned with the actual operating model of each department, along with instituting an immediate review of discretionary spending controls to drive immediate savings.

3. *Supply chain*

Recommendation 42: AHS should improve strategic sourcing to realize cost savings, including reducing the number of suppliers per category and converting purchases currently not made on contract to contract.

Recommendation 43: AHS should continue to drive improvements to the provincial planning and materials management functions and should integrate supply chain functions across AHS that are not currently within CPSM.

Recommendation 44: AHS should consider integrating the contracting and management of capital equipment and capital construction into the CPSM function.

Improvement Theme #4: Governance

Functional duplication and accountability

Recommendation 45: Strengthen the accountability interface between Alberta Health and AHS to clarify responsibilities, put in place a coordinated annual planning process, and develop an effective performance management framework.

Recommendation 46: Consider assigning a senior leader within Alberta Health with primary responsibility for strengthening and managing the accountability interface between Alberta Health and AHS.

Recommendation 47: Create a dedicated independent providers secretariat.

Recommendation 48: Alberta Health should develop a funding model that separates system funding into three categories: global budgets, targeted grants for priority areas, and funds for independent provider services.

Recommendation 49: End the current Covenant Health Cooperation and Services Agreement and develop a new agreement that enables more effective system coordination by AHS.

Recommendation 50: Develop and formalize clear operational accountability frameworks for Primary Care and Information Technology.

Recommendation 51: Reconsider the number, mandate, and governance of strategic clinical networks to more efficiently leverage them to achieve health system priorities.

Recommendation 52: AHS should be diligent in completing the consolidation of the provincial health system and should actively seek to avoid retrenchment to unnecessary local variation in care delivery.

Implementation recommendations

Recommendation 53: AHS should complete a formal leadership review of the executive leadership team, including its structure, capabilities, and readiness to deliver a large transformation program. The review should be actioned expeditiously so that the results can inform the development of the implementation plan.

Recommendation 54: AHS should develop an implementation plan, based on the fiscal targets and strategic priorities set by Alberta Health. AHS should lead the development of this plan in coordination with Alberta Health within the first 100 days of implementation.

Recommendation 55: Establish an AHS Sustainability Program Office to drive the plan forward, with clearly defined resources, reporting processes and executive accountabilities.

Recommendation 56: Develop an integrated change and communications strategy that will enable appropriate clinical and operational ownership of initiatives.

Recommendation 57: Alberta Health should educate and regularly update Albertans, providing ongoing reporting to taxpayers to build increased awareness and understanding of the cost and performance of Alberta's health system establishing an important accountability interface with citizens for achieving value for money.

Appendix C: Summary of prioritized opportunities

Workstream	Reference (in Prioritization Matrices)	Opportunity Name	Gross Savings Opportunity[77]
Workforce	W1	Removing specific UNA provisions	$42M
	W2	Overtime reduction	$24M
	W3	Sick time reduction	$3-$7M
	W4	Eliminate vacancies >1 year	$11M-$103M
	W5	Enhanced vacancy management	$22M
	W6	Implement staff scheduling system	$82M-$123M
	W7	Optimize nurse staffing based on patient demand	$231M-$322M
	W8	Optimize clinical support staffing based on patient demand	$8M
	W9	Shift from PT to FT nursing positions	$15M
	W10	Optimize constant care staffing model	$17M-$18M
Management Review	MR1	Management position review and realignment	Unvalued
	MR2	Share administrative assistants	$6M-$9M
Physician optimization	PO1	Physician clinical contracts review	$50M
	PO2	Interpretation fees reduction	$8M
	PO3	Medical leaders' stipends and payments review	$17M
	PO4	Academic funding review	$5M
	PO5	Physician overhead costs recovery	$2M
	PO6	Radiologist fee reductions	$42M
Clinical Utilization	CU1	Reduce avoidable admissions for ambulatory care sensitive conditions	$1M-$14M
	CU2	Acute LOS improvement	$71M
	CU3	Reduction of ALC in acute setting	$34M
	CU4	ALC cohorting	$29M
	CU5	ICU discharge delay	$20M
	CU6	Day case conversion	$13M
	CU7	Reduce procedures of limited clinical value	$47M-$100M
	CU8	Surgical wait time	Unvalued
	CU9	OR suite & procedure room utilization	Unvalued
	CU10	LTC to DSL reconfiguration	$32M
	CU11	Rightsizing LTC care models to Patient Care Based Funding Model	$21M
	CU12	Sale of Capital Care and Carewest LTC	Estimated in hundreds of millions of dollars
	CU13	Optimize home care contracts	Unvalued

[77] Maximum value in range used for prioritization.

Workstream	Reference (in Prioritization Matrices)	Opportunity Name	Gross Savings Opportunity[77]
Service Configuration	SeC1	Small/medium ED configuration	$32M
	SeC2	Small/medium hospital configuration	$29M
	SeC3	Maternity service consolidation	Unvalued
	SeC4	Urban area service configuration	Unvalued
	SeC5	Provincial trauma program optimization	$0.4M-$1M
	SeC6	NHSF procedure expansion across zones	$32M-$65M
Clinical Support Services	CSS1	Improve adherence to test appropriateness	$43M-$62M
	CSS2	Improve DI utilization	$7M-$15M
	CSS3	Closure of underutilized DI sites	$2M
	CSS4	Outsourcing lab activities	$102M
	CSS5	Managed Equipment Service - private partnership model	Unvalued
	CSS6	Outpatient and private LTC pharmacy business model	Unvalued
	CSS7	Underutilized air ambulance bases closure	$2M
	CSS8	Consolidate regional dispatch operations into EMS communications centers	$5M
Non-Clinical Support Services	NCSS1	Inpatient food services outsourcing	$100M-$146M
	NCSS2	Housekeeping services outsourcing	
	NCSS3	Protective services outsourcing and resource rationalization	
	NCSS4	Transcription services outsourcing	
	NCSS5	Laundry and linen services outsourcing	
	NCSS6	Interpretation services outsourcing	
	NCSS7	Non-emergent patient transportation outsourcing	
	NCSS8	Implement comprehensive retail strategy	Unvalued
	NCSS9	Implement AHS-wide sustainability management program	$25M-$28M
Corporate and Back Office Services	CBO1	AHS-wide budget review	$70M
	CBO2	Preferred accommodation rate and capture increase	$40M-$83M
	CBO3	Robotic Process Automation - Back Office services	$16M
	CBO4	LTC/DSL accommodation fee increase	$57M
	CBO5	Stop/limit discretionary spending	Unvalued
	CBO6	Reduce redundancies between AHS and APL	$3M-$8M
	CBO7	Application rationalization	Unvalued
	CBO8	Data centres/hosting, help desks, networks outsourcing	Unvalued
Supply Chain	SuC1	Reduce supplier fragmentation in selected procurement categories	$9M-$18M

Workstream	Reference (in Prioritization Matrices)	Opportunity Name	Gross Savings Opportunity[77]
	SuC2	Benchmark item purchase prices against other jurisdictions, identifying opportunities for joint cost savings	$4M-$8M
	SuC3	Migrate non-contract spend to contract. Capture additional transaction data for non-Purchase Order purchases	$9M-$34M
	SuC4	Consolidate agreements with selected major suppliers	$3M-$7M
	SuC5	Build a more proactive demand planning/forecasting process	$1M
	SuC6	Reduce slow moving and/or obsolete inventory	$0.2M
	SuC7	Optimize CPSM's physical distribution network, improve Calgary DC and optimize distribution channels	$2M
	SuC8	Integrate non-CPSM in-hospital supply chain team into CPSM	$0.5M
	SuC9	Integrate and improve the capital equipment procurement process into CPSM	$8M-$16M
	SuC10	Improve construction contracting procurement, management and control	$8M-$15M

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