Provincial Service Optimization Review:

FINAL REPORT

This report presents findings from a Service Optimization Review undertaken as part of the ongoing mission of Alberta Health and Wellness to provide a patient-focused health system that is accessible and sustainable for all Albertans. The project identified opportunities to increase the quality and improve the efficiency and effectiveness of health care service delivery in Alberta. Current health needs were assessed and projected using a generally accepted and well-researched evidence-based methodology. This report was informed by visits to all nine of the province's historical health regions, and discussions with over 200 executives and clinicians from Alberta Health and Wellness, Alberta Health Services, the Mental Health Board, the Cancer Board, Alberta Alcohol and Drug Abuse Commission, the Health Quality Council of Alberta, several primary care networks, Caritas Health, the College & Association of Registered Nurses of Alberta, the College of Licensed Practical Nurses of Alberta, the College of Registered Psychiatric Nurses of Alberta, the Alberta Medical Association, and the College of Physicians and Surgeons. These initial discussions helped define the opportunities and challenges facing the system, and highlight exciting Alberta-grown innovations in health care delivery across the province.

By taking a provincial perspective, this report serves to crystallize current thinking in order to:

- *Assess current and future supply and demand for workforce and infrastructure capacity*

- *Identify potential future gaps and outline alternative care delivery models to address these gaps*

- *Emphasize a patient-centric approach throughout the continuum of care*

- *Amplify innovations and creative ideas already underway within Alberta, which could be induced to take root on a larger scale*

- *Inform solutions to Alberta's issues with global best practices*

- *Ensure that inter-related initiatives are effectively linked*

- *Enable the system to make appropriate tradeoffs between differing priorities—to optimize quality, access, and sustainability*

- *Propose a model in which Alberta Health and Wellness and Alberta Health Services work together collaboratively, along with other stakeholders, to further define and implement these solutions*

As a leader in care innovation, Alberta is well-positioned to develop a system that can serve as a model of integrated, province-wide, patient-centered care and improve the health of its population.

a vision for the future patient experience in Alberta Health

In this report, we will describe four themes, and 14 recommendations under those themes, as the core output of the work. Heard across all of these themes is the voice of the patient. In a system charged to provide the best care possible with limited resources, it is critical that investments of time and money focus on those areas that "create value" for Albertans, whether through improved quality, access, or service.

The recommendations that follow are exciting because they stand to substantially improve this "value proposition" for Albertans. For example, by following the path laid out in this report, Alberta's health system can shift from its historical emphasis on facility-based care to *integrated, team-based care* structured around the needs of the patient. The facilities the system does build can be designed to enable *forward-looking models of care*, rather than repeating history and reinforcing historical models of care. The system can better *match services and infrastructure to patient needs*, providing the right intensity of care, with the right provider, at the right time. It can develop robust clinical pathways that provide a higher quality, more predictable end-to-end care experience. It can support these pathways with more effective and ingrained use of *innovative technologies*. And it can use its new found scale as a single "system" to ensure greater *performance transparency and continuous improvement*, ensuring the quality of Alberta's health services.

This report identifies challenges to today's healthcare delivery system in Alberta. There are areas in Alberta with facilities operating at the breaking point, nursing shortages, and communities with inadequate access to primary care. Patients are not being cared for in the right setting, resulting in increased waits for needed services. Too many continuing care patients are being cared for in acute care hospitals. This not only backs up admissions in the emergency room, but also delays hospital services for others needing scheduled surgical procedures. And too many non-urgent patients are using emergency departments for health concerns that could be handled by a primary care practitioner. With Alberta spending more per capita on health care than any other province, the province should ensure that funding is being directed appropriately to address current challenges.

Alberta must address these needs, and must ensure the stability of the system as it evolves over the next decade. But the system also has a unique opportunity now, at a time when the system can use its scale, its integration, and the collective insight of its clinicians, administrators, and the public, to set a direction for its future. A future in which Alberta leads—as an example for Canada and the world—in its ability to provide the balance of sustainable quality, access, and service that its citizens demand and deserve.

SECTION 1: **introduction**

The new governance model has created a unique opportunity to reinvent the health services operating model and to increase the effectiveness of Alberta's health care system. The Service Optimization Review was undertaken to address several areas of concern—including suboptimal access to care, inconsistency in the quality and safety of care, operational inefficiencies, and lower-than-desired patient satisfaction. To meet the challenges ahead, the Ministry has recognized the need to understand the future demand for services, to ensure optimal use of existing resources, and to plan proactively to address resource gaps.

Because its health care costs have been experiencing double-digit growth, Alberta has been challenged in its goal of providing accessible, high-quality health care for Albertans in a sustainable manner. Health care services should be available to all Albertans within an acceptable time frame and travel distance. The system should provide the highest quality and patient-safety standards and deliver the "right care to the right patient at the right time." Furthermore, Albertans should have a system designed and organized to deliver health care in as cost-effective a manner as possible to ensure long-term sustainability.

Alberta's health care system will come under increasing pressure over the coming decade from a growing population that is rapidly aging and facing a significant burden of chronic disease (**Figure 1-1**). Demand for hospital days is expected to grow by 2.1% annually, largely driven by population growth and aging. In addition, the high prevalence of chronic disease and cancer will likely continue to drive a disproportionate share of health care costs (**Figure 1-2**).

Figure 1-1 Alberta's health care system will come under increasing pressure from population growth and aging

Source: Alberta Health and Wellness; team analysis
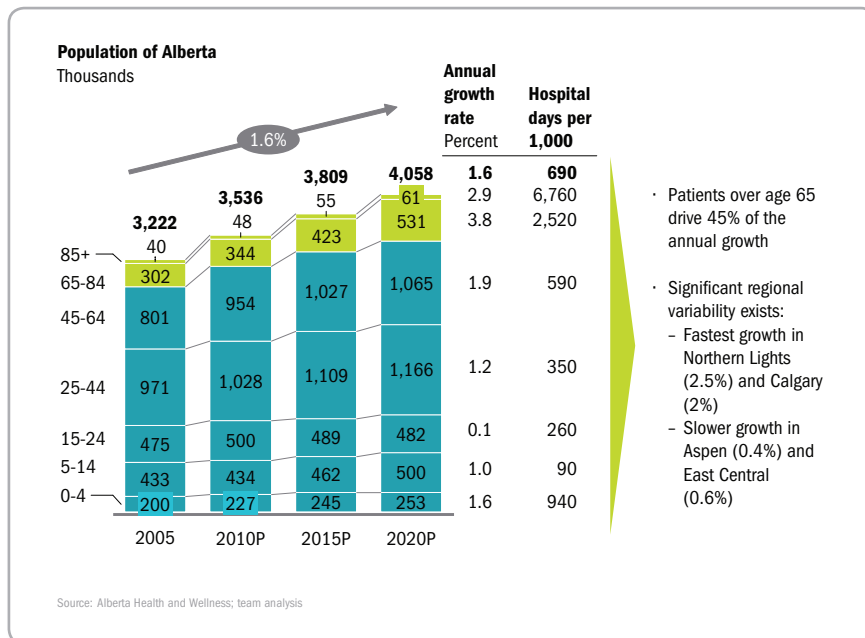
Figure 1-2 The high prevalence of certain costly diseases will also create further challenges for the system

1. Cancer is reported as incidence; in Alberta cancer incidence is approximately 411 cases per 100,000 using Statcan data
2. Defined as having had at least one measured disorder or substance dependence
3. Using CIHI data
Source: CIHI; Statcan; Canadian Heart and Stroke Foundation
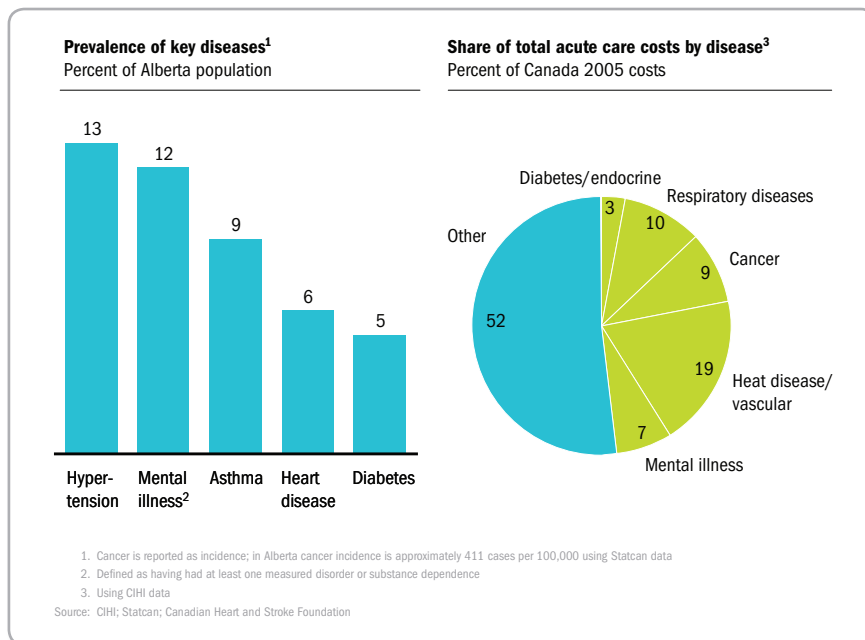
These trends will lead to an increased demand for resources across the care delivery system, further stretching an already strained infrastructure and workforce. Between 2007 and 2020, the demand for acute care beds, long-term care (LTC) beds, primary care physicians, and nurses will grow by 32%, 51%, 39%, and 40%, respectively (**Figure 1-3**). If this rise in demand remains unchanged, the spending for health services formerly delivered by the RHAs could rise from $8 billion to as much as $24 billion per year by 2020 (**Figure 1-4**).

It is important to note that the health status of Albertans will substantially impact patient outcomes, as well as the demand for health services. Effective efforts in public health are critical to address these needs. Given the magnitude and importance of public health to overall health system performance and sustainability, a distinct effort is recommended to define Public Health, Promotion, and Prevention priorities for Alberta.

Figure 1-3 These and other trends will increase demand for already strained infrastructure and workforce

Figure 1-4 Spending on former RHA services could grow by almost 200% by 2020 if care patterns remain unchanged

To meet these challenges, Alberta Health and Wellness can facilitate decisions that promote access, quality, and sustainability. This will requir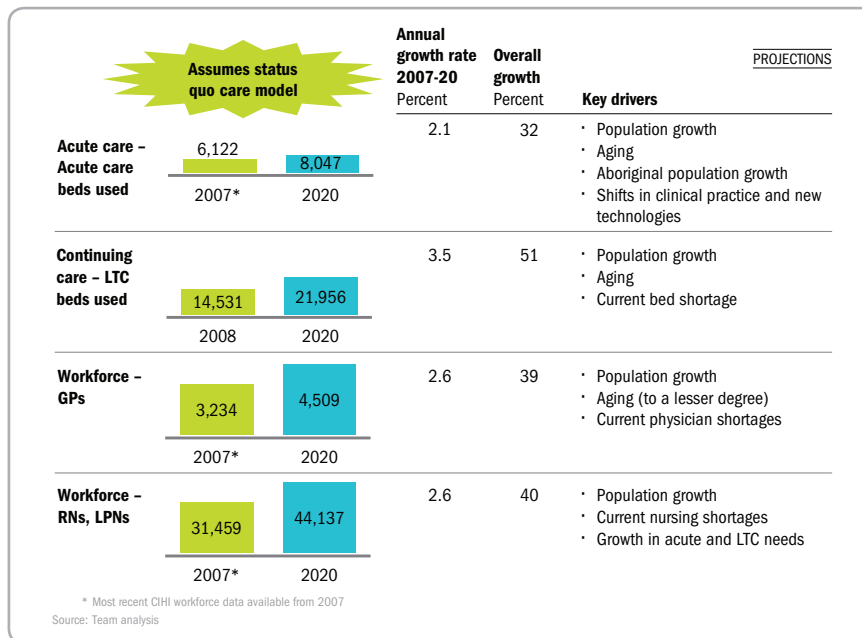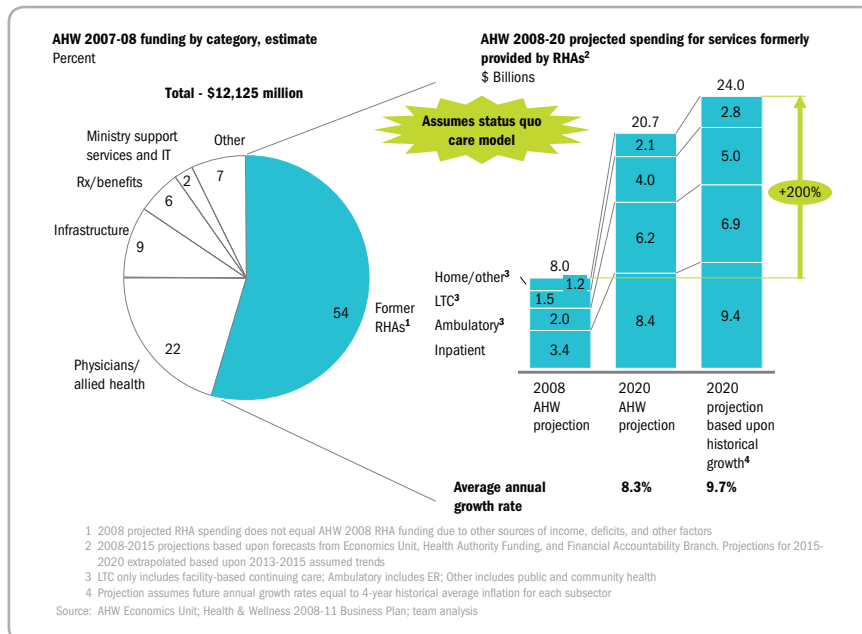e (**1**) actively managing the factors that can reduce demand for the costliest and least-efficient health care services; (**2**) ensuring that health care supply matches the quality, timeliness, and cost-effectiveness that Albertans require; and (**3**) creating a delivery mechanism that facilitates equilibrium between supply and demand. The opportunities and challenges facing the system, and relevant innovations that have already been implemented, fall into four broad themes:

MATCHING INTENSITY OF SERVICES TO PATIENT NEED

- *Current state*: Heavy reliance on facility-based care with inadequate emphasis on alternatives that are less burdensome to the patient and also less resource-intensive (e.g. ambulatory care, supportive living)

- *Future state*: Increased emphasis on care options that closely match patient requirements, with appropriate transparency and incentives to facilitate use of these services

ENHANCING ACCESS TO HIGH-QUALITY SERVICES IN RURAL AREAS

- *Current state*: Access to high-quality services in rural areas is challenged by geographic dispersion, provider recruitment problems, and facilities that are operating at low volumes

- *Future state*: Access enhanced by investments in ambulatory care centres, tele-health, selected rural hospitals, and emergency medical services (EMS); improved quality and cost-effectiveness

ENHANCING THE CAPACITY AND EFFECTIVENESS OF ALBERTA'S WORKFORCE

- *Current state*: Workforce effectiveness and supply hindered by recruitment and productivity challenges, suboptimal distribution, and mismatch of work to skills

- *Future state*: Workforce supply better matched to demand for services (across caregiver types); improved distribution of available capacity

IMPROVING THE COORDINATION OF CARE

- *Current state*: Care often delivered with little coordination among regions, sites of care, and caregiver types, with high variability across the province

- *Future state*: Improved transparency, operational execution, and communication; enhanced programs that integrate the activities of caregivers, move patients seamlessly through the system, and optimize use of resources; information sharing and performance enabled by integrated IT systems

The Service Optimization Review has developed 14 recommendations across these four themes that Alberta can consider to address the growing challenges facing the delivery system. Pursuing these recommendations can help Alberta improve the quality of care, access to services, and sustainability of the system for all Albertans. By theme, these recommendations are:

Matching intensity of services to patient need

1. *Shift selected inpatient and emergency room (ER) services to outpatient care centres*: Where appropriate, transition delivery of select low-acuity inpatient and ER services to an outpatient setting; invest in building ambulatory care centres to increase access

2. *Shift selected services from LTC to supportive living and home care*: Invest in developing additional supportive-living spaces and home-care capacity to keep patients closer to home and make their experience(s) more satisfactory; reduce barriers to using these types of care; conduct analyses on an expedited time frame to determine what level of LTC facility investment is optimal

3. *Repatriate selected inpatient services back to home regions*: Prepare and support regional hospitals to repatriate select inpatient services from capacity-constrained referral hospitals to improve patient access

4. *Increase use of short-stay and other mental health alternatives*: Invest in developing more short-stay mental health beds and community-based alternatives to better serve patients and alleviate strain on psychiatric and acute care hospitals

Enhancing access to high-quality services in rural areas

5. *Create distinctive ambulatory centres using existing select infrastructure with targeted expansion as needed*: Identify select sub-scale acute care facilities in urban, suburban, and rural areas that can be merged to improve effective scale; convert select facilities into advanced ambulatory centres; expand select facilities to ensure access

6. *Empower and better coordinate EMS/transport*: Continue work to centralize EMS/transport services and empower paramedics to provide more on-site care (e.g., treat and refer), thereby increasing access and responsiveness in rural areas

7. *Increase number and provincial management of tele-health programs*: Expand the best regional tele-health programs to cover the entire province and increase provincial management of these programs; focus particularly on benefits to rural areas

Enhancing the capacity and effectiveness of Alberta's workforce

8. *Enrich provincial recruitment and retention strategy*: Continue to define a coordinated, targeted strategy to recruit and retain key health professionals in specialties and geographies in which there is a projected undersupply

9. *Deepen initiatives and incentives to increase productivity*: Consider changes to the benefits structure, salary guidelines, and/or reimbursement schemes to enhance productivity and collaboration among health professionals

10. *Increase workforce efficiency by better matching work to skills:* Better leverage workforce by refocusing staff on those activities through which they provide the most value

11. *Build on incentives for providers to work in rural areas*: Build on and expand incentives and recruitment methods to attract providers to rural areas with need— including financial incentives and non-financial ones, such as continuing education programs to allow professionals to maintain their skills

Improving the coordination of care

12. *Create and strengthen linkages between current silos in the system*: Where appropriate, make use of multidisciplinary teams, co-located services, or novel organizational structures to improve linkages across the health care delivery system; target efforts on the highest-priority clinical pathways (e.g., senior care, mental health, EMS)

Figure 1-5 The 14 recommendations could slow growth in demand for acute care beds by ~50% and for LTC beds by ~60%

Inpatient demand in Alberta
Beds used

6,122 — 2007 beds used
1,206 — Population growth
954 — Aging
161 — Aboriginal population growth
397 — Nondemographic changes*
8,047 — 2020 beds used - base case
442 — Reduction in required capacity from operational changes
211 — Reduction in required capacity from continued care capacity increases
370 — Reduction in required capacity from shift to ambulatory
7,024 — 2020 beds used – optimistic case

LTC demand in Alberta
Beds used

14,531 — 2008 LTC beds used
1,102 — Unmet demand
2,959 — Population growth
3,364 — Aging
21,956 — 2020 LTC beds used - base case
4,391 — Reduction due to shift to supportive living
17,565 — 2020 beds used – optimistic case

* Includes changes in demand due to changes in disease prevalence, new technologies, and changing care patterns
Source: Alberta Health and Wellness population projections and encounter -level data; team analysis

13. *Increase operational efficiency of the system*: Implement a lean operational system to streamline the flow of patients, information, and other key components through the health care system

14. *Integrate IT systems to enable better transparency and sharing of information*: Integrate IT systems to enable access to patient health information across the care continuum, to improve communication, and to facilitate performance management

These actions would require reorganization of parts of the current system, development of innovative care models, alignment of incentive systems, and improvements in operational execution. The sections below present data that support these recommendations and suggest next steps for each that Alberta Health and Wellness, Alberta Health Services,

and other stakeholders could take in collaboration with each other. If fully pursued, these actions could improve the quality, access, and sustainability of Alberta's health care system by:

- **Slowing demand growth**: Clinically appropriate shifts to outpatient care, increases in continuing-care capacity, and length-of-stay reductions could slow growth in demand for acute care beds by up to 50% and for LTC beds by up to 60% (**Figure 1-5**). These goals would be supported by rebalancing the mix of health care infrastructure to promote reduced acute care facility use and increased use of ambulatory and other community-based services

- **Improving workforce availability, effectiveness, and satisfaction**: Enhanced recruitment and retention, productivity gains, care model shifts, and geographic redistribution can help ensure that an adequate workforce will be available and that the workforce will be optimally utilized (**Figure 1-6**)

- **Reducing annual operating costs**: Operational improvements (including length-of-stay reductions to match Alberta's best practices; shifts to ambulatory care, assisted living, and home-care settings; and conversion of selected small facilities to distinctive ambulatory centres) could reduce operating costs by as much as $1.5 billion per year by 2020 (**Figure 1-7**)

Figure 1-6 Implementing the 14 recommendations could increase the likelihood that adequate workforce will be available

Alberta current and future demand for GPs
Number of GPs

| 4,509 | 400 | 0 | 4,109 | 4,636 | +527 |

| Projected 2020 need for GPs – base case | Reduction due to increased practice effectiveness* | Effect of geographic redistribution | Projected 2020 need for GPs after changes | Projected 2020 supply |

Alberta current and future demand for nurses
Number of nurses

| 44,137 | 1,238 | 4,013 | 2,102 | 36,784 | 37,904 | +1,120 |

| Projected 2020 need for nurses – base case | Reduction due to care model shifts | Reduction due to increased productivity | Reduction due to efficiency | Projected 2020 need for nurses after changes | Projected 2020 supply |

* Practice effectiveness refers to productivity and efficiency benefits derived from more optimal use of provider time for quality patient care—e.g., less time spent on administrative tasks
Source: AHW data; team analysis

Figure 1-7 Changing the system trajectory would improve not only access and quality, but also long-term sustainability

Projected 2020 former RHA spend in Alberta, base and optimistic cases
$ Millions

| 24,015 | 495 | 485 | 470 | 40 | 22,525 | -6% |

| Projected 2020 base case spend* | Savings due to shift to ambulatory care | Savings due to increased continued care capacity and shift to supportive living | Savings due to operational improvements | Savings due to small facility overhead reduction | Projected 2020 optimal case spend |

Overall annual operating costs could be reduced ~6%, or nearly $1.5 billion, from projected levels by 2020

* Based upon forecast developed by applying 4-year historical growth rate averages
Source: AHW Economics Unit; Health & Wellness 2008-11 Business Plan; team analysis

· **Appropriately timing new capital investments**: Insight into existing capacity and future demand provides information critical to the timing of infrastructure decisions. The need for additional acute care beds at specific facilities will depend on local demand projections, repatriation, and any service changes at other nearby facilities. A base-case scenario, which assumes no change in the care delivery model, suggests that approved acute care projects can address system needs in most regions for the next five years. However, several regions (Edmonton, Calgary, David Thompson) are already capacity constrained and planned expansion will not reduce occupancy rates to target levels in the absence of practice changes. These projections also show that the province will experience a significant acute care bed shortfall by 2020 except in the areas currently served by Peace and Aspen, in the absence of practice changes (**Figure 1-8**). Furthermore, these numbers are particularly sensitive to population growth trajectories; for example, if annual growth is faster than expected (1.8% instead of 1.6%), an additional 300 hospital beds would be required province-wide by 2020.

Figure 1-8 In the base case, approved acute care projects will address system needs in most regions through ~2013

Projected acute bed occupancy* by region, including all capital projects approved through 2013
Percent

| | | | <75% | | 80%-85% |
| | | | 75%-80% | | >85% |

Historical region	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Chinook	87%	89%	91%	85%	86%	87%	88%	89%	90%	91%	92%	92%	93%
Palliser	80%	81%	83%	81%	82%	84%	85%	86%	88%	89%	90%	91%	93%
Calgary	92%	91%	90%	87%	81%	83%	85%	87%	89%	91%	93%	95%	97%
David Thompson	89%	91%	93%	95%	96%	98%	100%	102%	103%	105%	107%	108%	110%
East Central	80%	81%	82%	83%	84%	85%	86%	87%	88%	89%	91%	92%	93%
Capital	94%	90%	88%	85%	81%	82%	84%	86%	87%	89%	90%	92%	93%
Aspen	66%	67%	68%	69%	71%	70%	71%	72%	73%	74%	75%	76%	77%
Peace	75%	77%	79%	81%	63%	64%	66%	67%	69%	70%	72%	73%	74%
Northern Lights	69%	72%	75%	79%	83%	86%	90%	94%	98%	102%	106%	110%	114%

These projected occupancy rates and any decisions derived from them must be understood within the context of several key data limitations, regional plans not yet approved by AHW, and other externalities

* Occupancy rates exclude blocked beds (where available)
Source: Alberta Health and Wellness; regional data; team analysis

Implementation of new care models and operational improvements could reduce projected occupancy levels for current and approved acute care infrastructure while maintaining or improving quality and access. In the "optimal" case, several regions might be able to delay planning additional inpatient facility construction. Further review is required to consider specific acute infrastructure needs in light of facility replacement requirements, renovation needs, and value engineering opportunities related to the proposed construction.

This report focuses on capital requirements for facilities; additional analysis would be required to assess capital expenditures related to enabling technology and equipment (e.g., imaging, surgical).

The recommendations outlined can support the sustainability of Alberta's health system in two important ways. Alberta can "reset the baseline" (immediate impact that is sustained over the long term) by prioritizing those expenses that directly relate to patient care and eliminating other costs. Furthermore, changes in care delivery that emphasize matching services to patient need can help "bend the trend" (by reducing the rate of long-term cost growth) (**Figure 1-9**).

The next four sections provide additional detail on each of the four major themes. Section 2 discusses ways to better match intensity of services to patient need. Section 3 describes how to enhance access to high-quality services in rural areas. Section 4 explains how to enhance the capacity and effectiveness of Alberta's workforce. And Section 5 considers ways to improve the coordination of care. Each section is divided into subsections that highlight the challenges the current system faces and that discuss the specific levers for change.

Figure 1-9 In addition to quality and access benefits, the 14 recommendations could help Alberta "reset the baseline" and "bend the trend" of rapid cost growth

Projected spending 2008-2020, baseline and optimal cases
$ Billions

Legend:
- Projection assuming historical growth rate Base scenario
- Projection assuming historical growth rate Performance improvement scenario
- AHW internal projections - Base scenario
- AHW internal projections - Performance improvement scenario

-6.2%
-6.3%

Source: AHW Economics Unit; Health & Wellness 2008-11 Business Plan; team analysis

SECTION 2: **matching intensity of services to patient need**

The combination of three factors—the clinical risks associated with excessive facility-based care, the high occupancy of many acute care and LTC facilities in Alberta, and the high cost of operating these facilities—pose a significant challenge to the health system's quality, access, and sustainability. The regions within Alberta have varied in the degree to which they have leveraged non-acute-care alternatives to alleviate strain on their acute care and ER systems. In the future, successful but localized efforts can be broadened by further expanding the province's ambulatory care options, more systematically shifting the mix of continuing-care services toward high-quality supportive living and home care, repatriating select services to lower-acuity regional hospitals, and using alternative mental health care models more widely. It is worth noting, however, that shifting patients to less resource-intensive options that better match their needs would require rigorous assurance that appropriate, high-quality care is consistently provided at each care setting.

CHALLENGES IN MATCHING INTENSITY OF SERVICES TO PATIENT NEEDS

There are several factors that drive the need to better match the intensity of services provided to patients' true care requirements, while at the same time maintaining and improving quality:

- *Reduced patient satisfaction and quality:* Many continuing care patients prefer to receive services in less-intensive care settings, ideally at home. This premise is central to the "Aging in Place" initiative, which suggests that when clinically appropriate, patients prefer to be cared for at home

- *Impaired access to care in facilities*: In Alberta, the 10 largest inpatient facilities have an average occupancy of over 90%, and the vast majority of LTC facilities have greater than 96% occupancy. Such high occupancy rates often lead to long wait times, reduce overall access, and impair quality. Meanwhile, many regional facilities have occupancy rates below 80% and could accommodate patients with selected diagnoses in greater proportion than they do today

- *Greater cost of care in high-acuity settings*: Health care services that are provided in resource-intensive settings typically have higher costs. Historically, the hospital-centric model of care has led to provider practice patterns and consumer expectations biased toward more intensive and more expensive care settings. In many situations, less-intensive options can provide services with comparable high quality and are often ultimately preferred by patients

LEVERS FOR CHANGE TO BETTER MATCH INTENSITY OF SERVICES TO PATIENT NEEDS

There are four main approaches to better match the intensity of services to patient needs: **1**) shift selected inpatient and ER services to outpatient care centres, **2**) shift selected services from LTC to supportive living and home care, **3**) repatriate selected inpatient services back to home regions, and **4**) increase the use of short-stay and other mental health alternatives. The patient populations in each region must be considered to determine the optimal target mix of these alternatives.

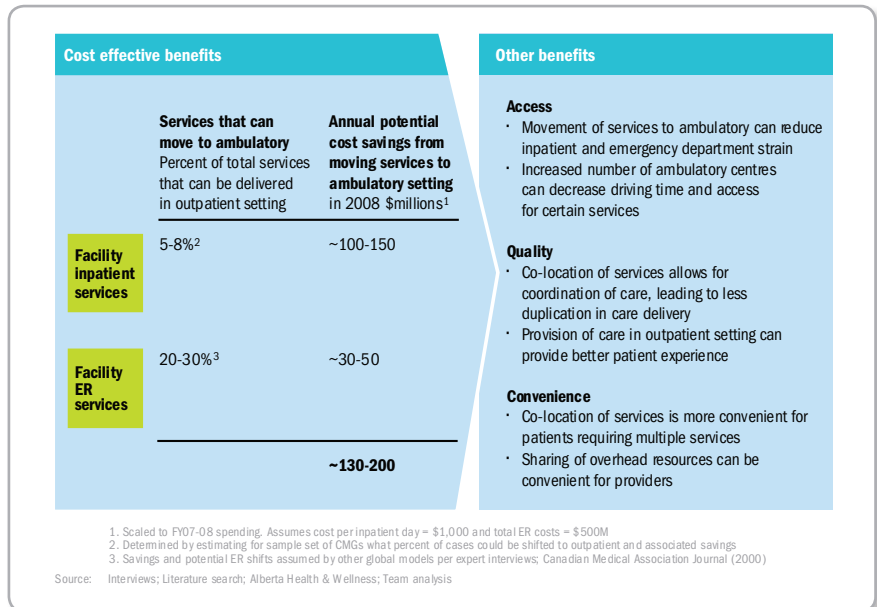### Shift selected inpatient and ER services to outpatient care centres:

Across the province, there are a number of medical and surgical services currently provided in acute care settings that could safely be moved to an appropriately staffed and resourced ambulatory care facility. A review of inpatient case mix groups for services that could likely be shifted to ambulatory care settings identified 10-20% of elective medical services, 5-10% of non-elective medical services, 3-7% of elective surgeries, 0-3% of non-elective surgeries, and 30-50% of regular attendee services (e.g., dialysis and chemotherapy).

Overall, 5-8% of services currently provided on an inpatient basis could be moved to an outpatient setting, with the greatest opportunities in elective medicine and regular attendee services.

There is also a significant opportunity in emergency care. Comparative global data suggests that approximately 25% of the emergency care delivered in the acute care setting could be delivered in an outpatient setting, such as a primary care physician's office, a primary care network (PCN) site, or an urgent care centre. Unnecessary volume in the ER can lead to long wait times, care escalation, and excess admission. Furthermore, care provided in a hospital ER is often 20-40% more expensive than similar outpatient care. Shifting the 25% non-emergent volume to the ambulatory care setting could improve ER access and quality by shortening travel and wait times; it could also reduce the cost of providing emergency care by 5-10%.

Avoiding unnecessary hospitalizations and ER admissions could improve overall patient satisfaction while reducing the risk of nosocomial infections and

Figure 2-1 Providing services in an ambulatory rather than inpatient setting can reduce costs and provide other benefits

Cost effective benefits			Other benefits
	Services that can move to ambulatory Percent of total services that can be delivered in outpatient setting	**Annual potential cost savings from moving services to ambulatory setting** in 2008 $millions[1]	**Access** · Movement of services to ambulatory can reduce inpatient and emergency department strain · Increased number of ambulatory centres can decrease driving time and access for certain services
Facility inpatient services	5-8%[2]	~100-150	**Quality** · Co-location of services allows for coordination of care, leading to less duplication in care delivery · Provision of care in outpatient setting can provide better patient experience
Facility ER services	20-30%[3]	~30-50	**Convenience** · Co-location of services is more convenient for patients requiring multiple services · Sharing of overhead resources can be convenient for providers
		~130-200	

1. Scaled to FY07-08 spending. Assumes cost per inpatient day = $1,000 and total ER costs = $500M
2. Determined by estimating for sample set of CMGs what percent of cases could be shifted to outpatient and associated savings
3. Savings and potential ER shifts assumed by other global models per expert interviews; Canadian Medical Association Journal (2000)

Source: Interviews; Literature search; Alberta Health & Wellness; Team analysis

other hospital-related complications. In addition to these quality and service benefits, complete capture of this opportunity could help improve the system's sustainability by reducing acute care and ER operating costs by $130 million or more per year (**Figure 2-1**).

Alberta could employ a wide array of ambulatory care options, including community health centres, urgent care centres, and comprehensive outpatient centres, to shift these services. Community health centres incorporate primary care with a varied mix of other community and public health services (the specific mix depends on local community needs); they typically do not provide after-hours care. Urgent care centres, which offer ambulatory care on a walk-in basis, can perform basic diagnostic tests and minor procedures; they usually have extended hours of operations. Comprehensive outpatient centres co-locate primary care with specialty care, minor surgical care, public health services, and community services.

Each of these options could optimally be developed as part of a primary care network (PCN), or potentially independent of a PCN if alternative financing support was provided. The exact scope and set of services to be provided at the ambulatory care centres would be based on individual community needs (e.g., catchment area, distance to closest hospital). The primary goal of all of these options would be to increase access to services while diverting some acute care volume to the more clinically appropriate setting.

Several countries, including Germany and the U.K., are already experimenting with delivery models that make greater use of ambulatory care. The U.K., for example, is building multidisciplinary outpatient health centres in urban London to create the infrastructure to shift high-volume hospital-based care into a more local setting. This model is expected to have significant operational and financial benefits for the health system, and specifically for physicians (**Figure 2-2**).

Locally, the regions within Alberta have begun to experiment with different models of outpatient care that aim to better match services to patient need. For example, since the opening of the Okotoks Community Health and Wellness Centre—which provides urgent care (12/7), immunization and well-child services, mental health services, speech language services, and pre- and postpartum services—there has been a 10% decrease in visits to local hospital ERs. Similarly, the planned Sheldon Chumir outpatient centre in Calgary provides an excellent example of a comprehensive centre that will co-locate multiple types of primary, community, and urgent care providers and services in one building. Health First Strathcona serves as an emerging example of a non-acute-care-based urgent care centre.

Since there are a variety of ambulatory care models available, the choice of which care setting should deliver services should be influenced by each local community's size, growth, medical needs, care utilization, and distance to the next available acute care facility (**Figure 2-3**). The decision whether a small acute care facility can be adapted for this purpose will be discussed in more detail in Section 3.

Figure 2-2 The U.K. and Germany have embraced outpatient models expected to increase effectiveness
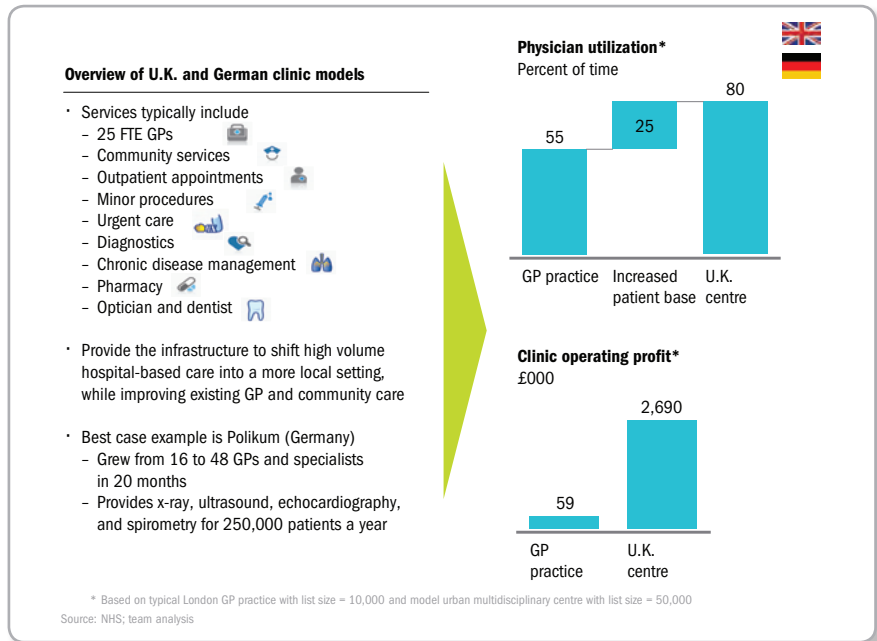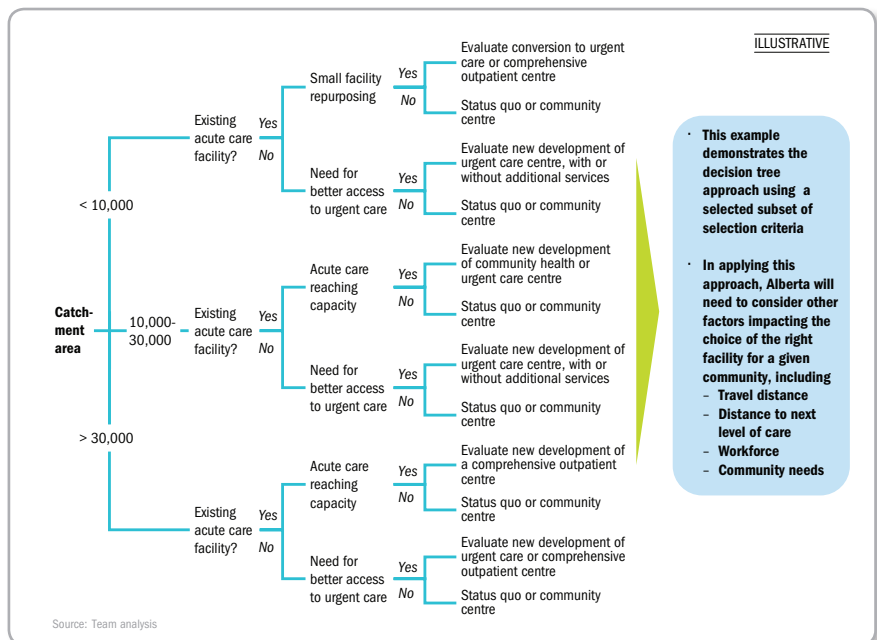

Overview of U.K. and German clinic models

- Services typically include
  - 25 FTE GPs
  - Community services
  - Outpatient appointments
  - Minor procedures
  - Urgent care
  - Diagnostics
  - Chronic disease management
  - Pharmacy
  - Optician and dentist

- Provide the infrastructure to shift high volume hospital-based care into a more local setting, while improving existing GP and community care

- Best case example is Polikum (Germany)
  - Grew from 16 to 48 GPs and specialists in 20 months
  - Provides x-ray, ultrasound, echocardiography, and spirometry for 250,000 patients a year

Physician utilization*
Percent of time

55   25   80
GP practice   Increased patient base   U.K. centre

Clinic operating profit*
£000

59   2,690
GP practice   U.K. centre

* Based on typical London GP practice with list size = 10,000 and model urban multidisciplinary centre with list size = 50,000
Source: NHS; team analysis

Figure 2-3 Decision-tree analysis can help select the appropriate ambulatory centre for a given community

ILLUSTRATIVE

Catchment area

< 10,000 — Existing acute care facility? — Yes — Small facility repurposing — Yes — Evaluate conversion to urgent care or comprehensive outpatient centre / No — Status quo or community centre
— No — Need for better access to urgent care — Yes — Evaluate new development of urgent care centre, with or without additional services / No — Status quo or community centre

10,000-30,000 — Existing acute care facility? — Yes — Acute care reaching capacity — Yes — Evaluate new development of community health or urgent care centre / No — Status quo or community centre
— No — Need for better access to urgent care — Yes — Evaluate new development of urgent care centre, with or without additional services / No — Status quo or community centre

> 30,000 — Existing acute care facility? — Yes — Acute care reaching capacity — Yes — Evaluate new development of a comprehensive outpatient centre / No — Status quo or community centre
— No — Need for better access to urgent care — Yes — Evaluate new development of urgent care or comprehensive outpatient centre / No — Status quo or community centre

- This example demonstrates the decision tree approach using a selected subset of selection criteria

- In applying this approach, Alberta will need to consider other factors impacting the choice of the right facility for a given community, including
  - Travel distance
  - Distance to next level of care
  - Workforce
  - Community needs

Source: Team analysis

The overall investment required to expand outpatient capacity will depend on the degree to which services are shifted from the inpatient to the ambulatory care setting, and on how much existing infrastructure can be leveraged (**Figure 2-4**). Acute care hospital infrastructure planning should incorporate the changes in acute care demand resulting from this shift and the other initiatives discussed in this document.

In addition, primary care and public health services would also need to evolve to support the shift to ambulatory care. Both primary care and public health could benefit from an increased focus on disease prevention, chronic disease management, and appropriate escalation of care. Given the wide range of ways in which primary care and public health are delivered today, these efforts would need to be consolidated, focused on the most effective providers, and targeted towards the diseases where they will have the greatest impact.

Figure 2-4 **Capital investment needs would vary depending upon several factors**

	Scenario #1		Scenario #2		Scenario #3	
	Assumed number	**Estimated total cost**	**Assumed number**	**Estimated total cost**	**Assumed number**	**Estimated total cost**
Number of new comprehensive outpatient centres	15	$300M	20	$400M	25	$500M
Number of comprehensive outpatient centres from modified acute care facilities	5	$25M	10	$20M	15	$15M
Number of new urgent care centres from modified acute care facilities	15	$15M	10	$20M	5	$25M
		$340M		$440M		$540M

- **Number of centre will depend on degree of services shifted from inpatient to ambulatory, as well as optimal size determined**
- **Exact investment costs will vary by location, size of centre and specific services offered**
- **Funding arrangement may vary, with opportunities for joint ventures with PCNs or other partners**

Source: Prior investment data; interviews; team analysis

Chronic diseases are a substantial driver of health care costs, and we have an opportunity to use PCNs and other innovative ambulatory care models to improve chronic disease management. There has been great support for the chronic disease management model developed by Dr. Edward Wagner across Alberta, and such models will need to be more fully integrated throughout the province. PCNs—particularly in Chinook and Capital—have proven helpful in furthering the evolution of primary care, public health, and chronic disease management, and should continue to play an increasing role in furthering the primary care mindset. This will likely mean an expanded role for PCNs, as they represent an effective model for improving access, efficiency, and integration of care. Indeed, many of the outpatient care services anticipated can likely be provided through PCNs. Additionally, changes to the physician reimbursement structure (e.g., population-based funding instead of fee-for-service, provision of additional funds for completing specific activities) could be assessed to determine which, if any, beyond current mechanisms, most effectively enable physicians to deliver the desired primary care model. More engagement with clinicians is needed to both define this model and the incentives required to support it.

Shift selected services from LTC to supportive living and home care:

Since the Broda report was released in 1999 advocating greater use of supportive and home living options, there has been significant focus across the province on expanding these care settings. All regions have been at least somewhat successful in reducing reliance on LTC beds, as evidenced by the decline in the ratio of LTC beds per 1,000 population age 75 years or older. Chinook, in particular, has been most aggressive in reducing LTC usage. However, **Figure 2-5** shows that significant regional variation still exists in the use of LTC and that unmet demand is high. It is critical to recognize that each region will need to tailor its LTC bed ratio to meet the unique needs of its population, while at the same time offering a consistent standard of quality and service offerings. For example, the LTC facilities in Calgary and Edmonton tend to have the most complex patients in the province, and therefore these regions are likely to need a higher ratio of LTC beds than other regions will need. However, the wide variation observed today does suggest that in many parts of Alberta, additional patient volume can be shifted out of LTC facilities into supportive living and home care over time, assuming that the appropriate capacity is built.

Reliance today on LTC has implications for both the system's access and its cost-effectiveness. Long-term care beds can be significantly more expensive than designated assisted-living or other types of supportive-living beds. Demand for LTC beds exceeds current supply in all regions, resulting in occupancy rates close to 100% and significant waiting lists. In addition, patients waiting for continuing care often "back up" in acute care facilities; overall, 11% of patients in Alberta's acute care beds are awaiting LTC or supportive-living placement (**Figure 2-6**).

Figure 2-5 Demand for long-term care beds exceeds current supply in all regions, resulting in long wait lists
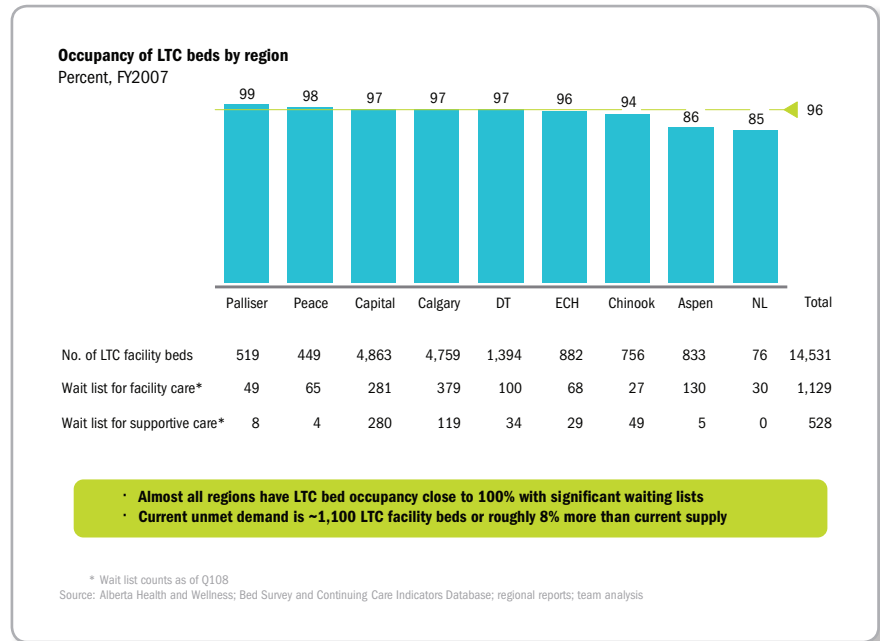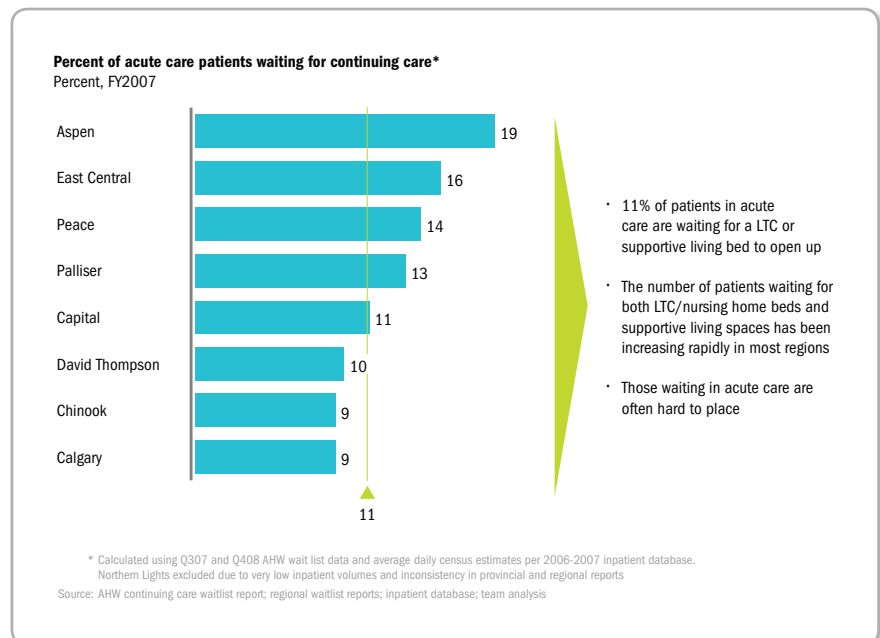

Occupancy of LTC beds by region
Percent, FY2007

	Palliser	Peace	Capital	Calgary	DT	ECH	Chinook	Aspen	NL	Total
Occupancy %	99	98	97	97	97	96	94	86	85	96
No. of LTC facility beds	519	449	4,863	4,759	1,394	882	756	833	76	14,531
Wait list for facility care*	49	65	281	379	100	68	27	130	30	1,129
Wait list for supportive care*	8	4	280	119	34	29	49	5	0	528

- Almost all regions have LTC bed occupancy close to 100% with significant waiting lists
- Current unmet demand is ~1,100 LTC facility beds or roughly 8% more than current supply

* Wait list counts as of Q108
Source: Alberta Health and Wellness; Bed Survey and Continuing Care Indicators Database; regional reports; team analysis

Figure 2-6 Patients awaiting continuing care beds often "back up" in acute care facilities

Percent of acute care patients waiting for continuing care*
Percent, FY2007

Aspen	19
East Central	16
Peace	14
Palliser	13
Capital	11
David Thompson	10
Chinook	9
Calgary	9

11

- 11% of patients in acute care are waiting for a LTC or supportive living bed to open up
- The number of patients waiting for both LTC/nursing home beds and supportive living spaces has been increasing rapidly in most regions
- Those waiting in acute care are often hard to place

* Calculated using Q307 and Q408 AHW wait list data and average daily census estimates per 2006-2007 inpatient database. Northern Lights excluded due to very low inpatient volumes and inconsistency in provincial and regional reports
Source: AHW continuing care waitlist report; regional waitlist reports; inpatient database; team analysis

Heavy and sometimes unnecessary utilization of existing LTC and acute care capacity can result in prolonged wait times and impaired patients' access to needed beds. Prolonged stays in acute hospitals also increase the risk of nosocomial infections and affects overall quality of care.

If current usage patterns remain unchanged, approximately 7,400 more LTC beds will be needed by 2020 to address current bed shortages and accommodate future growth (see **Figure 1-5** on page 6). Many of the patients occupying these beds would have been better served by supportive living options that more effectively match services to their needs. To address this looming issue, Alberta could develop a clearly defined methodology to determine which services could better be provided in supportive living or home living than in LTC. The regions vary in their view on the extent to which supportive living can be used in place of LTC (**Figure 2-7**). Chinook, for example, has had the most success leveraging level 3 and 4 supportive-living alternatives (designated assisted living and enhanced lodge facilities). Transitioning the entire province to Chinook's current mix of LTC and supportive living could reduce Alberta's need for LTC beds by 20%, resulting in roughly $60 million in annual operating savings across the province (**Figure 2-8**). Moving forward, it will be important for Alberta to take a systematic approach to determining the most appropriate mix to target. Once that is decided, capital plans, such as those for the 1,100+ LTC beds approved or pending approval, can be modified to align with the desired end state.

Figure 2-7 Regions vary considerably in their views on how much supportive living can be used in place of LTC
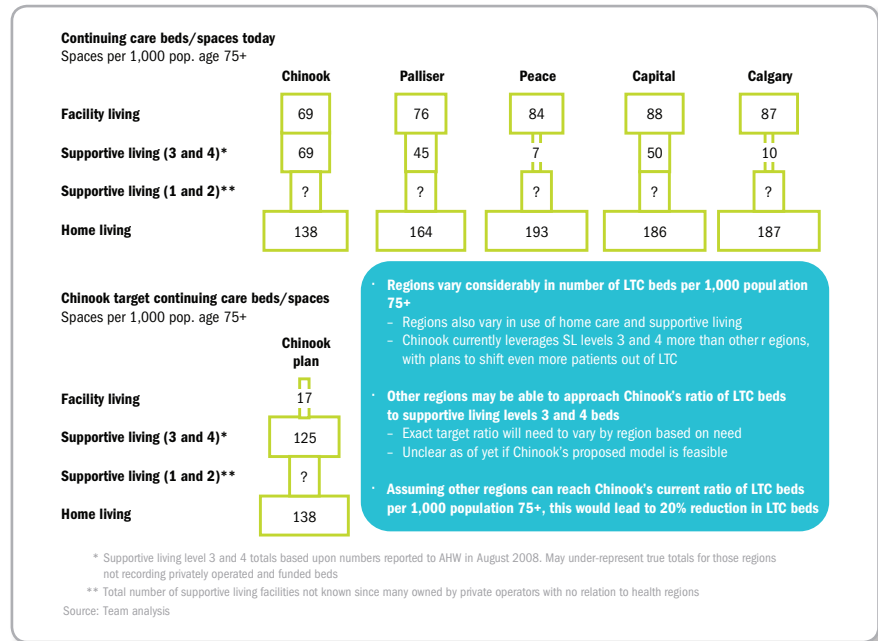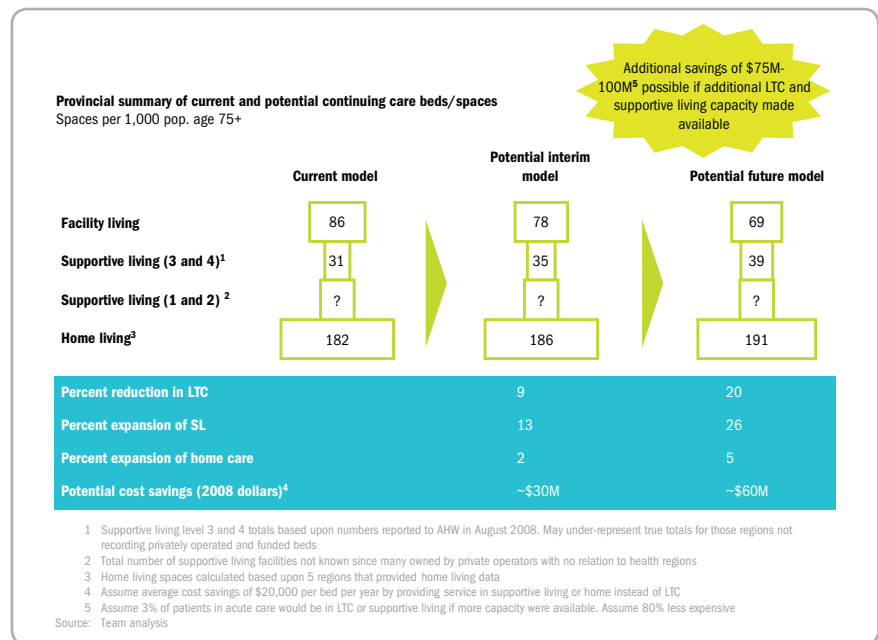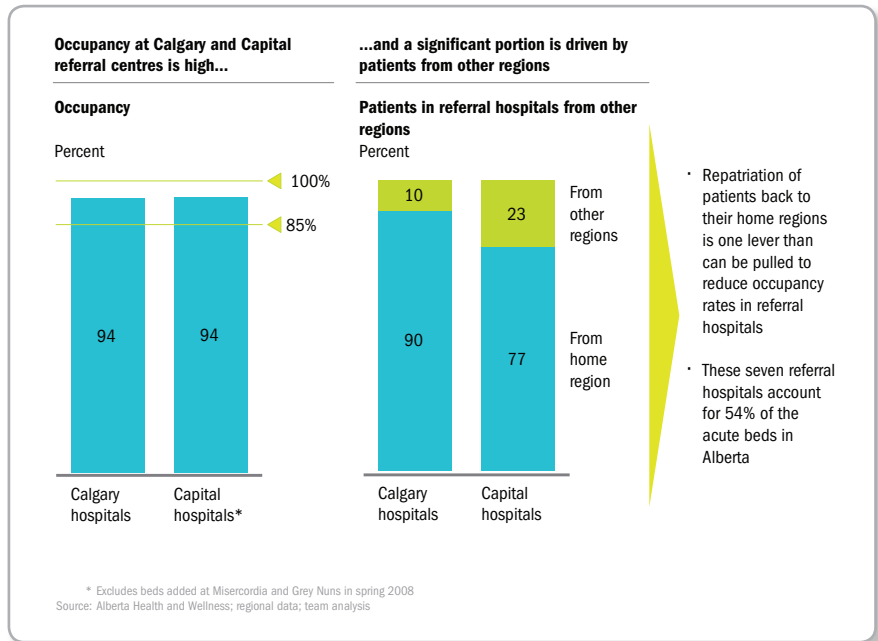

Continuing care beds/spaces today
Spaces per 1,000 pop. age 75+

	Chinook	Palliser	Peace	Capital	Calgary
Facility living	69	76	84	88	87
Supportive living (3 and 4)*	69	45	7	50	10
Supportive living (1 and 2)**	?	?	?	?	?
Home living	138	164	193	186	187

Chinook target continuing care beds/spaces
Spaces per 1,000 pop. age 75+

	Chinook plan
Facility living	17
Supportive living (3 and 4)*	125
Supportive living (1 and 2)**	?
Home living	138

- Regions vary considerably in number of LTC beds per 1,000 population 75+
  - Regions also vary in use of home care and supportive living
  - Chinook currently leverages SL levels 3 and 4 more than other regions, with plans to shift even more patients out of LTC
- Other regions may be able to approach Chinook's ratio of LTC beds to supportive living levels 3 and 4 beds
  - Exact target ratio will need to vary by region based on need
  - Unclear as of yet if Chinook's proposed model is feasible
- Assuming other regions can reach Chinook's current ratio of LTC beds per 1,000 population 75+, this would lead to 20% reduction in LTC beds

* Supportive living level 3 and 4 totals based upon numbers reported to AHW in August 2008. May under-represent true totals for those regions not recording privately operated and funded beds
** Total number of supportive living facilities not known since many owned by private operators with no relation to health regions
Source: Team analysis

Figure 2-8 Increasing use of supportive living could reduce need for LTC beds by ~20%, saving ~$60M per year

Additional savings of $75M-100M[5] possible if additional LTC and supportive living capacity made available

Provincial summary of current and potential continuing care beds/spaces
Spaces per 1,000 pop. age 75+

	Current model	Potential interim model	Potential future model
Facility living	86	78	69
Supportive living (3 and 4)[1]	31	35	39
Supportive living (1 and 2) [2]	?	?	?
Home living[3]	182	186	191
Percent reduction in LTC		9	20
Percent expansion of SL		13	26
Percent expansion of home care		2	5
Potential cost savings (2008 dollars)[4]		~$30M	~$60M

1 Supportive living level 3 and 4 totals based upon numbers reported to AHW in August 2008. May under-represent true totals for those regions not recording privately operated and funded beds
2 Total number of supportive living facilities not known since many owned by private operators with no relation to health regions
3 Home living spaces calculated based upon 5 regions that provided home living data
4 Assume average cost savings of $20,000 per bed per year by providing service in supportive living or home instead of LTC
5 Assume 3% of patients in acute care would be in LTC or supportive living if more capacity were available. Assume 80% less expensive
Source: Team analysis

Several other actions would also be required to enable greater use of supportive living and home care. Best practices for patient assessment and the placement process, for example, would have to be defined. Current continuing-care data collection systems do not uniformly collect patient assessment, occupancy, bed supply, or cost information. Better data collection would be required if Alberta wanted to determine the appropriate mix of LTC, supportive living, and home care, as well as to assess progress and manage performance. Policy changes, such as drug coverage and Nursing Home Act reform, would likely be needed to "level the playing field" and reduce current patient and operator barriers to using and developing supportive-living options. A more consistent approach to assisted living accommodation standards and resident services will be needed.

Figure 2-9 In referral hospitals, occupancy rates average above 94%, with ~16% of these patients from outside regions

Occupancy at Calgary and Capital referral centres is high...

Occupancy

Percent

	Calgary hospitals	Capital hospitals*
100%		
85%		
	94	94

...and a significant portion is driven by patients from other regions

Patients in referral hospitals from other regions
Percent

	Calgary hospitals	Capital hospitals
From other regions	10	23
From home region	90	77

- Repatriation of patients back to their home regions is one lever than can be pulled to reduce occupancy rates in referral hospitals

- These seven referral hospitals account for 54% of the acute beds in Alberta

* Excludes beds added at Misercordia and Grey Nuns in spring 2008
Source: Alberta Health and Wellness; regional data; team analysis

Lastly, clinicians and administrators in Alberta should consider broader adoption of the innovative continuing-care models already operating in the province, such as Capital's CHOICE program (which supports patients in their home) and David Thompson's Michener Hill plan (which provides a variety of accommodation/ care options in one location), to determine which ones should be expanded more broadly.

Repatriate select inpatient services back to home regions: Currently, the distribution of acute care services is not optimal, with referral centres bearing a disproportionate burden of care. Most of the larger tertiary referral hospitals, which are generally located in Capital and Calgary, have occupancy rates averaging over 94%, driven in part by the large proportion of patients (approximately 16%) who come from other regions (**Figure 2-9**).

The high number of non-local patients in these hospitals has been caused in part by the historical regional funding formula, which decreased the financial viability for some rural facilities to continue providing certain services. Many under-utilized facilities in those regions have the capacity to absorb demand from the central referral hospitals and thereby modestly decompress high occupancy rates (**Figure 2-10**); the change could be facilitated through appropriate incentive systems and a repatriation plan developed in collaboration with clinicians and administrators in those communities.

Most patients leave their home regions to receive inpatient care for three reasons:

– Facilities in their home regions do not provide the needed service (home region not capable)

– The type of needed service is provided in their home regions, but for more complex cases treatment is provided in Capital and Calgary (complex cases)

– Facilities in their home regions perform the service well, but the patients and their physicians elect treatment in the larger referral facilities (home region fully capable)

A significant number of patients currently treated in Capital and Calgary hospitals could be cared for in their home regions. Assuming that a small fraction of complex cases and a larger fraction of home region-capable cases could be repatriated, a substantial transfer of inpatient days would result (**Figure 2-11**). The opportunity for repatriation is greatest in the following service lines: general surgery, general medicine, rehabilitation, orthopaedic surgery, psychiatry, and obstetrics. If select services are repatriated, occupancy in referral hospitals could be reduced by approximately 4-8% (**Figure 2-12**).

Figure 2-10 Less-utilized facilities in patients' home regions have capacity to absorb demand in referral hospitals

Occupancy for different groups of facilities
Percent

1 RAH, UofA, Misericordia, Grey Nuns, Foothills, Peter Lougheed, and Rockyview
2 Excluding those facilities in Calgary and Capital
3 Rural hospitals correspond to Peer Group D. Small rural hospitals correspond to Peer Group E
Source: Alberta Health and Wellness; team analysis
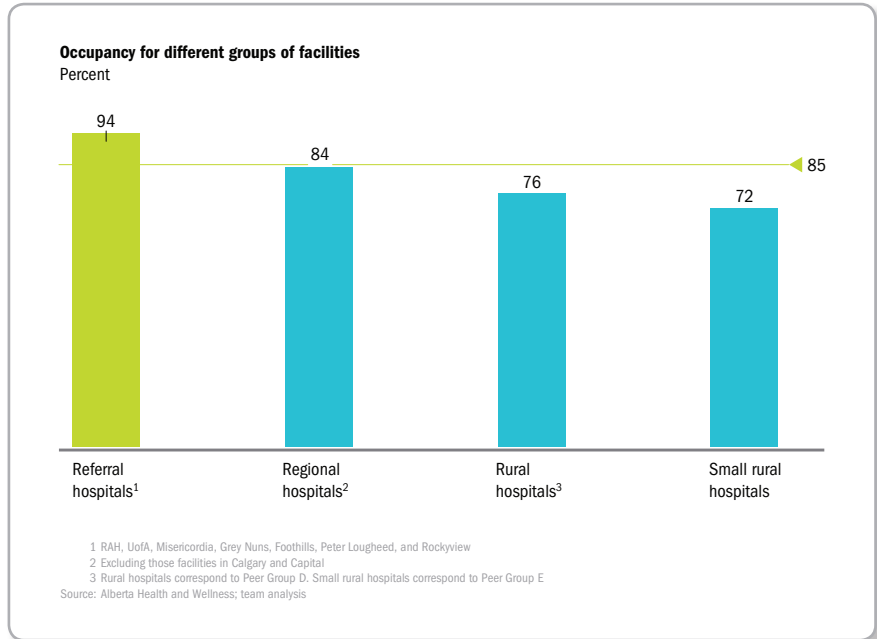
Figure 2-11 If 30% of complex case days and 50% of capable days are repatriated, ~60,000 inpatient days could be moved back to home regions

Alberta resident inpatient days outside patients' home regions*

* Region fully capable refers to those cases in which ≥85% of cases are handled in house
** Complex case refers to those cases in which (average outside-region resource intensity weighted)/(average inside-region resource intensity weighted) >1.4
Source: Alberta Health and Wellness; team analysis
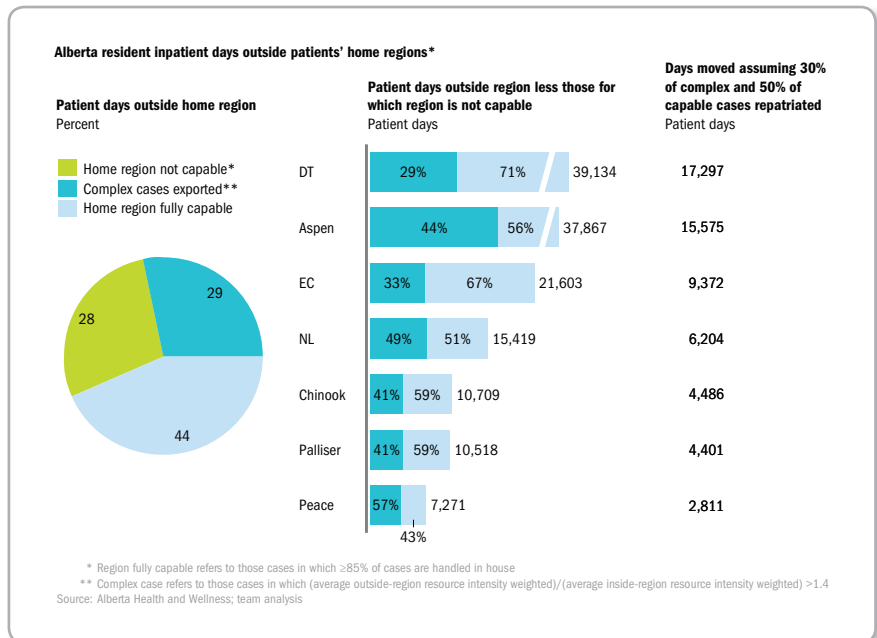
For repatriation to work, both the referral hospitals and exporting regions would have to undertake certain initiatives, including concerted public education campaigns, targeted infrastructure/workforce investments, alignment of incentives, and monitoring. Marketing campaigns and public education initiatives would have to inform citizens of the range and quality of services available in their home regions. Additional recruiting efforts might be necessary at smaller facilities to ensure adequate staffing levels, while future capital projects would have to account for projected repatriation volume. Monitoring of repatriated services would be needed to ensure that appropriate quality standards and minimum volume thresholds are met. Finally, physicians and hospitals could be encouraged to make appropriate referrals through the use of incentives.

Increase use of short-stay and other mental health alternatives: Alberta's mental health infrastructure appears insufficient to address current need. Regional mental health representatives and clinicians frequently state that the province lacks adequate housing, transitional care services, and residential facilities for affected patients. As a result, an increasing number of Alberta's acute care beds are being used for mental health patients. Inadequate mental health capacity is exacerbated by prolonged inpatient stays, with the average length of stay (LOS) for mental health case mix groups in Alberta longer than Canadian averages (**Figure 2-13**).

Figure 2-12 **Repatriation could decrease occupancy in referral hospitals by roughly 4-8%**

Occupancy in referral hospitals
Percent

- Current situation
- 25% capable cases and 15% complex cases repatriated
- 50% capable cases and 30% complex cases repatriated
- 75% capable cases and 45% complex cases repatriated

- Initial focus should be on repatriating demand from Capital by focusing efforts in David Thompson, East Central, and Aspen
- Impact on occupancy levels in Calgary and Capital referral hospitals will depend upon degree and timing that services can be repatriated

Source: Alberta Health and Wellness; team analysis

Figure 2-13 **Inpatient mental health stays remain longer than the Canadian average in most categories**

Mean LOS* (2005)
Days

- Alberta
- Other provinces
- Canada

* Includes mental health CMG-coded stays in both Alberta acute care hospitals and stand-alone mental health facilities; provinces were excluded if data was not available for both facility types
Source: CIHI (2005 data)
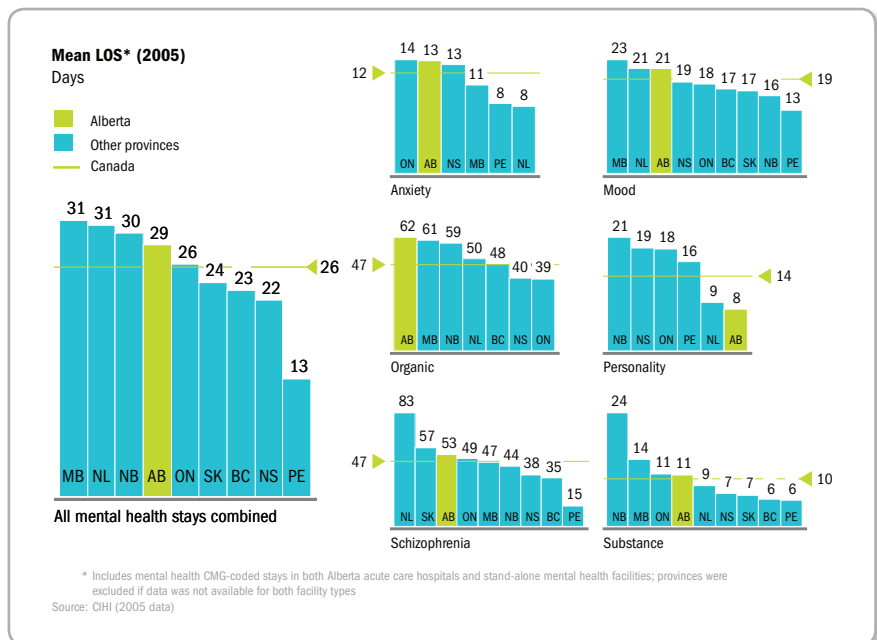
The lack of sub-acute care facilities that can handle mental health patients leads to patients "backing up" in the acute care facilities. In fact, psychiatric cases account for 6% of Alberta's acute care admissions—but 21% of all days inpatients spend awaiting an alternative level of care. Up to 190 of Alberta's general acute care inpatient beds could be freed up if adequate sub-acute capacity were available to mental health patients.

By investing in solutions that better match acuity of services to mental health need, Alberta could better serve patients, save money, and decompress much needed acute care capacity. Within Canada and internationally, there are a variety of care delivery approaches that effectively serve patients with psychiatric disease in the community setting (**Figure 2-14**). As the evidence has grown that these patients benefit from returning to their homes and communities, various sub-acute psychiatric care options have been developed to facilitate the transition. Many of these have also been successful in reducing ER and inpatient visits, thereby both improving patients' lives and providing a more cost-effective approach to care.

Within Alberta, several regionally initiated mental health programs provide examples of innovative programs already in operation that could be expanded across the province. These programs advance the goals of reducing inpatient days, further extending mental health care into the community, and matching care delivery to the specific needs of patients (see "case studies of innovative mental health programs in Alberta").

Figure 2-14 **Investing in solutions that better match acuity to patient need can save on costs while opening beds**

	Outpatient care	**Community-based care**	**Group home/ home-based care**	**Partial hospitalization**	**Inpatient hospitalization**
Description	Care delivered by physician or from clinic	Supported living, "clubhouse" model; social rehab programs; multidisciplinary team approach	Supervised residential setting for small groups of adults or children	Intermediate step toward reintegration into family, work or school, and eventual outpatient care	Intensive acute care on a 24-hour basis
Services	Evaluation and assessment, medical management, group and/or individual therapy, psychotherapy, and case management	Various services including therapy, medical management, case management, and life/job skills	Group/individual therapy, medication management, instruction in life and job skills	Day care including therapy, medical management, case management	Therapy, physician management, medication, case management
Length of treatment	6-20 sessions	Daytime/ night-time hours	Up to 1 year	Services normally available M-F 9a-5p; can last up to 2 weeks	Variable
Staffing	Clients are seen out of MD's office or mental health community centre	Mainly nonclinical personnel; social workers, case managers, visiting physicians	Nonclinical personnel; home visits conducted by social or case workers	Psychiatrists, psychologists, clinical social workers, nurses, NPs, case managers, occupational therapists, chaplains	Psychiatrists, psychologists, clinical social workers, nurses, NPs, case managers, occupational therapists, chaplains
Costs	$60-$200/day*	$30-$300/day	$65-$165/day	$50-$200/day	$800-$1,100/day

* Assuming average session lasts one hour

Source: Internet and literature review; cost data from U.S. facilities; inpatient cost from 2007 Solucient DRG Handbook (2005 Data)

case studies of innovative mental health programs in Alberta

SHORT-STAY PROGRAMS

- Short-stay units in Capital and Calgary provide rapid crisis resolution, symptom stabilization, and reintegration back to the community for treatment outside of hospital; these units achieve average length of stay of 2 and 3.5 days, respectively, for patients who might have remained in a traditional mental health unit for 6-12 days.

- Key success factors include discharge planned from admission, intensive team treatment, collaboration across the care spectrum, and cooperation with social agencies and other partners—as well as a fundamental shift in philosophy regarding the roles of inpatient and community-based care

TELE-MENTAL HEALTH

- One of the largest telemedicine programs in Alberta, Tele-mental Health performed approximately 3,500 patient encounters in 2007-8, broadening the portfolio of community-based care and enhancing rural access to mental health services

- A 2006 Alberta Mental Health Board study demonstrated that patient satisfaction was high with this type of encounter (e.g., 96% of surveyed patients reporting being satisfied with the session outcome)

SHARED-CARE PROGRAMS

- Shared care started in Calgary in 1998; mental health professionals and family physicians (FPs) see patients jointly and collaborate on assessment and management, thereby building the FPs' capacity to treat mental illness

- Programs vary across the regions—for example, Chinook is adding behavioural health consultation (BHC) co-located at the FP site, and East Central places mental health liaisons in clinics to consult on medication management, arrange placement to programs and facilities, educate FPs and patients, and coordinate continuing care

- Shared-care programs extend care to those who would otherwise not receive it, shift patients to a lower level of care, or both

TRANSITIONAL CARE FACILITIES

- Nine-bed Hamilton House and four-bed House 112 in Calgary address the transitional care needs of specific populations: Hamilton House for patients with severe and persistent mental illness discharged from hospitals and having difficulty obtaining housing, and House 112 for adult dual-diagnosis patients with both developmental disabilities and mental illness

- Hamilton House's client satisfaction has been positive overall, while cost per day is less than a quarter of comparable inpatient hospital care

- Before House 112, three of its four residents accounted for approximately 300 inpatient days in one year, but all three have remained out of hospital since placement at House 112

NEXT STEPS ACROSS KEY RECOMMENDATIONS

Recommendation 1: *Shift selected inpatient and ER services to outpatient care centres*

- Identify those medical, surgical, and emergency services currently provided at inpatient facilities that could be safely and effectively moved to outpatient settings

- Determine the appropriate scope of care to be provided in different outpatient/ambulatory care models and begin identifying where such models could be implemented (and the potential impact)

- Identify a plan for evolving primary care into a more comprehensive service, including recommendations for how best to integrate it with the new ambulatory/outpatient centres

- Refine the impact of the new ambulatory/outpatient capacity on the demand for inpatient capacity; modify plans for developing inpatient and outpatient capacity accordingly

Recommendation 2: *Shift selected services from LTC to supportive living and home care*

- Address near-term capacity shortfalls in LTC and supportive living

- Establish clinical guidelines/criteria for the assessment and placement of patients into the various types of continuing-care facilities available

- Collect the additional data needed to determine the current and future target mix for LTC, supportive living, and home care in specific geographies

- Determine what policy changes, additional workforce requirements, public-private partnerships, and other initiatives will be required to address current barriers to adoption of supportive and home living

- Identify ways to increase collaboration and integration between decision-making entities, such as Alberta Health and Wellness, Alberta Seniors, private operators, and clinicians

Recommendation 3: *Repatriate select inpatient services back to home regions*

- Prioritize which services/procedures and/or inpatient facilities should be assessed first for repatriation opportunities

- Identify "quick-win" and longer-term opportunities to repatriate specific services/procedures

- Ensure adequate workforce and other requirements are in place to support repatriation

- Collaborate with funding authorities to develop incentives that encourage appropriate repatriation and export (e.g., population-based funding model)

- Develop public education campaign to inform citizens about where services are provided and why they are provided there

Recommendation 4: *Increase use of short-stay and other mental health alternatives*

- Expand or replicate best-in-class programs, including those developed with Mental Health Innovation funds; consider additional funding of innovative pilot programs; prioritize "quick wins" that support the delivery system

- Review the Provincial Mental Health Plan and related regional plans, update goals as needed, obtain better understanding of community supports, and integrate addiction services into planning

- Create a task force of mental health key opinion leaders to develop inpatient clinical pathways and clinical criteria for tele-mental health, short-stay, and transitional care

- Project demand for alternative mental health capacity and revisit capital plans as necessary

- Develop an approach for communication and collaboration across stakeholders, such as communities and other ministries

SECTION 3: enhancing access to high-quality services in rural areas

Given Alberta's unique geography and its wide variations in population density, ensuring access to high-quality rural care has been and continues to be one of the major factors shaping health care planning in the province. The Ministry has already made significant progress by committing to integrate EMS services, and by more comprehensively using information and telecommunications technology. Beyond this, there is an opportunity to define a better, more integrated set of services for rural communities. This may include using existing infrastructure to expand ambulatory and continuing care capacity, improving access to emergency services, merging acute care facilities to reach effective scale, as well as bringing other facilities to scale by enhancing their services and marketing their capabilities to reduce unnecessary out-migration to the major city centres.

CHALLENGES IN RURAL CARE DELIVERY

The three system dimensions of quality, access, and sustainability frame the challenges in rural care delivery:

Quality:
In order to maintain high quality for complex cases, facilities should ideally perform a minimum (threshold) volume of certain procedures each year to ensure that staff members keep their skills sharp. However, since most rural facilities are relatively small (fewer than 50 beds), they see a low volume of complex cases. This is especially true for facilities with fewer than 20 beds, which constitute nearly half of all the acute care centres in Alberta.

Figure 3-1 shows that 24 hospitals in Alberta deliver fewer than 50 babies per year, well below the suggested threshold of 500 live births per year. Of these, 17 are facilities with fewer than 20 beds.

The risk of maintaining clinical volume below accepted thresholds must, of course, be balanced against the need to provide adequate access to care. Some facilities will likely always have sub-scale volumes for certain procedures. However, consolidating cases where possible can help improve outcomes. For example, infant mortality is 200-300% higher at facilities with fewer than 500 deliveries per year and 400% higher at facilities with fewer than 100 deliveries per year.

Figure 3-1 Many facilities operate at procedure volumes below the recommended minimum

Number of facilities by number of live births performed per year, grouped by facility size

- Only facilities with >50 beds perform the recommended volume of 500 deliveries per year
- Research has shown infant mortality is 200%-300% higher for facilities with fewer than 500 deliveries per year, and 400% higher for facilities with fewer than 100 deliveries per year
- For facilities below threshold recommendations, consolidation can offer improvements in quality due to increased scale
- To maintain access to care, some facilities will always be below thresholds. The key will be to maximize quality in the face of low volumes

Source: *International Journal of Epidemiology 2002* (v31); Arch Dis Child Fetal Neonatal Ed 1999 (v80); team analysis

Access:

Acute care facilities are not optimally distributed in the province currently, with some facilities providing services redundant with those of nearby facilities. Indeed, almost half of facilities with 20 or fewer beds are within 50 km of another acute care facility (**Figure 3-2**). At the same time, other small acute care facilities are operating at high occupancy rates with long wait times since they are the only providers of care for large, high growth areas. Lastly, approximately 6% of Albertans live more than 60 kilometres from an acute care facility, largely due to the geographical challenges of the province.

Sustainability:

As mentioned above, nearly half of all acute care facilities in Alberta have fewer than 20 beds. Fifty-six percent of these facilities have occupancy rates below 75%, and almost 20% of them have occupancy rates below 50%. As **Figure 3-3** demonstrates, these facilities are much more likely than larger facilities to have a high overall resource intensity-weighted cost of care, given their reduced economies of scale and their generally longer lengths of stay.

Figure 3-2 Facilities are unevenly distributed, and there is some redundancy among small rural facilities

Distance to nearest acute care facility*
Kilometres

- 0-9 km
- 10-19 km
- 20-29 km
- 30-59 km
- Over 60 km

47% of facilities with 20 or fewer beds are within 50 km from the next nearest facility

Driving distance
Kilometres

20 — < 50
12 — 50 - 75
11 — > 75

* Distance measured from centre point of FSA (Forward Sortation Area), which is the 3-digit postal code, to the facility 6-digit postal code; Aggregated by FSA
Source: StatCan 2006 Census; team analysis

Figure 3-3 Majority of small facilities are operating below 75% occupancy and have costs ~15% higher than larger facilities

Occupancy of facilities by bed size
Number of facilities*

Mean resource intensity weighted cost per case
Dollars

Percent occupancy: <50%, 50-75%, >75%

0-20: 43 (8 / 16 / 19)
21-50: 34 (17 / 16)
51-100: 4 (1 / 3)
101-200: 4 (2 / 2)
201+: 10 (8)

Facility size (number of beds)

<20: 5,013
20+: 4,269
15%

Facility size (number of beds)

- Nearly half of all acute care facilities in Alberta have 20 or fewer beds and 56% of them have occupancy rates below 75%
- Facilities with <20 beds have, on average, 15% higher costs per day than facilities with 20+ beds

* Excludes mental health, cancer, and rehabilitation facilities (specialty hospitals)
Source: StatCan 2006 Census; team analysis

LEVERS FOR CHANGE IN RURAL CARE DELIVERY

To improve rural care delivery, a clear vision should be established for how services can be delivered to ensure equitable access, quality and sustainability. Several levers could be used in an integrated manner to achieve the desired model once defined. These levers include but are not limited to creating distinctive ambulatory care centres using select existing infrastructure, enhancing EMS services, expanding use of tele-health, facilitating repatriation (discussed in Section 1) and redistributing workforce (discussed in Section 4). Clearly, there is no "one size fits all" solution for rural health—each region requires a tailored solution. Defining the right solution for a particular region entails determining the right balance of levers for that region.

Create distinctive ambulatory centres using select existing infrastructure:

Rural and other small communities should have equitable access to high-quality, integrated services across the continuum of care (**Figure 3-4**). Key to this goal is expanding the focus of infrastructure and planning to include ambulatory care, community care, and specialist/diagnostic services as well as acute care. Additionally, these communities need to be supported by adequate workforce, quality and performance monitoring. Currently, there are opportunities to improve the set of services provided in rural communities given that some acute care services are provided below typically recommended scale, ambulatory and other community care services are under-leveraged and workforce shortages continue to be an issue.

Figure 3-4 Rural communities should have equitable access to an integrated set of high-quality services
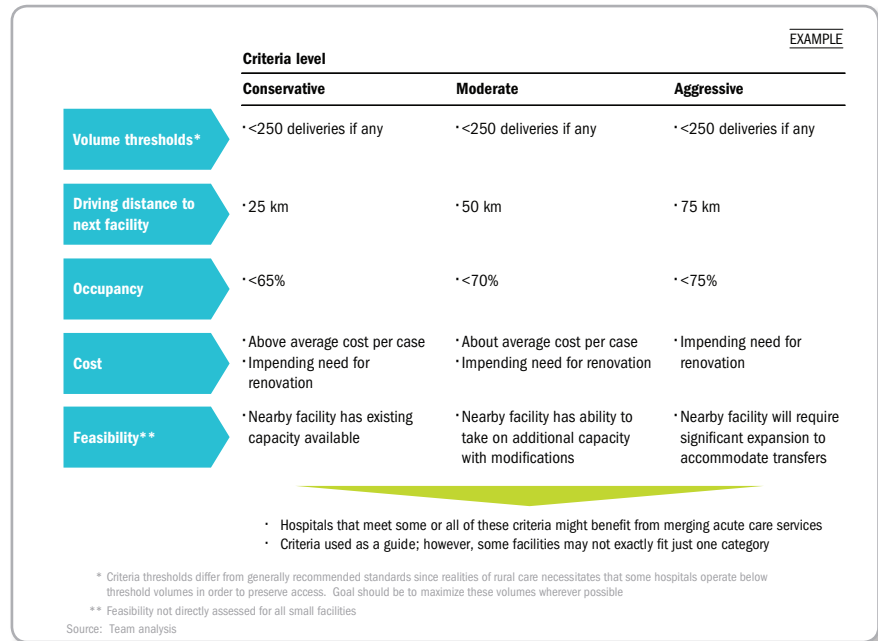
Tools such as tele-health (see later section) and other means of enhancing medical expertise available in rural areas could greatly improve rural access and quality. To further ensure that rural services are accessible and high-quality, some services such as ambulatory care (also see Section 2) and emergency services (see next section) may need to be strengthened. Additionally, other services such as acute care may need to be merged or expanded in order to offer sufficient scale to ensure high quality, sustainable care.

Deciding whether to merge acute care services is a complicated task—one that will depend critically on the availability of acute care capacity elsewhere, the ability to maintain reasonable patient volumes for complex cases, occupancy rates, other specific patient population needs, and other factors.

Figure 3-5 shows a basic framework that could be used as a starting point in assessing whether an acute care facility might benefit from enhanced scale through the merging of services. In situations where acute care services are merged, existing infrastructure can then be used to deliver high-quality outpatient care using one of the ambulatory models previously discussed.

In addition to identifying opportunities to merge acute care services, there is also a need to assess where expansion of rural acute care capacity is critical. While the needs of many high-growth rural areas can be met through the expansion of outpatient and community care options, some high-growth rural areas may require additional acute care capacity as well. Where possible, this need for new capacity should be met by expanding existing facilities, thereby avoiding the likelihood of creating additional small facilities that operate below minimum volumes for complex cases.

Determining which exact services should be provided in individual rural communities will require a tailored approach to balancing access, quality and sustainability. If some acute care services are merged, driving times for acute services may increase for a small percentage of Albertans. However, this could likely be offset by gains in quality due to increased scale of provision of such services. Additionally, expansion of access to ambulatory and other community care services could significantly improve access to close-to-home care.

Successful change management will require early partnership with the regions to determine specific opportunities and needs within rural communities. Furthermore, quality and performance tracking would be necessary to ensure that communities obtain the benefits expected.

Figure 3-5 **Example criteria to identify potential opportunities to improve quality by merging acute care services**

Source: Team analysis
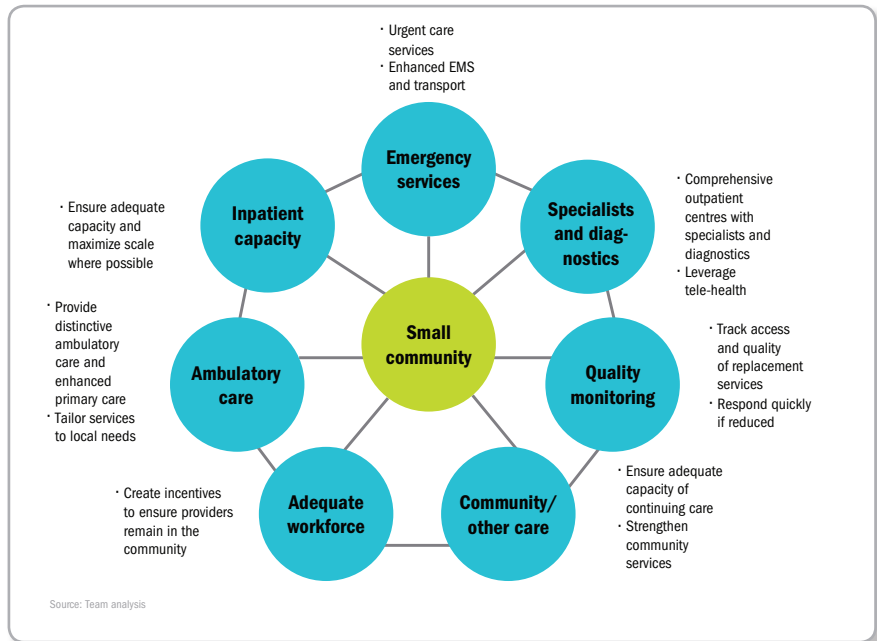
Empower and better coordinate EMS/transport:

Every region in Alberta identified EMS/transport as a lever that could be utilized more effectively in the effort to improve rural care quality and access. Alberta is already in the process of integrating EMS services by moving away from municipality-based services. Once EMS and transport are under provincial control, dispatch can be centralized (thereby avoiding the fragmentation and redundancy that has hampered the system), and services can also be coordinated with air transport when needed. Evidence-based care protocols can be expanded to encourage more complete use of the scope of practice that paramedics and emergency medical technicians (EMTs) are permitted in the field, in combination with efforts to ensure that these providers have the right skills (e.g., broader or more frequent training opportunities, cross-training with nurse practitioners, chances to gain exposure by working during down-time in local ERs or outpatient facilities). In this way, EMS can move away from its current position—operating largely outside the traditional health care system—to become a fully integrated, mobile health resource that focuses on addressing gaps in care (**Figure 3-6**).

Empowering EMS/transport is important not only for ensuring timely delivery of patients to acute care facilities, but also for providing care across rural geographies and reducing reliance on ERs and acute care facilities. EMS technicians could be empowered to treat and refer patients to the most appropriate source of care, rather than simply bringing them to hospitals. In essence, the EMS technicians would serve as point-of-care providers. This would require three types of changes:

– **Reimbursement**.
The current reimbursement system only compensates EMS if a patient is transported to a facility; it provides no incentive for EMS to treat and refer

– **Expansion of standardized protocols, training, and use of scope of practice.**
EMS technicians and paramedics should be given protocols and training that define their duties, mandate proper triage based on level of acuity, and permit them to render clinical judgment on site. This would require that pre-hospital protocols be expanded to allow for treat-and-refer scenarios. Currently, each ambulance provider uses different care guidelines, and EMS technicians are not trained to triage patients to non-acute forms of treatment (e.g., provide basic interventions, schedule follow-ups with outpatient clinics)

Figure 3-6 **EMS can be seen as a mobile health resource that can be focused on addressing gaps in care**

Source: Regional Ground Ambulance Dispatch and Communications Study; expert interviews; team analysis
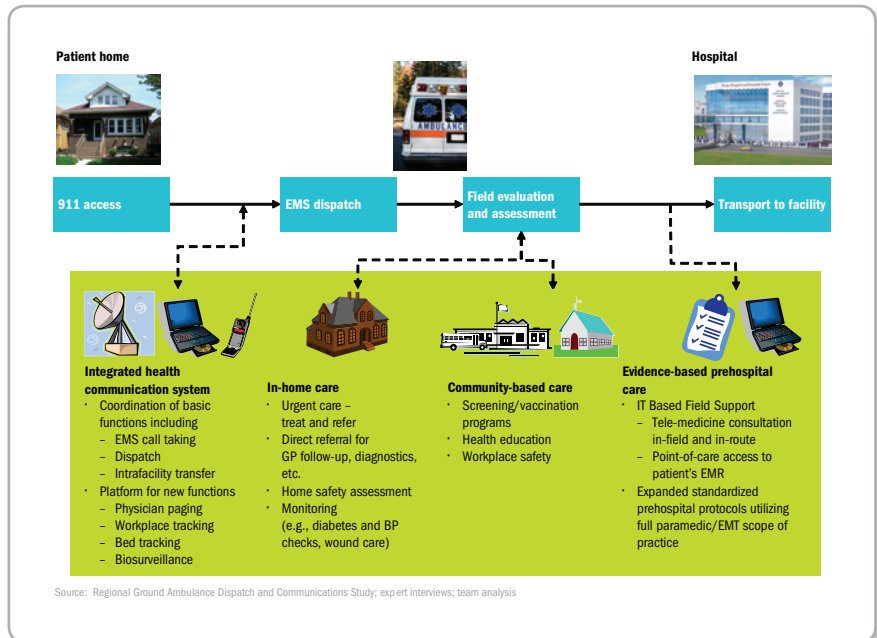
– **Funding and governance**.
Ensuring that EMS can evolve to become a component of an integrated health system that is used flexibly for community outreach, public health, in-home care, and other services outside of emergency transport would require changes to the municipal funding and governance mechanisms that Alberta has historically used. The Ministry has already taken action in this direction this year, and attention to how funding and governance can reinforce wider use of EMS should be a part of future discussions, such as those with municipalities about contracts for the delivery of EMS

The EMS Discovery Projects in Peace Country and the Palliser Region have provided important lessons. In particular, they have highlighted the importance of medical oversight, an integrated health communication system, performance measurement, and tighter integration of EMS with the larger health care system. Outside of Alberta, experiences in Nova Scotia and the U.K. with community-based paramedicine have highlighted how a broader scope of practice can improve outcomes and reduce inappropriate occupancy.

In Nova Scotia, for example, a community-based paramedicine program resulted in a 23% decrease in ER utilization (**Figure 3-7**). Similarly, in the U.K., the disposition and treatment pathway was altered for 63% of patients seen by specially trained Advanced Paramedic Practitioners. In the first six months of the program, patients were treated and discharged at the scene during 46% of EMS calls. If a similar program were implemented in Alberta, ER utilization could potentially be reduced by 10-20%, which translates to savings of $25-50 million per year.

The recent governance change has provided a unique opportunity to transform EMS and to open a range of opportunities across care settings. In the ER and in acute care facilities, reduced inflow of non-urgent patients could improve waiting times and free up inpatient capacity. In the outpatient setting, the expanded use of full scope of practice could allow EMS to better triage patients in the field and provide direct referrals for physician evaluations, laboratory tests, or other diagnostics.

Figure 3-7 Outside of Alberta, other provinces have implemented innovative approaches to community-based paramedicine

In Nova Scotia, a community-based paramedicine program...

· Community paramedicine program introduced on 2 isolated islands, Long and Brier in 2000

· Total population of each island is ~1,240 year-round residents

· Access to islands restricted to passenger car ferries, with closest general hospital in Digbu about 1 hour away

...was implemented over a 3-year time period...

· **Phase 1** – Provided 24/7 emergency paramedic coverage on the islands

· **Phase 2** – Paramedics administer flu shots, conduct in-person diabetes and blood pressure checks

· **Phase 3** – Addition of NP whose scope of practice allowed paramedics to provide
  – Wound care
  – Fall prevention sessions
  – CHF/diabetes assessment
  – Urinalysis assessment
  – Suture/staple removal
  – Administration of antibiotics

...and led to improved access and reduced ER utilization

Utilization of paramedic services
Number of patient visits

Jan 2003: 50   Dec 2003: 200

ER utilization 2002-03
Number of visits

2002: 550   2003: 428   ↓ 23%

Patient case example
Elderly islander with type 2 diabetes was having large fluctuations in blood glucose levels. Paramedics completed a week of daily home visits to check blood sugar. Patient's medication dosage successfully altered without patient having to travel daily to hospital for blood glucose check

Source: Nova Scotia Emergency Health Services; *Journal of Emergency Medical Service*, 2007; team analysis

Increase the number and provincial management of tele-health programs:

In moving to an improved rural care delivery model, tele-health is a valuable tool for enhancing medical expertise available in rural areas, supplementing physical workforce on the ground, and enabling better access to specialist and diagnostic services. Tele-health has been effectively used across Alberta in a variety of clinical (consultation, diagnostic, and treatment), educational (provider and patient education), and administrative (meetings and discharge planning) settings for a number of years.
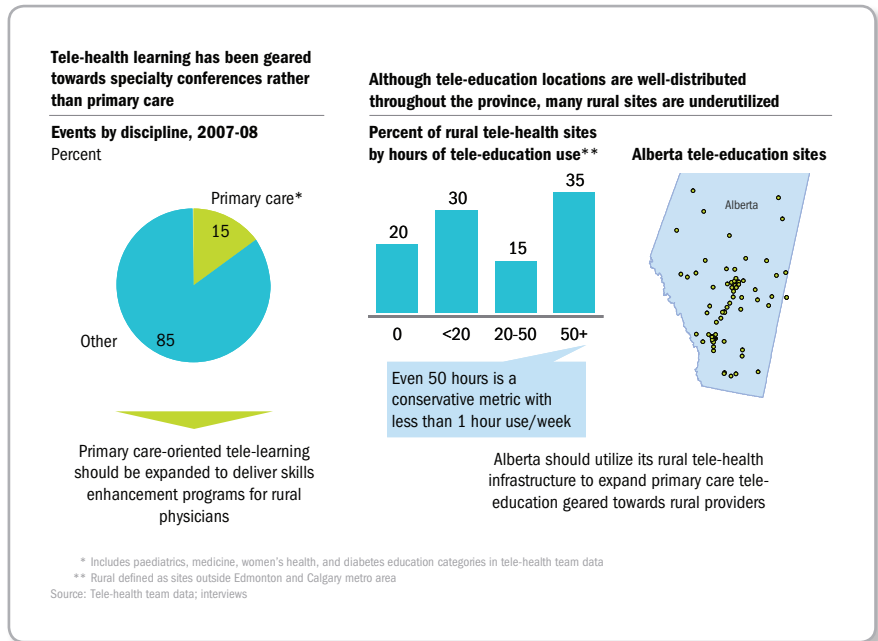
Programs such as tele-stroke in Calgary and Capital have significantly improved access to and the quality of stroke care in rural sections of Alberta. This program utilizes technology to increase access to neurologists and radiologists, who can remotely diagnose and then treat patients.

The program has served 275 patients to date and has greatly improved quality of care, as seen by the increased number of stroke patients receiving potentially life-saving thrombolytic therapy (from 5% to 22%).

Approaches used in other countries also illustrate how tele-health programs can play a critical role in addressing workforce needs in rural areas. In the Netherlands, for example, rural access to medical services has improved through a tele-dermatology program developed by the KYSOS Tele-Medical Centre; this program provides 50 consultations per day and has reduced total referrals to dermatologists by 63%. Similarly, broad-based tele-radiology and tele-rehabilitation programs can reduce the need for on-site physicians and specialists, who are often difficult to recruit in rural regions.

Tele-health can be an effective tool not only for diagnosing and treating patients in rural locations, but also for helping hone and maintain the skills of rural physicians operating in low-volume settings. Although most tele-education up to this point has been geared towards specialists, there is significant opportunity and ample unused capacity for primary care-oriented tele-learning (**Figure 3-8**).

Figure 3-8 With tele-education, Alberta can leverage current sites for programming to support rural physicians

Tele-health learning has been geared towards specialty conferences rather than primary care

Events by discipline, 2007-08
Percent

Primary care* 15
Other 85

Primary care-oriented tele-learning should be expanded to deliver skills enhancement programs for rural physicians

Although tele-education locations are well-distributed throughout the province, many rural sites are underutilized

Percent of rural tele-health sites by hours of tele-education use

| 0 | <20 | 20-50 | 50+ |
| 20 | 30 | 15 | 35 |

Even 50 hours is a conservative metric with less than 1 hour use/week

Alberta tele-education sites

Alberta

Alberta should utilize its rural tele-health infrastructure to expand primary care tele-education geared towards rural providers

* Includes paediatrics, medicine, women's health, and diabetes education categories in tele-health team data
** Rural defined as sites outside Edmonton and Calgary metro area

Source: Tele-health team data; interviews

The opportunity for Alberta going forward is in expanding the range of clinical, educational, and administrative settings in which tele-health is used, the number of programs offered, and the size of each program.

Tele-health technology alone does not provide a solution. Several factors would be critical to ensure continued leadership and future impact. Centralization of governance structure would be essential to facilitating transition/scale-up of regional granted programs, sharing of best practices, and coordination of operations/data collection. Interoperability of existing technology and integration with electronic medical records would allow for utilization across multiple purposes. Aligning incentives to use tele-health through compensation for specialists and general practitioners would facilitate adoption. Moreover, the programs must be used for appropriate patients and on an appropriate scale to ensure patient impact and efficient use of resources.

Finally, patient and provider education could promote the access, quality, and convenience advantages of tele-health while providing reassurance about safety and confidentiality.

NEXT STEPS ACROSS KEY RECOMMENDATIONS

Recommendation 5: *Create distinctive ambulatory centres using select existing infrastructure*

■ Engage with rural communities and providers to define how services can be optimally delivered

■ Determine quality, access, and cost-effectiveness criteria (e.g., development of minimum volume thresholds and acceptable driving distances for each key service) to identify opportunities to improve quality by merging acute care services

■ Identify need for additional rural capacity and workforce, e.g. inpatient capacity, ambulatory care centres, staff for new services

■ Select pilot sites for development of this enhanced integrated rural care delivery model

Recommendation 6: *Empower and better coordinate EMS/transport*

■ Develop transport guidelines and criteria for EMS expansion in areas where rural care is redesigned

■ Understand how the integrated health communication system developed in discovery projects fits into the larger IT infrastructure

■ Collaborate with professional schools to create a community-based paramedicine training program

■ Create key opinion leader team with paramedics and ER physicians to develop standardized and expanded pre-hospital protocols to be used province-wide

■ Work with funding bodies to reimburse acceptable treat-and-refer practices

Recommendation 7: *Increase number and provincial management of tele-health programs*

■ For high-priority areas, such as rural care, compare the cost-effectiveness, quality, and access of tele-medicine with that of usual care to determine which existing programs should be broadened or where new programs are needed

■ Centralize tele-health planning and ensure collaboration with other key initiatives, including electronic health records

■ Develop provider and patient education campaigns around tele-medicine options to increase utilization of this capacity

■ Investigate other methods beyond tele-health for exporting expertise from urban centres to rural areas, including traveling teams, mobile resources, and phone consultations

SECTION 4: **enhancing the capacity and effectiveness of Alberta's workforce**

A strong health care workforce is essential for providing high-quality services, and Alberta has worked hard to attract some of the best talent available. In the future, it will be critical to ensure adequate capacity of limited workforce resources, while also ensuring that these resources are effectively used and practicing in areas where they are most needed.

CHALLENGES IN WORKFORCE CAPACITY AND EFFECTIVENESS

Alberta's biggest challenges related to its workforce fall into four categories: overall supply, productivity, effectiveness, and geographic disparities in distribution of capacity.

Supply:

Alberta faces shortages in most major health workforce categories, including physicians, nurses, and allied providers. The shortages of physicians and nurses result from historic undersupply, an aging workforce, the above-average use of part-time work schedules, and ongoing recruitment challenges. For some types of allied providers, particularly health care aides, there is significant competition from higher-wage occupations.

Future increases in the demand for general practitioners (GPs) will be driven largely by population growth, as well as current GP shortages (**Figure 4-1**). The province's future supply of GPs will depend heavily on a renewed effort among Alberta's medical schools to train generalists, and continued interprovincial and international recruitment of physicians.

Even if these sources are sufficient, suboptimal distribution and inconsistent productivity of these providers may render GP supply inadequate.

Furthermore, although specialist growth has outpaced GP growth in recent years, Alberta still has comparatively few specialists per capita when compared to Canadian and global benchmarks.

Figure 4-1 **Meeting projected demand of GPs will require both substantial recruitment and a more effective primary care model**

Alberta current and future demand for GPs
Number of GPs

3,234	2007 baseline number of GPs*
406	Additional GPs needed to meet demand today
869	Additional GPs needed to accommodate population growth
4,509	Projected 2020 need for GPs before new care models
4,636	Projected 2020 supply of GPs**
127	

Assumes status quo care model

Assumptions

· Future utilization will scale to AHW population projections

· Understaffing today can be met by improving Alberta average to 920 persons per GP (current average of top 4 regions)

· FTE breakdown of GPs in future will remain similar to today

* Using AHW workforce team data
** Using workforce supply model
Source: AHW data; team analysis

A regional assessment and comparison to global benchmarks indicates that Alberta has a shortage of over 1,500 nurses today (**Figure 4-2**). By 2020, the province may be short by more than 6,000 nurses if care patterns remain unchanged and nurse training is not expanded (**Figure 4-3**). As with physician supply, the nursing shortage is compounded by unequal geographic distribution of nurses.

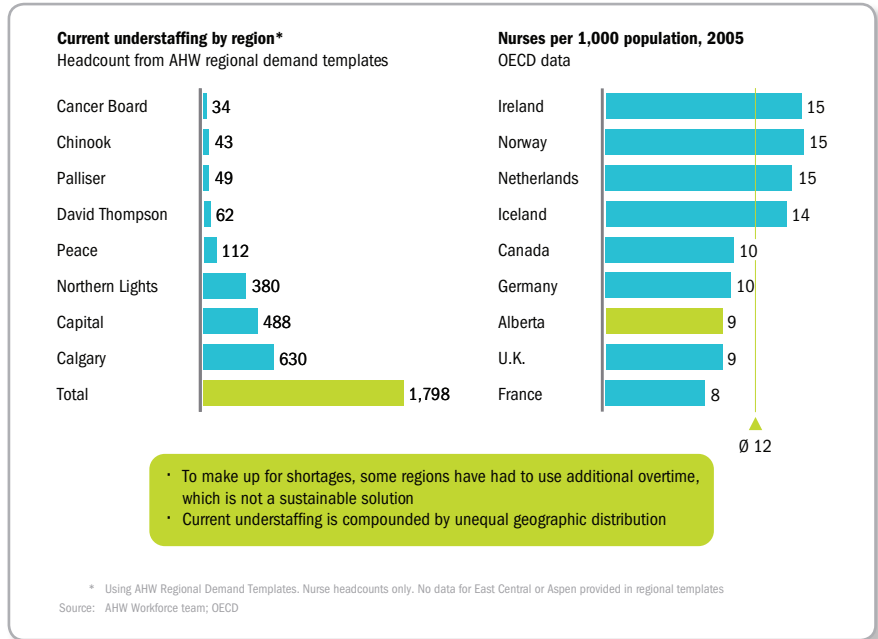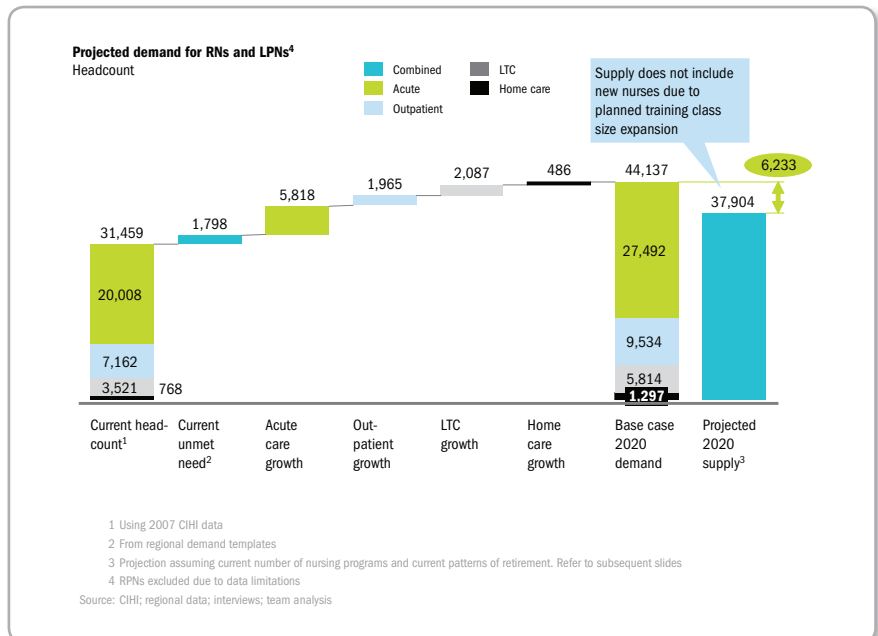**Figure 4-2 Regional assessments and global benchmarks confirm that Alberta has a significant nursing shortage**

Current understaffing by region*
Headcount from AHW regional demand templates

Region	Value
Cancer Board	34
Chinook	43
Palliser	49
David Thompson	62
Peace	112
Northern Lights	380
Capital	488
Calgary	630
Total	1,798

Nurses per 1,000 population, 2005
OECD data

Country	Value
Ireland	15
Norway	15
Netherlands	15
Iceland	14
Canada	10
Germany	10
Alberta	9
U.K.	9
France	8

Ø 12

- To make up for shortages, some regions have had to use additional overtime, which is not a sustainable solution
- Current understaffing is compounded by unequal geographic distribution

* Using AHW Regional Demand Templates. Nurse headcounts only. No data for East Central or Aspen provided in regional templates
Source: AHW Workforce team; OECD

Figure 4-3 Alberta may be short over 6,000 nurses by 2020 if care patterns are unchanged

Projected demand for RNs and LPNs[4]
Headcount

Legend: Combined | Acute | Outpatient | LTC | Home care

Supply does not include new nurses due to planned training class size expansion

	Current head-count[1]	Current unmet need[2]	Acute care growth	Out-patient growth	LTC growth	Home care growth	Base case 2020 demand	Projected 2020 supply[3]
	31,459	1,798	5,818	1,965	2,087	486	44,137	37,904
	20,008						27,492	
	7,162						9,534	
	3,521	768					5,814	
							1,297	

6,233

1 Using 2007 CIHI data
2 From regional demand templates
3 Projection assuming current number of nursing programs and current patterns of retirement. Refer to subsequent slides
4 RPNs excluded due to data limitations
Source: CIHI; regional data; interviews; team analysis

Alberta also has a growing shortage of allied providers, including pharmacists, physical therapists, and medical technologists. By far the largest shortage, however, will be in the number of health care aides (**Figure 4-4**). Low pay and the physical demands of that job pose significant recruiting challenges in today's competitive labour market.

Productivity:

Self-reported data from the National Physician Survey suggest that the productivity of Alberta's GPs is near the Canadian average, but there is a high degree of variability. Practices could be made more effective by continuing to find ways of reducing the amount of time physicians and nurses spend on administrative tasks, for example. The AIM program, a collaborative approach to continuous operational improvement, can substantially increase practice access while preserving quality patient care (**Figure 4-5**). Such programs that allow patients to have better access to their providers, and which permit providers to spend more time on patient care and less on administrative tasks, can have a significant impact on quality of care.

The productivity of Alberta's nurses is also an important issue. The province has the highest proportion of non-full-time nurses in Canada: only 40% of Alberta's registered nurses (RNs) work full-time, as compared to the Canadian average of 56%.

Figure 4-4 Among allied providers, the greatest projected shortage will be of health care aides

Projected shortage in allied health workers*
Headcount (AHW estimates)

Key issues for allied professionals

- Largest shortfall projected in health care aides

- Projected shortage of physical therapists is more than triple current shortage

- Medical technologists cover a variety of specific professions and must be understood in the context of specific practice settings

- As care patterns shift, there is an ever-increasing need for allied professionals

* From AHW workforce action plan 2007
Source: AHW; team interviews

Figure 4-5 The AIM program and related operational initiatives have improved access in Alberta by increasing the productivity of select practices

Average time for Chinook PCN time to third next appointment
Days

- Using a collaborative learning approach, physicians and PCN staff address how and why to improve practice operations

- Topics covered include access to appointments, teamwork, and effective chronic disease management

- Metric development, data collection, and subsequent action are key activities over multiple sessions

- Although the AIM program's cost-effectiveness needs to be confirmed, the program appears to be successful in improving access to clinics within the PCN context, and has the potential to be applied more broadly

Source: Team interviews; AHW; Chinook Health

Effectiveness:

Significant efficiency is lost when workers are not able to practice to their full scope of practice—in other words, when their time is taken up completing tasks that could more appropriately be done by other personnel. The ultimate goal of scope-of-practice optimization is to focus providers on those activities for which they can add the most value and to redistribute the remaining work to other workers (**Figure 4-6**). There are, however, significant cultural challenges and regulatory hurdles that would have to be addressed to facilitate moving the workforce to full scope of practice. Although the nursing professional organizations have made some progress in addressing these issues, a coordinated provincial effort to define the optimal scope of practice is needed. Physician organizations should also participate in the process, especially as the roles for nurse practitioners and physician assistants are defined. As providers focus on those areas in which they can add the most value, it will be increasingly important for Alberta to ensure adequate supply.

Geographic disparities in distribution of capacity:

Suboptimal geographic distribution of workforce resources is exacerbating the undersupply issues described above. The shortage of GPs, for example, is greatest in very rural areas (e.g., Northern Lights and Aspen) and in very urban areas, such as certain parts of Capital, Red Deer, and Calgary (**Figure 4-7**). Recruiting health professionals to work in rural communities can be particularly challenging, because of wage and lifestyle considerations. In addition, concerns about the lack of specialists and supportive services in rural settings further deter providers from relocating to rural areas, continuing the cycle of undersupply.

Figure 4-6 Scope of practice optimization would require redistribution of work to appropriate providers

The ultimate goal of scope of practice optimization is to refocus nurses and other staff on activities where they can add the most value

Physicians → RNs → LPNs, RPNs → Health care aides → Non-health providers

Physicians
- Increased direct patient care time as some patients are seen by nurses
- Nonmedical tasks shifted to clerical support staff
- 5% or more visits have the potential to be seen by RNs independently

RNs
- RNs able to care for more patients due to non-nursing tasks shifted to HCAs—up to 25-30% of nursing time may be spent in these tasks
- RNs leverage their specialized training to work independently

LPNs, RPNs
- LPNs and RPNs better utilized in a variety of nursing settings (e.g., where appropriate, challenge job descriptions that require an RN)
- Non-nursing tasks moved to HCA

Health care aides
- Significant potential in decompressing all providers earlier in the chain
- A major issue will be the shortage of health care aides

Non-health providers
- Identification of key tasks that can be completed by nonmedical staff to decompress health providers
- Leveraging of community-based resources in nonhealth fields

2 key issues need to be addressed to make these changes happen
- Cultural and regulatory changes to support the shift
- Adequate numbers of each provider in the workforce

Source: Interviews; CARNA; team analysis

Figure 4-7 Even if total headcount is adequate, suboptimal geographic distribution may render GP supply inadequate

Population per GP, by FSA*
By quintile

- 120-694
- 695-1,007
- 1,008-1,348
- 1,349-2,199
- 2,200-8,048
- No GPs

- **Greatest physician shortages are in very rural and very urban areas**
  - Aspen and Northern Lights have the most areas with limited number of GPs
  - Urban centres of Capital, Red Deer, and Calgary have fewer GPs per capita than surrounding areas

- **Population per GP is an imperfect measure of access**
  - Many physicians only work part time
  - Physicians vary in productivity
  - Primary care can also be delivered by a variety of other health care professionals (e.g. nurses, NPs, etc.)

* Calculated from sum of total population and sum of total GPs; values for three FSAs did not get matched to a health region, so they were excluded (represents 0.5% of Alberta's population). GPs determined as those family physicians or paediatricians who billed greater than $2,500 in Jan-Mar, 2007. Areas with no GPs listed did not have any GPs bill a fee-for-service claim during Jan-Mar 2007
Source: StatCan 2006 Census; AHW

LEVERS FOR CHANGE TO INCREASE WORKFORCE CAPACITY AND EFFECTIVENESS

There are four levers Alberta can pull to improve workforce capacity and effectiveness: **1**) enrich the provincial recruitment strategy for hard-to-recruit resources, **2**) deepen initiatives and incentives to increase productivity, **3**) increase workforce efficiency by better matching work to skills, and **4**) build on incentives for providers to work in underserved areas. Given the unique dynamics of each health care profession and each area, some or all of these strategies may be necessary in each case.

Enrich provincial recruitment strategy for hard-to-recruit resources:

For certain hard-to-recruit professionals, Alberta could build on its existing province-wide efforts. A provincial recruitment and retention strategy could take a coordinated approach, yet still be tailored to the key issues and considerations of each profession (**Figure 4-8**). Whereas in the past efforts have focused solely on physicians and nurses, new emphasis could be placed on other key providers (e.g., health care aides), because an adequate supply of these providers would reduce the burden of existing shortages, and facilitate the success of the other levers described in this section. Moreover, such a coordinated recruitment effort would need to be designed to work closely with educational institutions in order to attract a broad set of applicants to healthcare overall, instead of reallocating the same pool from one provider type to another.

Figure 4-8 Enriching the provincial recruitment and retention strategy would require pooling of resources to implement targeted programs by discipline

Source: Interviews; team analysis
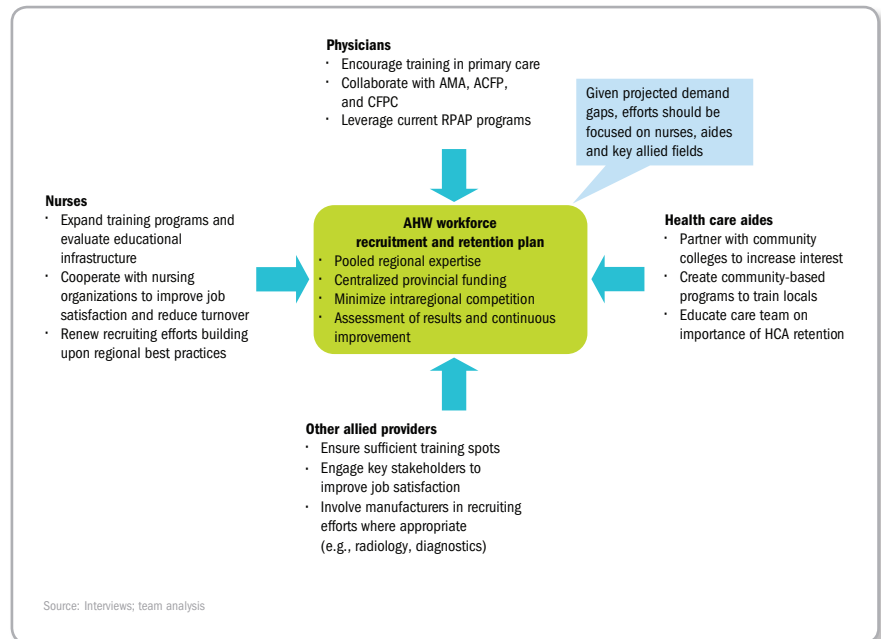
A coordinated recruitment scheme would avoid the risk of inter-regional competition (which drives up costs throughout the province) while promoting the pooling of recruiting resources and expertise.

Several regions have had success in their recruiting efforts, and best practices from these regions should be considered and applied on a provincial level. In addition, lessons can be learned from other provinces that have mounted successful recruitment efforts. For example, Health Match BC has successfully coordinated recruitment for all providers in British Columbia. Saskatchewan has successfully used a variety of mentorship, financial, and other retention programs to encourage a high percentage of nursing graduates to stay within the province: in Saskatchewan, 83% of nurses are graduates of the province's training programs; in Alberta, the comparable figure is only 68%. Inter-provincial competition for nurses and other health care providers is another factor that requires Alberta to optimize its retention and recruitment efforts.

As discussed, Alberta will face a shortage of nurses in 2020 unless the number of training spots is expanded. The province's mandate to expand nurse training capacity by 2012 (to graduate an additional 2,000 RNs and 1,000 licensed practical nurses per year) has the potential to meet or even exceed future demand, depending on the service delivery model in use by that year. As **Figure 4-9** shows, whether future nursing supply will be able to meet demand will depend significantly on investments in increased training capacity and on improvements in productivity or efficiency. Similarly, efforts to recruit into training programs for the full range of healthcare provider types should be designed in collaboration with education to attract a broad set of applicants to healthcare overall.

Deepen initiatives and incentives to increase productivity:
Many health care professionals in Alberta work only part-time, and maintaining the ability to work flexibly will continue to be an important part of their job satisfaction and retention. However, a better balance might be possible through the use of incentives and other allowances to increase productivity. These levers would likely be different for different types of providers. For nurses, for example, they might include changes in the benefit structure—such as increasing the number of work hours required to earn benefits and replacing part-time/overtime incentives with initiatives to promote full-time employment—or efforts to improve working environments. Given that over half of the province's current nursing force works part-time, Alberta could address a large proportion of its current and future nursing shortages by increasing the productivity of non-full-time nurses or by increasing the number of full-time nurses closer to the Canadian average (**Figure 4-10**).

Figure 4-9 Nurse training expansion and other changes can increase the likelihood that supply will meet demand

Projected RNs and LPNs, 2020
Nurse headcount

1 AHW proposal of 1,000 LPN graduates per year and 2,000 RN graduates per year by 2012
2 Defined as percent increase in total nurse hours by leveraging additional hours worked by part-time workforce
3 Defined as percent increase in total nurse hours by reducing time spent on non-nursing tasks
Source: CIHI; AHW; team analysis

Figure 4-10 Significant gains can be made by increasing productivity of part-time nurses or by increasing number of full-time nurses

* Using Calgary region data, casual nurses have 0 contractual FTE hours since they work on an on-call basis only
** Assuming Calgary average FTE data can be applied to Alberta
Source: CIHI; Calgary Health Region, interviews; team analysis
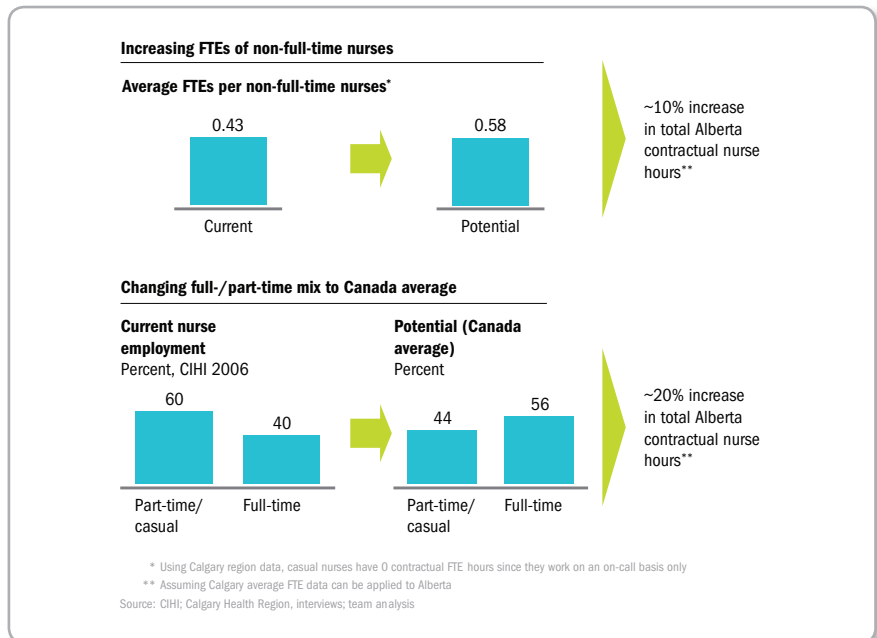
Increase workforce efficiency by better matching work to skills:

By better matching the work done with what each provider was trained to do, Alberta could increase both the effectiveness of health care delivery and provider satisfaction. In PCNs such as Edmonton Southside and Oliver, nurses and certain other non-physician health providers are being employed to their full scope of practice. By allowing these health providers to see appropriately selected patients independently, the PCNs have improved access to care, and job satisfaction among GPs, nurses, and other allied providers has also increased.

The use of non-physician health providers could be an important lever to enable GP practices to function more efficiently and to lower the future demand for GPs. As mentioned above, some non-physician providers are already seeing patients independently in certain settings, but there may be an even greater opportunity to divert selected outpatient visits to pharmacists, RNs, dieticians, physical therapists, and other providers.

Successful scope-of-practice optimization would require action by all key stakeholders. Alberta Health and Wellness and Alberta Health Services, in collaboration with the key colleges and organizations, would have to provide clear guidelines on the optimal scope for all health professions and take leadership in bringing stakeholders together to develop unified and agreed-upon definitions. Regulatory changes might also be needed, and cooperation with unions and professional schools would be essential to successfully move forward with provincial mandates. Clinical and administrative leaders would have to be engaged in the hard work of addressing cultural barriers and adapting new models of care at the facility level. Finally, patients would have to be informed to fully understand the value and richness offered by integrated care models.

Build on incentives for providers to work in underserved areas:

Given the current workforce shortages in very rural and very urban areas, additional incentives may be needed to encourage health care providers to relocate to those areas. The Rural Physician Action Plan (RPAP) has several innovative elements that, if fully implemented, could serve as a model for recruiting and retaining providers in underserved areas. Such a program could also be expanded to include nurses and other allied health providers. In addition to recruitment and retention, other important components of RPAP include rural skill-building efforts and mechanisms for leveraging providers who may be willing to work in rural areas part of the year. Notably, there are also broader ways to "export" expertise to underserved areas; an example is the Critical Care Line, which connects physicians in rural areas with specialists in Edmonton. The program brings crucial knowledge to underserved geographies, as well as gives rural providers a greater sense of support.

Overall, policy changes that enhance the productivity and effectiveness of the workforce can have a significant impact on reducing the future demand for GPs and nurses (see **Figure 1-6** on page 7). Such efforts would improve the likelihood that workforce supply will be able to meet demand in the future.

NEXT STEPS ACROSS KEY RECOMMENDATIONS

Recommendation 8: *Enrich provincial recruitment and retention strategy*

- Focus on shortages of nurse and key allied providers, particularly health care aides; refine supply and demand estimates and then develop pilot programs and initiatives to meet short-term demand gaps (for example, assess salaries of health care aides)

- Collect best practices in recruitment used by Alberta's regions and other Canadian provinces and then implement them on an Alberta-wide basis; minimize inter-regional competition

- Work with the nursing colleges and Ministry of Advanced Education and Technology to ensure that the provincial mandate to expand nursing training spots by 2012 is on track

- Engage physician and nursing organizations to develop ways to improve job satisfaction; consider forming an organization to understand and communicate health care aide interests

Recommendation 9: *Deepen initiatives and incentives to increase productivity*

- Work with key stakeholders to evaluate the pros and cons of various benefit structures and incentives that could encourage more nurses and other providers to work closer to full-time

- Evaluate the effectiveness of alternate relationship plans and other reimbursement structures as a means to improve productivity across the workforce

- Define clear metrics to be collected for future efforts geared toward rewarding providers who maximize both quality and productivity

- Engage with the Alberta Medical Association, the nursing unions, and other key stakeholders

- Define the incentives needed to optimize the use of allied health providers where appropriate

Recommendation 10: *Increase workforce efficiency by better matching work to skills*

- Form cooperative working teams composed of physicians and nurses and attempt to unify current and optimal scope-of-practice definitions

- Work with professional schools to ensure that their curricula are designed to train providers to practice to full scope; engage in workforce planning to ensure that adequate numbers of each provider are available to support any planned shift

- Implement regional and facility leadership role-modeling in support of optimized scope

Recommendation 11: *Build on incentives for providers to work in rural areas*

- Work with RPAP to align on clearly defined metrics; evaluate whether an internal or external program would be ideal for a similar effort geared toward non-physicians

- Develop financial incentives, including loan forgiveness, housing stipends, and other subsidies, to encourage practice in underserved areas

- Explore other mechanisms to export expertise to rural areas, including the use of tele-health, phone consultations, and traveling teams

SECTION 5: **improving the coordination of care**

To best capture the benefits detailed in the sections above, care delivery should occur in an organized and coordinated fashion. Such an integrated care model would minimize the barriers that currently exist among health care providers. This is particularly important, for example, in the management of the elderly because patients over 65 account for 45% of the growth in health care costs (this is driven disproportionately by the high prevalence of chronic diseases in the population), use multiple sites of care, and may have the greatest difficulty navigating a complex, siloed care delivery system. In fact, senior care demonstrates how poor coordination among sites of care can increase the strains on the health care system and put patients at risk (**Figure 5-1**).

Optimally coordinated care manages the flow of the patient through each step of his or her care needs, regardless of setting, provider, or stage of treatment. It requires that transitions be facilitated and that operations at each site of care be closely monitored. Ideally, current care silos could be reconfigured to create a seamless continuum between primary care, specialty care, emergency care, acute care, LTC/residential care/rehabilitation, and mental health/cancer care.

CHALLENGES TO CARE COORDINATION

The challenges to providing coordinated care in Alberta include lack of coordination across regions, sites of care, and providers, and lack of standardization of care within facilities and organizations:

Lack of coordination among regions:
Although many Albertans receive care outside of their home regions, the prior regional health authority-based organizational and funding structure did not optimally facilitate coordination of care delivery among the regions. Incentives and structure drove a regional focus rather than a focus on care across the province.

For example, decisions about which psychiatric patients were entitled to treatment in specialized mental health facilities were often driven more by geography than by patient need; patients living in the regions with such facilities were given preference over more severely ill patients from other regions.

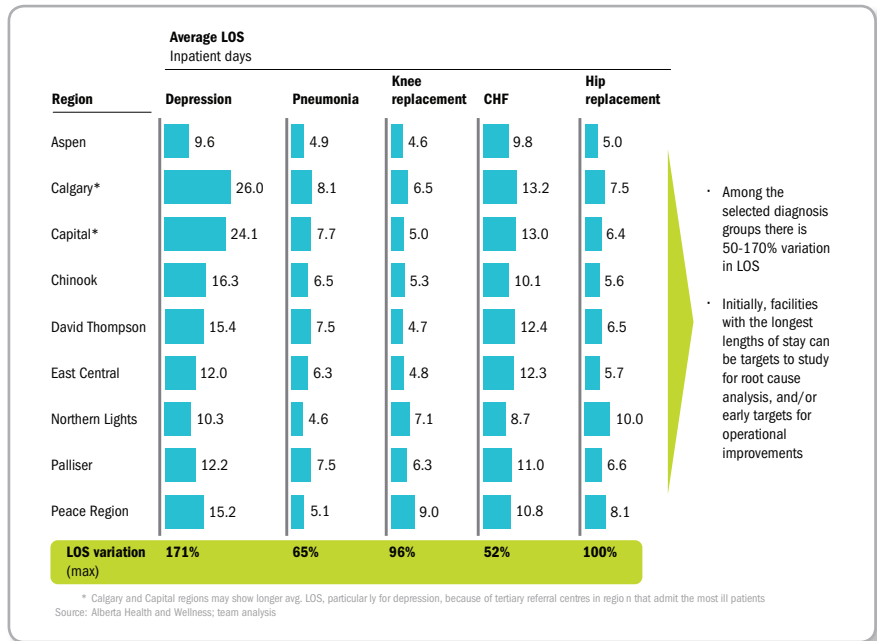Figure 5-1 Senior care illustrates the impact of coordination gaps
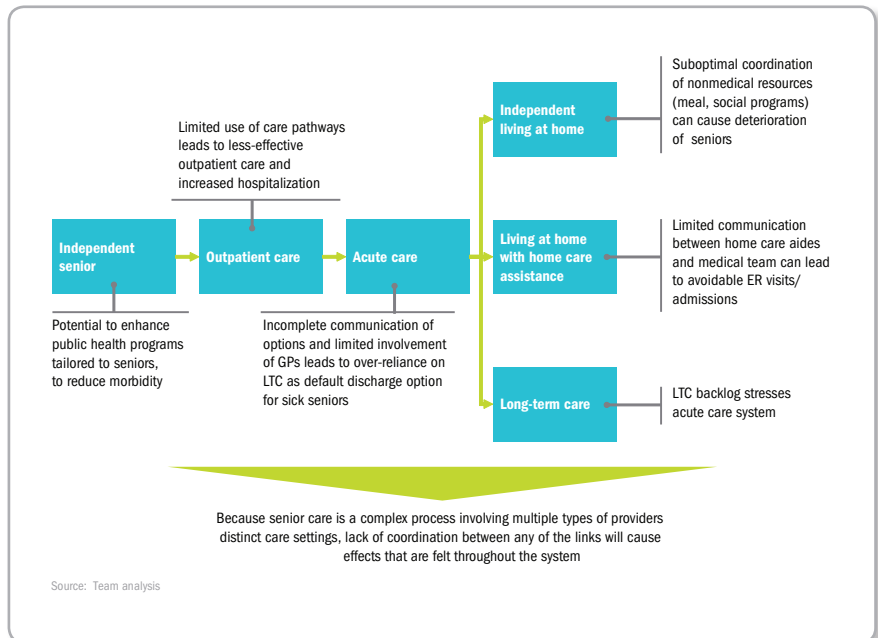
Furthermore, Alberta currently has inefficient mechanisms for sharing health care information, and this has led to an artificial separation between care in one part of the province and another. Often, separate electronic medical record and other IT systems prohibit providers from easily accessing patient information when patients require care in different regions. For example, Olds Hospital in David Thompson and Didsbury Hospital in Calgary are only about 20 km from each other and provide care for an overlapping catchment population, yet they are less able to share information with each other than they can with hospitals more distantly located in their own regions.

Lack of coordination among sites of care:

There is often relatively little communication between those delivering care, particularly between primary and secondary care providers. Patients often undergo redundant testing and may receive conflicting treatment plans. For example, many psychiatrists in Calgary are not aware when their patients seek treatment in the ER or are admitted to the hospital. These patients may have their treatment regimen modified while they are in the ER or hospital, but once they return to the community they may be put back on the less-effective regimen unless their outpatient physicians somehow find out about the inpatient care.

Figure 5-2 Variability in LOS over common diagnoses suggests that operational improvements can be made in acute care

Region	Average LOS Inpatient days				
	Depression	Pneumonia	Knee replacement	CHF	Hip replacement
Aspen	9.6	4.9	4.6	9.8	5.0
Calgary*	26.0	8.1	6.5	13.2	7.5
Capital*	24.1	7.7	5.0	13.0	6.4
Chinook	16.3	6.5	5.3	10.1	5.6
David Thompson	15.4	7.5	4.7	12.4	6.5
East Central	12.0	6.3	4.8	12.3	5.7
Northern Lights	10.3	4.6	7.1	8.7	10.0
Palliser	12.2	7.5	6.3	11.0	6.6
Peace Region	15.2	5.1	9.0	10.8	8.1
LOS variation (max)	171%	65%	96%	52%	100%

- Among the selected diagnosis groups there is 50-170% variation in LOS
- Initially, facilities with the longest lengths of stay can be targets to study for root cause analysis, and/or early targets for operational improvements

* Calgary and Capital regions may show longer avg. LOS, particular ly for depression, because of tertiary referral centres in regio n that admit the most ill patients
Source: Alberta Health and Wellness; team analysis

Lack of coordination among providers:

There is often limited collaboration and communication among primary care doctors, specialists, pharmacists, and other health care professionals. Alberta's physicians have often been isolated, practicing in solo or small group practices, making co-location and integrated care difficult. Furthermore, fee-for-service reimbursement serves as an incentive to increase the volume of services rather than to improve the quality or coordination of care.

Lack of standardization of care:

Significant variation exists in the way care is delivered in institutions across Alberta. For example, there is substantial variability in average length of stay for common diagnoses (**Figure 5-2**). Some of this variation is due to differences in the demographics of the population served or the particular patients that came to each facility, but the magnitude of the variation suggests that there are large operational differences across the province.

LEVERS FOR IMPROVING COORDINATION OF CARE

To provide a more integrated and coordinated system, Alberta can: **1**) create and strengthen linkages between current silos in the system, **2**) increase the operational efficiency of the system, and **3**) integrate IT systems to enable better transparency and sharing of information.

Create and strengthen linkages between current silos in the system:

Alberta can work to reinforce the links between providers and organizations to improve the management of care, communication, and the use of appropriate programs and resources. Care coordination teams, financial and nonfinancial incentives, organizational structure, protocols and processes, and training can all play a role in improving the system. Care delivery facilities that co-locate multidisciplinary teams (e.g., PCNs) can also significantly improve coordination. Use of these tools to improve integration has the potential to drive significant benefit along the three dimensions of access, quality, and sustainability.

Examples from other integrated systems demonstrate how tightening this integration can lead to positive outcomes.

Figure 5-3 Priorities for improving linkages cut across provider types, care verticals, and geography

NOT EXHAUSTIVE

	Emergency	Labs/diagnostics	Mental health	Seniors	Women's health
Coordination among regions	Patient presenting to ER outside home region brings little data from own region's system	Nonstandard IT limits inter-regional communication of lab results	Specialized services only provided in some regions are not optimally allocated to patients in all regions	Imbalance of senior care capacity and elderly population across regions leads to skewed utilization	Approaches (e.g., to screening) differ between regions, but lack of standard measurement limits propagation of best practices
Coordination among care verticals	Inability to place patients in home care directly from ER	Duplication of tests occurs due to lack of automated communication of results data	Contract services providers are common in mental health, but at arms length in planning and information sharing	Inpatients are often sent to long-term care (despite availability of other options) due to uncoordinated discharge planning	Link between outpatient obstetrics capacity and inpatient capability may be limited, particularly in small communities
Coordination among provider types	ER physicians have limited communication with patients' GPs	Scope of practice barriers prevent nurses from ordering pertinent labs	Innovations like shared care and short-stay are improving provider dialogue, but some settings are being left behind	Home care aides have little interaction with the broader medical team · Seniors see multiple providers who can change care plan	OB/GYN and prenatal care often not integrated with other primary care

Source: Interviews

In most cases, there is close integration between funder and provider, between primary and secondary care, and among preventive services, diagnostics, and treatments. Shared responsibility among providers for the financial stability of the system facilitates fewer excess inpatient days and lower hospital admission rates. Diagnostic services and medical specialists are uncoupled from the hospital and work alongside generalists in multispecialty groups, concentrating care and leading to improved outcomes and lower wait times, as well as fewer hospital admissions. Care is delivered within the framework of evidence-based clinical guidelines and is actively managed at all stages, leading to the use of chronic disease management pathways, greater care received in the community, and a stronger public health emphasis.

Alberta has a significant opportunity to improve linkages among sites of care, provider types, and geographic regions (**Figure 5-3**). Some attempts to seize this opportunity have already begun. In Chinook, the Program Service Delivery model has emphasized the centralization of clinical and support services to create better integration within the health care system. Chinook's organizational structure leverages multidisciplinary teams that are co-led by physicians and nurses, as well as structured communication channels among the four main program types (senior health, mental health, family health, and acute care), to ensure that patients are mapped to the appropriate level of care.

While improved coordination requires a cultural change and time for implementation, the benefits can be striking. For example, the Taber Asthma Project achieved a 61% reduction in ER visits after it integrated a nurse and respiratory therapist into the traditional physician team (**Figure 5-4**). Other PCNs are also starting to find that multidisciplinary teams that emphasize a collaborative, patient-centered approach to care delivery can improve outcomes. For example, early data from the Capital region indicate that diabetic patients treated by PCNs are much more likely to achieve tight glucose control than other diabetic patients are.

Increase operational efficiency of the system:

Applying operations management principles to help streamline care and remove waste (e.g., by centralizing intake and standardizing care protocols) can lead to dramatic improvements in care. Furthermore, an efficient care environment can improve physician productivity (e.g., a high-throughput or environment enabling an orthopaedic surgeon to perform four hip or knee transplant procedures in a day instead of three) and nurse satisfaction (e.g., by minimizing tedious and wasted effort).

Variations in care metrics, such as the length-of-stay differences described above, represent an opportunity to improve operational execution—and by so doing to improve the patient care delivered for the same system resources. In fact, operational initiatives have the potential to reduce inpatient demand by at least 6%, if Alberta simply brought some outliers to internal length-of-stay benchmarks (**Figure 5-5**).

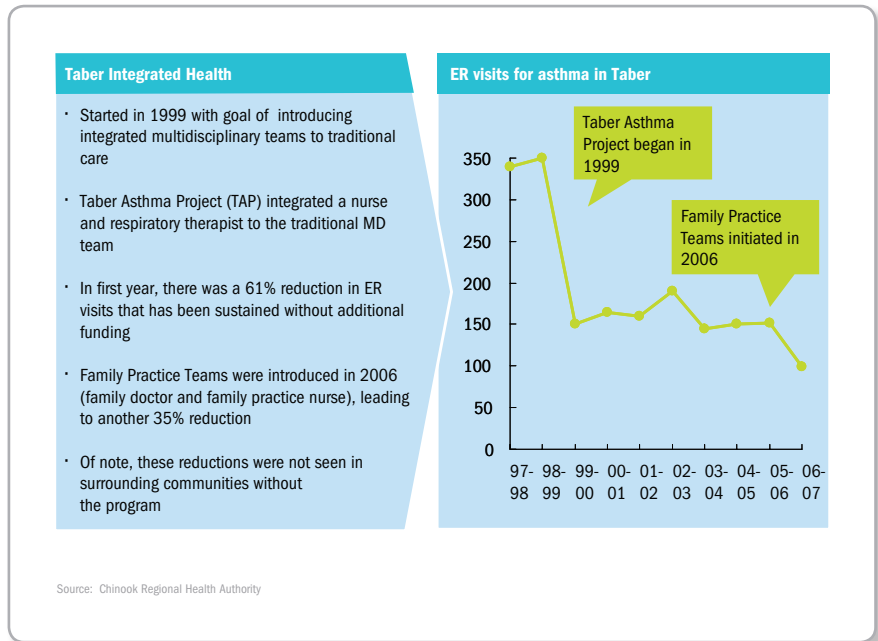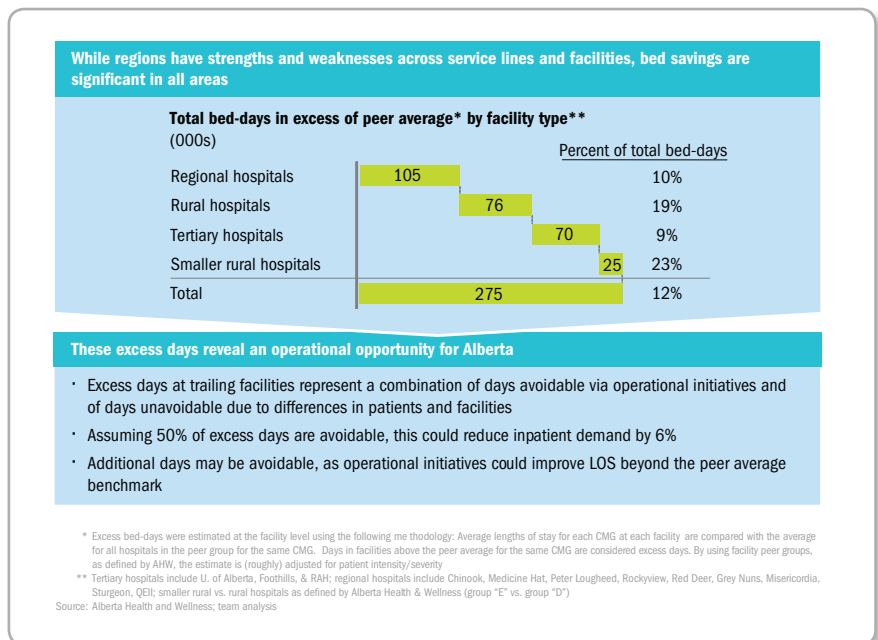**Figure 5-4** Outcomes from the Taber PCN Integrated Health Project are one example of the positive impact of care coordination

Taber Integrated Health

- Started in 1999 with goal of introducing integrated multidisciplinary teams to traditional care
- Taber Asthma Project (TAP) integrated a nurse and respiratory therapist to the traditional MD team
- In first year, there was a 61% reduction in ER visits that has been sustained without additional funding
- Family Practice Teams were introduced in 2006 (family doctor and family practice nurse), leading to another 35% reduction
- Of note, these reductions were not seen in surrounding communities without the program

Source: Chinook Regional Health Authority

Figure 5-5 Operational improvements could reduce inpatient demand by 6% by bringing outliers to Alberta LOS benchmarks

While regions have strengths and weaknesses across service lines and facilities, bed savings are significant in all areas

Total bed-days in excess of peer average* by facility type** (000s)

		Percent of total bed-days
Regional hospitals	105	10%
Rural hospitals	76	19%
Tertiary hospitals	70	9%
Smaller rural hospitals	25	23%
Total	275	12%

These excess days reveal an operational opportunity for Alberta

- Excess days at trailing facilities represent a combination of days avoidable via operational initiatives and of days unavoidable due to differences in patients and facilities
- Assuming 50% of excess days are avoidable, this could reduce inpatient demand by 6%
- Additional days may be avoidable, as operational initiatives could improve LOS beyond the peer average benchmark

* Excess bed-days were estimated at the facility level using the following methodology: Average lengths of stay for each CMG at each facility are compared with the average for all hospitals in the peer group for the same CMG. Days in facilities above the peer average for the same CMG are considered excess days. By using facility peer groups, as defined by AHW, the estimate is (roughly) adjusted for patient intensity/severity
** Tertiary hospitals include U. of Alberta, Foothills, & RAH; regional hospitals include Chinook, Medicine Hat, Peter Lougheed, Rockyview, Red Deer, Grey Nuns, Misericordia, Sturgeon, QEII; smaller rural vs. rural hospitals as defined by Alberta Health & Wellness (group "E" vs. group "D")
Source: Alberta Health and Wellness; team analysis

The application of lean principles could be an important lever that Alberta could use to meet these length-of-stay benchmarks. The objective of lean health care operations is to deliver just what the patient needs and to eliminate any process or task that does not add to patient care or to another relevant mission (e.g., teachings, research) of the health care facility. Lean operations also provide a framework through which facilities can achieve continual gains in productivity while maintaining service quality. Lean tools aim to reduce variability and redundancy in order to eliminate waste and improve service, quality, and cost. Outside of Alberta, lean principles have been successfully applied to improve ER flow, radiology suite efficiency, and performance against targeted clinical quality and patient safety metrics (**Figure 5-6**).

Figure 5-6 Impact of lean operations efforts outside Alberta

Source: Disguised data from regional hospitals undertaking lean operations programs
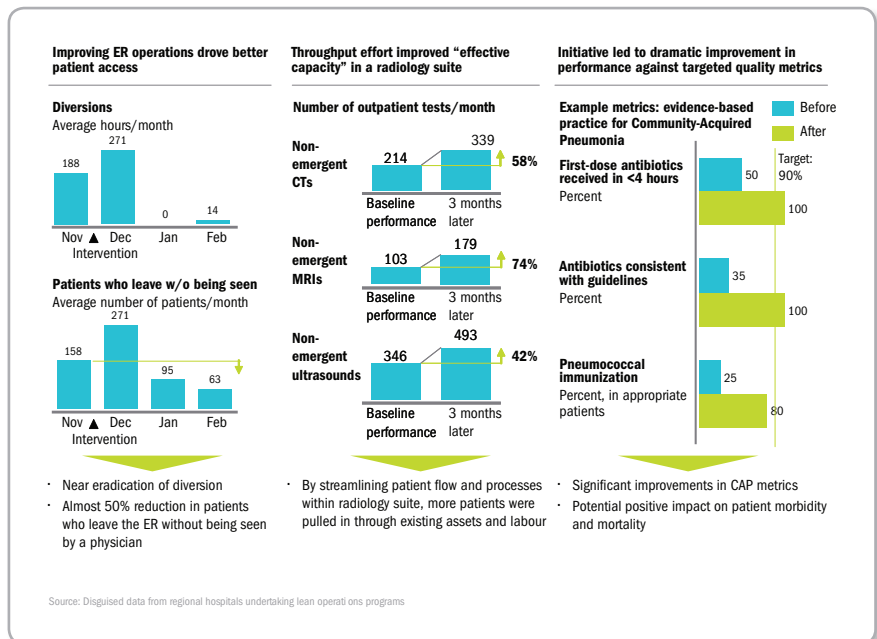
Integrate IT systems to enable better transparency and sharing of information:

Alberta should continue to build its IT infrastructure to facilitate information sharing, consistency of care pathways, and performance management.

To ensure information sharing and successful implementation, a number of factors should be addressed. First, the technology and processes should not only meet the clinical and logistics needs of the care setting, but also integrate with legacy systems. Second, collaboration with physicians and other providers must begin early, and adequate training of staff and ongoing technical support should be carefully considered. Health professionals should be involved early in the design and implementation to ensure that the IT functions provide the needed data at the point of care and support the desired care pathways.

Third, patient concerns, such as access to health information and privacy issues, can also be addressed early and directly in planning. Finally, uniform systems, processes, and standards for data collection should be encouraged to increase interoperability and maintain security.

A well-designed IT system could help move Alberta from siloed data collection to integrated, informatics-supported health care (**Figure 5-7**). To achieve this, a province-wide IT strategy could be supported by specific architectural requirements and include key applications. Capabilities that could be addressed include data sharing across settings, process automation, patient identification and management, capacity and other resource management, and quality and performance measurement. If done effectively, IT can be a critical enabler in the implementation of the other 13 recommendations outlined in this report (**Figure 5-8**).

Figure 5-7 Achieving the full value of IT in health care requires integration to enable informatics-supported health care

Stages of health care IT systems maturity

Stage 1: Siloed data collection

Stage 2: Integration of points and care settings

Stage 3: Informatics-supported health care

Description and systems	· IT solutions developed as location-specific, patient-centred repositories for data · Health data moved to electronic form by component (e.g., DI, labs, CPOE, remote monitoring, drug information, hospital logistics)	· Integration of EMR/EHR solutions in locations and care settings (e.g., acute, ambulatory, community) · Electronic health data integrated into "single source of truth" · Patient and provider registries needed for data consistency	· Development of advanced tools and methods for – Decision support – Case management – Research – Care quality metrics and evaluation
Source of benefits	· Reliable, convenient data access	· Transparency and benchmarking among units	· Advanced data analytics and identification of dependencies

Source: Team analysis

Figure 5-8 IT initiatives can enable or facilitate implementation of the 13 other recommendations in the current study

NOT EXHAUSTIVE

	Recommendation	Data or systems needed (examples)
Matching care intensity to patient need	**1** Shift selected inpatient and ER services to outpatient care centres	· Same EHR/digital information in hospital, ER, outpatient clinic, LTC · Standardized performance/outcomes tracking
	2 Shift selected services from LTC to supportive living and home care	· Patient assessment, bed, cost, and resource utilization data in LTC, DAL, and home care beyond 2010 MDS-RAI systems
	3 Repatriate select inpatient services back to home regions	· Outcome/performance data monitoring for services repatriated/to be repatriated, to ensure quality
	4 Increase use of short-stay and other mental health alternatives	· Province-wide bed information across facilities/geographies · Case management tools for mental health patients
Enhancing quality and access in rural care	**5** Create distinctive ambulatory centres using existing select infrastructure	· Monitoring of access and quality to ensure rapid response if either is significantly reduced
	6 Empower and better coordinate EMS/transport	· EMS field support: EHR access, real-time tracking of ambulances · Integrated/coordinated EMS call-taking, dispatch, transfer
	7 Increase number and provincial management of tele-health programs	· Compatibility with EHR
Increasing workforce effectiveness	**8** Enrich provincial recruitment and retention strategy	· Data on GPs, nurses, and other allied health professionals for future planning; tracking of recruitment program effectiveness
	9 Deepen initiatives and incentives to increase productivity	· More robust data on GP productivity/quality and productivity metrics at the provider level
	10 Increase workforce efficiency by better matching work to skills	· Innovative program/model data tracking
	11 Build on incentives for providers to work in rural areas	· RPAP/incentive program cost-effectiveness data
Improving coordination of care	**12** Create and strengthen linkages between current silos in the system	· Inter-regional access to patient records, imaging, results data · Most-current care plans at all care settings
	13 Increase operational efficiency of the system	· Expanded benchmarking data for services lines, providers, programs, including quality, financial, and operational metrics

Source: team analysis

NEXT STEPS ACROSS KEY RECOMMENDATIONS

Recommendation 12: *Create and strengthen linkages between current silos in the system*

- Prioritize which clinical pathways or care continuums (e.g. senior care, mental health) to focus on initially

- Pursue efforts to identify and prioritize breaks in coordination between care settings, providers, programs, at discharge, etc., to assess root causes and to bridge the gaps

- Develop performance metrics that evaluate care coordination (e.g., specialist-GP communications, medication reconciliation); standardize data collection, and collaborate to expand best practices across Alberta

- Explore incentives to promote multidisciplinary practice and rewards for care coordination and/or optimal care outcomes

- Invest in case management/care coordination roles in key areas

- Develop public education campaigns on the importance of care continuity and coordination

Recommendation 13: *Increase the operational efficiency of the system*

- Prioritize facilities and/or clinical pathways to determine initial focus of operations improvements; identify "quick wins," such as capturing previously identified "savable days"

- Develop length-of-stay benchmarks for the major case mix groups; more generally, develop an approach to measuring performance (for example, use of a balanced scorecard)

- Form specialty key opinion leader task forces comprised of physicians, nurses, and administrators from across the care continuum, to develop initiatives to achieve operational objectives that they help to define

- Consider training experts on lean operations within each region; these experts can then educate and train project leaders for each facility

- Develop disease management protocols for major chronic conditions that are fully integrated with the IT system

Recommendation 14: *Integrate IT systems to enable better transparency and sharing of information*

- Develop a clinical coordination working group that interfaces with the IT group to ensure that information system supports clinical needs

- Continue to expand the IT infrastructure under a province-wide strategy with attention to:

  – Stakeholder objectives, concerns, and change management requirements of any solution

  – Strengths and weaknesses of legacy systems and processes, and opportunities to improve interfaces within and between these systems

  – The optimal end-state systems, processes, and standards for data collection

  – A sensible, phased path to build toward that end-state while minimizing (and/or compensating for) stakeholder inconvenience

Successfully transforming Alberta's services in line with the recommendations described in this report would require the Ministry's continued leadership in collaboration with key stakeholders, to set aspirations for the province, define key goals, engage stakeholders, and provide clear and consistent communication to the public. As a next step, Alberta Health and Wellness and Alberta Health Services should consider creating action teams aligned against these recommendations (or adapt existing teams to include these areas of focus); the teams should be given specific objectives and a clear mandate to define and recommend specific changes. The establishment of a project office with Alberta Health and Wellness and Alberta Health Services, the engagement of key stakeholders from around the province, and the provision of dedicated resources would also help ensure that key milestones are met and coordination is optimal across these teams.

In managing the transformation process, the Ministry should employ a broad, inclusive approach to developing sustainable solutions to the health care needs of Albertans. Certainly, this will include clarifying roles and responsibilities. Policy changes and funding choices could be important levers to promote decisions and behaviours that are consistent with the province's access, quality, and sustainability objectives. Development of system-level performance standards and implementation of compensation/incentive systems that support achievement across these metrics would be important as well. Training and educational programs could prepare the next generation of providers to work in new care models and help optimize the supply, capabilities, and geographic mix of the workforce. Once initiated, the process should be strongly supported by ongoing communication about Ministry priorities and overall progress to providers, employees, and the public.

Provincial Service Optimization Review:

FINAL REPORT