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Sep 1, 2017 at 9:30 AM



Health System Modeling (QI Power Hour)

Jun 16, 2017 at 9:30 AM



Understanding variation: How to identify and manage variation (QI Power Hour)

May 19, 2017 at 9:30 AM



<https://hqc.sk.ca/news-events/qi-power-hour-webinars>

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The logo for QI PowerHour, featuring a stylized 'Q' and 'i' followed by the words 'PowerHour'.



# Stay Connected!

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## QI Power Hour E-mail Newsletter Sign-Up

QI Power Hour is your monthly dose of inspiration and instruction on a variety of improvement-related topics. Sign up to receive notices about upcoming sessions, and details on how to register for these free monthly webinars.

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# Spread of QI Power Hour in SK



UNIVERSITY OF REGINA



# Spread of QI Power Hour Nationally and Internationally



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TORONTO



University  
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Canadian  
Patient  
Safety  
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Institut  
canadien  
pour la sécurité  
des patients



Central  
Health



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Health Quality Ontario



HEALTH QUALITY & SAFETY  
COMMISSION NEW ZEALAND  
*Kupu Taurangi Hauora o Aotearoa*



ACCREDITATION  
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Canadian Institute for Health Information  
Better data. Better decisions. Healthier Canadians.

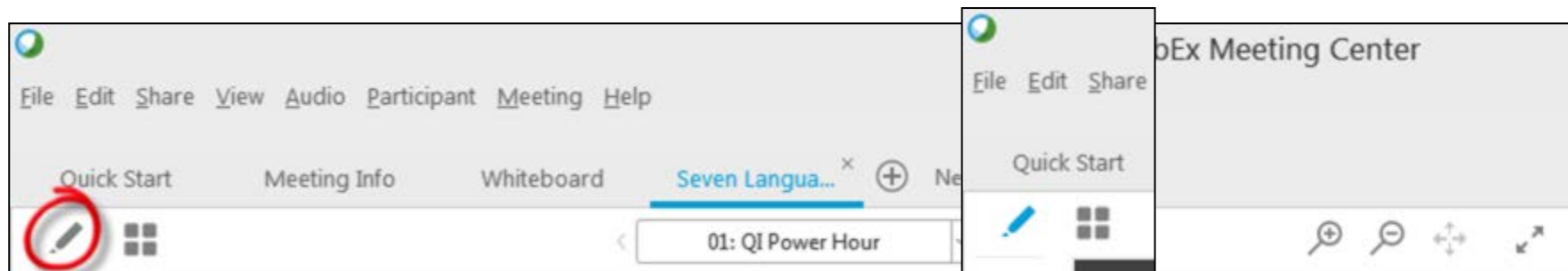
Qi PowerHour



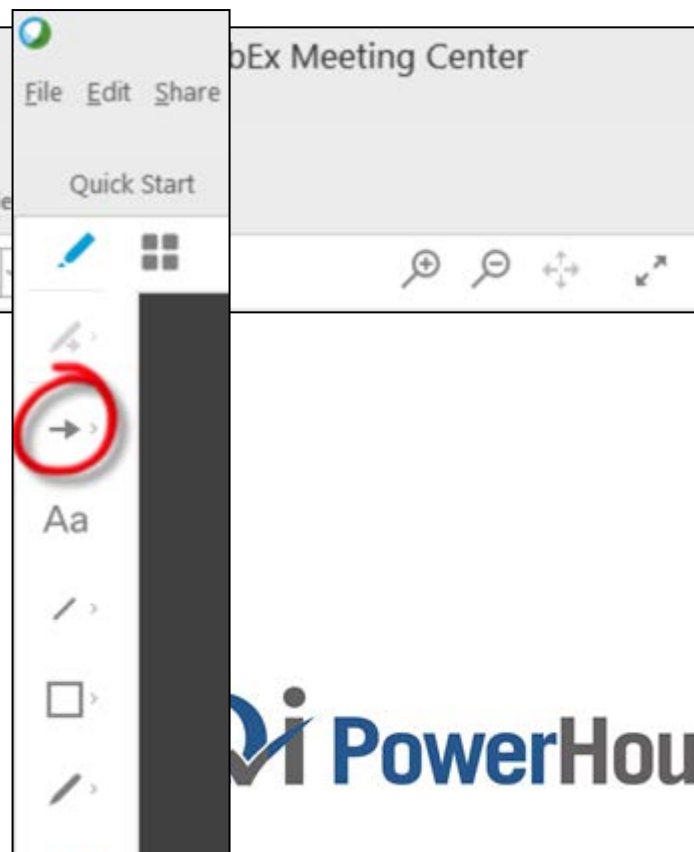
# WebEx Tools

## Annotation function:

- Select the pen icon,



- then the arrow icon



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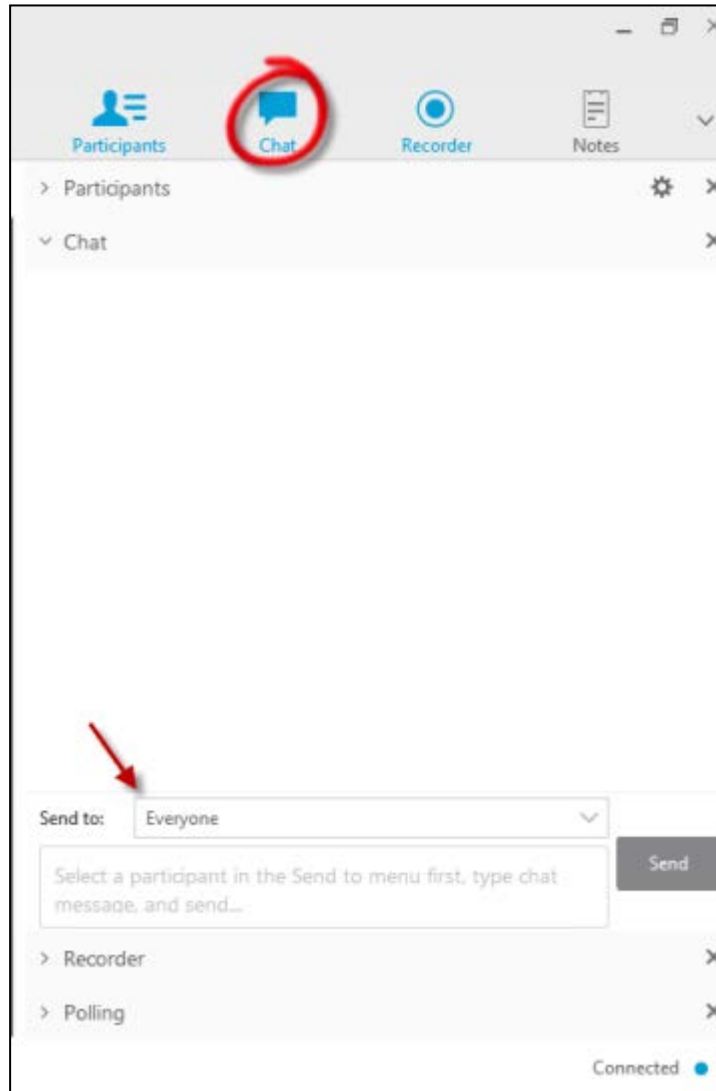
 PowerHour







# WebEx Tools



## Chat function:

- Share **questions, comments and ideas**
- Send to **All Participants**



# Join the Conversation!



#QIPowerHour  
@hqcsask

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# Today's session:

High-need, high-cost patients in Saskatchewan:  
What we're learning about their needs  
and health service use

*Meric Osman*

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# By the end of this session...

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... participants will:

- understand how “high-cost patients” are identified from administrative databases;
- recognize the characteristics of high-cost patients; and,
- recognize health care patterns that may lead patients to accumulate high costs.



# Framework

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$$\textit{Value} = \frac{\textit{Quality} + \textit{Outcomes}}{\textit{Costs}}$$



# Agenda


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- ✓ Overview of high-cost patients and health care costs
- ✓ Overview of administrative databases and how to identify high-cost patients
- ✓ Characteristics of high-cost patients in SK (15/16)
- ✓ Patterns of health care use
- ✓ Relevant provincial initiatives
- ✓ Conclusion



# Introduction

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- Health care costs are skewed, concentrated within a small number of patients (evidence from many jurisdictions)
- High-cost patients are a heterogeneous group consisting of people from all age groups with complex needs (health and/or social) 
- Targeted interventions to provide better care to these individuals are implemented in many health care systems
  - Connecting to Care (Saskatoon & Regina, 2014 - ongoing)



# Introduction (Costs)

Cost values/ranges are driven from budgets and volume



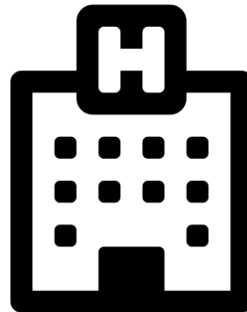
\$35 - 75 (per visit)



\$50 (per prescription)



\$370 (per visit)



\$800 - 1,600 (per day)

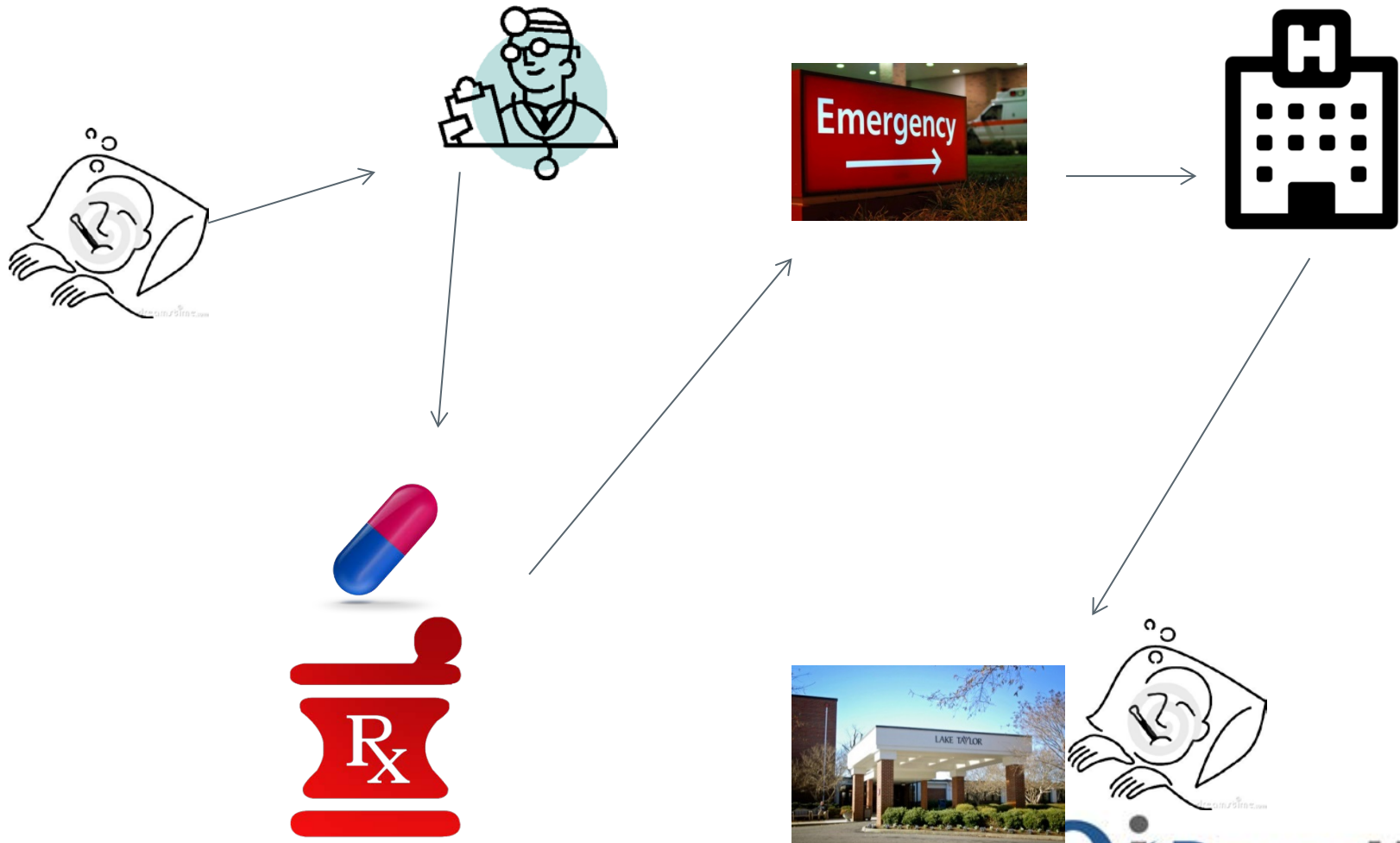


\$230 (per day)





# Introduction (Admin. Databases)





# Introduction (Admin. Databases)

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Health care interactions of SK residents are captured in multiple administrative databases;

Physician  
Prescription Drug  
Emergency Department  
Hospital (Day Surgery & Inpatient)  
Long-Term Care  
& Others



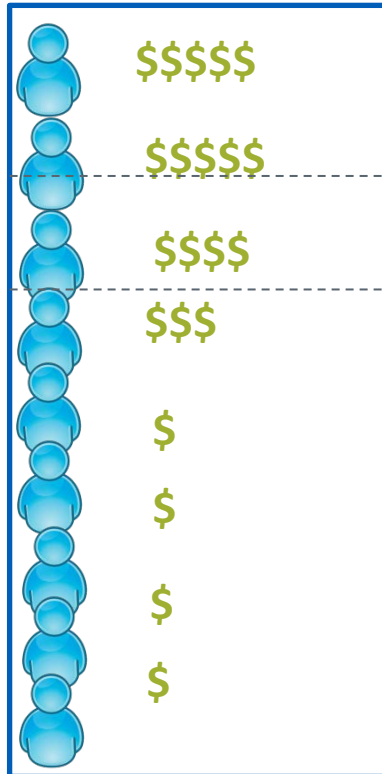
Linkable via  
encrypted “health card numbers”



# Method

2015/16

1.2M Residents



Any threshold;  
Top 1, 5, 10...etc.



## Costs (2015/16):

- Physician
- Prescription Drug
- Emergency Department
- Hospital
- Long-Term Care

> \$10,700 CAD

## Total cost

## Limitations (not available)

- Diagnostic Imaging
- Laboratory Data
- Home Care

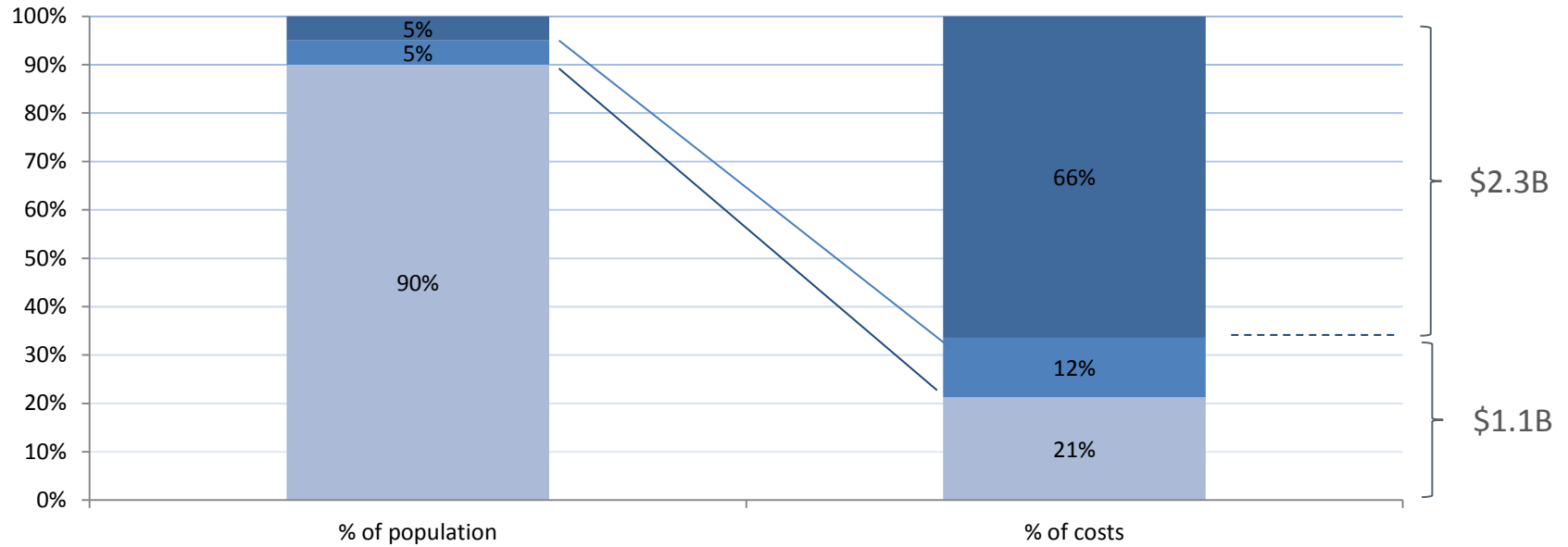


# A small group consumes a large proportion of health care resources

2015/16

\$1.2M

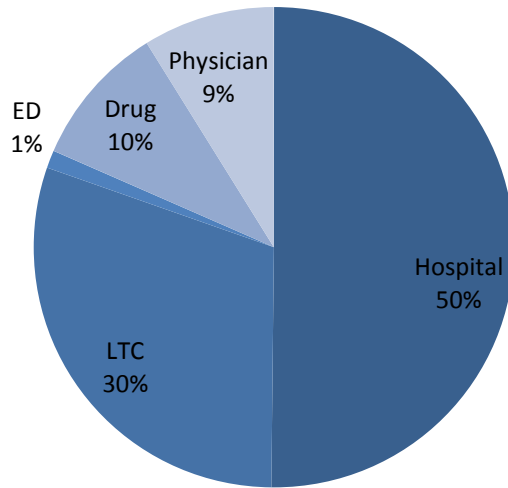
\$3.4B



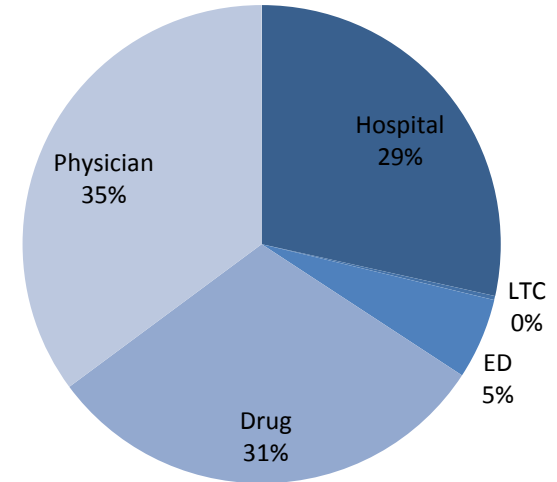


# Cost Distribution

Top 5% (n=59,349)



Rest of Population (n=1.14M)



## Average Costs



\$ 38,000



\$ 1,000

# Characteristics of High-Cost Patients

## Literature:

- ❖ Older
- ❖ Lower household income
- ❖ Have multiple chronic conditions
- ❖ Report poorer self-perceived general and mental health

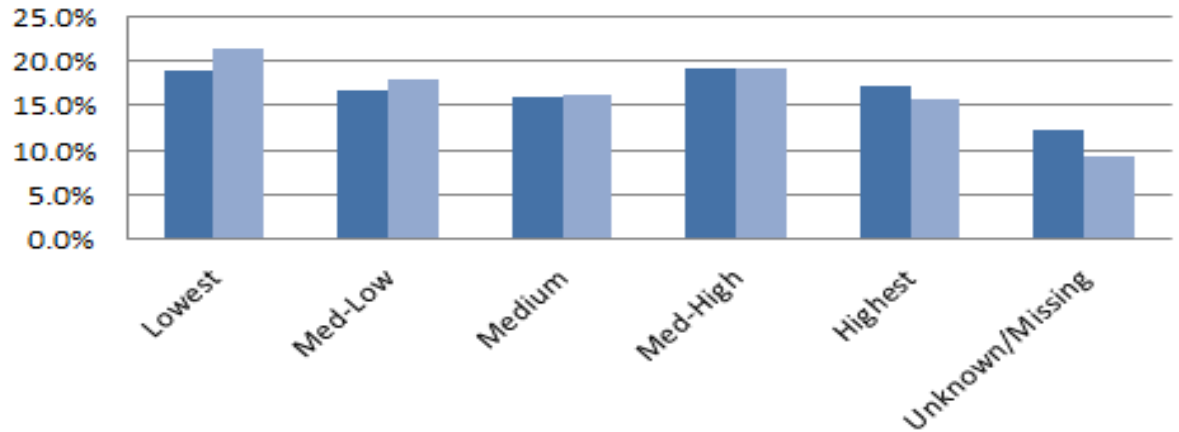
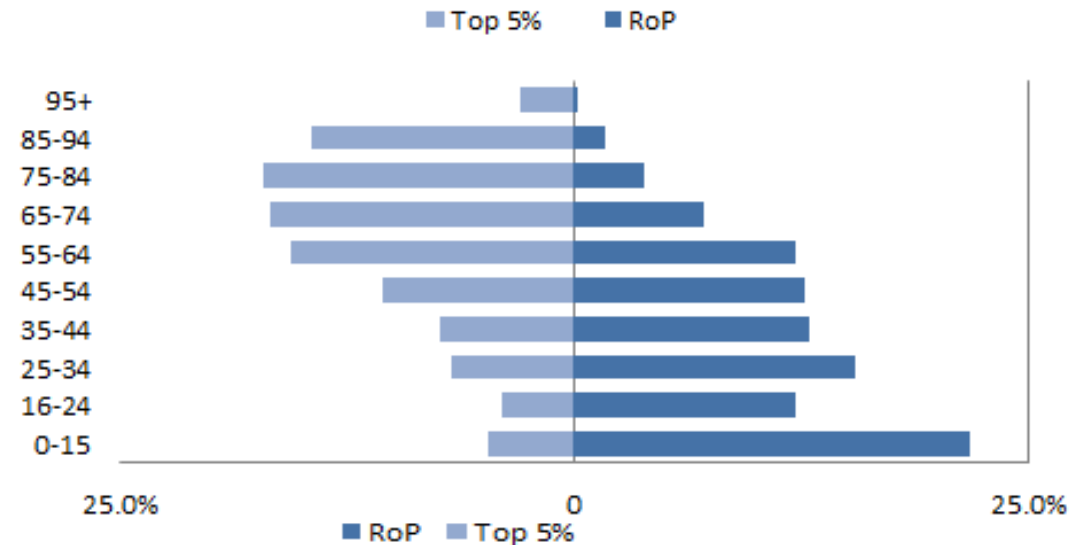
### Charlson Index (1 year)

Top 5%	1.54 (2.2)
RoP	0.12 (0.5)

### Income Quintiles (SK)

Age Distribution (SK)

Age (avg.)	61.3	36.8
Male	45%	50%





# Emerging Patterns

Age  $\leq 1$



Serious perinatal conditions, extreme low birth weights...etc.

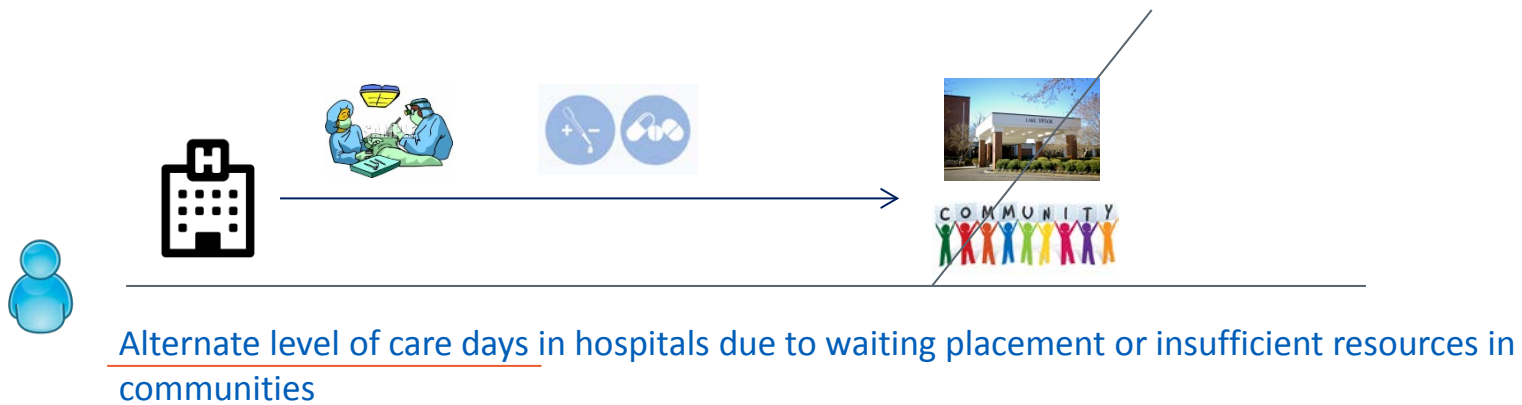
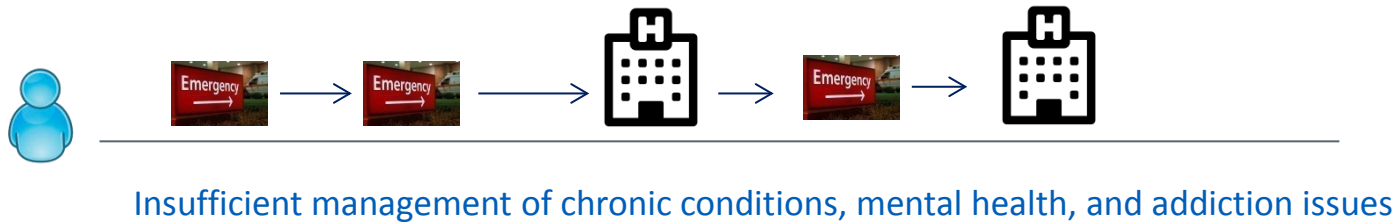


Major acute events such as stroke, accidents, coma...etc.



Major cancers such as leukemia, ovarian, brain, lung...etc.

# Emerging Patterns (Cont.)



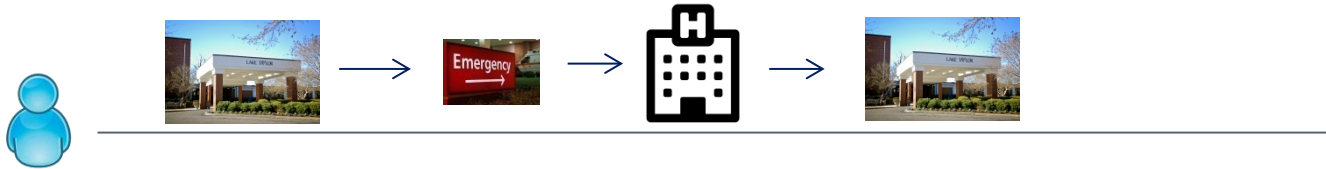
*Canadian Institute for Health Information (CIHI): When a patient is occupying a bed in a facility and does not require the intensity of resources/services provided in that care setting*





# Emerging Patterns (Cont.)

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LTC residents and potentially avoidable ED and hospital visits



Palliative care

# Emerging Patterns (Cont.)



*From research literature*

*Guilcher et al. (2016)*



# Reasons for Health Care Utilization

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CIHI Grouper

Top 5% (N=59,349)

1. Analyzes individuals' previous health care utilizations (2014/15 – 2015/16)
2. Then, assigns each individual to a health profile group (mutually exclusive);
  - Based on the main condition driving their health care needs

# Reasons for Health Care Utilization

CIHI Grouper

Top 5% (N=59,349)

ALC

Mental Health

Major Chronic  
N=12,923  
\$565M

Major Acute  
N=11,482  
\$466M

Major Mental Health  
N=7,365  
\$414M

Moderate Chronic  
N=10,801  
\$264M

Palliative  
N=3,173  
\$167M

Moderate Acute  
N=3,906  
\$92M

Major Cancer  
N=2,877  
\$90M

Skin Ulcer  
Diabetes w/  
CKF  
AMI w/HF  
Heart Failure

Musculoskeletal infections  
Respiratory failures  
GI/Peritonitis  
Sepsis

Delusional disorders (incl. Schizophrenia)  
Mental Dis. from brain injury  
Eating disorders  
Dementia

Urinary Incontinence w/comorb.  
HIV w/comorb.  
Rheumatoid/Osteoarthritis  
CAD

Palliative state (acute)

Cerebrovascular Dis. (excl. stroke)  
Peptic ulcer  
Seizure  
Metabolism disorders

Leukemia/Lymphoma  
Ovarian  
Oral/Ear/Nose/Throat  
Lung



# Reasons for Health Care Utilization

CIHI Grouper

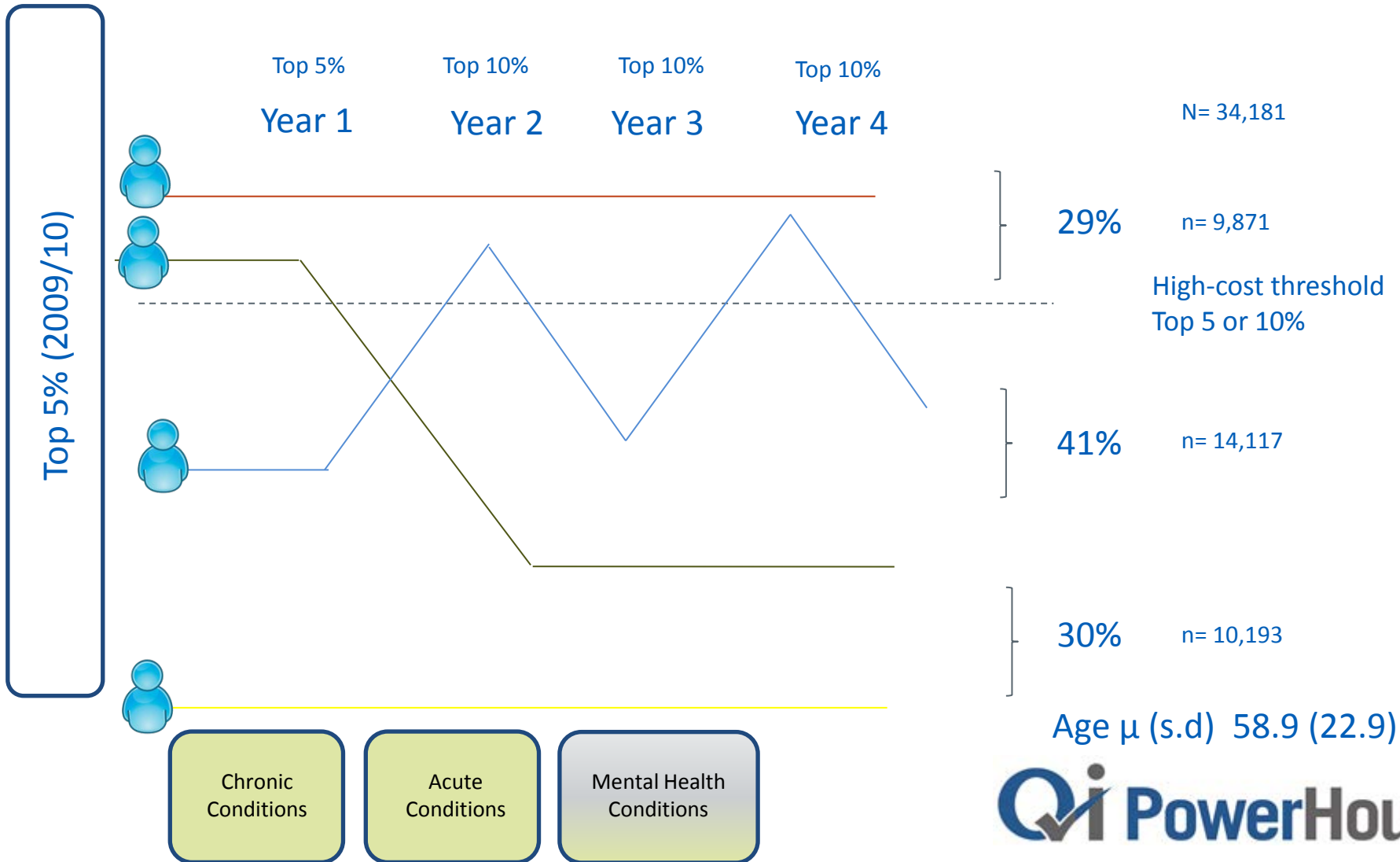
Top 5% (N=59,349)

ALC  
Mental Health

Major Chronic N=12,923 \$565M	Major Acute N=11,482 \$466M	Major Mental Health N=7,365 \$414M	Moderate Chronic N=10,801 \$264M	Palliative N=3,173 \$167M	Moderate Acute N=3,906 \$92M	Major Cancer N=2,877 \$90M
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<b>Age μ (sd)</b>	67.8 (21.2)	62.4 (21.4)	69.7 (24.6)	58.6 (18.9)	74.5 (15.3)	53.4 (22.7)	65.2 (16.4)
<b>Hosp. (Mean)</b>	1.7	1.8	0.9	0.8	2.4	1.2	1.7
<b>LOS (mean, days)</b>							
<b>Total</b>	20.2	17.8	26.7	5.7	33.7	6.5	13.9
<b>Acute</b>	18.1	16.5	22.0	5.5	30.2	6.2	13.2
<b>ALC</b>	2.1	1.3	4.7	0.2	3.4	0.3	0.7
<b>Cost (mean)</b>							
	\$44,000	\$41,000	\$56,000	\$23,000	\$53,000	\$24,000	\$31,000

# Emerging Patterns - Over Time



# Emerging Patterns - Over Time

Top 5% (2009/10)

Top 5% Year 1      Top 10% Year 2      Top 10% Year 3      Top 10% Year 4



and



and/  
or



or



and



and



N= 34,181

29% n= 9,871

High-cost threshold  
Top 5 or 10%

41% n= 14,117

30% n= 10,193

Age  $\mu$  (s.d) 58.9 (22.9)

Chronic  
Conditions

Acute  
Conditions

Mental Health  
Conditions



# Summary

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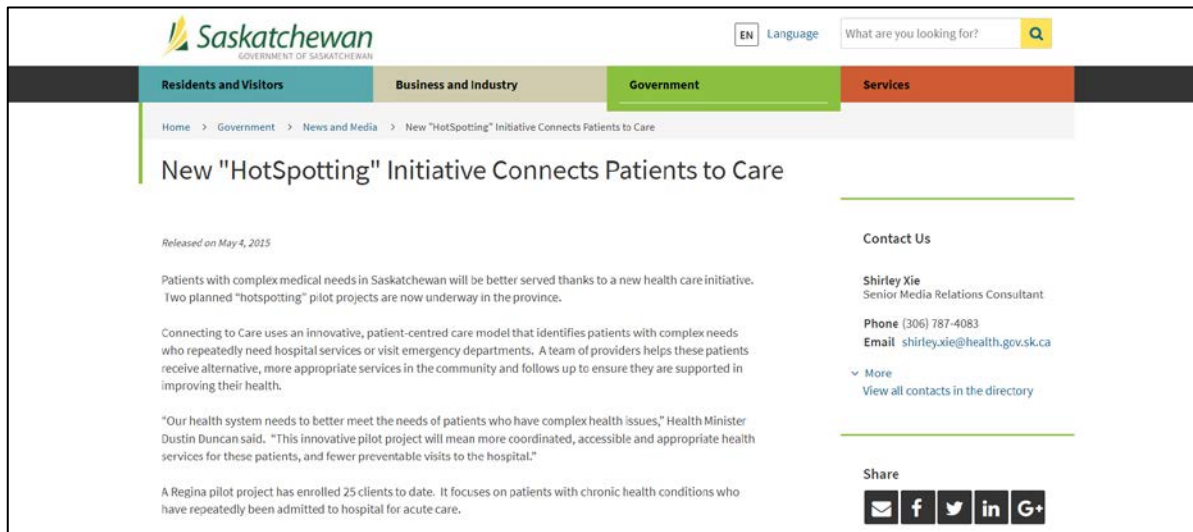
- High-cost patients consume a higher proportion of health care dollars
- While some of the associated costs may be appropriate (unavoidable), some may be avoidable through better care
  - High costs can be an indication of poor quality (i.e. unnecessary care)
  - Care might be appropriate but the location of care might not
  - Community based care (lower cost, higher quality)





# Relevant Provincial Initiatives

- Connecting to Care (HotSpotting)
  - Focusing on “case management” for patients with chronic conditions and/or mental health and addictions




The screenshot shows a news article on the Saskatchewan Government website. The page header includes the Saskatchewan logo, a language selector (EN), and a search bar. The navigation menu has four categories: Residents and Visitors, Business and Industry, Government (highlighted), and Services. The breadcrumb trail is: Home > Government > News and Media > New "HotSpotting" Initiative Connects Patients to Care. The article title is "New "HotSpotting" Initiative Connects Patients to Care", released on May 4, 2015. The text describes a new health care initiative for patients with complex medical needs, involving two pilot projects. It mentions that the initiative uses an innovative, patient-centred care model. A quote from Health Minister Dustin Duncan states: "Our health system needs to better meet the needs of patients who have complex health issues," Health Minister Dustin Duncan said. "This innovative pilot project will mean more coordinated, accessible and appropriate health services for these patients, and fewer preventable visits to the hospital." A Regina pilot project has enrolled 25 clients to date. It focuses on patients with chronic health conditions who have repeatedly been admitted to hospital for acute care. On the right side, there is a "Contact Us" section for Shirley Xie, Senior Media Relations Consultant, with phone (306) 787-4083 and email shirley.xie@health.gov.sk.ca. Below that is a "Share" section with icons for email, Facebook, Twitter, LinkedIn, and Google+.

From: [saskatchewan.ca](http://saskatchewan.ca)

# Relevant Provincial Initiatives (Cont.)

- Emergency Department Wait Times and Patient Flow



The screenshot shows the website for the Saskatchewan Health Quality Council. The header includes the council's logo and tagline: "Connecting people. Igniting ideas. Accelerating improvement." Navigation links for Home, Careers, and Contact Us are present, along with social media icons for Facebook, Twitter, and LinkedIn. A dropdown menu is open under "How we're helping improve health care", showing options like "How our health care system is doing", "Education and learning", "Research partnerships", "News and events", and "Careers". The main content area features a blue banner with the title "Reducing waits in emergency and improving patient flow". Below the banner, the text discusses the factors influencing emergency department wait times and the provincial initiative aimed at improving patient flow through hospitals and other parts of the health system. It mentions that the initiative is guided by a collaborative team of patient advisors, health region representatives, and clinical experts in geriatrics, primary/community care, and emergency medicine.

From: [hqc.sk.ca](http://hqc.sk.ca)

# Relevant Provincial Initiatives (Cont.)

- Appropriateness of Care
  - Implementation of CT Lumber Spine Checklist
  - Development of pre-operative testing guidelines

The screenshot shows the Saskatchewan Government website page for 'Appropriateness of Care'. The page features a navigation bar with 'Government' highlighted. The main content area includes a definition of appropriate care, a description of the AC Program, and a list of factors contributing to inappropriate care. A sidebar on the right contains 'Contact Us' information for the Strategic Priorities Branch and social media sharing options.

**Saskatchewan**  
GOVERNMENT OF SASKATCHEWAN

EN Language What are you looking for?

Residents and Visitors Business and Industry **Government** Services

Home > Government > Health Care Administration and Provider Resources > Saskatchewan Health Initiatives > Appropriateness of Care

## Appropriateness of Care

Appropriate care is defined as "the right care, provided by the right providers, to the right patient, in the right place, at the right time, resulting in optimal care." (Canadian Medical Association)

The Appropriateness of Care (AC) Program was established in early 2015 to lead provincial AC initiatives and projects as well as to support efforts in your area to improve AC. The program is led by two physicians and an administrative lead supported by the Ministry of Health and the Health Quality Council.

Many complex factors contribute to appropriate care. The Patient First Review, *For Patients' Sake*, indicated that some patients in Saskatchewan may not receive appropriate care:

- Patients may not receive care that they should have received: **underuse of services.**
- Patients may receive services that are unnecessary (overtreatment, unnecessary tests), increase costs, and may even endanger their health: **overuse of services.**
- Patients may receive services or care that are not ideally suited to their condition and might even cause harm: **misuse of services.**
- Patients with the same health conditions may receive very different care, depending on where they live and the care provider they see: **variation in services.**

**Contact Us**

**Strategic Priorities Branch**

**Phone** (306) 787-9901

More  
View all contacts in the directory

**Share**

Print this page

From: [saskatchewan.ca](http://saskatchewan.ca)



# Relevant Provincial Initiatives (Cont.)

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- Seniors' Care
  - Community based initiatives such as: Senior House Calls; Home First; and, Paramedicine community assist programs
- Mental Health and Addictions
  - Implementation of Mental Health and Addictions Action Plan
  - Utilize a stepped care framework to ensure mental health and addictions services are based on assessed needs



# Conclusion

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- One size does not fit all
  - There are different reasons why patients may pass a certain cost threshold
  - Interventions must be designed based on a thorough understanding of the targeted population's specific needs

$$Value = \frac{Quality + Outcomes}{Costs}$$

Location & type of services

Under/over testing



# Conclusion (Cont.)

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- Databases and further analyses identifying high-cost utilization could be used to better inform:
  - decision making;
  - when, where, and how to intervene;
  - QI programs; and,
  - health care policy.



## Up Next...



Thinking upstream:  
Improving health and  
wellness through  
intersectoral quality  
improvement

Friday, March 16, 2018  
9:30-10:30 am CST

*To register: [hqc.sk.ca/news-events/qi-power-hour-webinars](http://hqc.sk.ca/news-events/qi-power-hour-webinars)*