HSPN Health System Performance Network

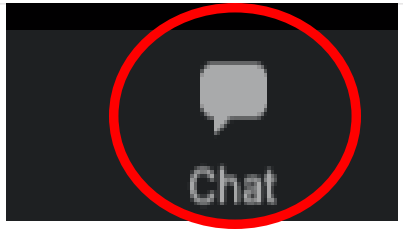
Population health management: integrating approaches

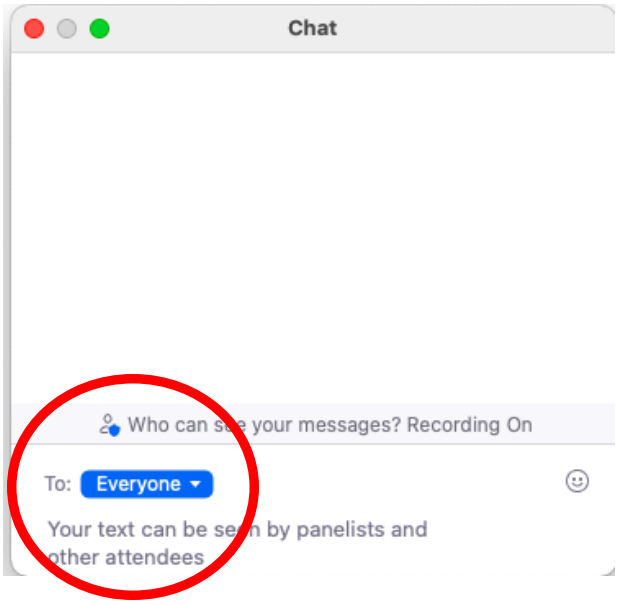
HSPN Monthly Webinar

February 28, 2023

Welcome & thank you for joining us!

Please let us know who you are by introducing yourself (name & OHT or other org)





➢Open Chat

➢Set response to everyone in the chat box

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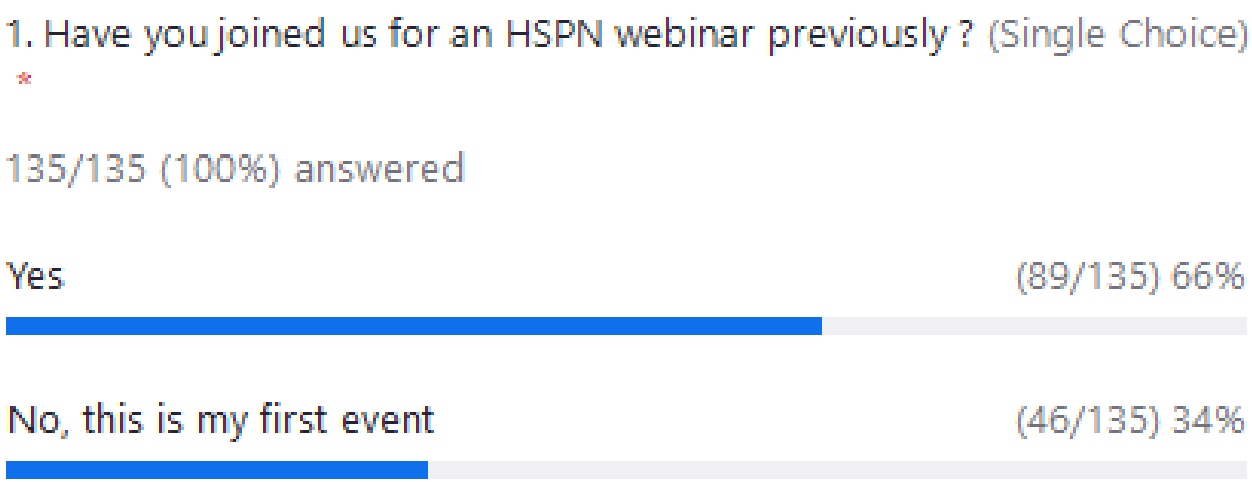
Land Acknowledgement

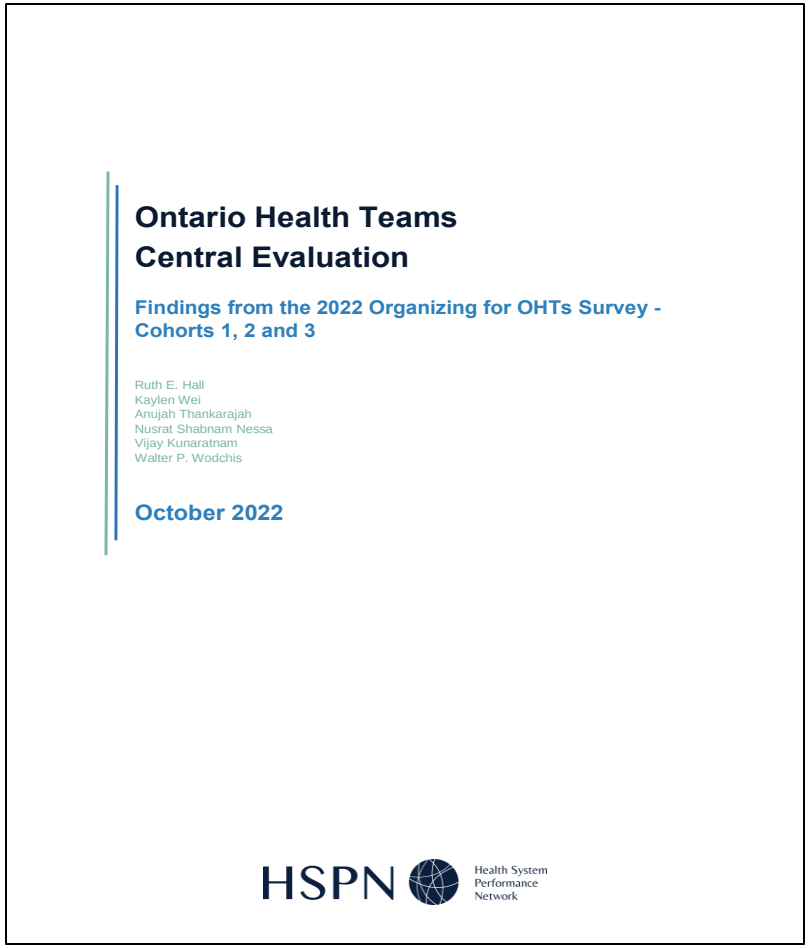
We wish to acknowledge this land on which the University of Toronto operates. For thousands of years it has been the traditional land of the Huron-Wendat, the Seneca, and the Mississaugas of the Credit. Today, this meeting place is still the home to many Indigenous people from across Turtle Island and we are grateful to have the opportunity to work on this land.

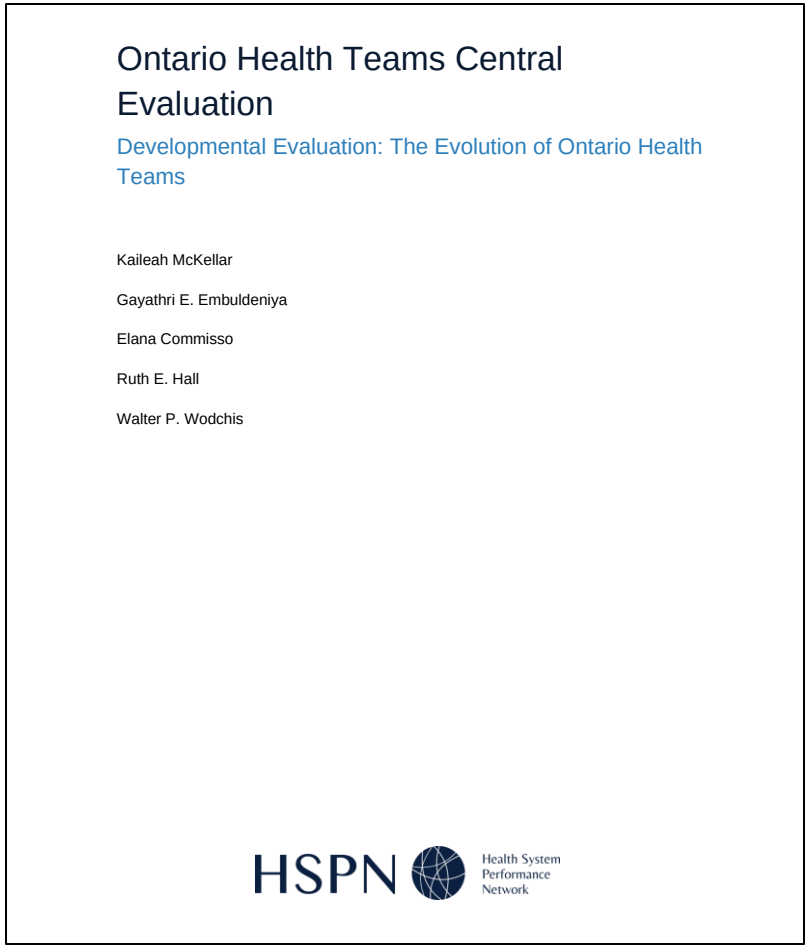
Poll 1


1. Have you joined us for an HSPN webinar previously ? (Single Choice)
*
135/135 (100%) answered
Yes
(89/135) 66%
No, this is my first event
(46/135) 34%

Now available…

https://hspn.ca/evaluation/oht/reports/





HSPN Health System Performance Network

Population health management: integrating approaches

Speakers

Dr. Walter Wodchis
Principal Investigator
HSPN

Dr. Robert Reid
Chief Scientist, Institute for Better Health, THP
RISE Co-lead

Dr. Laleh Rashidian
PhD Student
UofT, HSPN

Mike Hindmarsh
RISE PHM Coach Lead

Overview

Advancing Population Health

Data to support population health management

The example of diabetes in Ontario

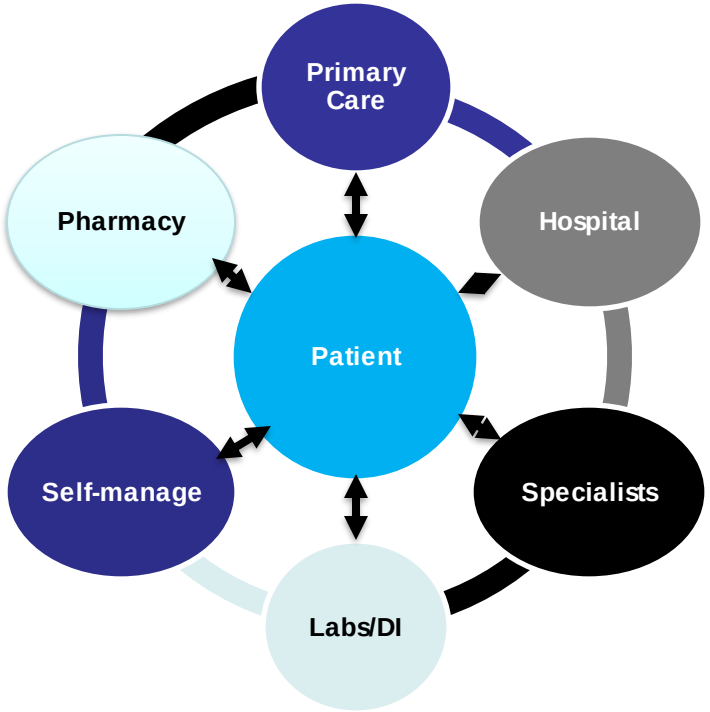
Approaches to improve population health

OHT transformation

- OHTs are intended to hold **fiscal and clinical accountability for an attributed population** (currently defined by primary care attachment and hospital referral and use patterns)
- OHTs are responsible for **Population Health Management and Integrated Care**… or possibly Managing Population Health and Integrating Care

" OHTs will continue to integrate care and use equity-based population health management approaches to deliver better health outcomes and provide better experiences for patients. "

*(*Ontario Health Teams*: The Path Forward, MOH,* Nov. 2022. p2*)*

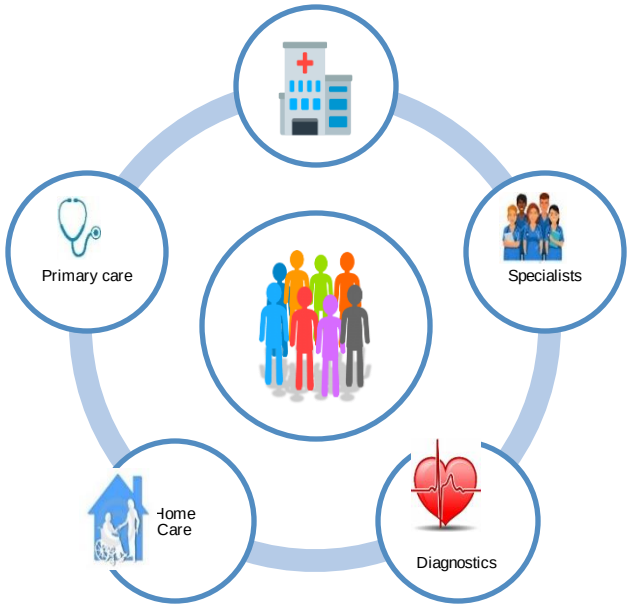


How can you advance ?

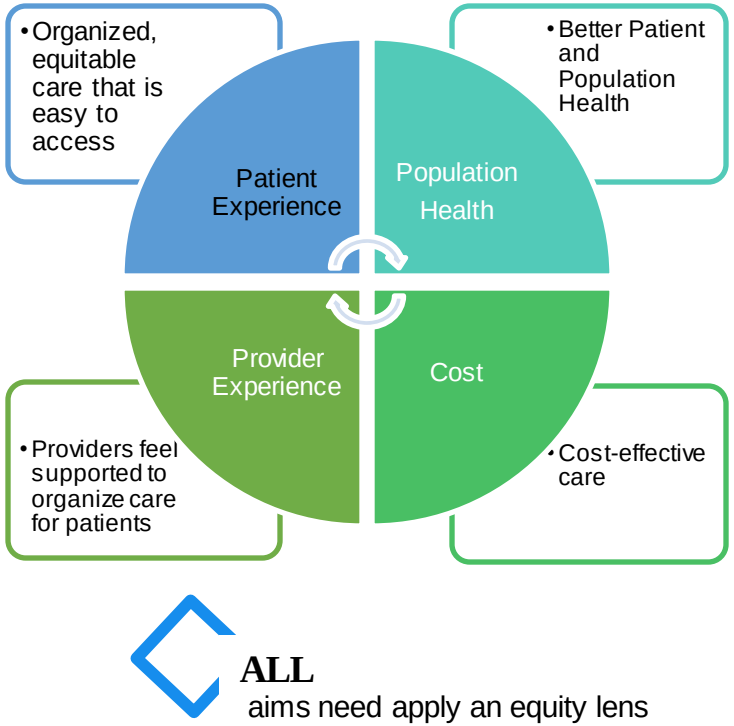
- **Population health management requires data about the population, but I don't have that data.**
  - (but you do have some and could have more data)

- **Population Health Management requires a long view, but I have many pressing concerns**
  - OHTs are expected to deliver on digital health initiatives
  - OHTs are expected to report on measures for cQIP (Cancer screening, Mental Health visits, ALC days) and other TPAA measures
  - OHTs are expected to deliver care pathways for specific conditions (CHF, COPD, Stroke, Diabetes)

OHT Integrated Accountable Local Care Systems: A Definition



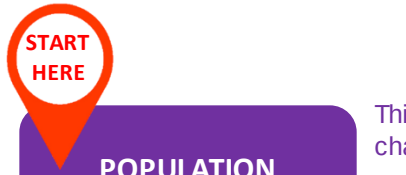
- Primary care providers, specialists, hospitals, home care and other healthcare providers that come together to deliver **coordinated high quality, equitable, value-based care** to an **attributed population**
- Build mechanisms to **proactively** coordinate & facilitate timely, efficient & **person-centered care**
- Together, groups agree to be **held accountable** for **"Quadruple Aim" outcomes** for an **attributed population** - population health, patient and provider experience & cost-effective care



ALL aims need apply an equity lens

Adapted from McClellan M et al. *Health Aff (Millwood), 29*(5), 982-990.

RISE & HSPN use a five component approach to population-health management



POPULATION IDENTIFICATION

This will need to be done on an on-going basis as your population changes and can include two levels of identification:

1) Understanding your attributed population (MoH data)
2) Identifying a priority population with which to start/to prioritize next (HSPN reports)

An iterative process!

Using a quadruple aim approach

MONITOR & EVALUATE

SEGMENTATION FOR NEEDS, RISKS & BARRIERS

- Segmenting your priority populations
- Choosing a segment with which to start/to prioritize next

Throughout each component:

- ✓ Co-design with **LIVED EXPERIENCE**
- ✓ Apply an **EQUITY LENS**
- ✓ Leverage QI processes and complete **TESTS OF CHANGE**
- ✓ **ADAPT** based on learnings and as population changes

Creating sustainable spread

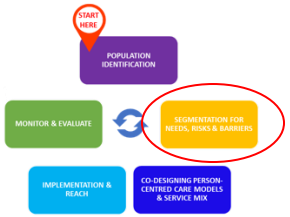
IMPLEMENTATION & REACH

CO-DESIGNING PERSON-CENTRED CARE MODELS & SERVICE MIX

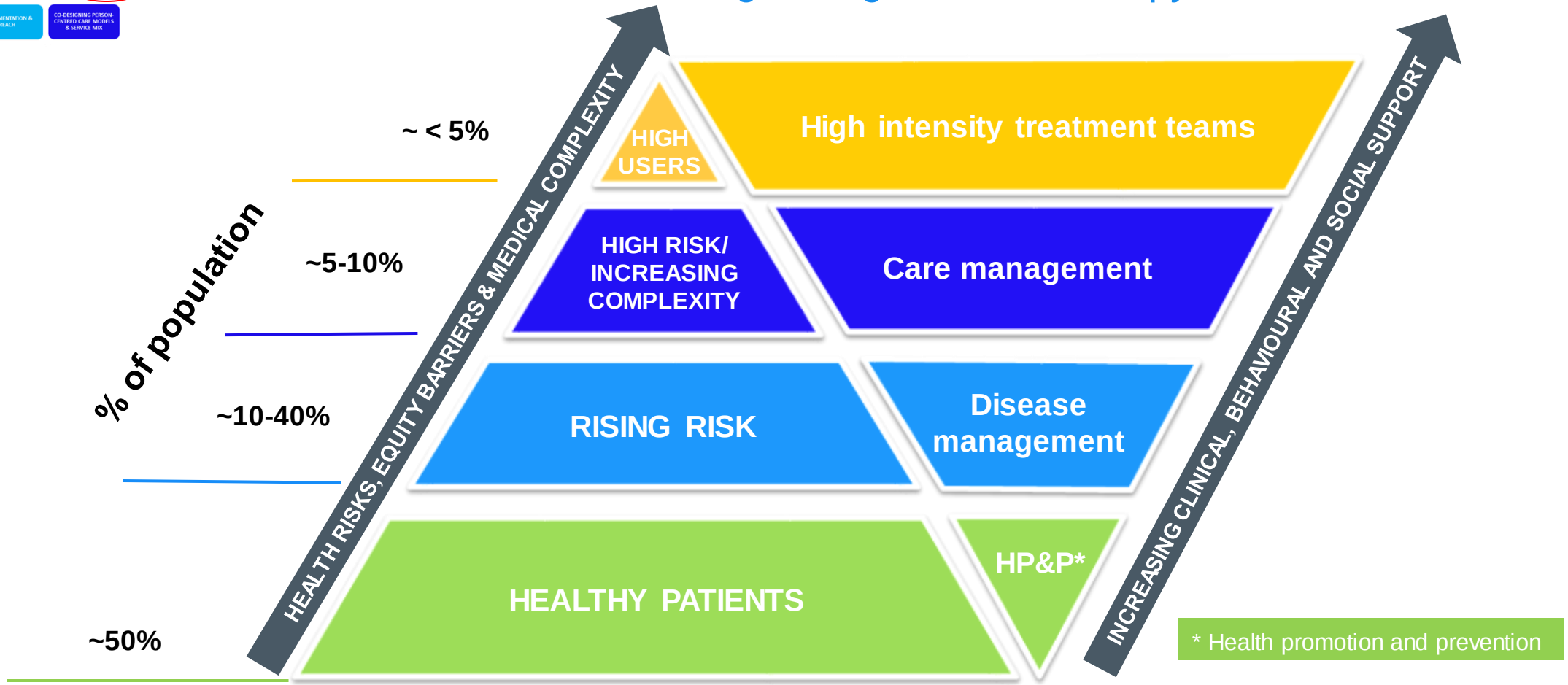
Adapting and testing evidence-based care delivery

Source: Adapted from Population Health Alliance, 2012

[Resource: Overview of Population-Health Management (mcmasterforum.org)]



Population Segmentation: think about the priority population, needs, risks and barriers and connect them to care model design using the Kaiser risk pyramid



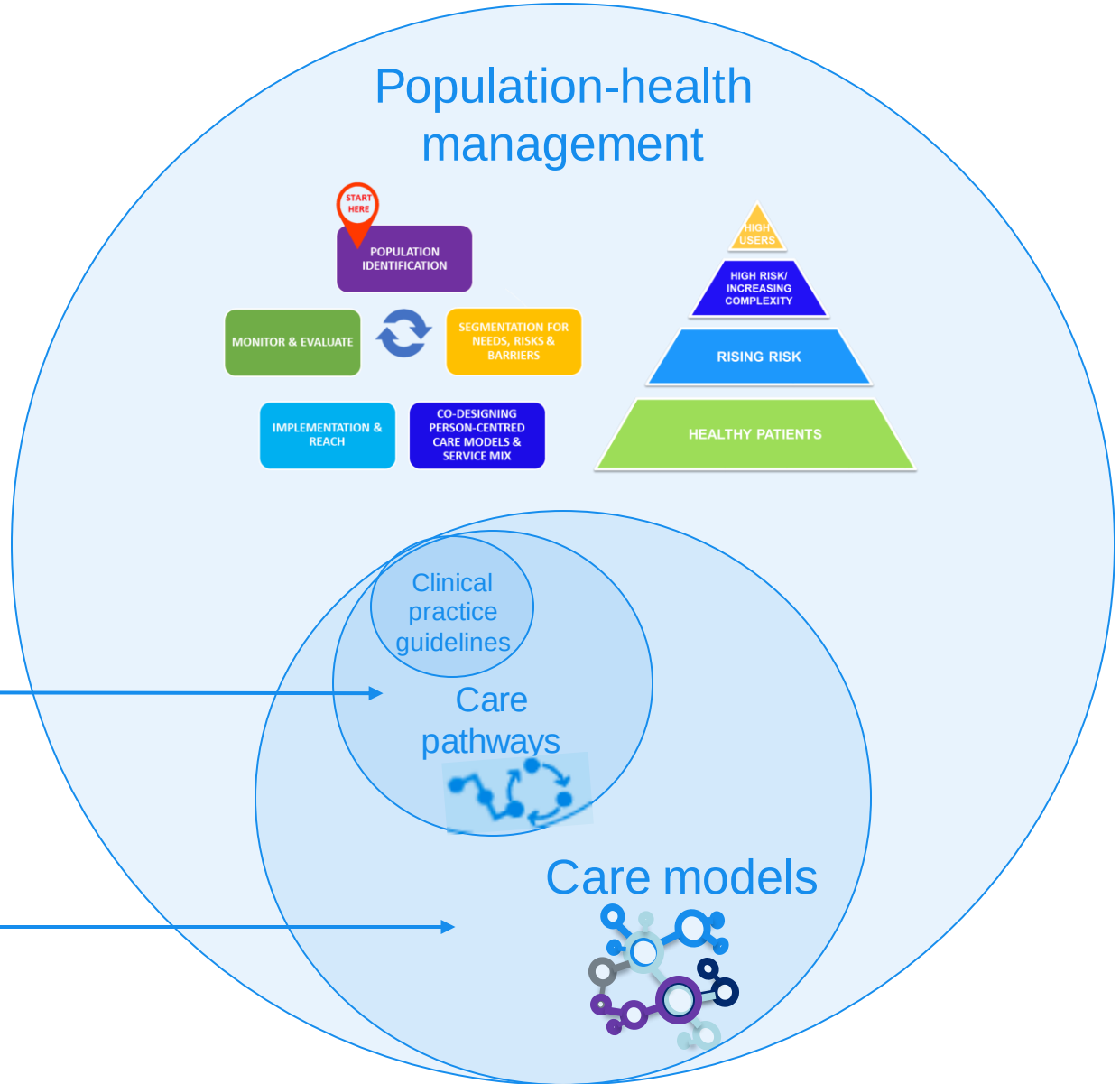
Source: Adapted from Kaiser Permanente

OHT Long Term Goal: Integrating Care for Full Attributed Population

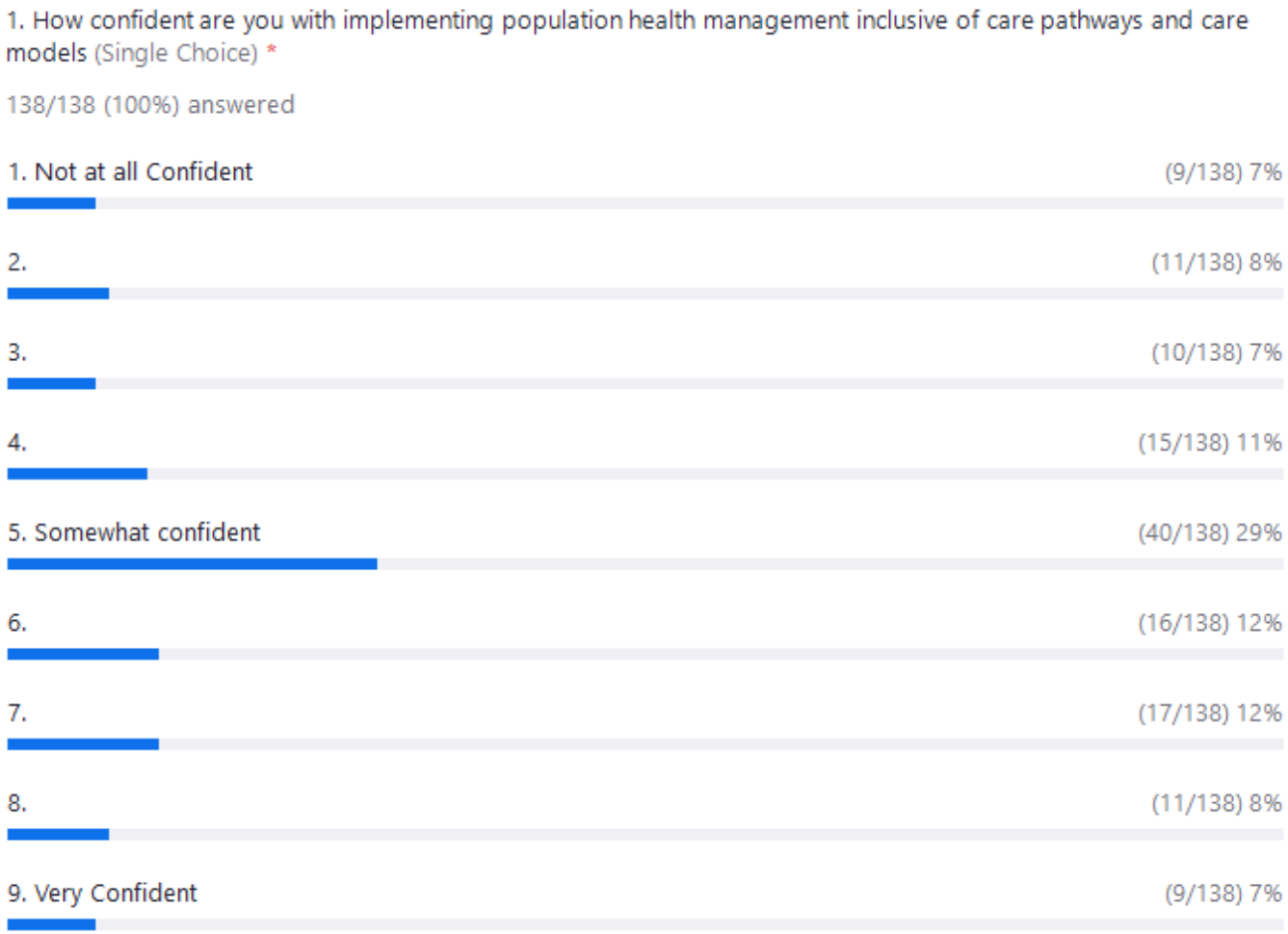
Population Health Management: Care Pathways and Care Models

Care pathways are the steps taken to deliver a care process (including social care) along the entire patient journey for the duration of their condition/chronic care for a specific disease. They are undergirded by clinical practice guidelines/quality standards.

Care models are systems of care with multiple care pathways and processes inside. They are person-centered and include other components to enable care pathways (e.g., decision support, patient self-management support) to occur for whole person care (e.g., multiple diseases)



Poll 2:


1. How confident are you with implementing population health management inclusive of care pathways and care models (Single Choice) *
138/138 (100%) answered
1. Not at all Confident
(9/138) 7%
2.
(11/138) 8%
3.
(10/138) 7%
4.
(15/138) 11%
5. Somewhat confident
(40/138) 29%
6.
(16/138) 12%
7.
(17/138) 12%
8.
(11/138) 8%
9. Very Confident
(9/138) 7%

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Discussion Questions:

What would you like to learn more about?

Where can we provide more clarity?

Respond in the chat

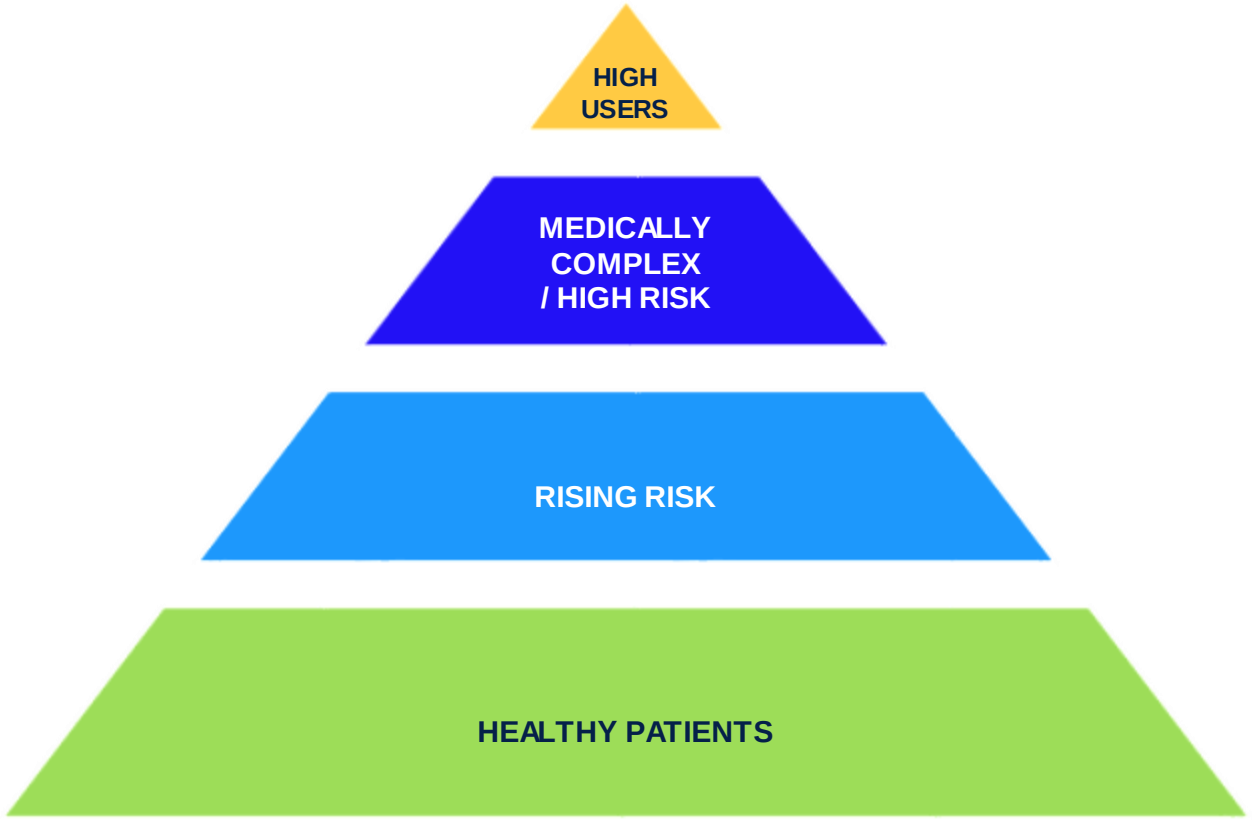
What could we talk about

- There is a whole population over ages, episodic and chronic care, between sexes and genders, and types of clinical conditions. We need some simplification.

- It would be good to have data on the entire population and advanced analytics to identify clusters of individuals with common needs and gaps in supports.

- We have some data for Ontario (and some that you have for your OHT)

We can segment the population using groupings like CIHI Pop Grouper or BC Health System Matrix



Source: Adapted from Kaiser Permanente

Segment	$ PMPM	Premature Mortality	% Pop
Palliative	$ 7,590	51,051	0.1%
Major Mental Health	$ 1,775	1,706	2.0%
Major Cancer	$ 1,670	4,807	1.5%
Major Chronic	$ 1,484	2,263	3.6%
Major Acute	$ 1,127	1,697	2.9%
Moderate Chronic	$ 390	314	10.6%
Other Cancer	$ 388	352	1.7%
Moderate Acute	$ 302	297	6.6%
Other Mental Health	$ 164	226	7.2%
Minor Chronic	$ 138	122	10.5%
Obstetrics	$ 230	28	2.2%
Major Newborn	$ 121	36	0.4%
No Health Conditions	$ 77	115	4.8%
Minor Acute	$ 76	66	36.9%
Healthy Newborn	$ 54	13	1.2%
Non-users	$ 36	97	8.0%

All data for 2020/21 based on 2019 Attributed Population
$PMPM = Provincial attributed government cost per member per month
Premature mortality per 100,000 population (Missing if fewer than 5 events)

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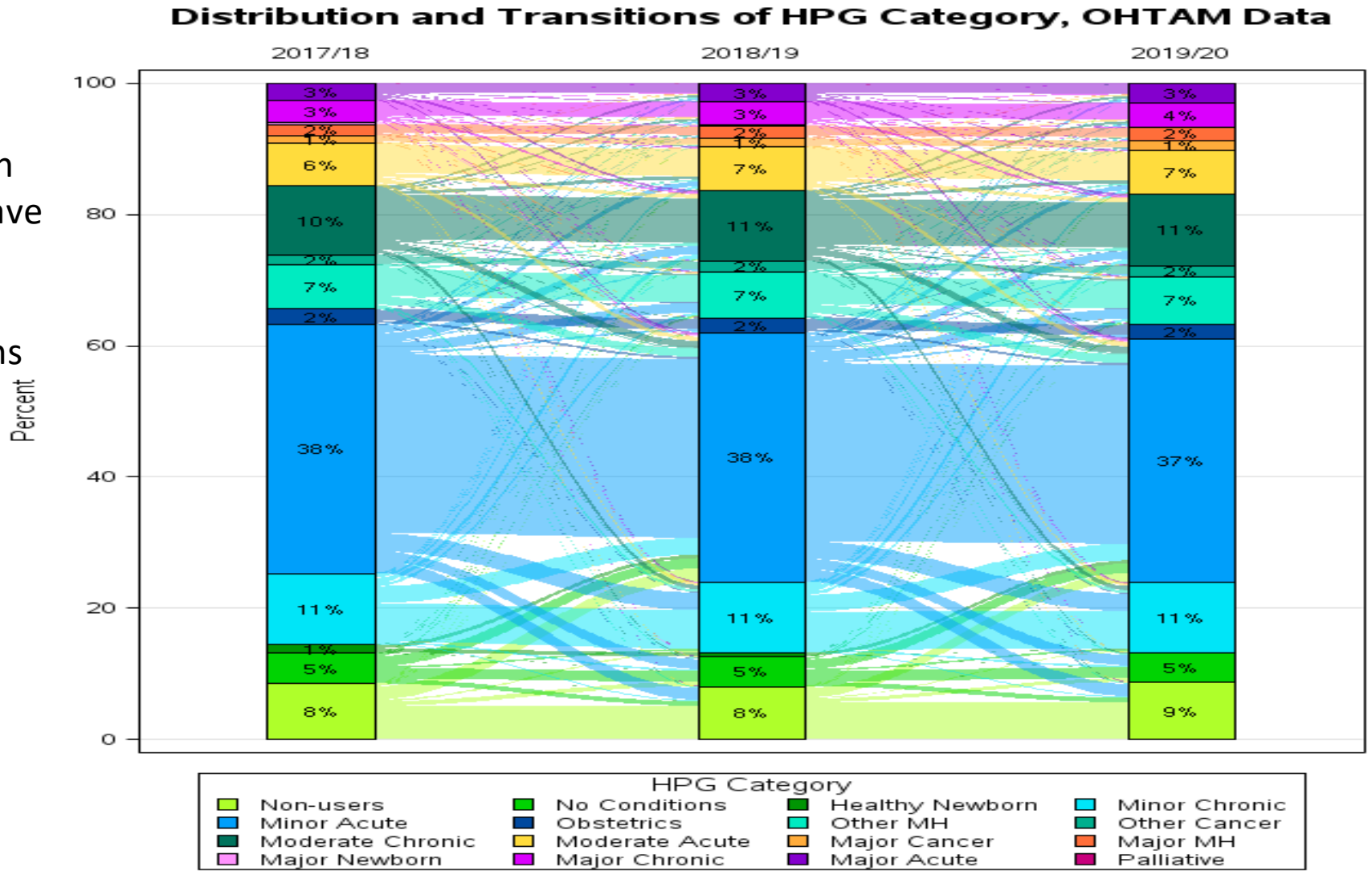
IC/ES

People are not Static:
Changes Over Time In CIHI Pop Group: OHT Population

e.g. people with diabetes will have acute episodes and may have other conditions that need to be addressed



Note: transitions to death or loss to follow up are not shown

Think about your **opportunities for improvement**

Now let's take it down a level.

- Move from entire OHT attributable populations to sub-populations. Use population-segmentation to identify patient populations with (crudely) similar health and social care needs.

- i.e. Identify some population groups and see what the needs are !

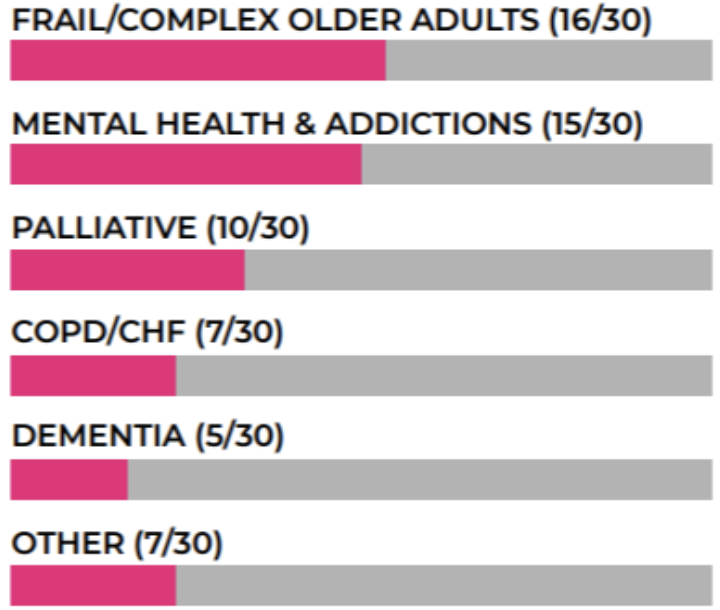
How to choose areas for focus

1. High burden population
2. Gaps in care
3. Evidence-based interventions and targets
4. Willing providers
5. Implementation supports available (e.g. funding)

What are your priorities ? (e.g. Cohort 1 OHTs)

PRIORITY POPULATIONS

OHT YEAR-1 POPULATIONS



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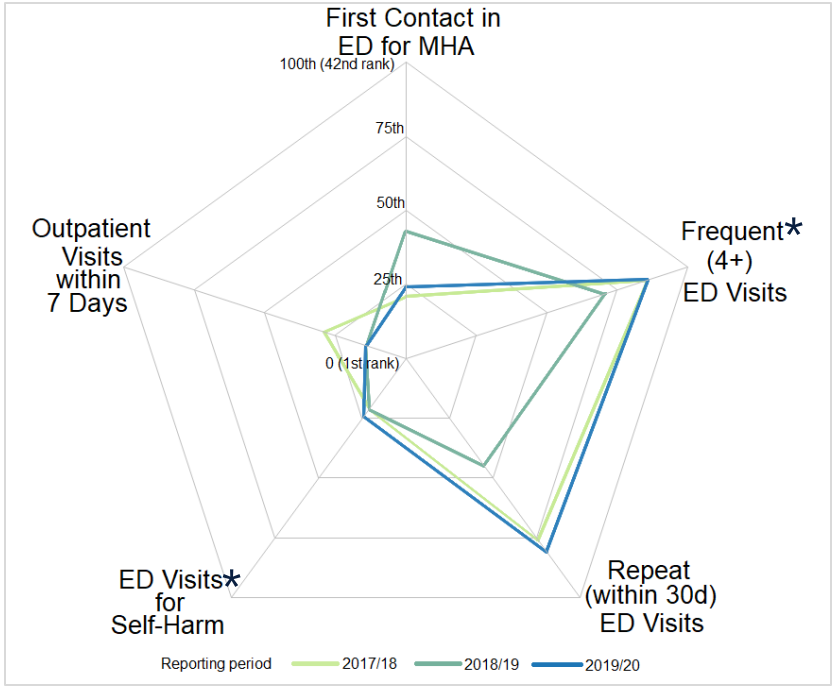
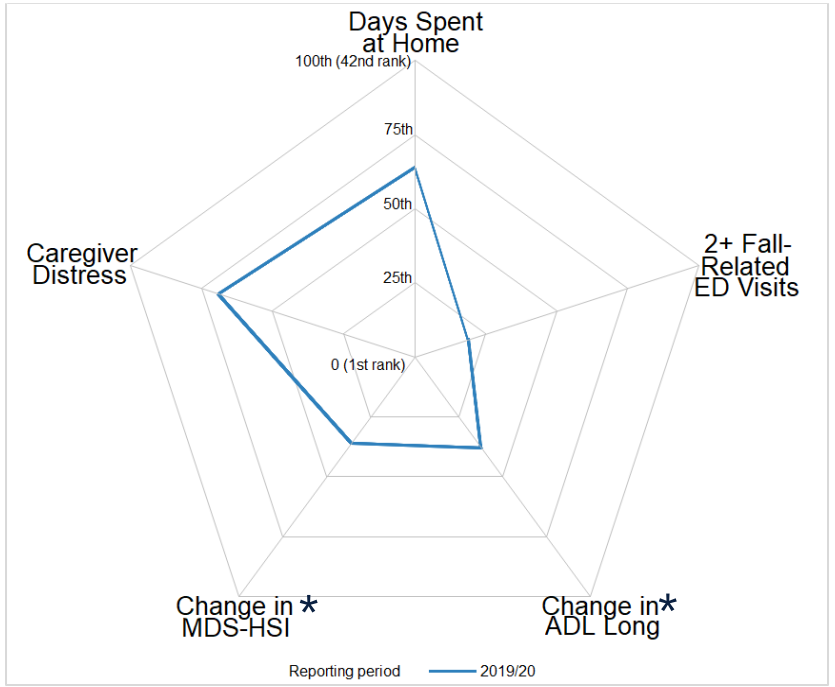
Think about your **opportunities for improvement**

Smaller is better … specific indicator results and areas of focus may differ. Choose populations where ranking is worse (depicted as closer to the outside of the diagram) … and the indicator has some variability in provincial results (…some are doing much better). Combine with cost results from MOH reports and HSPN results to assess impact.

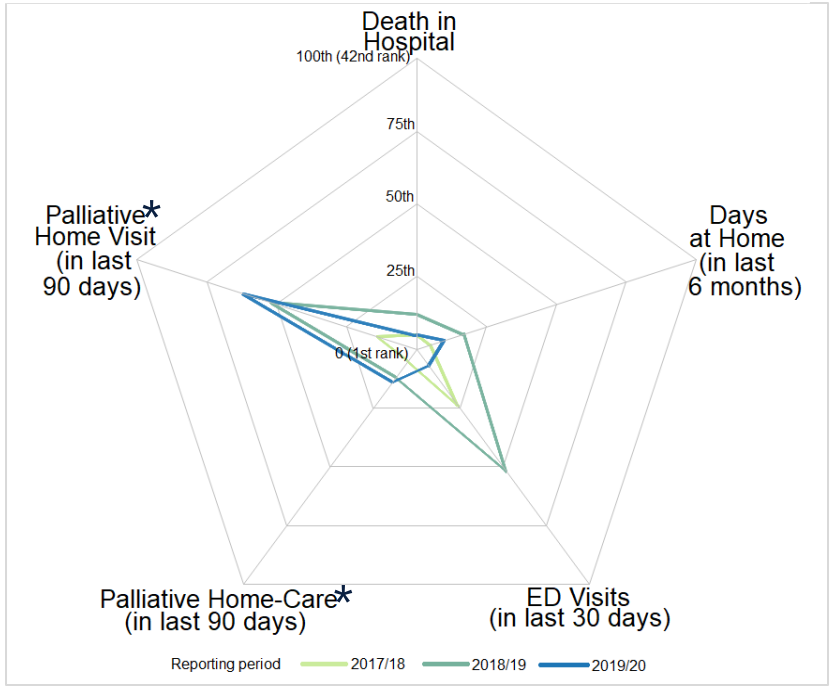
Mental Health



Frail / Older Adults



End-of-Life / Palliative



Example data shown here: See your own OHT-specific reports

Let’s walk through an example (Diabetes):

1. High burden population
2. Gaps in care
3. Evidence-based interventions and targets
4. Willing providers
5. Implementation supports available

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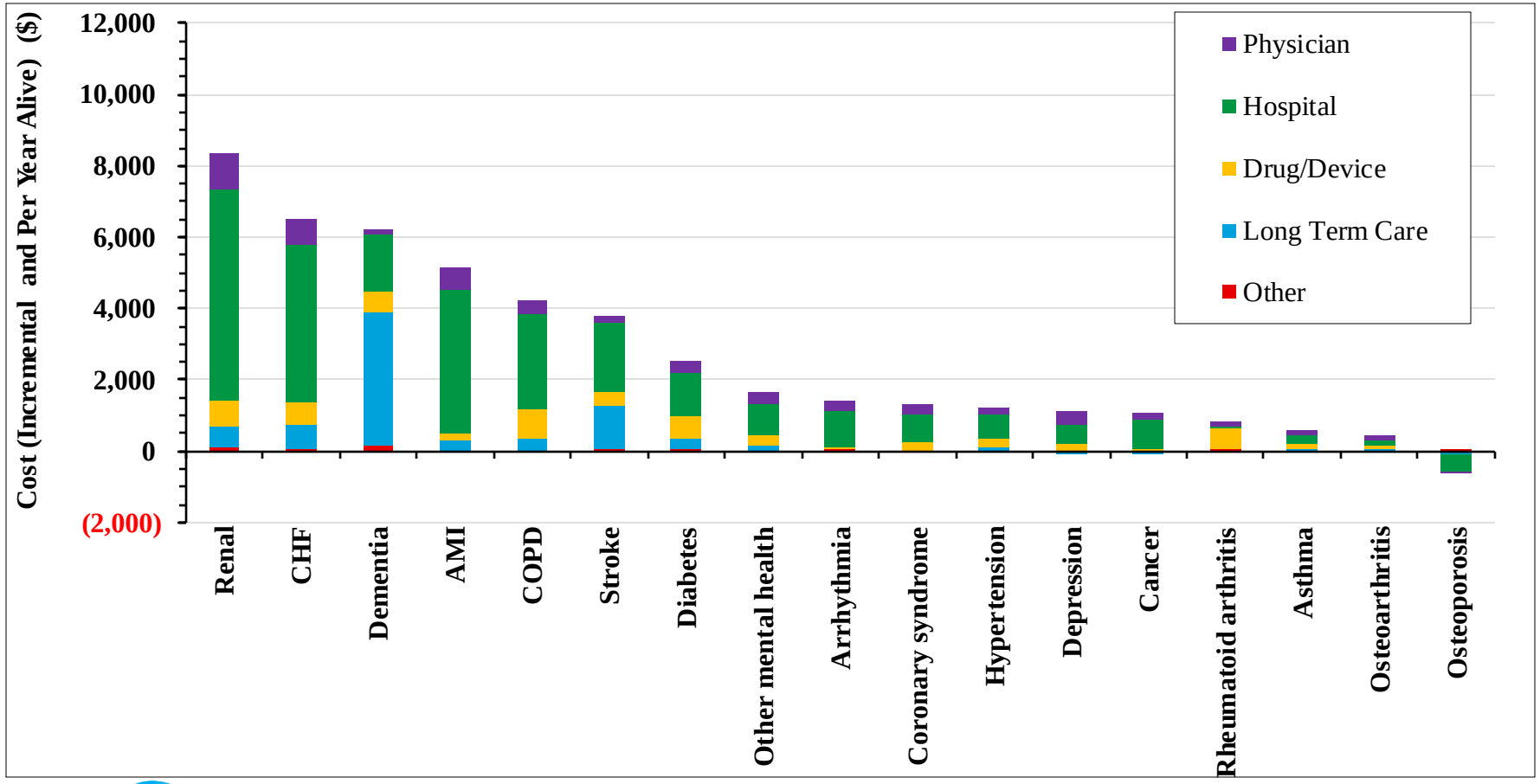
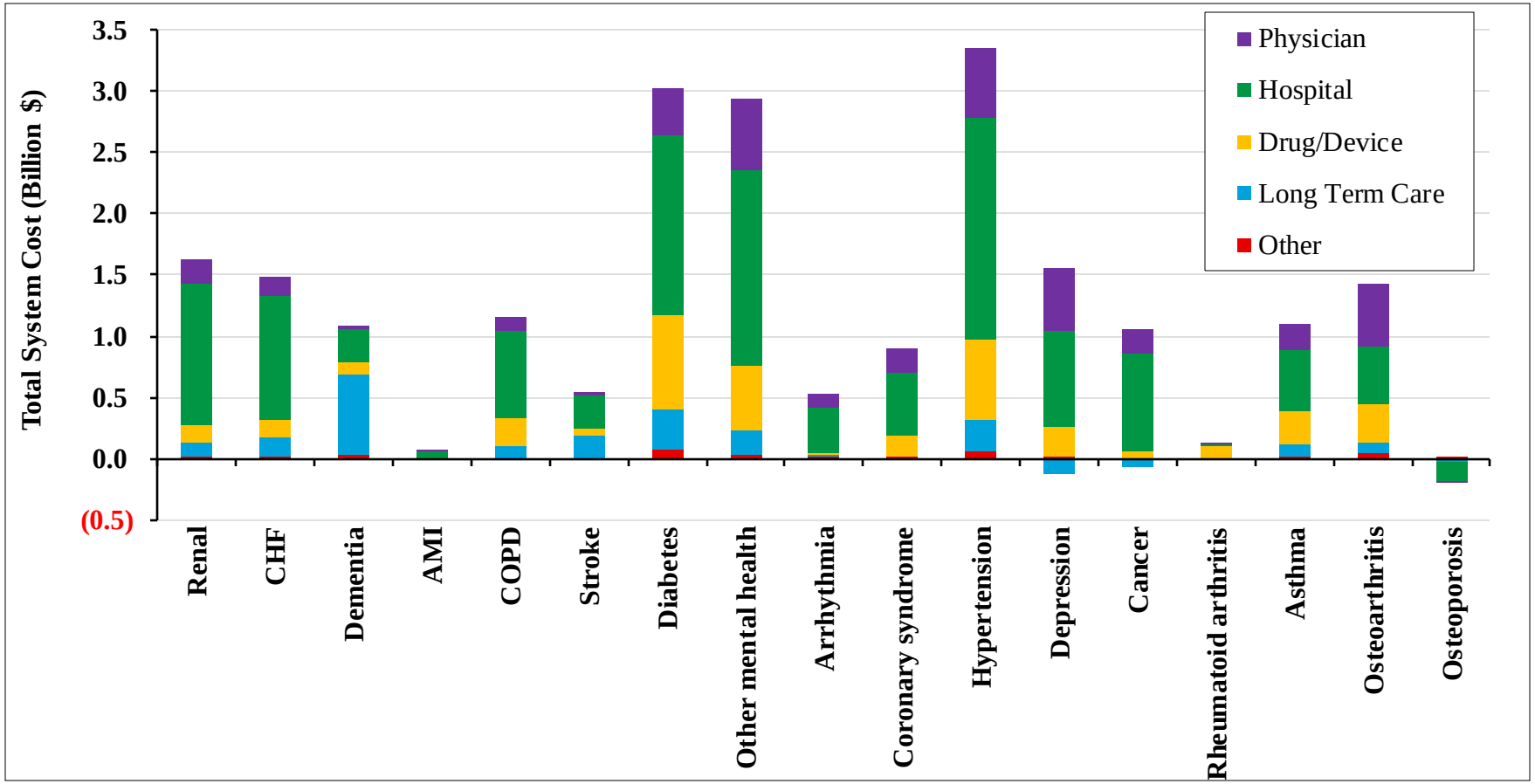
1. Burden: Average health system cost by condition

Ontario Population (pre-OHT): Average incremental cost by condition (per person per year)



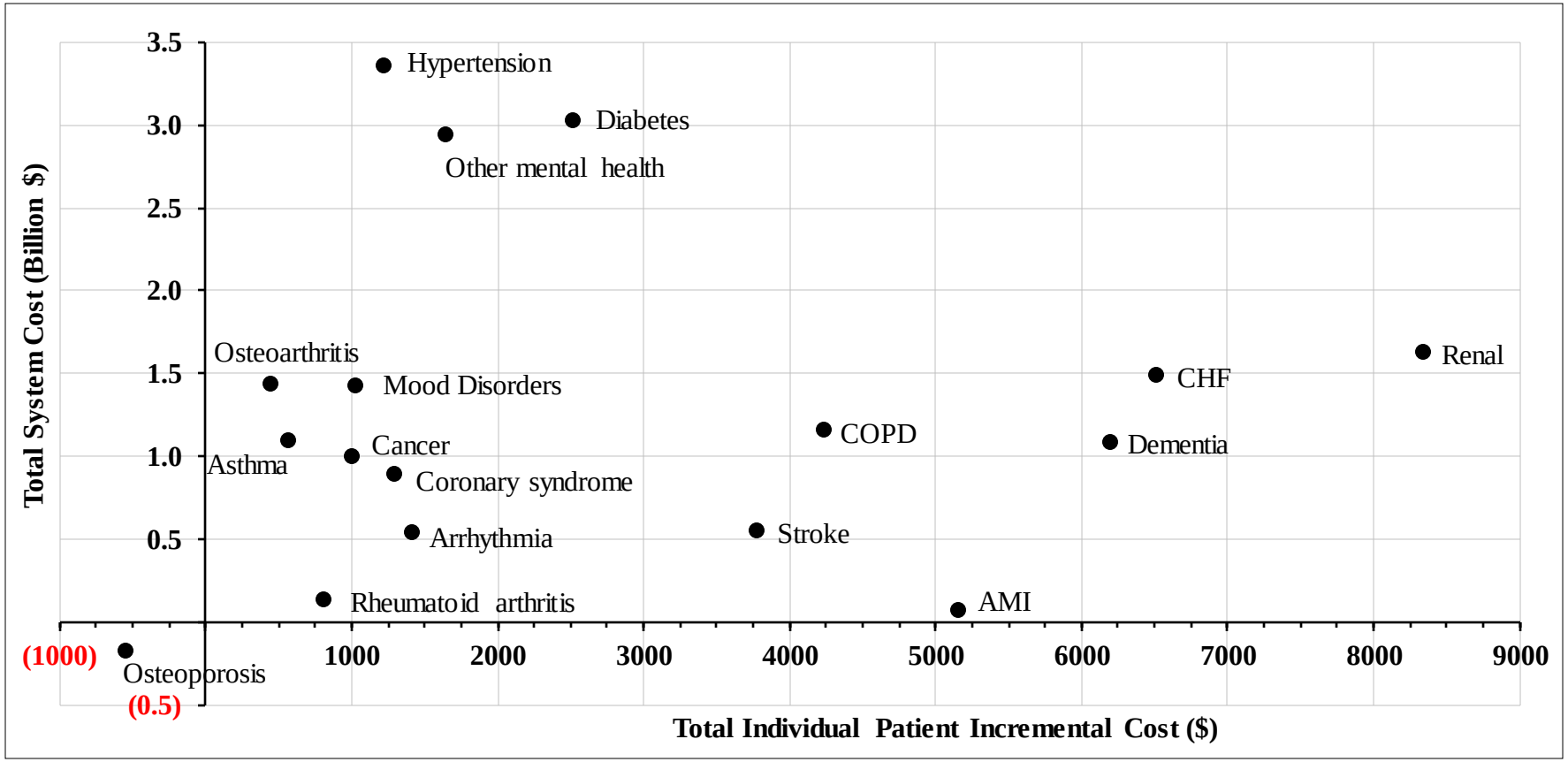
1. Burden: Total health system cost by condition

Ontario Population (pre-OHT): Total incremental system cost by condition per year



1. Burden: Total health system cost by condition

Ontario Population (pre-OHT) Individual incremental vs Total incremental system cost



1. Burden: Total health system cost by condition

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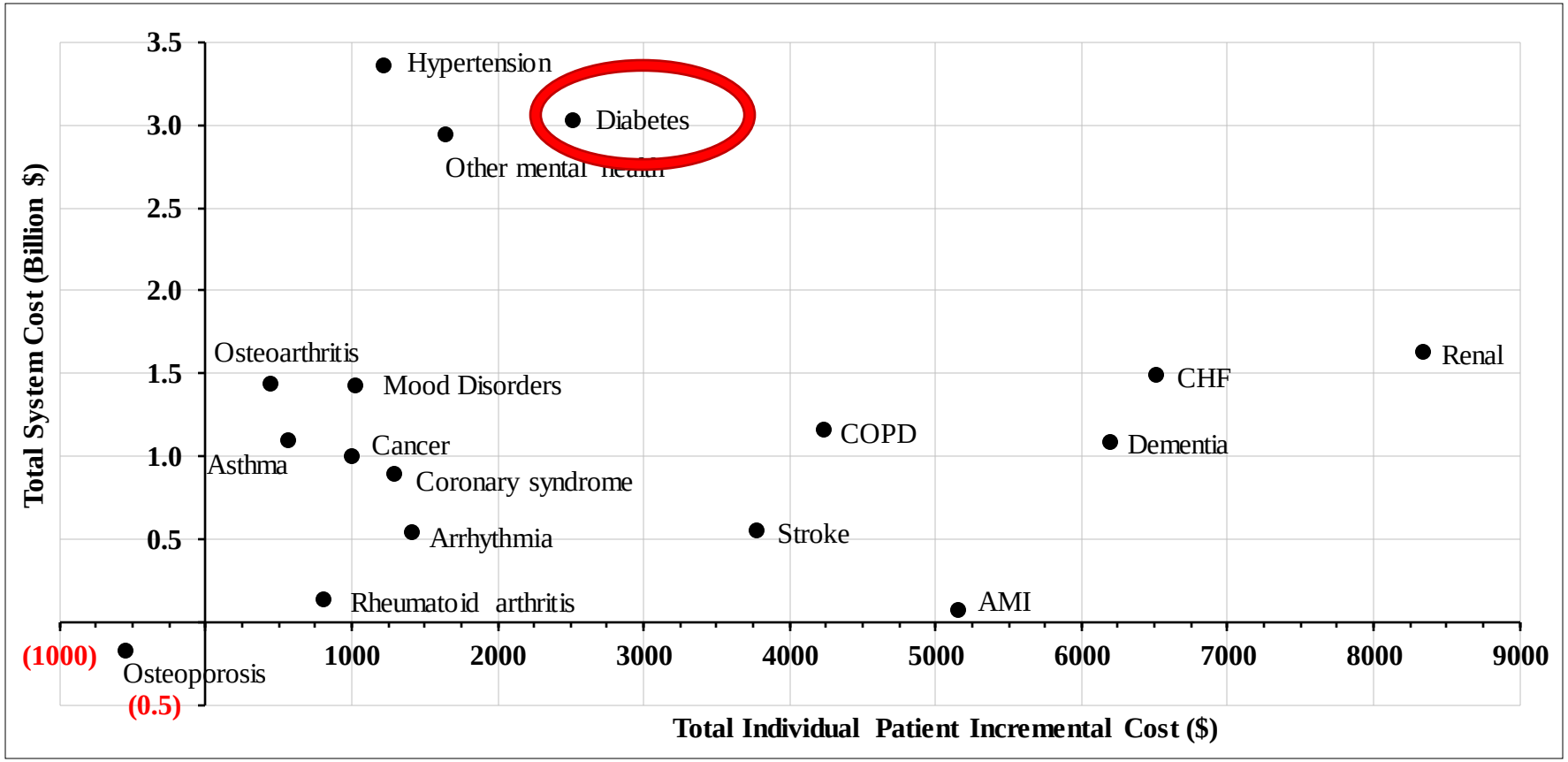
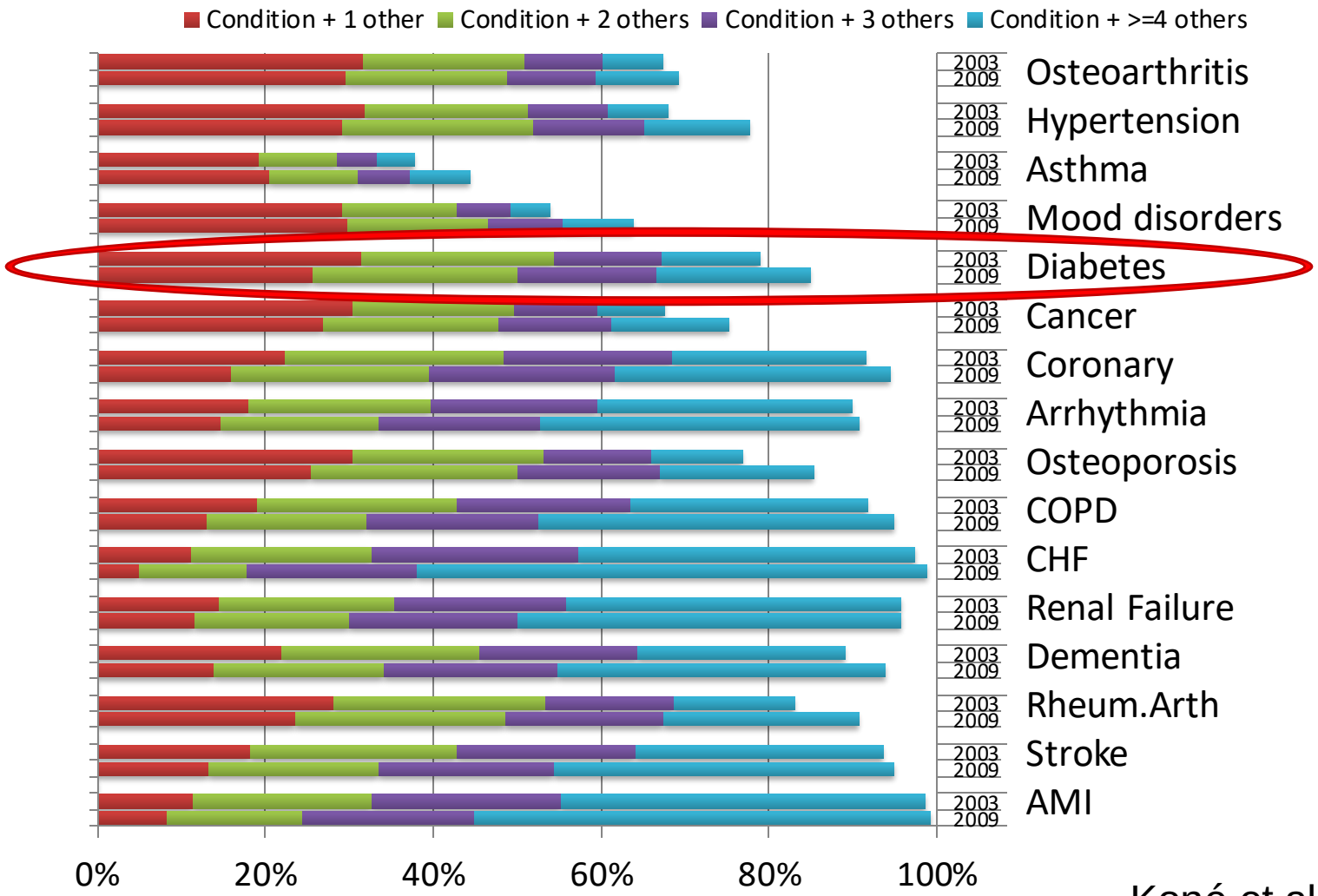


Sidebar: Person-centred care for people with Diabetes

People with diabetes also have other related and un-related conditions:

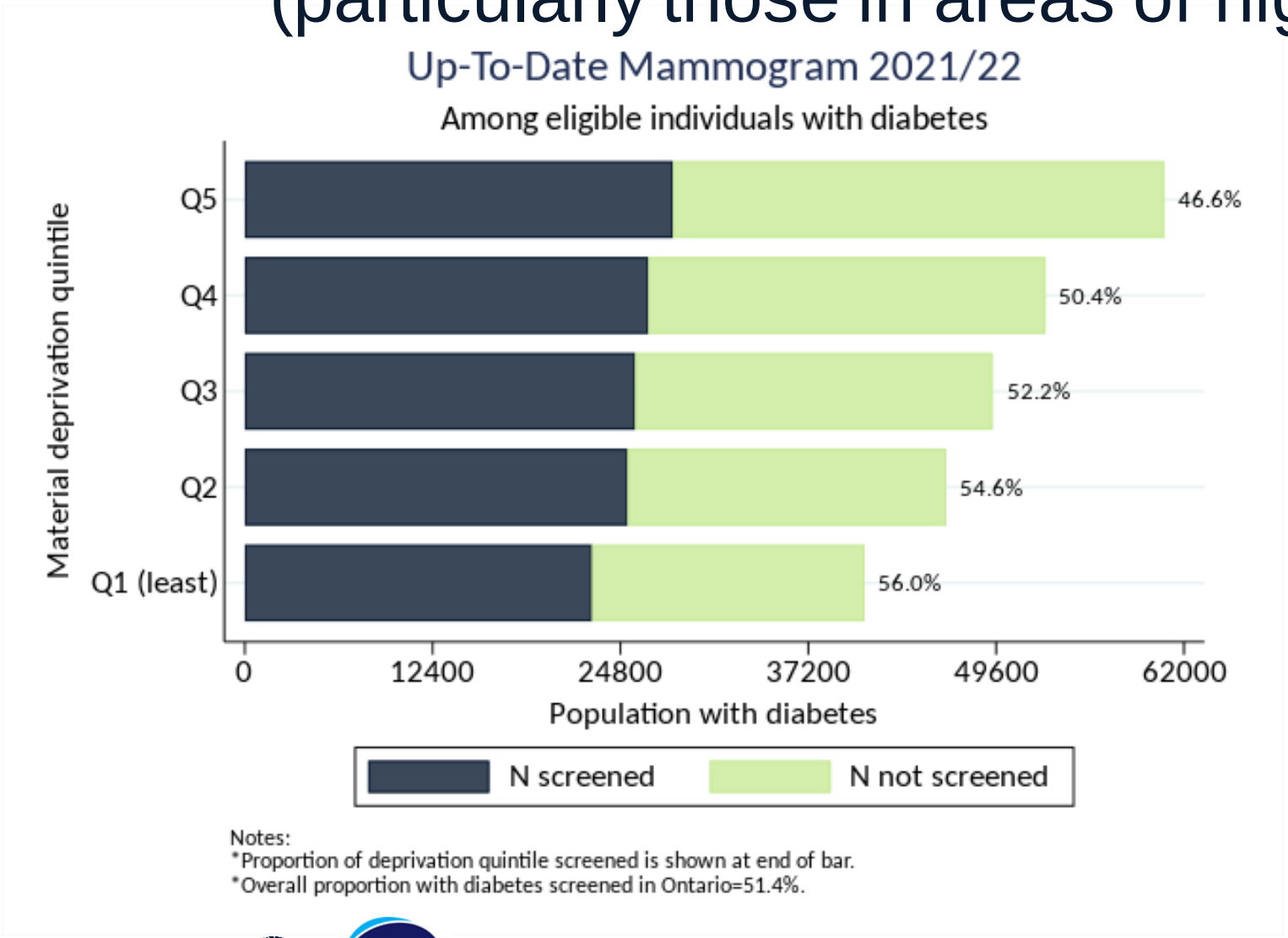
- What about co-morbidities amongst people with diabetes ?
- What about cancer screening for people with diabetes ?
- What about hospitalizations for CHF, COPD, Stroke & lower-limb amputations ?

At least 90% of people with Diabetes have other conditions



Koné et al., 2015

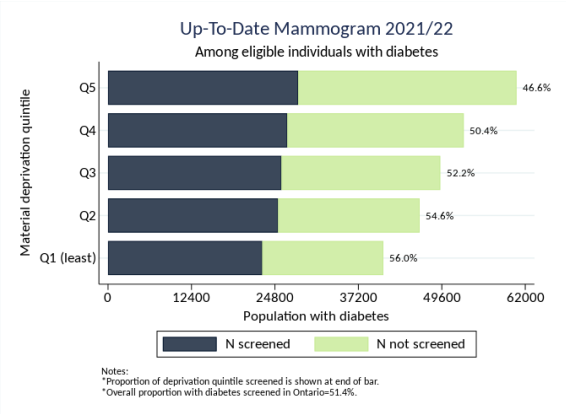
Mammogram uptake is low amongst people with diabetes (particularly those in areas of high deprivation)

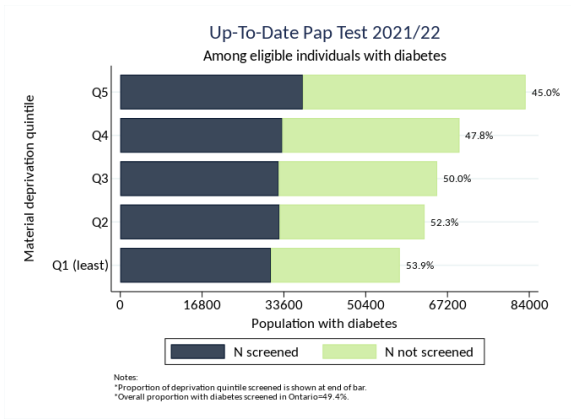


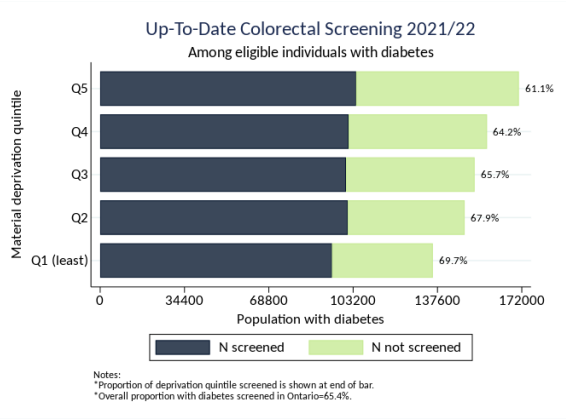
Horizontal axis shows the number of women 52-69 years:

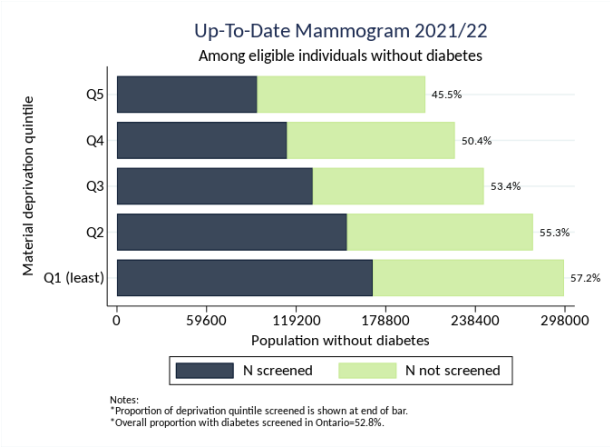
- Q5 is neighbourhood with highest level of deprivation.
- Bright green indicates number of women not screened;
- Dark blue represents number of women screened;
- Percentage to the right is the proportion of each segment screened.
- Ontario average indicated in figure footnote.

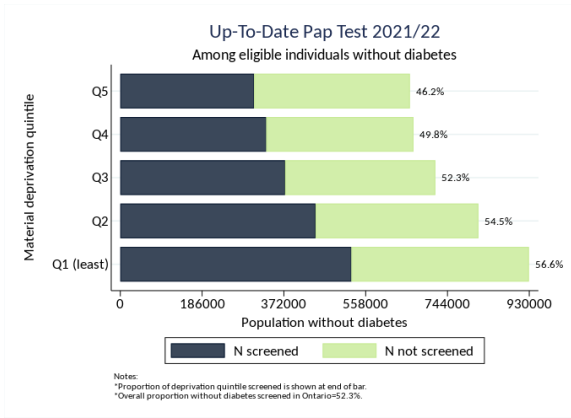
Cancer screening is lower amongst women with diabetes

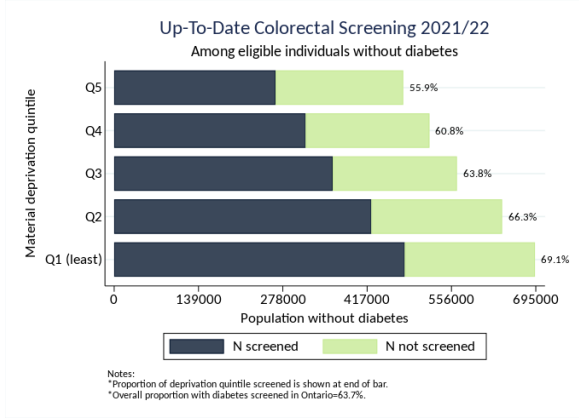




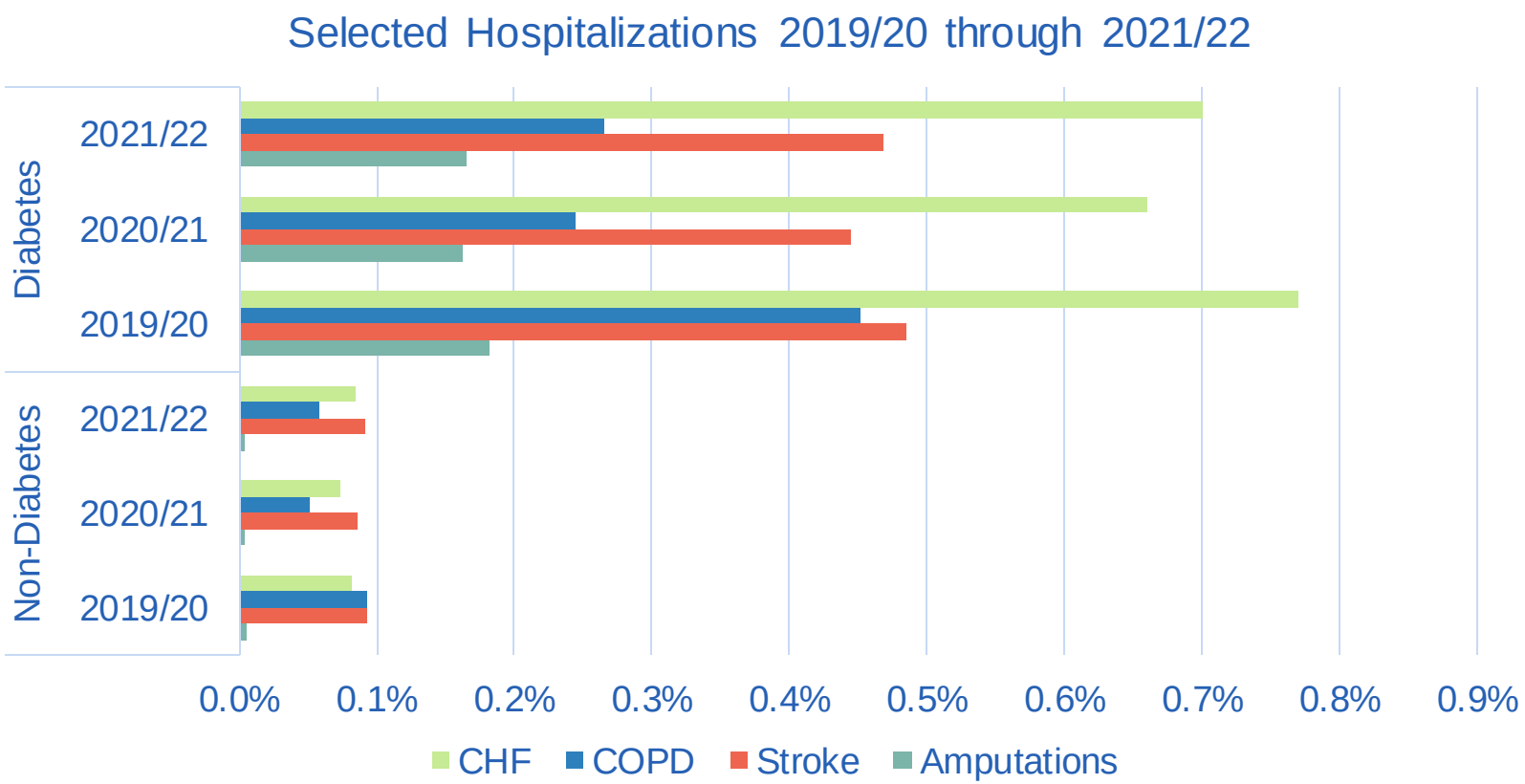








Hospitalizations for other conditions is much higher amongst individuals with diabetes



People with Diabetes have a <u>much</u> higher likelihood of hospitalizations for 'other' conditions as compared to Ontarians without Diabetes!

2. Gaps in Care: Selected Diabetes Indicators

- Proportion of patients with up-to-date HbA1c testing
  Proportion of patients that are regularly following-up on diabetes care

- Proportion of patients with up-to-date retinal examinations
  Allows timely treatment of diabetes eye complications through early detection

- Proportion of patients with a statin dispensed
  Prevents vascular complications among older diabetes patients

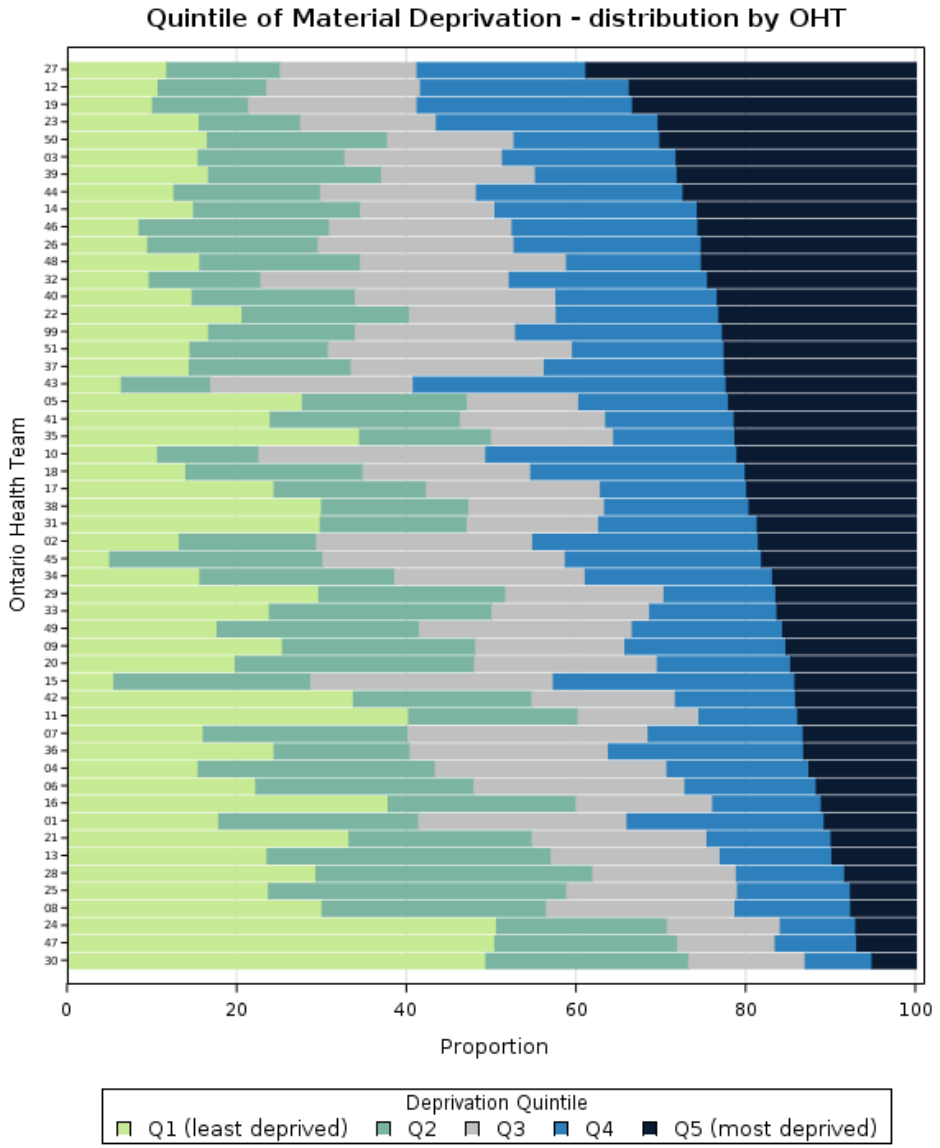
- Hospitalizations for long-term diabetes related complications
  Indicative of long-term poor management of disease resulting in blindness, kidney failure, loss of nerve function, amputation etc.

- Proportion of patients with HbA1c >7
  Provides information on long-term glycemic status and reliably predicts risk for diabetes-related complications

Equity: Material deprivation varies across OHTs

Quintile data:
A score of 5 means it is in the most deprived 20% of Ontario

The population living in the most deprived neighbourhoods varies from nearly 40% to less than 10% across OHTs



For information on ON-Marg, see:
Matheson FI & van Ingen T.
2016 Ontario Marginalization Index User Guide.
Toronto, ON. St. Michael's Hospital;
2018. Joint publication with Public Health Ontario.

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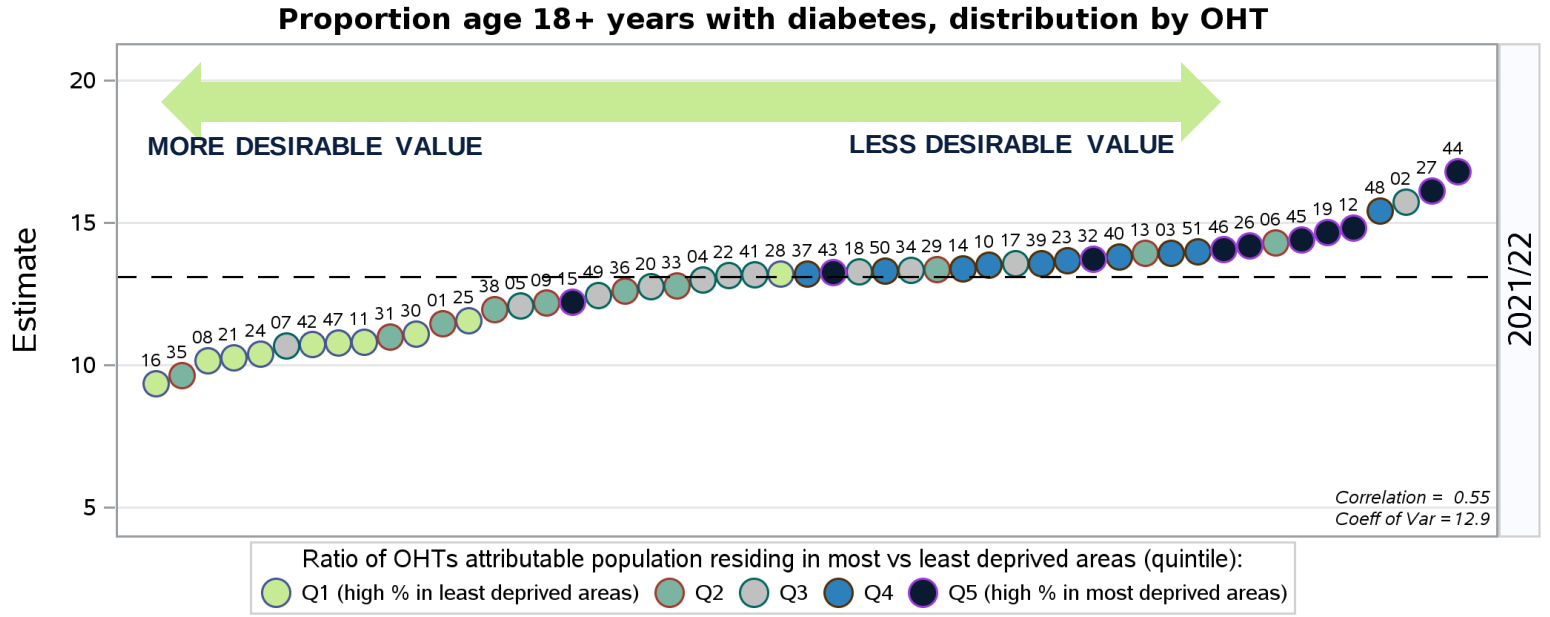
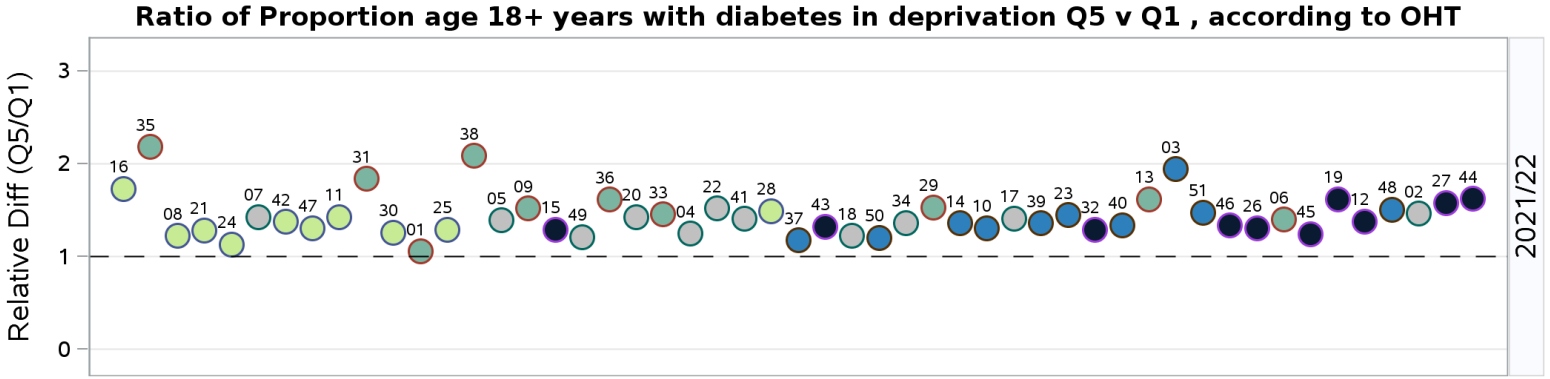
Prevalence of Diabetes across OHTs



Note: Dashed line reflects total population (crude) average in year



Note: Dashed line reflects null value (no difference between Q5 and Q1). OHTs with small Ns (numerator or denominator) are suppressed.

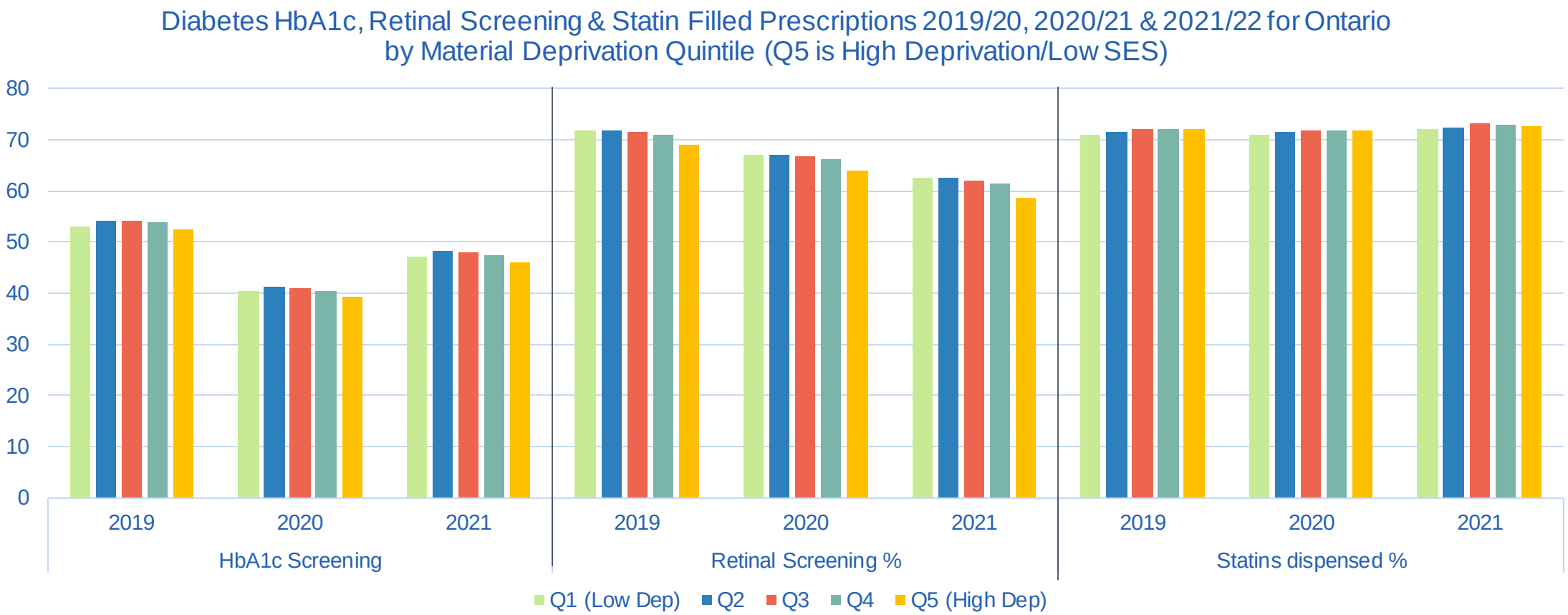
Mean: 13.1%

Range: 9.7%-16.8%

Moderate correlation with deprivation

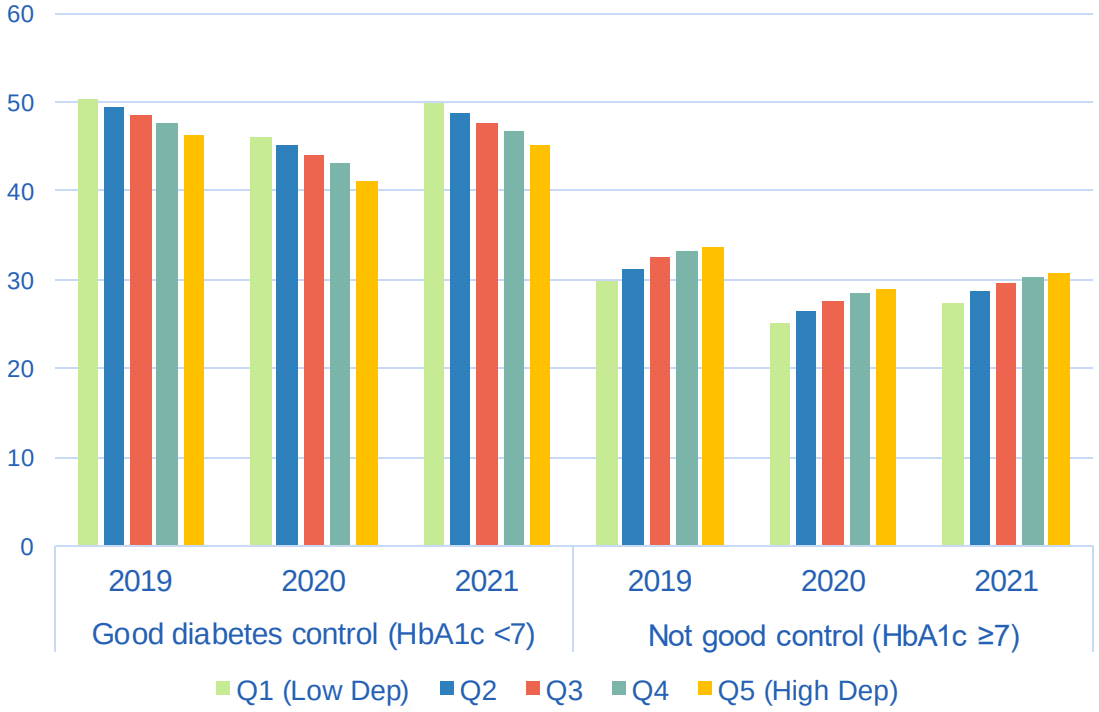
High variability *across and within* OHTs

Diabetes Management by Socio Economic Status

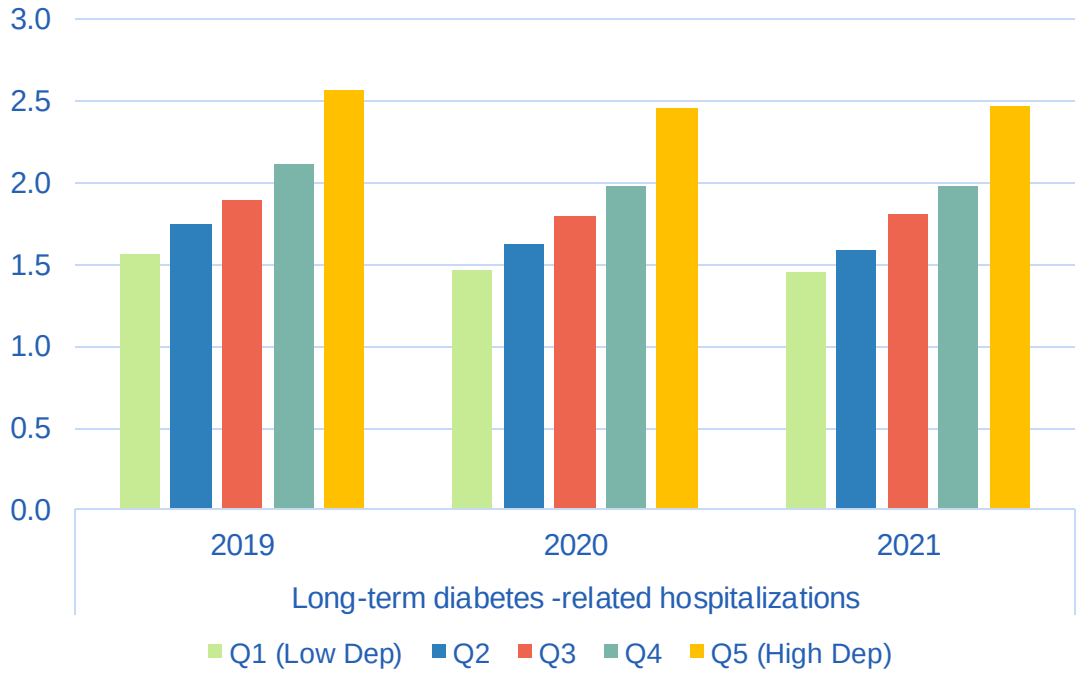


Diabetes Outcomes vary by Socio Economic Status

Diabetes HbA1c Control 2019/20, 2020/21 & 2021/22 for Ontario by Material Deprivation Quintile (Q5 is High Deprivation/Low SES) (missing is included in total %) Correlation with Deprivation: 0.33

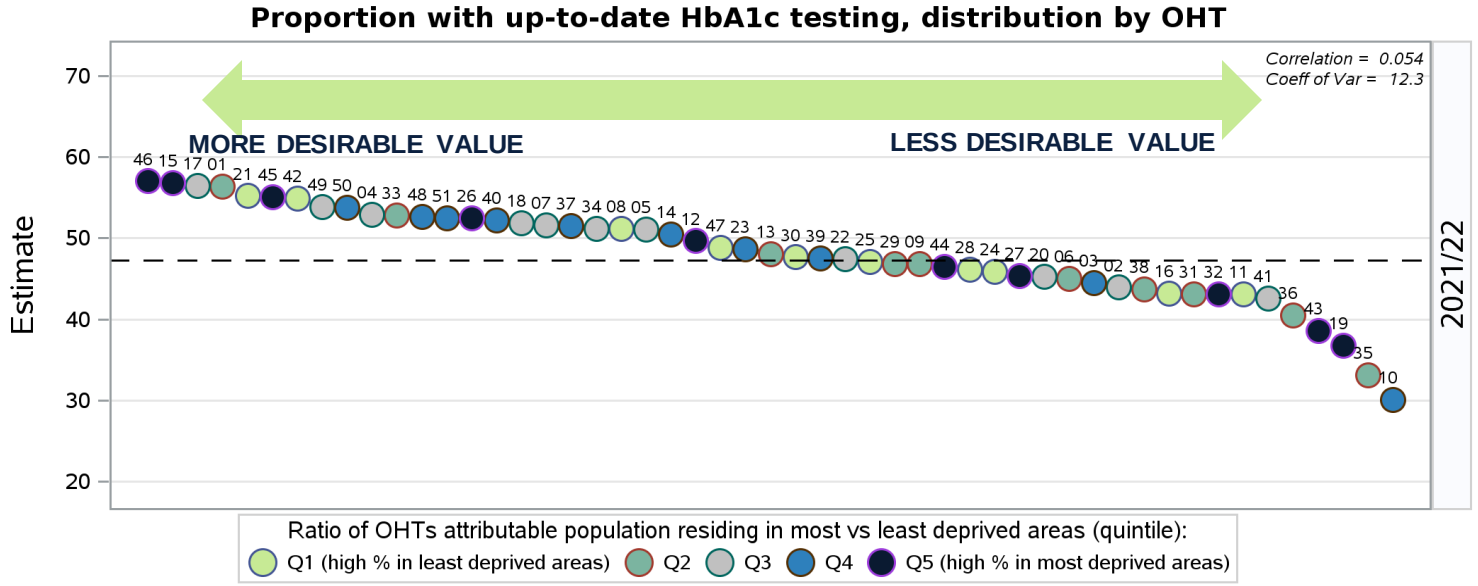


Diabetes-Related Hospitalizations in 2019/20, 2020/21 & 2021/22 for Ontario by Material Deprivation Quintile (Q5 is High Deprivation/Low SES) Correlation with Deprivation: 0.28

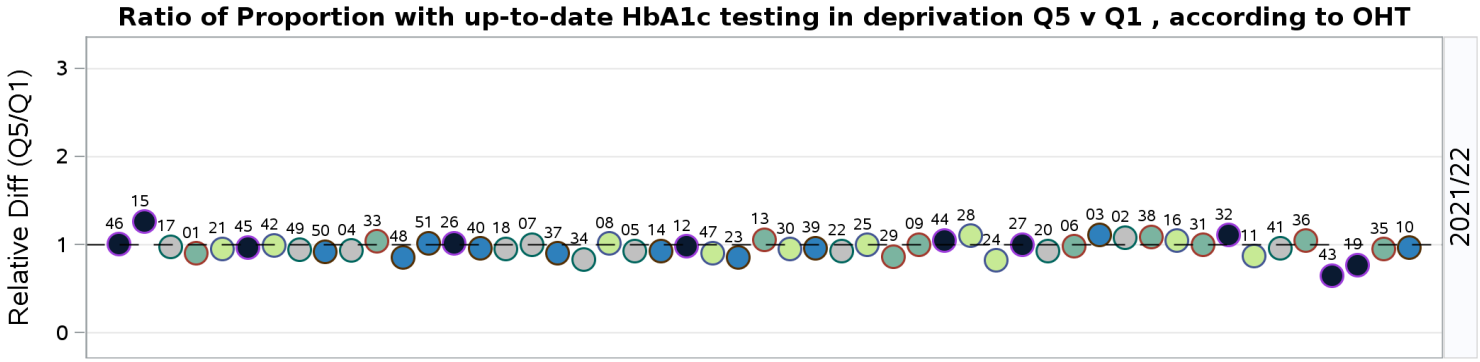


HSPN IC/ES

HbA1c Screening



Note: Dashed line reflects total population (crude) average in year



Note: Dashed line reflects null value (no difference between Q5 and Q1). OHTs with small Ns (numerator or denominator) are suppressed.

Mean: 47.3%

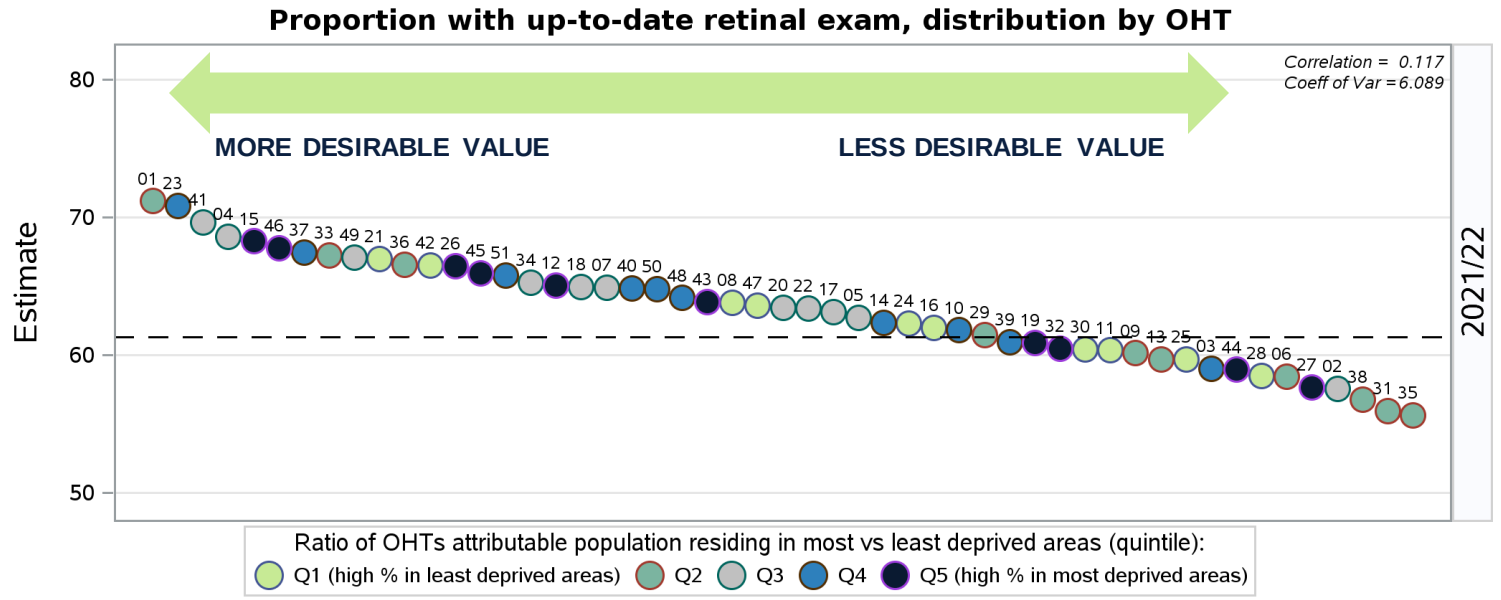
Range: 30.3%-56.7%

Weak correlation with deprivation

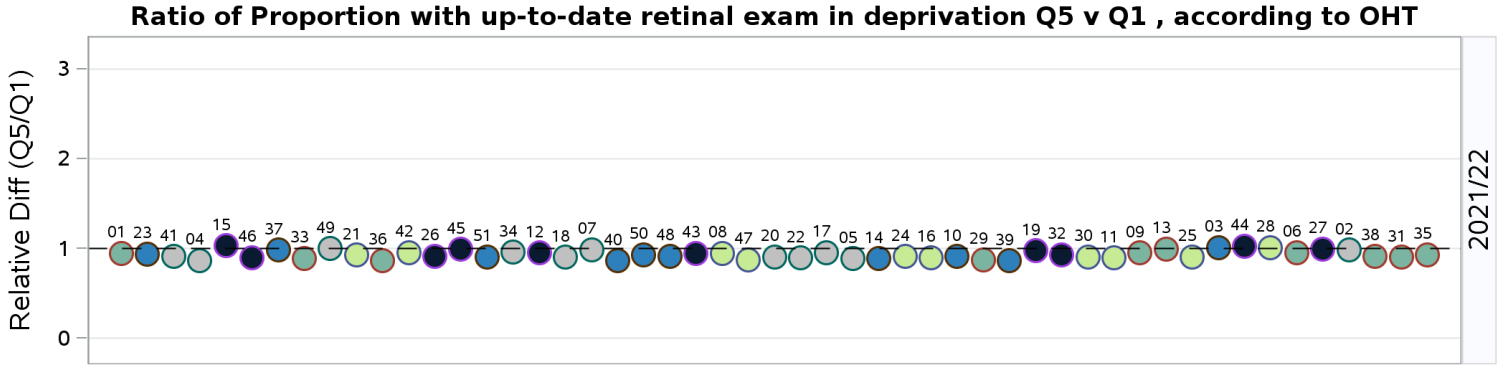
High variability across the OHTs

Outcome is similar in Q1 and Q5 in almost all OHTs

Retinal Examination



Note: Dashed line reflects total population (crude) average in year



Note: Dashed line reflects null value (no difference between Q5 and Q1). OHTs with small Ns (numerator or denominator) are suppressed.

Mean: 61.3%

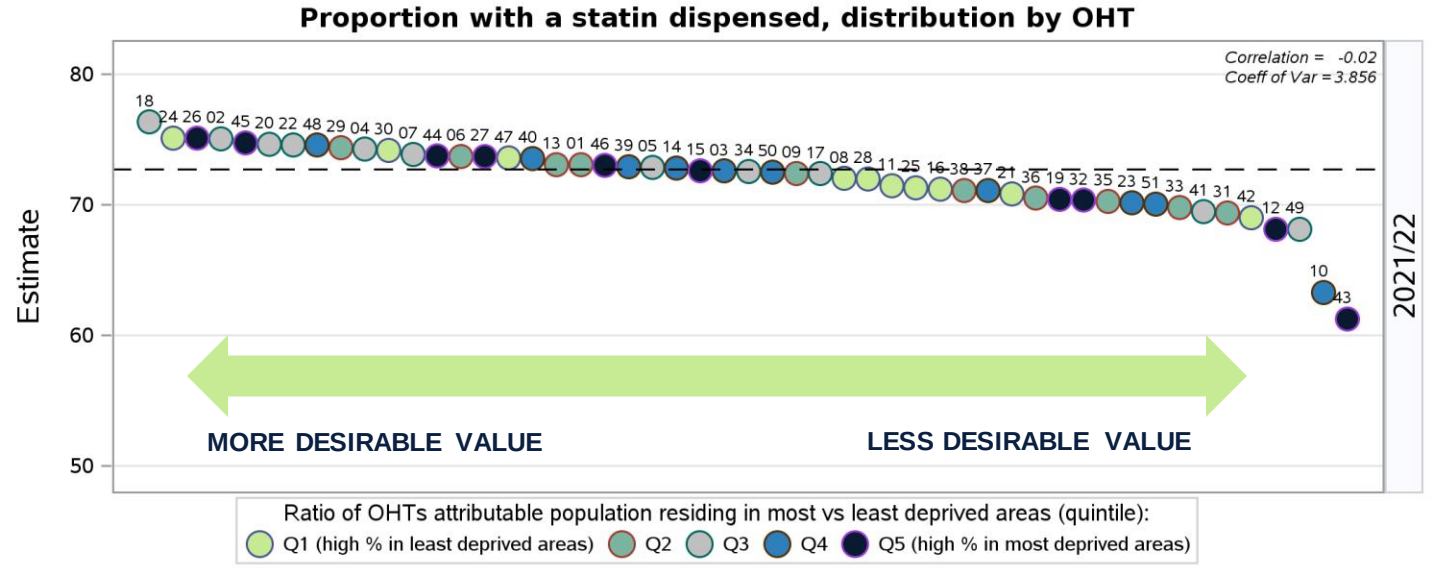
Range: 55.6% to 71.1%

Weak correlation with deprivation

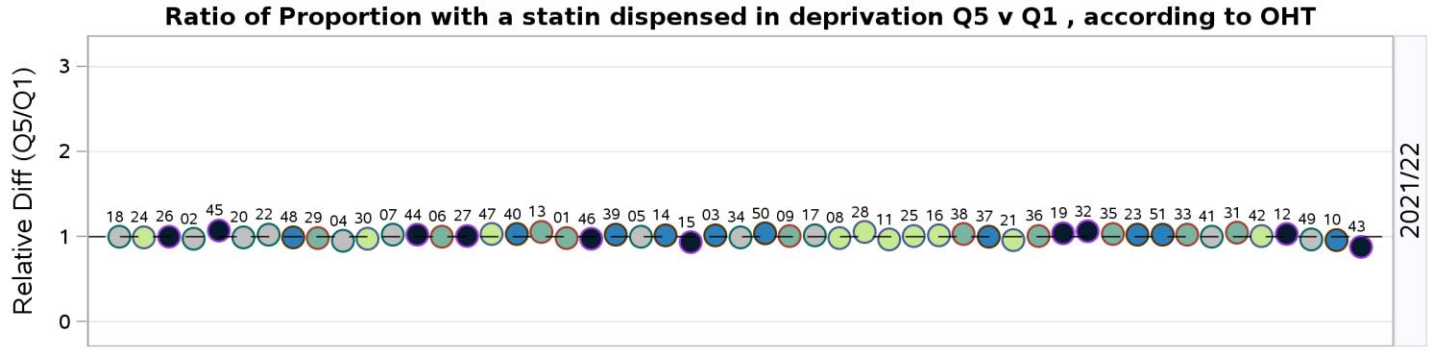
High variability across the OHTs

Outcome is similar in Q1 and Q5 in almost all OHTs

Statins Dispensed



Note: Dashed line reflects total population (crude) average in year



Note: Dashed line reflects null value (no difference between Q5 and Q1). OHTs with small Ns (numerator or denominator) are suppressed.

Mean: 72.7%

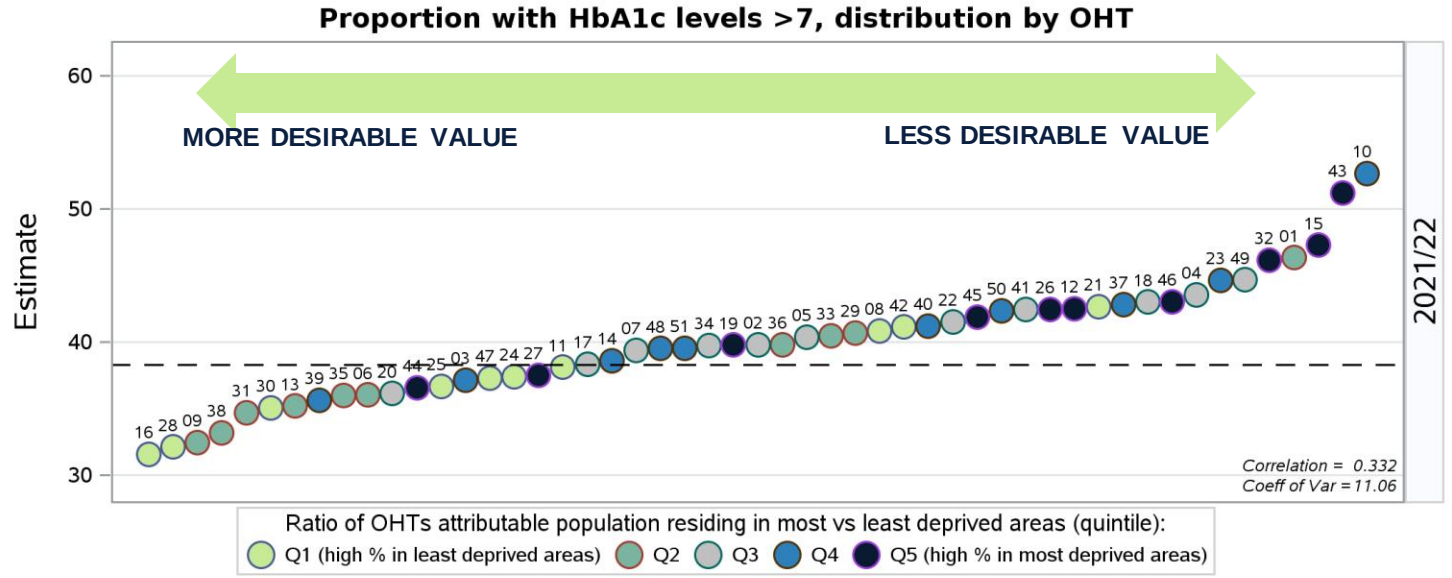
Range: 61.2% - 76.3%

Very weak correlation with deprivation

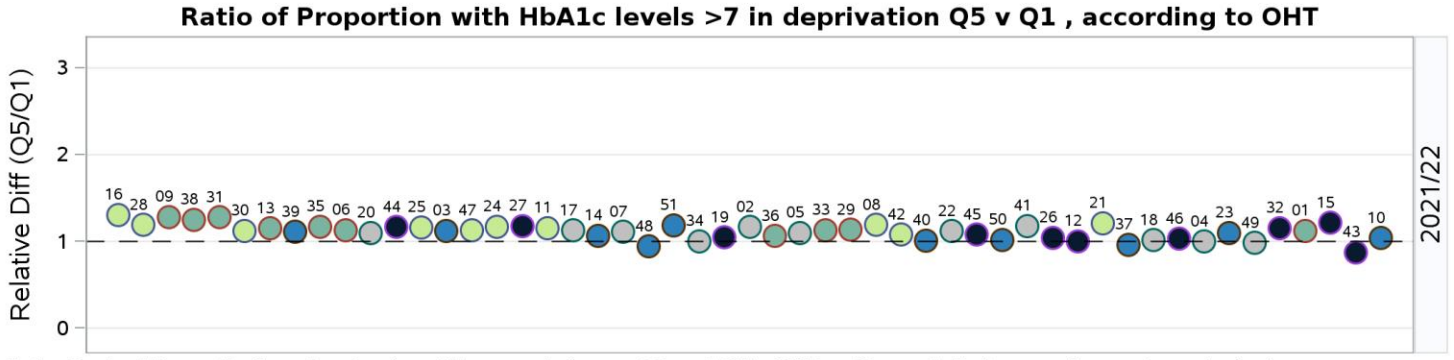
High variability across the OHTs

Outcome is similar in Q1 and Q5 in almost all OHTs

Patients with HbA1c levels ≥7



Note: Dashed line reflects total population (crude) average in year



Note: Dashed line reflects null value (no difference between Q5 and Q1). OHTs with small Ns (numerator or denominator) are suppressed.

Mean: 38.31

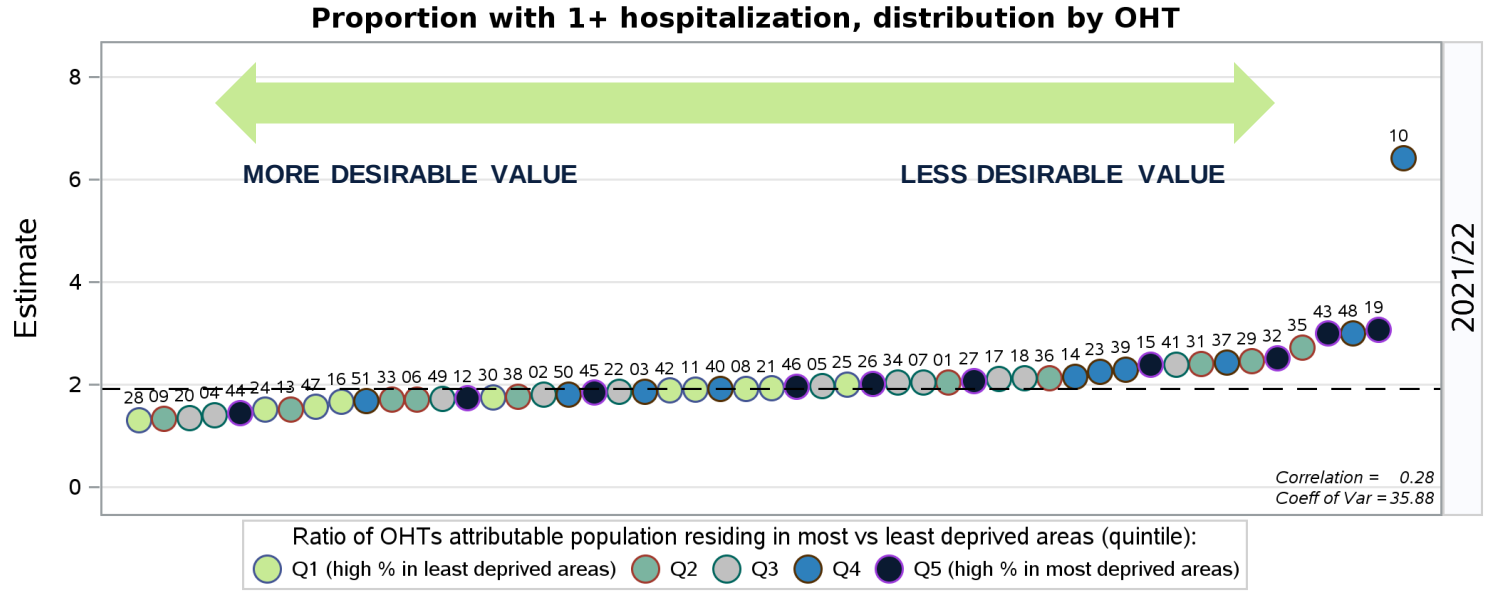
Range: 31.5%-57.5%

Weak to moderate correlation with deprivation

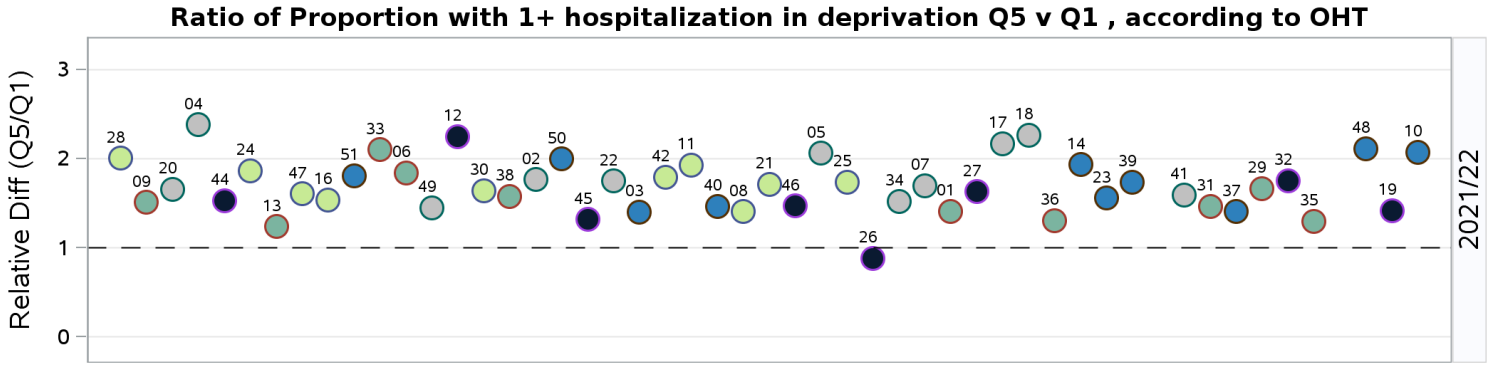
High variability across the OHTs

Outcomes are higher in Q5 compared to Q1 in almost all OHTs

Hospitalization for Long-term Complications



Note: Dashed line reflects total population (crude) average in year



Note: Dashed line reflects null value (no difference between Q5 and Q1). OHTs with small Ns (numerator or denominator) are suppressed.

Mean: 2.04%

Range: 1.3% to 6.19%

Weak to moderate correlation with deprivation

High variability across the OHTs

Outcomes are higher in Q5 compared to Q1 in almost all OHTs

Summary

- Overall Diabetes management is moderate :
  - 47% up to date on 2 HbA1c tests in past year
  - 61% up to date on retinal screening
  - 72% receiving recommended statin therapy

- There is high degree of equity (equally moderate achievement) in accessing the above diabetes management services.

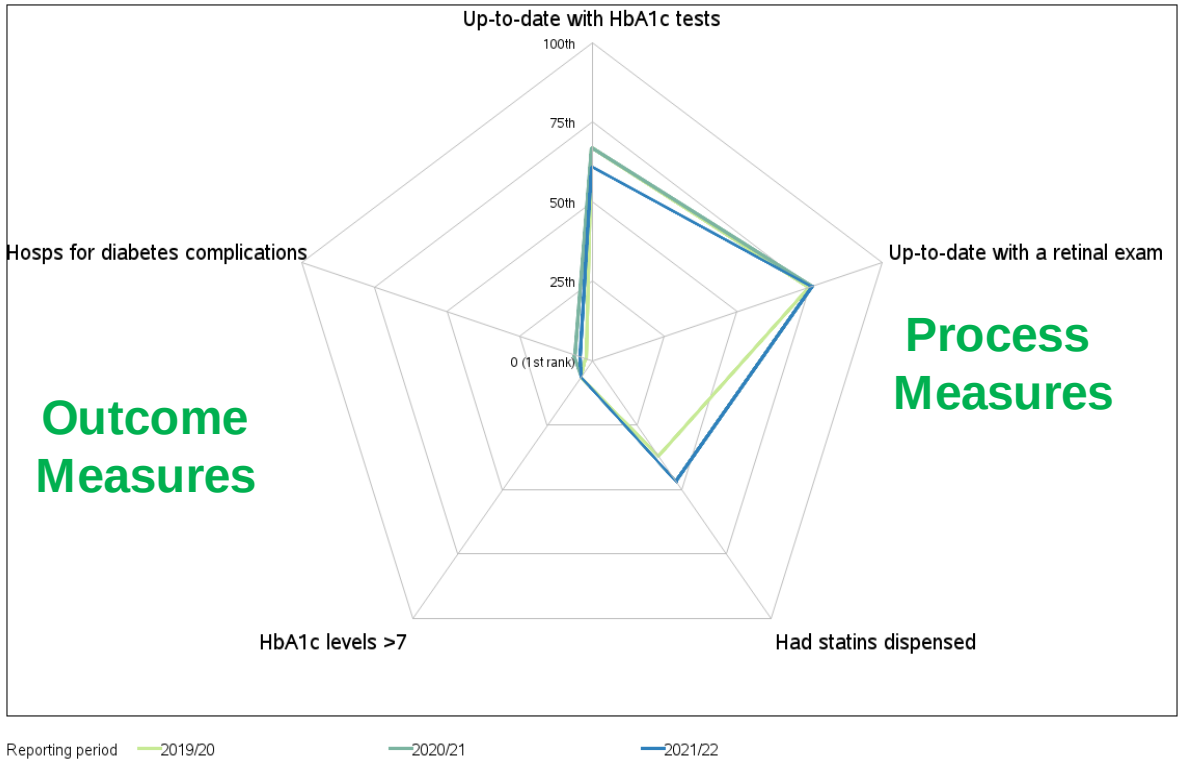
- There are *inequities* in the health outcomes associated with diabetes:
  - patients from more-deprived neighbourhoods have higher hospitalization rates for diabetes related complications and higher proportions of HbA1c >7 (uncontrolled diabetes)

OHT Population Level Management ≠ Outcomes

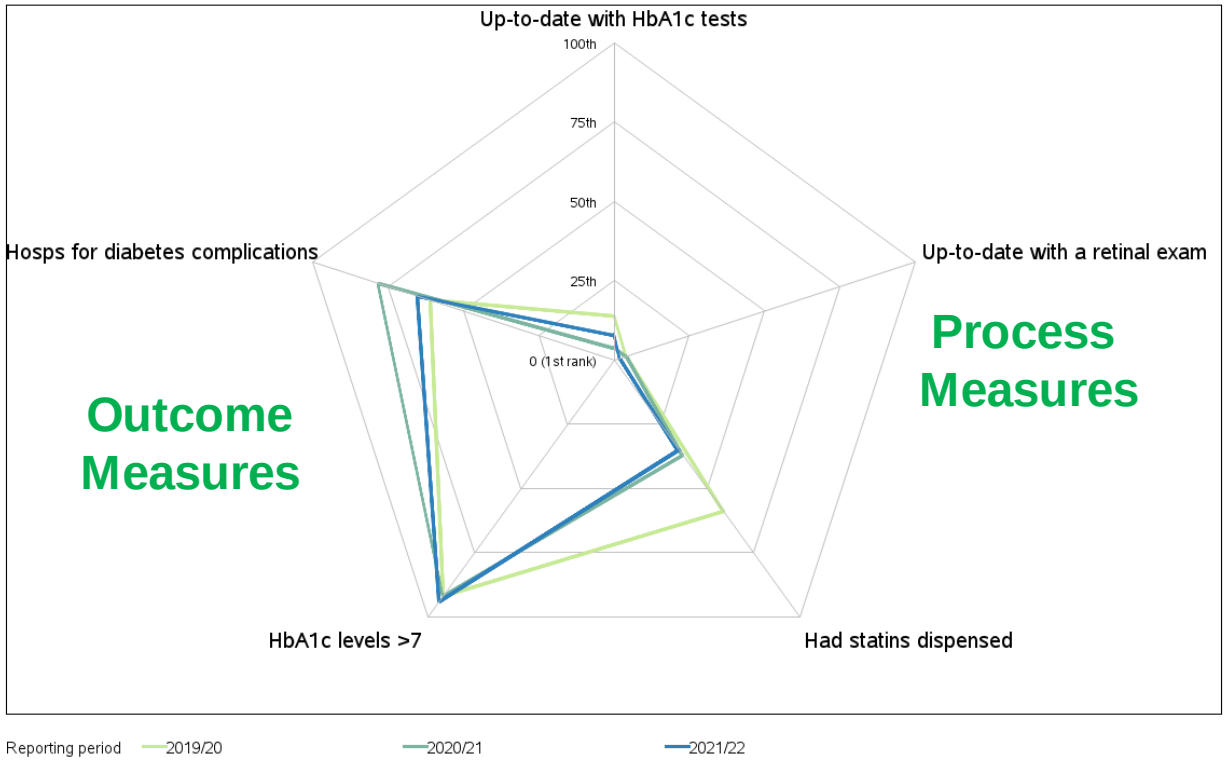
HSPN has sent each OHT individual OHT-level indicator data.

HSPN Spider Diagrams – Being "**On Target**" (**Near Centre)** indicates best performance in Ontario

OHT A: Top Performer on outcomes; Weaker on management



OHT B: Poor outcomes; Ok on management



OHT Population Level Management ≠ Outcomes cont'd

- Although OHTs with good management indicators do not always have good outcomes, this does ***not*** mean that **diabetes screening/management** is not related to **diabetes outcomes**

- Patients up-to-date on HbA1c screening are significantly less likely to be hospitalized for long-term diabetes related complications in the very next year ! (* and long-term complications can take years to accumulate)

- Disparities in screening and outcomes at the population-level are likely driven by subset of population that are not up-to-date on screening

	Not Hospitalized	Hospitalized	Hospitalization Rate
Not up-to-date with HbA1c screening	738,869	15,783	2.09%
Up-to-date with HbA1c Screening	663,891	12,039	1.78%

HSPN

Key Takeaways

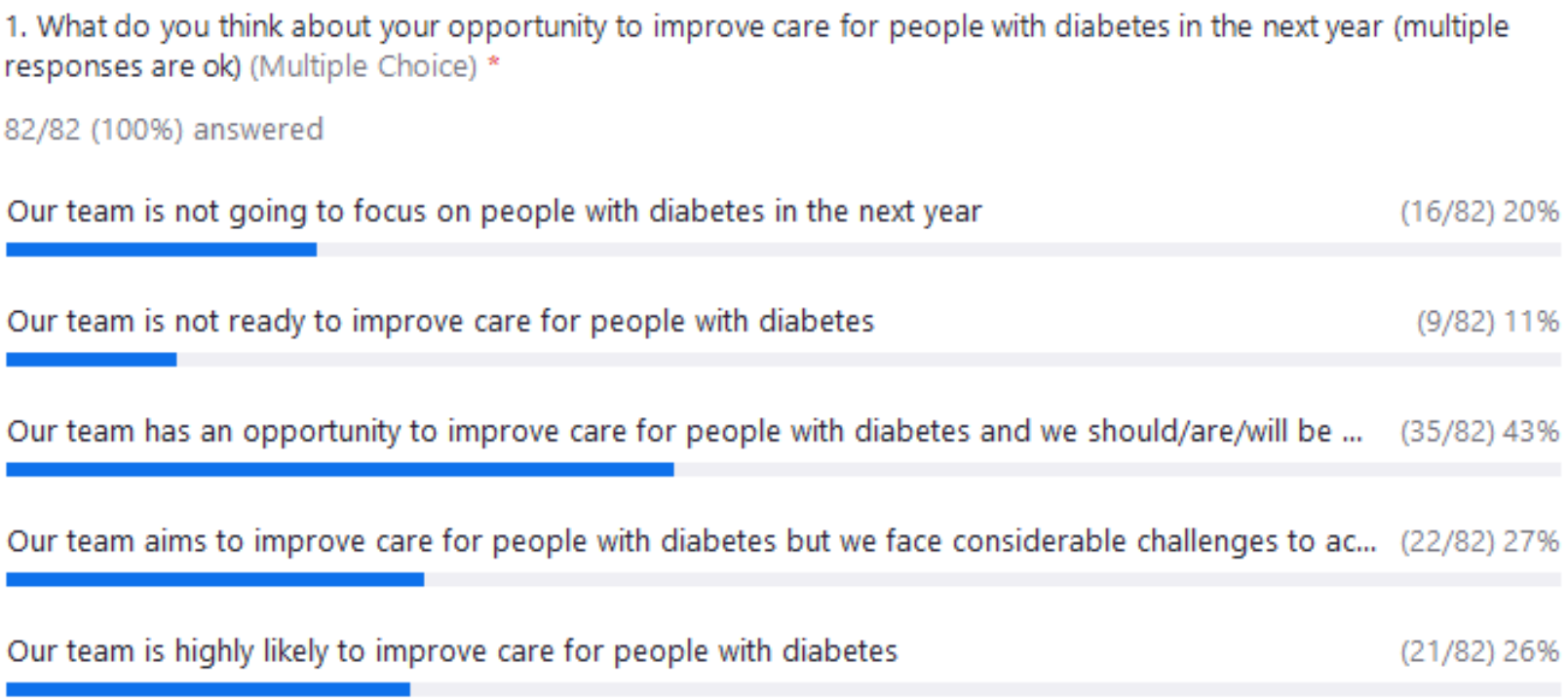
- Achieving diabetes management will require new strategies to reach those individuals who are not keeping up to date with diabetes management.
- While it is vital that patients *access* care, simply accessing care is not enough. We must also ensure that care accessed is *effective.*
- There may be more to reducing complications than merely diabetes management. Social determinants may play a role. Diabetes management at the population level requires coordination across different healthcare sectors.
- More research (LR's thesis) will look more carefully at the drivers of good (and poor) diabetes-related health and hospital outcomes.

Population health management

- Opportunities for Improvement : e.g. Diabetes or other conditions

3. Evidence-based interventions and targets/measures
4. Willing providers
5. Implementation supports available

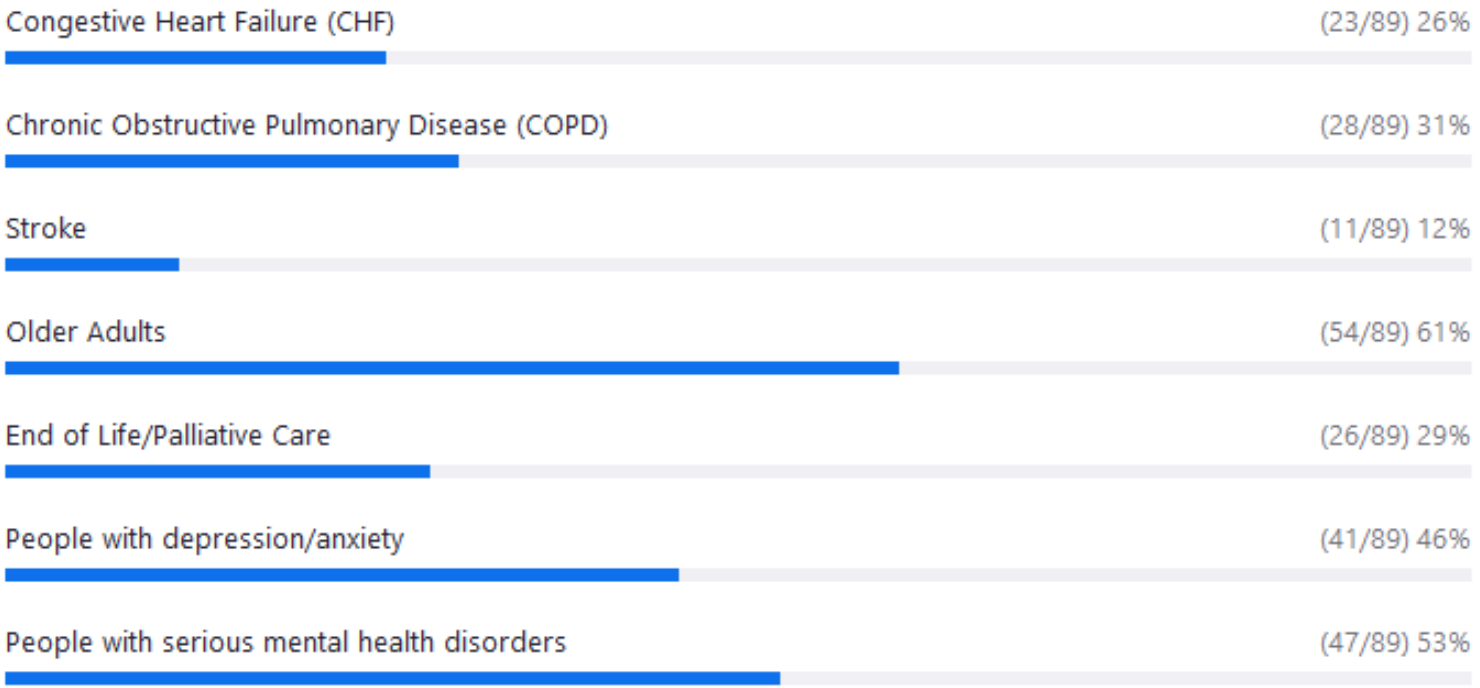
Poll 3:


1. What do you think about your opportunity to improve care for people with diabetes in the next year (multiple responses are ok) (Multiple Choice) *
82/82 (100%) answered
Our team is not going to focus on people with diabetes in the next year (16/82) 20%
Our team is not ready to improve care for people with diabetes (9/82) 11%
Our team has an opportunity to improve care for people with diabetes and we should/are/will be ... (35/82) 43%
Our team aims to improve care for people with diabetes but we face considerable challenges to ac... (22/82) 27%
Our team is highly likely to improve care for people with diabetes (21/82) 26%

Poll 4:

1. What other population groups are you aiming to make improvements for ?(multiple responses are ok) (Multiple Choice) *

89/89 (100%) answered



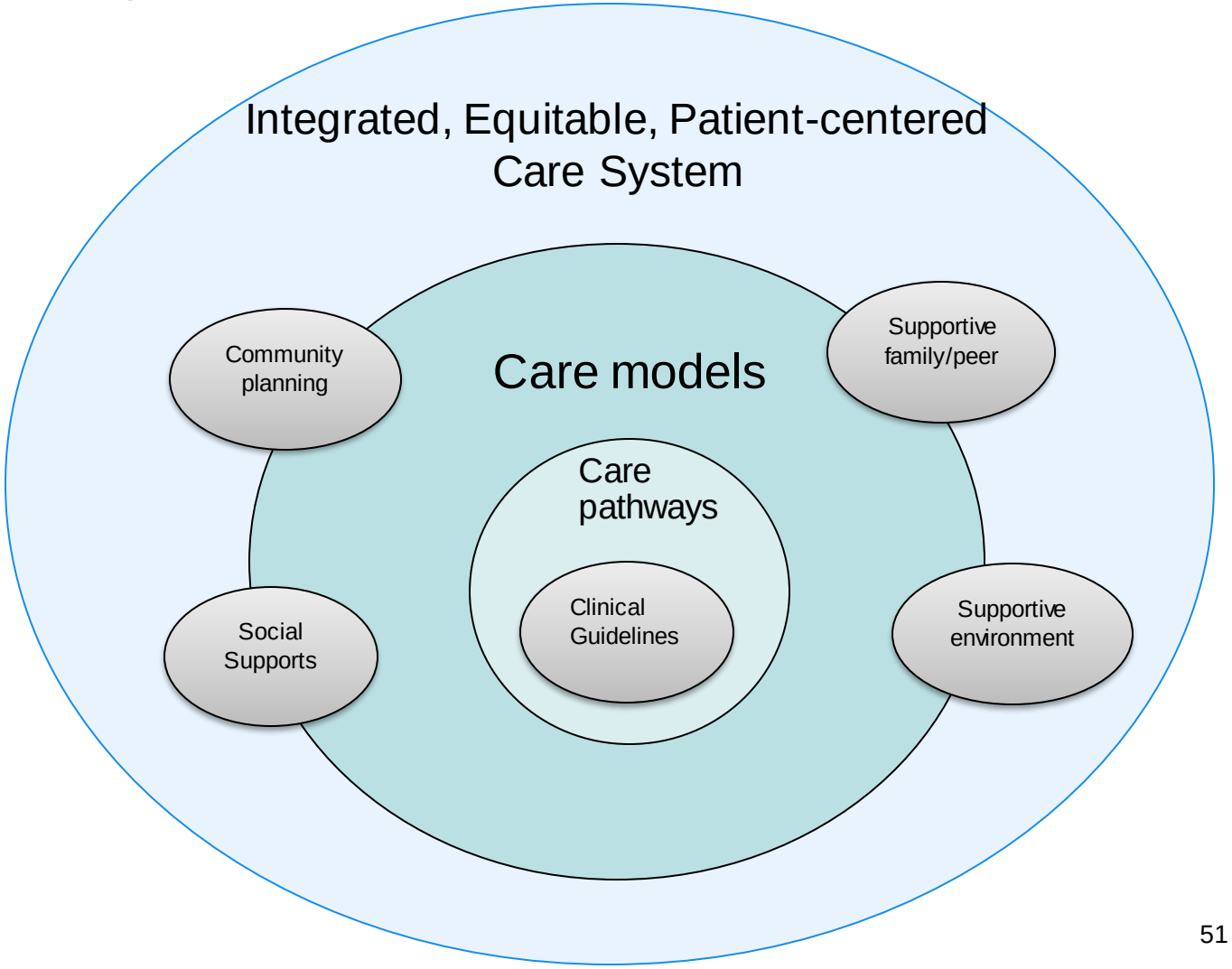
Discussion Question :

What are your challenges and opportunities to advance care based on your knowledge of population burden and gaps in care? For what populations?

Respond in the chat

Building a Care Model to manage Prevention and Chronic Care

- **Current system** built on short, episodic care needs –REACTIVE
- **Need system** that anticipates patient needs and PROACTIVELY delivers care.
- **Need to build care model** that accommodates 80% of care needs.
- **Start with** a chronic condition that has high prevalence, increasing (over time) system utilization that is not integrated and substantial preventive care.
- **Diabetes is often chosen for integration efforts**
- **Once the integrated infrastructure is built** to manage DM, the system can now accommodate new conditions by adding the clinical guidelines and disease specific care pathways.



What we know about the diabetes population

summary of data

% of total attributed population: ~13%*

Comorbidities

#1 hypertension (~82%),
#2 overweight or obesity (~78%),
#3 hyperlipidemia (~77%),
#4 chronic kidney disease (~24%) and
#5 cardiovascular disease (~21%).
#6 depression (~15-30%)

Common subpopulations

- (e.g., Type 1, Type 2, rural, most deprived, low self confidence, etc.)

Selected Statistics for Segmentation

- 30% of patients **will have 3 or more co-morbidities** at diagnosis increasing to 60% ten years later
- People with five or **more comorbidities at diagnosis had higher prevalence of (in order of prevalence) hypertension, back pain, depression, asthma and osteoarthritis.**
- People with obesity at diagnosis had substantially different comorbidity profiles to those without, and the five commonest comorbidities were 50% more common in this group.

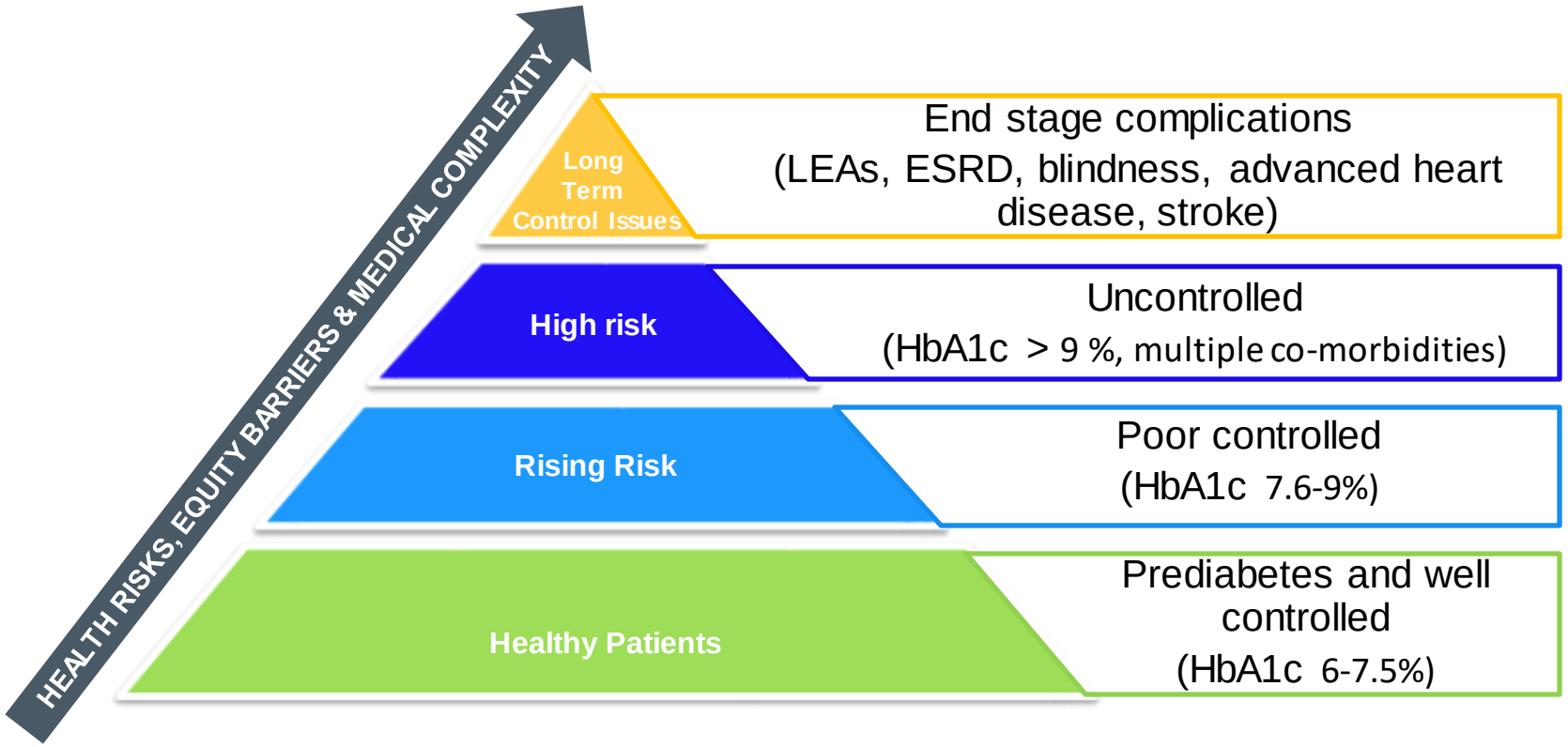
Ideas for Segmenting the Diabetes Population

Best to start with primary care data.

- **HbA1c:** <7, 7-8.9, 9>
- **Multiple indicators:** HbA1c, LDL, BP, presence of neuropathy, kidney disease, heart disease.
- **Age and number of high-risk chronic condition**
- **Confidence managing health** (needs data collection)
- **Place them in the risk pyramid**

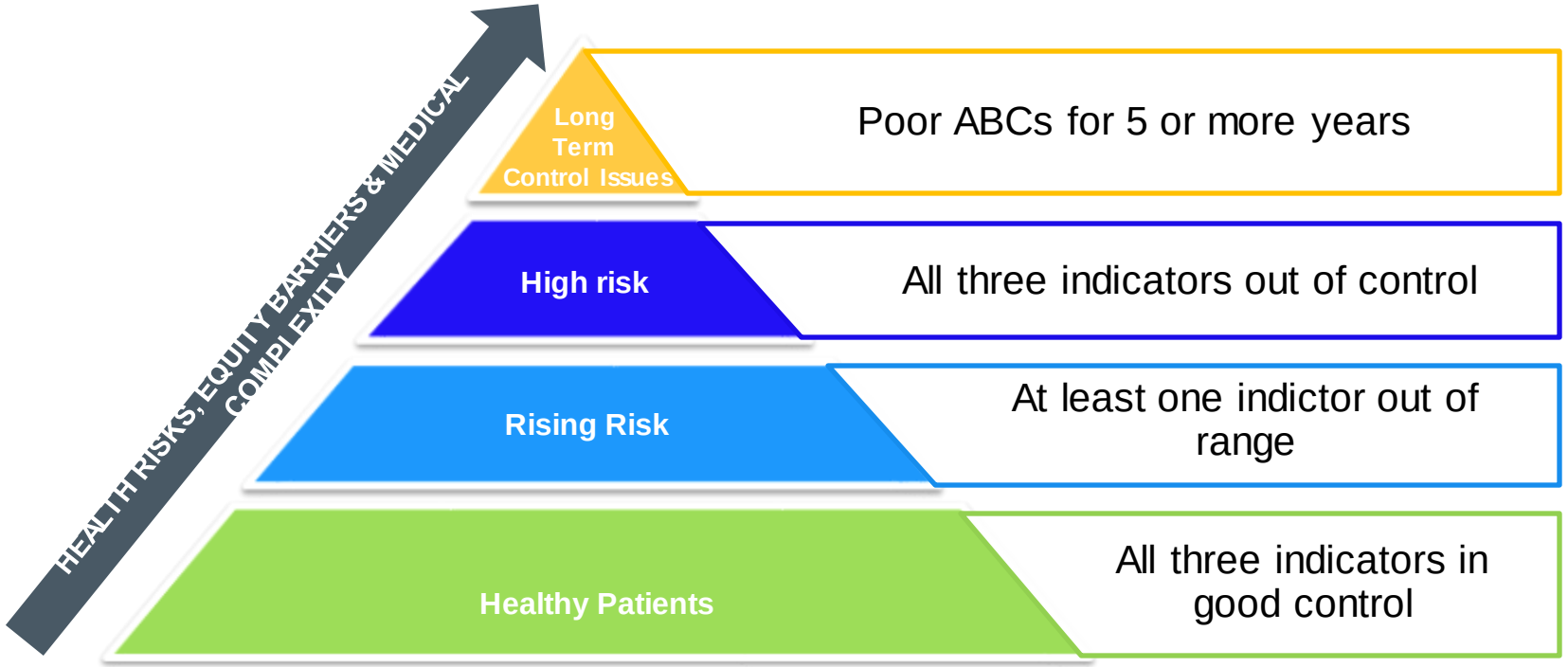
Regardless of segmentation approach, consider the impact of Social Determinants: poverty, racism/marginalization, health literacy, housing. More determinants, more impact on outcomes across all segments.

Population Segmentation: An example of using HbA1c to segment those with diabetes



Source: Adapted from Kaiser Permanente

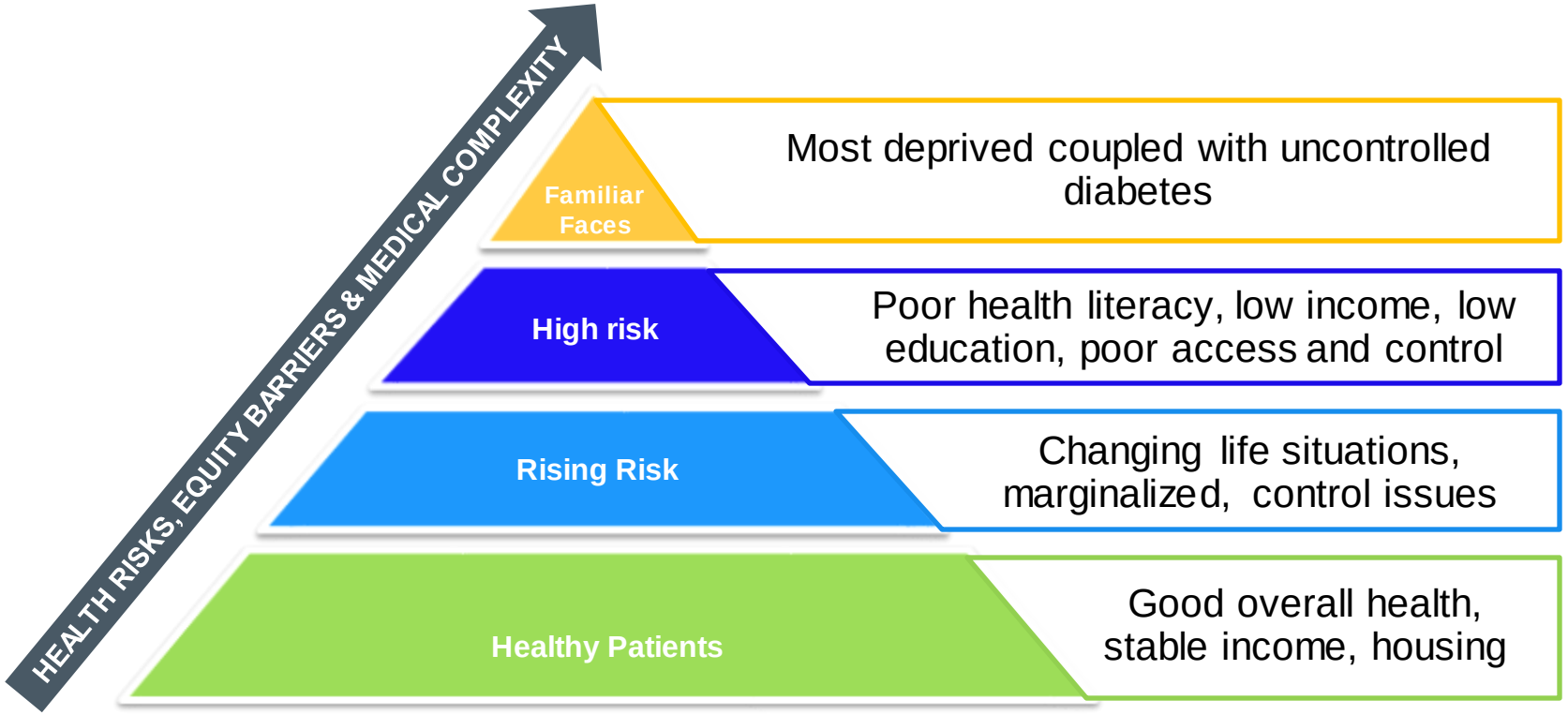
Population Segmentation: An example of using ABCs (A1c, Blood pressure, Cholesterol-ABCs) to segment those with diabetes



Source: Adapted from Kaiser Permanente

RISE
Rapid-Improvement Support and Exchange

Population Segmentation: An example of using Social Determinants and Control Issues to segment those with diabetes



Source: Adapted from Kaiser Permanente

RISE
Rapid-Improvement Support and Exchange

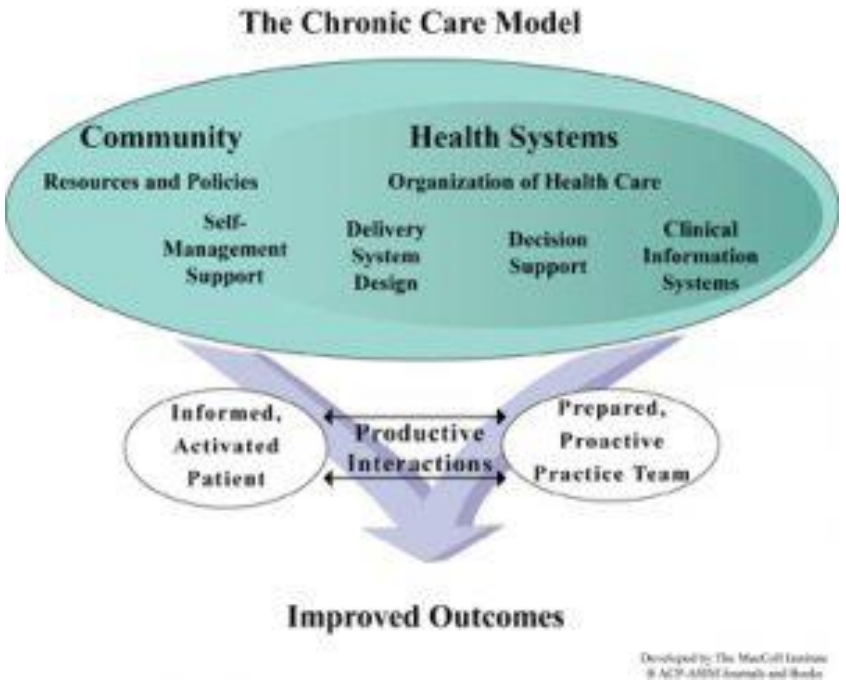
Population Segmentation: Segmenting based on confidence managing health and disease control

	Good Clinical Control	Poor Clinical Control
High Self-confidence	Usual Care	Clinical care, Action Planning
Low Self-confidence	Action Planning	Inter-disciplinary Care Team

Care Models: Generic------->Disease-specific ideas for change

Primary Care

- Disease registries -----> All patients coded 250.XX in EMR
- All people w/o recent visit -----> Patients with high blood sugars
- Planned Visits -----> longer visit medication reconciliation, foot exam, renal screen, HbA1c, LDL, BP, **self-management support** (PAM scores)
- Prevention -----> pneumococcal/COVID vaccines, SDH assessment, self-management, **cancer screenings**
- Provincial Supports -----> Regional Ontario Self-management program to train staff in brief action planning and provide Chronic Disease Self-management Program
- National Supports -----> Leverage ECHO programs



Care Models: Generic------->Disease-specific ideas for change

Acute Care

- Coordinated Care -----> Joint multi-discipline assessment during IP (endo, nephron, CC specialists)
- Discharge with follow-up visit scheduled -----> Discharge summary for DM care attached to scheduled visit
- Acute Exacerbations -----> Hi/Lo sugar events managed, patient referred to DEC, all coordinated with PCP
- Prevention -----> DM vaccines, foot, renal, eye, cancer screens sent to PCP EMR

Care Models: Generic------->Disease-specific ideas for change

Specialist

- PHM focus in practice -----> Diabetes Registries linked to PCP
- Referral agreements with PCP -----> Guidelines for when patient returns to PCP with diabetes-specific care recommendations
- Joint Visits with PCP -----> Endocrinologist visits practice for specified patient visit: PCP team trained in evidence-based care

Care Models: Generic------->Disease-specific ideas for change

Patient Education and Self-management Supports

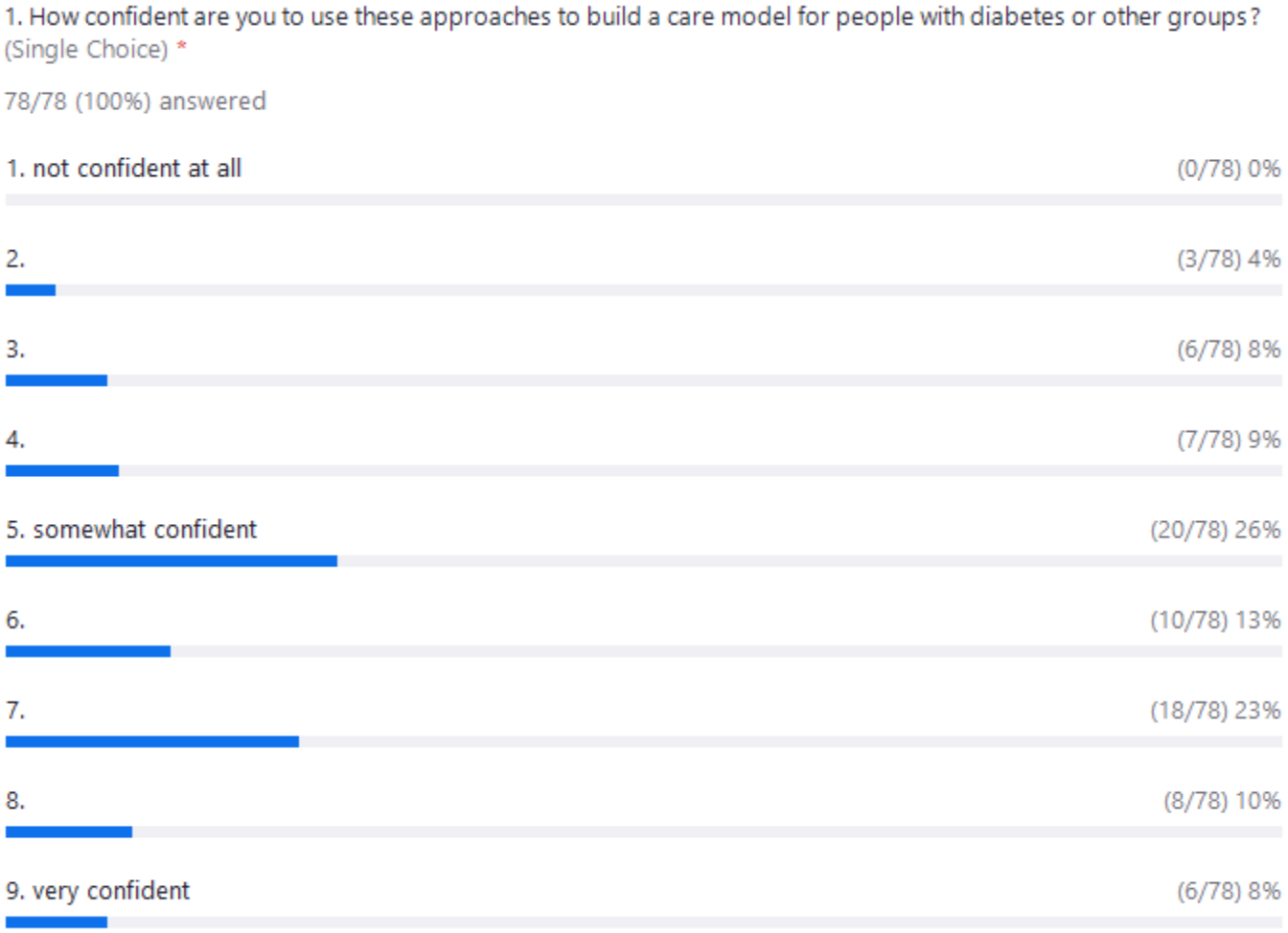
- Patient-driven education -----> Shorter visits with patient-driven agenda at Diabetes Education Center (DEC) sessions
- Community-based Referrals -----> Refer to DM-specific programs (outside DECs), Living Well with Chronic Conditions workshops
- Provider Capacity Building -----> Ensure diabetes educators are training in Brief Action Planning and Motivational Interviewing

Care Models: Generic------->Disease-specific ideas for change

Home Care

- Care coordinator Integration -----> working with PCP (IPCT model) for those with high medical complexity including those with diabetes

Poll 5:

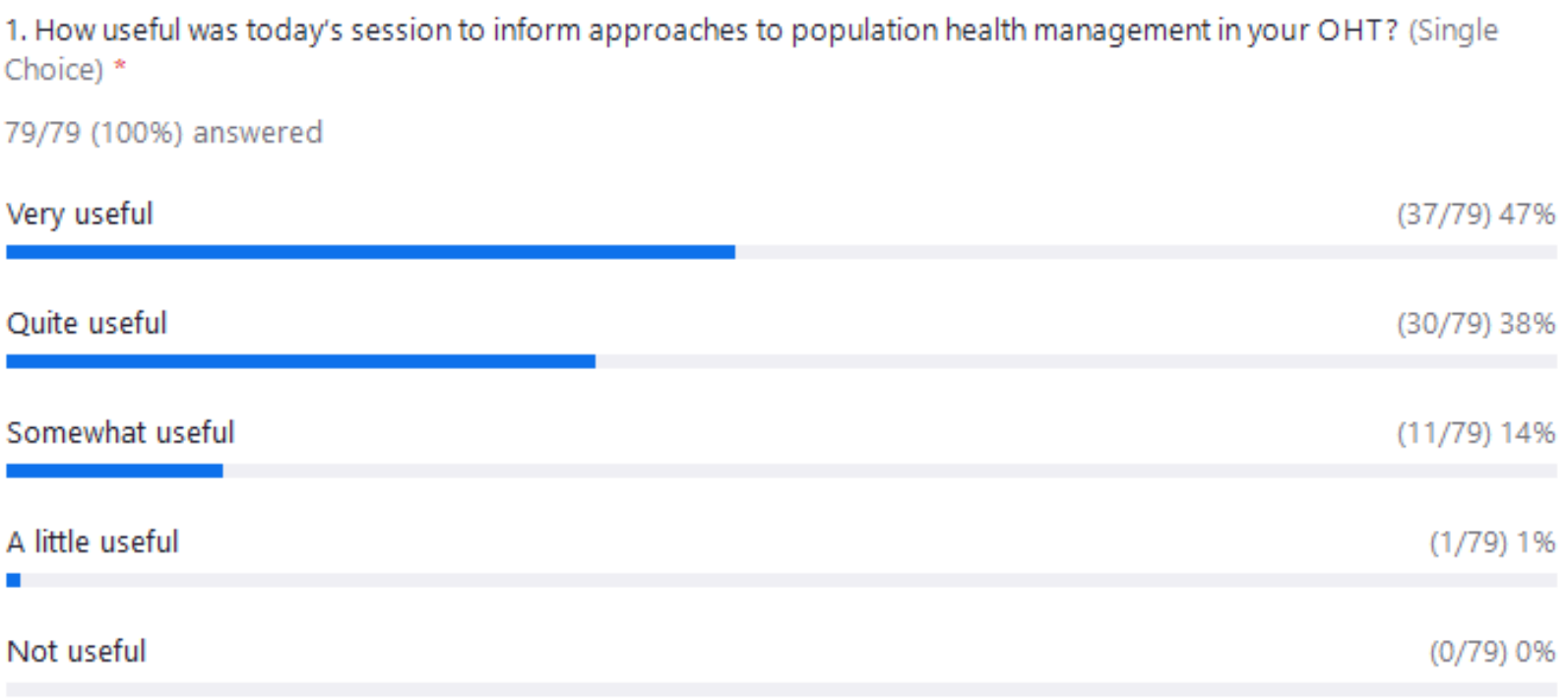

1. How confident are you to use these approaches to build a care model for people with diabetes or other groups? (Single Choice) *
78/78 (100%) answered
1. not confident at all
(0/78) 0%
2.
(3/78) 4%
3.
(6/78) 8%
4.
(7/78) 9%
5. somewhat confident
(20/78) 26%
6.
(10/78) 13%
7.
(18/78) 23%
8.
(8/78) 10%
9. very confident
(6/78) 8%

Discussion :

What Questions Do You Have?

Respond in the chat

Poll 6:


1. How useful was today's session to inform approaches to population health management in your OHT? (Single Choice) *
79/79 (100%) answered
Very useful
(37/79) 47%
Quite useful
(30/79) 38%
Somewhat useful
(11/79) 14%
A little useful
(1/79) 1%
Not useful
(0/79) 0%

Up Next

HSPN Webinar Series

- 4th Tuesday of the Month: 12:00 – 1:30pm

March 2023: In collaboration with IFIC Canada

- Digital Health for Integrated Care

What's next?

March 28, 2023

Advancing Integrated Care

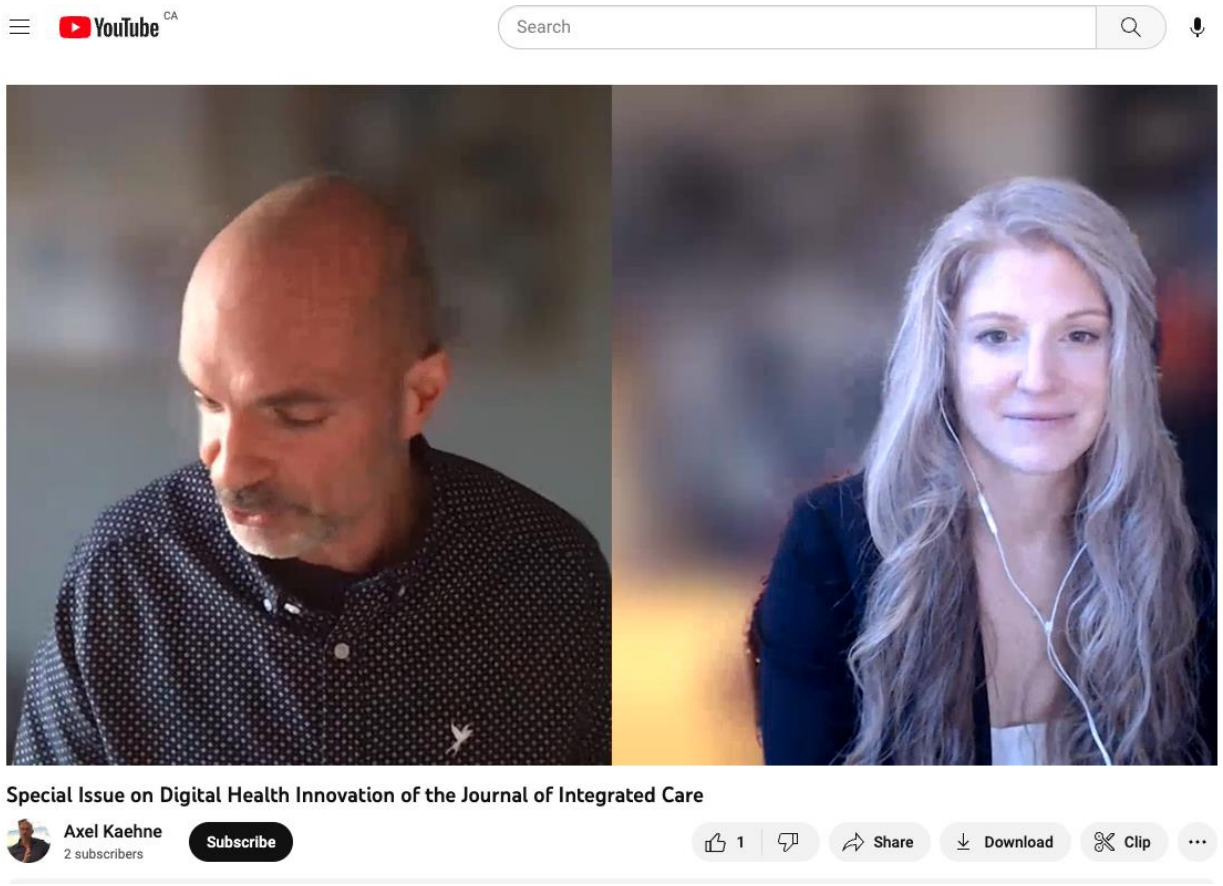
with Digital Health Innovation

International Foundation for Integrated Care

IFIC Canada

HSPN

March Webinar: Digital Health for Integrated Care



International Foundation for Integrated Care
IFIC Canada

https://www.youtube.com/watch?v=TeOP30HcnqI

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THANK YOU!

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The Health System Performance Network

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