Primary Healthcare Panel Report

DATA DICTIONARY- 2022

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INTRODUCTION

This document provides information on the description, rationale, interpretation, calculations, data sources, limitations and alignments of all the metrics in the HQCA's Provincial Primary Healthcare Panel Report. This information is intended to help improve the understanding and interpretation of the metrics and their presentation in the report.

The HQCA is mandated to promote and improve patient safety and healthcare service quality on a province-wide basis. To fulfill its mandate, the HQCA gathers and analyzes information, monitors the healthcare system, and collaborates with stakeholders to translate that knowledge into practical improvements to health service quality and patient safety.

For more information about the Health Quality Council of Alberta or specific initiatives, please visit www.hqca.ca or telephone 403.297.8162.

PRACTICE CHARACTERISTICS METRICS

The Practice Characteristics section provides data definition information on the following metrics:

- Patient visits to physician by fiscal year
  - Total Visits
  - Female Visits
  - Male Visits
  - Unique Patients Seen
  - Return visit rate
  - Paneled Patients Visits
  - Non-Paneled Patients Visits

IDENTIFYING INFORMATION	
Name:	Patient visits to physician by fiscal year
Short/Other Names:	Number of patient visits to the physician and return visit rate for three fiscal years (April 1 to March 31).
BACKGROUND, INTERPRETATION AND BENCHMARKS	
Description:	The count of all the visits to the physician grouped by gender, and the number of unique patients that visited the physician.
Rationale:	This measure provides the physician with information on the patients seen by the physician. This information will allow the physician to reflect on what they have done and might want to do differently.
Interpretation:	
Target/Benchmark:	No benchmarks have been identified.
INDICATOR CALCULATION	
Calculation:	**Description** A. Total Visits = A count of **all** patients' General Practitioner (GP) [family physician] visits to a physician B. Female Visits = A count of all **female** patients' GP [family physician] visits C. Male Visits = A count of all **male** patients' GP [family physician] visits D. Unique Patients Seen = A count of the **distinct** patients who visited a GP [family physician] E. Return Visit Rate = $$\frac{\text{Number of total visits}}{\text{Number of unqiue patients seen}}$$ **Type of Measure** Number **Adjustment Applied** None
Population:	**Description** Any patient that is seen by General Practitioner (GP) for which a physician service claim was submitted. The patient does not necessarily have to be the physician's patient (whether confirmed or assigned). **Inclusion Criteria**

A. All patients for whom a physician submitted a service claim.

B. Service claims submitted with recipient gender code F (RCPT_GENDER_CODE = F).

C. Service claims submitted with recipient gender code M (RCPT_GENDER_CODE = M).

D. Distinct patients for which a service claim was submitted.

Exclusions

- Patients not seen by the physician or patients seen for non-GP related visits.

- Duplicate family physician visits based on Patient Health Number (PHN), date, procedure and diagnostic codes, and physician identification are removed.

- Visits to General practitioners where the service was delivered in one of the following:
    - Emergency
    - Pediatric Emergency

Limitations & Technical Notes

- Patients can have family physician visits to a physician multiple times during the fiscal year.

- Not all delivery site fields are populated in the dataset (some are left blank).

- An individual patient can have a GP visit multiple times in a day.

- Total visits and unique visits will include patients whose gender is unknown or was not declared. As such, a sum of female and male visits may not be equal to total visits.

Data Details	
Data Sources:	Alberta Health physician claims.
Available Data Years:	**Type of Year** Fiscal year [April 1 to March 31] **First Available Year** 2018/19 **Last Available Year** 2020/21
Geographic Coverage:	The province of Alberta excluding the military and prisoners.
Reporting Level:	Physician level.
Quality Statement	
Limitations:	▪ About 18% of Albertans do not visit a General Practitioner in a year.

	▪ The physician claims dataset consists of Fee-for-service and shadow billing. The data submitted based on shadow billing may not be entirely accurate. As a result, this might affect the accuracy of the results of this measure.
Comments:	

More Information

References
Audit and feedback: effects on professional practice and healthcare outcomes ([Review](#)).

Additional Notes
None

Alignments
None

Review Frequency
Yearly

IDENTIFYING INFORMATION	
Name:	Patient visits to physician by fiscal year
Short/Other Names:	Number of patient visits to the physician and return visit rate for three fiscal years (April 1 to March 31).
BACKGROUND, INTERPRETATION AND BENCHMARKS	
Description:	The count of all the visits to the physician grouped by paneled patients and non-paneled patients.
Rationale:	This measure provides the physician with information on how family physician visits are distributed between their paneled patients and non-paneled patients. This information will allow the physician to reflect on what they have done and might want to do differently.
Interpretation:	
Target/Benchmark:	No benchmarks have been identified.
INDICATOR CALCULATION	

Calculation:	**Description**
	
	    A. Paneled Patient Visits =
	
	A count of **all** General Practitioner (GP) [family physician] visits to a physician by patients in the physician patient panel
	
	    B. Non-paneled Patient Visits =
	
	A count of **all** General Practitioner (GP) [family physician] visits to a physician by patients **not** in the physician patient panel
	
	Type of Measure
	Number
	
	Adjustment Applied
	None

Population:	**Description**
	Any patient that is seen by General Practitioner (GP) for which a physician service claim was submitted. The patient does not necessarily have to be the physician's patient (whether confirmed or assigned).
	
	Inclusion Criteria
	
	    A. All patients for whom a physician submitted a service claim and those patients were assigned to the physician by the HQCA algorithm or in the confirmed patient list submitted by the physician.
	
	    B. All patients for whom a physician submitted a service claim and those patients were not assigned to the physician by the HQCA algorithm or were not in the confirmed patient list submitted by the physician.

Exclusions

- Patients not seen by the physician or patients seen for non-GP related visits.

- Duplicate family physician visits based on Patient Health Number (PHN), date, procedure and diagnostic codes, and physicians are removed.

- Visits to General practitioners where the service was delivered in one of the following:
  - Emergency
  - Pediatric Emergency

Limitations & Technical Notes

- Patients can have family physician visits to a physician multiple times during the fiscal year.

- Not all delivery site fields are populated in the dataset (some are left blank).

- An individual patient can have GP visit multiple times in a day.

Data Details

Data Sources:	Alberta Health physician claims. Alberta Health Care Insurance Plan (AHCIP) Registry.
Available Data Years:	**Type of Year** Fiscal year [April 1 to March 31] **First Available Year** 2018/19 **Last Available Year** 2020/21
Geographic Coverage:	The province of Alberta excluding the military and prisoners.
Reporting Level:	Physician level.

Quality Statement

Limitations:	- About 18% of Albertans do not visit a General Practitioner in a year. - Patients are excluded in the physician panel assignment if they do not visit a physician in 3 years (the current fiscal year, plus the 2 preceding fiscal years). - The physician claims dataset consists of Fee-for-service and shadow billing. The data submitted based on shadow billing may not be entirely accurate. As a result, this might affect the accuracy of the results of this measure.
Comments:	

More Information

References
None

Additional Notes
None

Alignments
None

Review Frequency
Yearly

PANEL CHARACTERISTICS METRICS

The Panel Characteristics section provides data definition information on the following metrics:

- Age distribution
- Health system burden of illness
    - Average burden of illness score
    - Burden of illness category percentage
- Patient continuity to physician
- Average physician continuity over time
- Average clinic continuity over time
- Community material deprivation index
    - Average material deprivation
    - Material deprivation quintile rate
- Community social deprivation index
    - Average social deprivation
    - Social deprivation quintile rate

	IDENTIFYING INFORMATION	
Name:	Age distribution	
Short/Other Names:	Distribution of your panel into the six Alberta Health age categories, as of the end of the fiscal year.	

	BACKGROUND, INTERPRETATION AND BENCHMARKS	
Description:	The average age and age distribution of a physician patient panel.	
Rationale:	The average age and age distribution of a physician patient panel will help in estimating the current and future needs of the physician's panel.	
Interpretation:		
Target/Benchmark:	No benchmarks have been identified.	

	INDICATOR CALCULATION	
Calculation:	**Description** A. Average Age = $$\frac{\text{Sum of all individual patients' ages in the physician panel}}{\text{Total number of patients in the physician panel}}$$ B. Age Distribution percentage = $$\left(\frac{\text{Number of patients in \textbf{age group}}}{\text{Total number of patients in the physician panel}}\right) \times 100$$ Age groups are defined as: ▪ Infants: Under 1 ▪ Pediatric: 1 – 17 ▪ 18 – 24 ▪ 35 – 64 ▪ 65 – 79 ▪ 80 & older **Type of Measure** Average; Percentage **Adjustment Applied** None	
Denominator:	**Description** Total number of patients in physician submitted confirmed patient list or total number of patients assigned to a physician by the HQCA algorithm. **Inclusion Criteria**	

	- Patient list specifically submitted by physician. - Patients assigned to a physician based on the HQCA algorithm (Proxy panel). **Exclusions** Patients not in physician panel. **Limitations & Technical Notes**

Numerator:	**Description**
	   A. Average age: Individual patients' ages for the physician panel
	   B. Age distribution: Number of individual patients in a particular age group in the patient panel.
	Inclusion Criteria - Patient list specifically submitted by physician. - Patients assigned to a physician based on the HQCA algorithm (Proxy panel). **Exclusions**
	Patients not in physician panel.
	Limitations & Technical Notes
	Patient age is calculated as the difference between the last day of the fiscal year (e.g. March 31, 2016, for the 2015/16 fiscal year) and the patient's date of birth.

Data Details	
Data Sources:	Alberta Health Care Insurance Plan (AHCIP) Registry. Alberta Health physician claims.
Available Data Years:	**Type of Year** Fiscal year [April 1 to March 31] **First Available Year** 2012/13 **Last Available Year** 2020/21
Geographic Coverage:	The province of Alberta excluding the military and prisoners.
Reporting Level:	Patient level. Physician level, based on confirmed patient list submitted by physician or panel assigned by the HQCA algorithm.
Quality Statement	
Limitations:	All calculations include only patients who are currently listed as '**Active**' in the Alberta Health Care Insurance Plan (AHCIP) Registry database. This may lead to underestimation of the calculated measure above.

	▪ About 18% of Albertans do not visit a General Practitioner in a year.
	▪ Patients are excluded in the physician panel assignment if they do not visit a physician in 3 years (the current fiscal year, plus the 2 preceding fiscal years).
Comments:	

More Information

References
None

Additional Notes
None

Alignments
None

Review Frequency
Yearly

IDENTIFYING INFORMATION	
Name:	Health system burden of illness
Short/Other Names:	CIHI Risk Grouper distribution

BACKGROUND, INTERPRETATION AND BENCHMARKS	
Description:	The average burden of illness and the burden of illness distribution of a physician patient panel. The burden of illness are grouped in the following categories: • 1 (Palliative) • 2 (Major Acute) • 3 (Major Chronic) • 4 (Major Newborn) • 5 (Major Mental Health) • 6 (Major Cancer) • 7 (Moderate Acute) • 8 (Moderate Chronic) • 9 (Other Cancer) • 10 (Other Mental Health) • 11 (Obstetrics) • 12 (Minor Acute) • 13 (Minor Chronic) • 14 (Healthy Newborn) • 15 (Health System User with no Health Conditions) • 16 (Health System Non-User)
Rationale:	The average burden of illness and burden of illness distribution of a physician patient panel will help in monitoring population health, predicting health care utilization patterns and explaining variations in health care resource use.
Interpretation:	
Target/Benchmark:	No benchmarks have been identified.

INDICATOR CALCULATION	
Calculation:	**Description** A. Average burden of illness score =

$$\frac{\text{Sum of all individual patients' burden of illness scores}}{\text{Total number of patients in the physician panel}}$$

    B. Burden of illness percentage =

$$\left(\frac{\text{Number of patients in \textbf{burden of illness category}}}{\text{Total number of patients in the physician panel}}\right) \times 100$$

Type of Measure

    A. Average

    B. Percentage

Adjustment Applied
None

Denominator:	**Description** Total number of patients in physician submitted confirmed patient list or total number of patients assigned to a physician by the HQCA algorithm. **Inclusion Criteria** ▪ Patient list specifically submitted by physician. ▪ Patients assigned to a physician based on the HQCA algorithm (Proxy panel). **Exclusions** Patients not in physician panel. **Limitations & Technical Notes**
Numerator:	**Description** A. Average burden of illness score: Individual patients' burden of illness score for the physician panel B. Burden of illness distribution: Number of individual patients in a particular burden of illness category in the patient panel. **Inclusion Criteria** ▪ Patient list specifically submitted by physician. ▪ Patients assigned to a physician based on the HQCA algorithm (Proxy panel). **Exclusions** Patients not in physician panel. **Limitations & Technical Notes**
Data Details	
Data Sources:	Alberta Health Care Insurance Plan (AHCIP) Registry. Alberta Health physician claims. Canadian Institute for Health Information (CIHI) Risk Grouper data.

Available Data Years:	**Type of Year** Fiscal year [April 1 to March 31] **First Available Year** 2014/15 **Last Available Year** 2020/21
Geographic Coverage:	The province of Alberta excluding the military and prisoners.
Reporting Level:	Patient level. Physician level, based on confirmed patient list submitted by physician or panel assigned by the HQCA algorithm.

Quality Statement	
Limitations:	- All calculations include only patients who are currently listed as '**Active**' in the Alberta Health Care Insurance Plan (AHCIP) Registry database. This may lead to underestimation of the calculated measure above. - About 18% of Albertans do not visit a General Practitioner in a year. - Patients are excluded in the physician panel assignment if they do not visit a physician in 3 years (the current fiscal year, plus the 2 preceding fiscal years).
Comments:	

More Information	

References
None

Additional Notes
None

Alignments
None

Review Frequency
Yearly

IDENTIFYING INFORMATION

Name:	Patient continuity to physician
Short/Other Name(s):	Percentage of proxy panel patients in each continuity category based on three fiscal years of data (April 1 to March 31).

BACKGROUND, INTERPRETATION AND BENCHMARKS

Description:	The percentage of patients' visits to a primary physician out of all family physician visits by the patients in the physician panel.
Rationale:	The physician continuity measure provides an opportunity to assess the impact of relational continuity on different outcomes and more specifically chronic disease management, and preventive service delivery. Hence, this measure provides a tool to better understand the way patients' continuity to family physicians is associated with health services utilization.
	Physician continuity substantially impacts healthcare services utilization, patient outcomes, patient experience with care, and cost. In general, the greater the continuity, the more positive the outcomes.
Interpretation:	A high percentage indicates that a patient sees their primary physician for family physician visits; a higher percentage is desirable.
Target/Benchmark:	80%

INDICATOR CALCULATION

Calculation:	**Description**
	The number of patients' visits to primary physician (assigned or confirmed) divided by the total number of all family physician visits.
	Physician Continuity (Patient level) =
	$$\left(\frac{\text{Number of patients' visits to primary physician}}{\text{Total number of all family physicians visits by a patient}}\right) \times 100$$
	Type of Measure Rate
	Adjustment Applied None
Denominator:	**Description** The total number of family physician visits by a patient.
	Inclusion Criteria A visit to a physician whose specialty is General practitioner, and the service site is blank or the service is delivered in one of the following places:
	▪ Practitioners Office
	▪ Ambulatory Care Services

	▪ Long Term Care center
	Exclusions
	▪ Duplicate family physician visits based on Patient Health Number (PHN), date, procedure and diagnostic codes, and physicians are removed.
	▪ Visits to General practitioners where the service was delivered in one of the following:
	o Emergency
	o Pediatric Emergency
	Limitations & Technical Notes Family physician visits include visits within a 3 fiscal year period.
Numerator:	**Description** Number of patient visits to primary physician out of all family physician visits. **Inclusion Criteria** Family physician visits to primary physician. **Exclusions** Family physician visits to other physicians. **Limitations & Technical Notes** Family physician visits include visits within a 3 fiscal year period.
Data Details	
Data Sources:	Alberta Health physician claims. Alberta Health Care Insurance Plan (AHCIP) Registry.
Available Data Years:	**Type of Year** Fiscal year [April 1 to March 31] **First Available Year** 2017/18 **Last Available Year** 2020/21
Geographic Coverage:	The province of Alberta excluding the military and prisoners.
Reporting Level:	Patient level. Physician level, based on confirmed patient list submitted by physician or panel assigned by the HQCA algorithm.
Quality Statement	
Limitations:	▪ All calculations include only patients who are currently listed as '**Active**' in the Alberta Health Care Insurance Plan (AHCIP) Registry database. This may lead to underestimation of the calculated measure above. ▪ About 18% of Albertans do not visit a General Practitioner in a year.

	▪ Patients are excluded in the physician panel assignment if they do not visit a physician in 3 years (the current fiscal year, plus the 2 preceding fiscal years). ▪ The physician claims dataset consists of Fee-for-service and shadow billing. The data submitted based on shadow billing may not be entirely accurate. As a result, this might affect the accuracy of the results of this measure.
Comments:	A low continuity might result from patients visiting practices in places such as walk-in clinics.

More Information
References Towards Optimized Practice's – <u>Evidence Summary: The benefits of continuity in primary care</u>. **Additional Notes** None **Alignments** None **Review Frequency** Yearly

IDENTIFYING INFORMATION	
Name:	Average physician continuity over time
Short/Other Name(s):	N/A

BACKGROUND, INTERPRETATION AND BENCHMARKS	
Description:	The average physician continuity of a physician patient panel. The percentage of times that patients' in the panel see the physician as compared to all other family physician visits.
Rationale:	The physician continuity measure provides an opportunity to assess the impact of relational continuity on different outcomes and more specifically chronic disease management, and preventive service delivery. Hence, this measure provides a means to understand how patients' continuity to family physicians is associated with health services utilization and other measures. Physician continuity substantially impacts healthcare services utilization, patient outcomes, patient experience with care, and cost. In general, the greater the continuity, the more positive the outcomes.
Interpretation:	A lower value indicates that patients in the physician panel see other physicians who are not their primary physician; a higher value is desirable.
Target/Benchmark:	No benchmarks have been identified.

INDICATOR CALCULATION	
Calculation:	**Description** Sum of all individual patients' physician continuity divided by the total number of patients in the physician panel. Average Physician Continuity = $$\frac{\text{Sum of all individual patients' physician continuity}}{\text{Total number of patients in physician panel}}$$ **Type of Measure** Average **Adjustment Applied** None
Denominator:	**Description** The number of patients in the physician panel. The physician patient panel is based on either assignment by the HQCA algorithm or a confirmed patient list (CPL) submitted by the physician. **Inclusion Criteria** ▪ Patient list specifically submitted by physician.

<table>
<tr><td></td><td>

- Patients assigned to a physician based on the HQCA algorithm (Proxy panel).

Exclusions

- Duplicate family physician visits based on Patient Health Number (PHN), date, procedure and diagnostic codes, and physician identification are removed.
- Patients who were seen by the physician but not assigned to them.

Limitations & Technical Notes

- Panel prediction is most accurate for practices in a single stable location over the past 3 fiscal years and for regular full-time work schedule.
- Family physician visits include visits within a 3 fiscal year period.

</td></tr>
<tr><td>**Numerator:**</td><td>

Description
Sum of individual patients' physician continuity in physician panel. Individual patients' physician continuity is the percentage of time(s) a patient sees their primary physician compared to other family physician visits.

Inclusion Criteria

- Patient list specifically submitted by physician.
- Patients assigned to a physician based on the HQCA algorithm (Proxy panel).

Exclusions
None

Limitations & Technical Notes

- Physician continuity is most accurate for practices in a single stable location over the past 3 fiscal years and for regular full-time work schedule.
- Family physician visits include visits within a 3 fiscal year period.

</td></tr>
<tr><td colspan="2">**Data Details**</td></tr>
<tr><td>**Data Sources:**</td><td>Alberta Health physician claims.</td></tr>
<tr><td>**Available Data Years:**</td><td>

Type of Year
Fiscal year [starts April 1, ends March 31]

First Available Year
2016/17

Last Available Year
2020/21

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<tr><td>**Geographic Coverage:**</td><td>The province of Alberta excluding the military and prisoners.</td></tr>
<tr><td>**Reporting Level:**</td><td>

Patient level.

Physician level, based on confirmed patient list submitted by physician or panel assigned by the HQCA algorithm.

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</table>

Quality Statement	
Limitations:	▪ About 18% of Albertans do not visit a General Practitioner in a year.
	▪ Patients are excluded in the physician panel assignment if they do not visit a physician in 3 years (the current fiscal year, plus the 2 preceding fiscal years).
	▪ The physician claims dataset consists of Fee-for-service and shadow billing. The data submitted based on shadow billing may not be entirely accurate. As a result, this might affect the accuracy of the results of this measure.
Comments:	For example, low continuity might be as a result of a physician practicing in a walk-in clinic.

More Information
References Towards Optimized Practice's – Evidence Summary: The benefits of continuity in primary care. **Additional Notes** None **Alignments** None **Review Frequency** Yearly

IDENTIFYING INFORMATION

Name:	Average clinic continuity over time
Short/Other Names:	N/A

BACKGROUND, INTERPRETATION AND BENCHMARKS

Description:	The percent of time a patient visits a facility (e.g. a clinic) to which they are linked (i.e., assigned by the HQCA algorithm) when visiting a family physician (General Practitioner).
Rationale:	This measure is a proxy for the patient's continuity with their "medical home", and provides an opportunity to assess the impact of management and informational continuity.
Interpretation:	A higher percentage indicates that a patient visits the same facility (e.g. a clinic) more often. So, while a patient may not be seeing their primary physician, they are seeing physicians within the same facility (e.g. seeing physicians in their primary clinic).
Target/Benchmark:	No benchmarks have been identified.

INDICATOR CALCULATION

Calculation:	**Description**
	
	The number of family physician visits to a primary care facility [assigned by the HQCA algorithm] divided by the total number of all facility visits.
	
	  A. Facility Continuity (patient level) =
	
	$$\left(\frac{\text{Number of visits to assigned primary care facility}}{\text{Total number of all primary care facility visits}}\right) \times 100$$
	
	  B. Average Facility Continuity (physician level) =
	
	$$\frac{\text{Sum of all individual patients' facility continuity}}{\text{Total number of patients in physician panel}}$$
	
	Type of Measure
	
	  A. Rate
	  B. Average
	
	Adjustment Applied
	None

Denominator:	**Description** The total number of primary care facility visits by a patient. **Inclusion Criteria** A visit to a physician whose specialty is General practitioner in a registered physical facility.

	Exclusions - Duplicate family physician visits based on Patient Health Number (PHN), date, procedure and diagnostic codes, and physician identification are removed. - Visits to General practitioners in a registered physical facility, where the service was delivered in one of the following: - Emergency - Pediatric Emergency **Limitations & Technical Notes** Family physician visits in a registered facility include visits within a 3 fiscal year period.
Numerator:	**Description** Number of patient visits to family physician in primary facility [assigned] out of all primary care facility visits. **Inclusion Criteria** Family physician visits in primary (assigned) facility. **Exclusions** Family physician visits in other facilities. **Limitations & Technical Notes** Family physician visits in a registered facility include visits within a 3 fiscal year period.

Data Details	
Data Sources:	Alberta Health physician claims. Alberta Health Care Insurance Plan (AHCIP) Registry.
Available Data Years:	**Type of Year** Fiscal year [April 1 to March 31] **First Available Year** 2016/17 **Last Available Year** 2020/21
Geographic Coverage:	The province of Alberta excluding the military and prisoners.
Reporting Level:	Patient level. Physician level based on confirmed patient list submitted by physician or panel assigned by the HQCA algorithm.

Quality Statement	
Limitations:	This measure does not take into account patient interaction with other multidisciplinary teams in the facility.

	▪ All calculations include only patients who are currently listed as '**Active**' in the Alberta Health Care Insurance Plan (AHCIP) Registry database. This may lead to underestimation of the calculated measure above. ▪ About 18% of Albertans do not visit a General Practitioner in a year. ▪ Patients are excluded in the physician panel assignment if they do not visit a physician in 3 years (the current fiscal year, plus the 2 preceding fiscal years). ▪ The physician claims dataset consists of Fee-for-service and shadow billing. The data submitted based on shadow billing may not be entirely accurate. As a result, this might affect the accuracy of the results of this measure.
Comments:	Low continuity may be as a result of patients visiting locations such as walk-in clinics.

More Information

References
None

Additional Notes
None

Alignments
None

Review Frequency
Yearly

IDENTIFYING INFORMATION	
Name:	Community Material Deprivation Index
Short/Other Names:	Distribution of panel patients in top and bottom quintiles that represent **economic** conditions at the neighbourhood level.

BACKGROUND, INTERPRETATION AND BENCHMARKS	
Description:	The material deprivation index is one component of the Deprivation Index. It reflects the deprivation of goods and conveniences. The material deprivation index includes the following indicators: ▪ The proportion of people aged 15 years and older with no high school diploma (SCOLAR). ▪ The employment/population ratio of people aged 15 years and older (EMPLOI). ▪ The average income of people aged 15 years and older (REVENU). The index is ranked and divided into quintiles (Quintile 1 to 5), each representing 20 per cent of the population.
Rationale:	There are strong and growing indications that factors such as living and working conditions are crucially important for a healthy population. Material deprivation is one of several key determinants of health. As such, measuring the material deprivation of a physician patient panel will help the physician to better understand and deal with the needs of their patient panels.
Interpretation:	Quintile 1 (Q1) describes the most privileged population, and Quintile 5 (Q5) describes the least privileged population.
Target/Benchmark:	No benchmarks have been identified.

INDICATOR CALCULATION	
Calculation:	**Description** A. Average Material Deprivation = $\dfrac{\text{Sum of individual patients' material deprivation scores}}{\text{Total number of patients in physician panel}}$ B. Material Deprivation Quintile Rate = $\left(\dfrac{\text{Number of patients in a particular quintile}}{\text{Total number of patients in physician panel}}\right) \times 100$ **Type of Measure** A. Average B. Rate **Adjustment Applied** None

Denominator:	**Description**
	The number of patients in the physician panel. The physician patient panel is based on either assignment by the HQCA algorithm or a confirmed patient list (CPL) submitted by the physician.
	
	Inclusion Criteria
	    ▪ Patient list specifically submitted by physician.
	    ▪ Patients assigned to a physician based on the HQCA algorithm (Proxy panel).
	
	Exclusions
	Patients not assigned to physician by the HQCA algorithm or patients not on list submitted by physician.
	
	Limitations & Technical Notes

Numerator:	**Description**
	    A. The sum of all individual patients' material deprivation scores.
	    B. The number of patients in a particular material deprivation quintile.
	
	Inclusion Criteria
	Patients with valid Alberta postal codes.
	
	Exclusions
	None
	
	Limitations & Technical Notes
	It is assumed that postal codes are linkable across databases.

Data Details	
Data Sources:	2016 Canadian Census. Alberta Health physician claims. Alberta Health Care Insurance Plan (AHCIP) Registry.
Available Data Years:	**Type of Year** Fiscal year [April 1 to March 31] **First Available Year** 2012/13 **Last Available Year** 2020/21
Geographic Coverage:	The province of Alberta excluding the military and prisoners.
Reporting Level:	Physician level, based on confirmed patient list submitted by physician or panel assigned by the HQCA algorithm.
Quality Statement	

Limitations:	▪ The Deprivation Index is a measure of the socio-economic conditions seen at the neighbourhood level, not an individual measure of socio-economic conditions.
	▪ All calculations include only patients who are currently listed as '**Active**' in the Alberta Health Care Insurance Plan (AHCIP) Registry database. This may lead to underestimation of the calculated measure above.
	▪ Patients are excluded in the physician panel assignment if they do not visit a physician in 3 years (the current fiscal year, plus the 2 preceding fiscal years).
Comments:	

More Information

References
Public Health Agency of Canada - Key Determinants of Health.

Pampalon, R., Hamel, D., Gamache, P., & Raymond, G. (2009). A deprivation index for health planning in Canada. Chronic Dis Can, 29(4), 178-91.

What makes Canadians healthy? – Article.

Additional Notes
None

Alignments
None

Review Frequency
Yearly

IDENTIFYING INFORMATION	
Name:	Community Social Deprivation Index
Short/Other Names:	Distribution of panel patients into top and bottom quintiles that represent **social** conditions at the patient's neighbourhood level.

BACKGROUND, INTERPRETATION AND BENCHMARKS	
Description:	The social deprivation index is one component of the Deprivation Index. It reflects the deprivation of relationships among individuals in the family, the workplace, and the community. The social deprivation index includes the following indicators: ▪ The proportion of individuals aged 15 years and older, living alone (SEULES). ▪ The proportion of individuals aged 15 years and older, who are separated, divorced or widowed (S_D_V). ▪ The proportion of single-parent families (F_MONO). The index is ranked and divided into quintiles (Quintile 1 to 5), each representing 20 per cent of the population.
Rationale:	There are strong and growing indications that factors such as living and working conditions are crucially important for a healthy population. Social deprivation is one of several key determinants of health. As such, measuring the social deprivation of a physician patient panel will help the physician to better understand and deal with the needs of their patient panels.
Interpretation:	Quintile 1 (Q1) describes the most privileged population, and Quintile 5 (Q5) describes the least privileged population.
Target/Benchmark:	No benchmarks have been identified.

INDICATOR CALCULATION	
Calculation:	**Description** A. Average Social Deprivation = $$\frac{\text{Sum of individual patients' social deprivation scores}}{\text{Total number of patients in physician panel}}$$ B. Social Deprivation Quintile Rate = $$\left(\frac{\text{Number of patients in a particular quintile}}{\text{Total number of patients in physician panel}}\right) \times 100$$ **Type of Measure** A. Average B. Rate

	Adjustment Applied None

Denominator:	**Description**
	The number of patients in the physician panel. The physician patient panel is based on either assignment by the HQCA algorithm or a confirmed patient list (CPL) submitted by the physician.
	Inclusion Criteria
	    ▪ Patient list specifically submitted by physician.
	    ▪ Patients assigned to a physician based on the HQCA algorithm (Proxy panel).
	Exclusions
	Patients not assigned to physician by the HQCA algorithm or patients not on list submitted by physician.
	Limitations & Technical Notes

Numerator:	**Description**
	    A. The sum of all individual patients' social deprivation scores.
	    B. The number of patients in a particular social deprivation quintile.
	Inclusion Criteria
	Patients with valid Alberta postal codes.
	Exclusions
	None
	Limitations & Technical Notes
	It is assumed that postal codes are linkable across databases.

Data Details	
Data Sources:	2016 Canadian Census. Alberta Health physician claims. Alberta Health Care Insurance Plan (AHCIP) Registry.
Available Data Years:	**Type of Year** Fiscal year [April 1 to March 31] **First Available Year** 2012/13 **Last Available Year** 2020/21
Geographic Coverage:	The province of Alberta excluding the military and prisoners.
Reporting Level:	Physician level, based on confirmed patient list submitted by physician or panel assigned by the HQCA algorithm.
Quality Statement	

Limitations:	▪ The Deprivation Index is a measure of the socio-economic conditions seen at the neighbourhood level, not an individual measure of socio-economic conditions.
	▪ All calculations include only patients who are currently listed as '**Active**' in the Alberta Health Care Insurance Plan (AHCIP) Registry database. This may lead to underestimation of the calculated measure above.
	▪ Patients are excluded in the physician panel assignment if they do not visit a physician in 3 years (the current fiscal year, plus the 2 preceding fiscal years).
Comments:	

More Information

References
Public Health Agency of Canada - Key Determinants of Health.

Pampalon, R., Hamel, D., Gamache, P., & Raymond, G. (2009). A deprivation index for health planning in Canada. Chronic Dis Can, 29(4), 178-91.

What makes Canadians healthy? – Article.

Additional Notes
None

Alignments
None

Review Frequency
Yearly

PREVENTIVE CARE AND IMAGING METRICS

The preventive care and imaging section provides data definition information on the following metrics:

- Diabetes screening

- Lipid screening

- Colorectal cancer screening

- Cervical cancer screening - Papanicolaou tests

- Breast cancer screening

- Lumbar spine scans (PCN Report only)

- Influenza vaccination for all panel patients

IDENTIFYING INFORMATION

Name:	Diabetes screening
Short/Other Names:	N/A

BACKGROUND, INTERPRETATION AND BENCHMARKS

Description:	The percentage of non-diabetic patients in the physician panel who received a diabetes screening test.
Rationale:	Diabetes is a health problem that imposes significant burden on the population and health system. It is expected that treatment after early detection will yield benefits superior to those obtained when treatment is delayed. Thus, providing asymptomatic screening information to physicians will encourage them to screen individuals who are likely to have diabetes.
Interpretation:	A higher rate implies more eligible patients in the physician panel are screened.
Target/Benchmark:	No benchmarks have been identified.

INDICATOR CALCULATION

Calculation:	**Description** Diabetes screening rate = $$\left(\frac{\text{Number of eligible patients with a diabetes screening}}{\text{Total number of eligible patients in physician panel}}\right) \times 100$$ **Type of Measure** Rate **Adjustment Applied** None

Denominator:	**Description**
	The number of eligible patients in the physician panel. The physician patient panel is based on either assignment by the HQCA algorithm or a confirmed patient list (CPL) submitted by the physician.
	
	Inclusion Criteria
	
	  ▪ Patients 40 years or older.
	
	  ▪ Patient list specifically submitted by physician.
	
	  ▪ Patients assigned to a physician based on the HQCA algorithm (Proxy panel).
	
	Exclusions
	
	  ▪ Patients aged younger than 40 years.
	
	  ▪ Diabetic patients identified in the CIHI health condition codes.

	▪ Patients not assigned to physician by the HQCA algorithm or patients not on list submitted by physician.
	Limitations & Technical Notes

Numerator:	**Description**
	An eligible patient is an asymptomatic patient screened for diabetes. A patient is eligible if they meet the inclusion criteria outlined below.
	
	Inclusion Criteria
	
	▪ Patients 40 years or older.
	
	▪ Diabetes screening is identified by the following lab test codes, and ICD-9 or ICD-10 diagnostic codes:
	
	    o Lab test codes [Order Test Code]:
	
	        – HBA1C (Hemoglobin A1c).
	
	        – GLUF (Glucose fasting).
	
	    o ICD-9 or ICD-10 diagnostic codes:
	
	        – V77.1 (Screening for Diabetes Mellitus).
	
	        – Z13.1 (Encounter for Screening for Diabetes Mellitus).
	
	Exclusions
	
	▪ Diabetic patients identified in the CIHI health condition prevalence aggregate groups.
	
	▪ Patients aged younger than 40 years.
	
	Limitations & Technical Notes
	
	▪ The number of eligible patients is based on 5 years of past data.
	
	▪ Each patient is counted once regardless of the number of tests performed in a given time period.

Data Details	
Data Sources:	Alberta Health physician claims. Alberta Health Care Insurance Plan (AHCIP) Registry. AHS laboratory data.
Available Data Years:	**Type of Year** Fiscal year [April 1 to March 31] **First Available Year** 2008/09 **Last Available Year** 2020/21
Geographic Coverage:	The province of Alberta excluding the military and prisoners.
Reporting Level:	Patient level.

	Physician level, based on confirmed patient list submitted by physician or panel assigned by the HQCA algorithm.

Quality Statement	
Limitations:	- All calculations include only patients who are currently listed as '**Active**' in the Alberta Health Care Insurance Plan (AHCIP) Registry database. This may lead to underestimation of the calculated measure above. - About 18% of Albertans do not visit a General Practitioner in a year. - Patients are excluded in the physician panel assignment if they do not visit a physician in 3 years (the current fiscal year, plus the 2 preceding fiscal years). - The physician claims dataset consists of Fee-for-service and shadow billing. The data submitted based on shadow billing may not be entirely accurate. As a result, this might affect the accuracy of the results of this measure.
Comments:	

More Information	

References
None

Additional Notes
None

Alignments

- Canadian Task Force on Preventive Health Care (CTFPHC) recommendation:

  o Screen adults at low to moderate risk of diabetes who are 40 years of age or older and any adults who are at high risk of diabetes every 3 – 5 years.

  o http://canadiantaskforce.ca/ctfphc-guidelines/2012-type-2-diabetes/clinician-summary

- Alberta Screening & Prevention Initiative (ASaP)

Review Frequency
Yearly

IDENTIFYING INFORMATION

Name:	Lipids screening
Short/Other Names:	N/A

BACKGROUND, INTERPRETATION AND BENCHMARKS

Description:	The percentage of eligible patients in the physician panel who received a plasma lipid screening test.
Rationale:	Lipid profile screening is used to determine the approximate risks for cardiovascular disease in healthy adults. Thus, providing screening information to physicians will encourage them in their screening activities to identify early onset of cardiovascular disease.
Interpretation:	A higher rate implies more eligible patients in the physician panel are screened.
Target/Benchmark:	No benchmarks have been identified.

INDICATOR CALCULATION

Calculation:	**Description** Plasma lipid screening rate = $$\left(\frac{\text{Number of eligible patients with a lipid screening}}{\text{Total number of eligible patients in physician panel}}\right) \times 100$$ **Type of Measure** Rate **Adjustment Applied** None
Denominator:	**Description** The number of patients in the physician panel. The physician patient panel is based on either assignment by the HQCA algorithm or a confirmed patient list (CPL) submitted by the physician. **Inclusion Criteria** ■ Patients aged between 40 and 74 years. ■ Patient list specifically submitted by physician. ■ Patients assigned to a physician based on the HQCA algorithm (Proxy panel). **Exclusions** ■ Patients younger than 40 years or older than 74 years. ■ Patients not assigned to physician by the HQCA algorithm or patients not on list submitted by physician. **Limitations & Technical Notes**

Numerator:	**Description**
	An eligible patient is any patient who had a lab test for either plasma lipid profile or cholesterol tests. A patient is eligible if they meet the inclusion criteria outlined below.
	
	Inclusion Criteria
	   ▪ Patients aged between 40 and 74 years.
	   ▪ Plasma lipid screening is identified by the following lab test codes:
	      o Lab test codes:
	         – 105763471.0, 105763471.00 (Non-HDL Cholesterol).
	         – CHDLR (Cholesterol HDL Ratio).
	         – CHOL, CHOL2, CHOLB (Cholesterol).
	         – HDL (High Density Lipoproteins Cholesterol).
	         – LDL (Low Density Lipoproteins Cholesterol).
	         – NHDL, NHDLC, NONHDL (Non-HDL Cholesterol).
	         – RATIO (Cholesterol/HDL Ratio).
	         – TRIG, TRIGB (Triglycerides).
	
	Exclusions
	Patients younger than 40 years or older than 74 years.
	
	Limitations & Technical Notes
	   ▪ The number of eligible patients is based on 5 years of past data.
	   ▪ Each patient is counted once regardless of the number of tests performed in a 5 year time period.

Data Details	
Data Sources:	Alberta Health physician claims. Alberta Health Care Insurance Plan (AHCIP) Registry. AHS laboratory data.
Available Data Years:	**Type of Year** Fiscal year [April 1 to March 31] **First Available Year** 2007/08 **Last Available Year** 2020/21
Geographic Coverage:	The province of Alberta excluding the military and prisoners.
Reporting Level:	Patient level. Physician level, based on confirmed patient list submitted by physician or panel assigned by the HQCA algorithm.

Quality Statement	
Limitations:	▪ All calculations include only patients who are currently listed as '**Active**' in the Alberta Health Care Insurance Plan (AHCIP) Registry database. This may lead to underestimation of the calculated measure above. ▪ About 18% of Albertans do not visit a General Practitioner in a year. ▪ Patients are excluded in the physician panel assignment if they do not visit a physician in 3 years (the current fiscal year, plus the 2 preceding fiscal years). ▪ The physician claims dataset consists of Fee-for-service and shadow billing. The data submitted based on shadow billing may not be entirely accurate. As a result, this might affect the accuracy of the results of this measure.
Comments:	

More Information

References
None

Additional Notes
None

Alignments

▪ Canadian Cardiovascular Society recommendation:

   o Physicians should screen all patients 40 years or older.

   o http://www.onlinecjc.ca/article/S0828-282X(16)30732-2/pdf.

▪ Alberta Screening & Prevention Initiative (ASaP).

Review Frequency
Yearly

IDENTIFYING INFORMATION	
Name:	Colorectal cancer screening
Short/Other Names:	N/A
BACKGROUND, INTERPRETATION AND BENCHMARKS	
Description:	The percentage of eligible patients in physician panel who received a colorectal cancer screening.
Rationale:	Providing physician with their colorectal cancer screening rates will encourage them to screen their eligible patients. Research has shown that patients who have regular stool test are more likely to survive colorectal cancer. Early detection may also mean less treatment and less time spent recovering.
Interpretation:	A higher rate implies more eligible patients in the physician panel are screened.
Target/Benchmark:	No benchmarks have been identified.
INDICATOR CALCULATION	
Calculation:	**Description** Colorectal screening rate = $$\left(\frac{\text{Number of eligible patients who completed colorectal cancer screening}}{\text{Total number of eligible patients in physician panel}} \right) \times 100$$ **Type of Measure** Rate **Adjustment Applied** None
Denominator:	**Description** The number of eligible patients in the physician panel. The physician patient panel is based on either assignment by the HQCA algorithm or a confirmed patient list (CPL) submitted by the physician. **Inclusion Criteria** - Patients between 50 and 74 years. - Patient list specifically submitted by physician. Patients who were assigned to a physician based on the HQCA algorithm (Proxy panel). **Exclusions** - Patients aged younger than 50 years or older than 74 years. - Patients not assigned to physician by the HQCA algorithm or patients not on list submitted by physician. **Limitations & Technical Notes**

Numerator:	**Description** An eligible patient is an asymptomatic patient screened for colorectal cancer. A patient is eligible if they had a laboratory test for fecal immunochemical test (FIT) within a 2 year period or colonoscopy within a 10 year period or a flex sigmoidoscopy within a 5 year period.

	Inclusion Criteria
	
	- Patients between 50 and 74 years.
	
	- Colorectal cancer screening is identified by the following lab test codes, and ICD-9 or ICD-10 diagnostic codes:
	    o Fecal immunochemical test (FIT), lab test codes:
	        – 20311706.00, 49171324.00 (Fecal Immunochemical Test)
	        – FIT (Fecal Immunochemical Test)
	        – FITA (Fecal Immunochemical Test)
	    o Colonoscopy is identified by the procedure (billing) codes below:
	        – 01.22 (Other non-operative colonoscopy)
	        – 01.22A (Other non-operative colonoscopy for screening high risk patients)
	        – 01.22B (Other non-operative colonoscopy for screening moderate risk patients)
	        – 01.22C (Other non-operative colonoscopy for screening average risk patients)
	        – 01.16A (Small bowel capsule endoscopy)
	        – 01.16B (Balloon [single or double] enteroscopy, rectal route)
	    o Flex Sigmoidoscopy is identified by the procedure (billing) codes below:
	        – 01.24B (Flexible proctosigmoidoscopy)
	        – 01.24BA (Flexible proctosigmoidoscopy for screening of patients considered to be of high risk for colon cancer due to family history)
	        – 01.24BB (Flexible proctosigmoidoscopy for screening of patients considered to be of high risk for colon cancer)
	
	Exclusions
	Patients aged younger than 50 years or older than 74 years.
	
	Limitations & Technical Notes
	
	- The number of eligible patients is based on :
	    o 2 years of past lab data for fecal immunochemical test.
	    o 10 years of past claims data for colonoscopy.
	    o 5 years of past claims data for flex sigmoidoscopy.

	▪ Each patient is counted once regardless of the number of tests performed in a given time period.

Data Details

Data Sources:	Alberta Health physician claims. Alberta Health Care Insurance Plan (AHCIP) Registry. AHS laboratory data.
Available Data Years:	**Type of Year** Fiscal year [April 1 to March 31] **First Available Year** 2008/09 **Last Available Year** 2020/21
Geographic Coverage:	The province of Alberta excluding the military and prisoners.
Reporting Level:	Patient level. Physician level, based on confirmed patient list submitted by physician or panel assigned by the HQCA algorithm.

Quality Statement

Limitations:	▪ All calculations include only patients who are currently listed as '**Active**' in the Alberta Health Care Insurance Plan (AHCIP) Registry database. This may lead to underestimation of the calculated measure above. ▪ About 18% of Albertans do not visit a General Practitioner in a year. ▪ Patients are excluded in the physician panel assignment if they do not visit a physician in 3 years (the current fiscal year, plus the 2 preceding fiscal years). ▪ The physician claims dataset consists of Fee-for-service and shadow billing. The data submitted based on shadow billing may not be entirely accurate. As a result, this might affect the accuracy of the results of this measure.
Comments:	

More Information

References
Canadian Cancer Society - website.

Additional Notes
None

Alignments
▪ Canadian Task Force on Preventive Health Care (CTFPHC) recommendation:

- o Screen adults who are between 50 and 74 years for colorectal cancer.
- o http://canadiantaskforce.ca/ctfphc-guidelines/2015-colorectal-cancer/clinician-summary.
- Alberta Screening & Prevention Initiative (ASaP).
- Alberta Health Services Cancer Screening Program.

Review Frequency
Yearly

IDENTIFYING INFORMATION	
Name:	Cervical cancer screening
Short/Other Names:	Papanicolaou Test

BACKGROUND, INTERPRETATION AND BENCHMARKS	
Description:	The percentage of eligible women in a physician patient panel that completed at least one pap test within a 42-month period.
Rationale:	Meant for self-reflection and to encourage physicians to assess their screening activities in order maximize appropriate screening of their patient panels, and to identify early onset of cervical cancer. Early detection may also mean less treatment and less time spent recovering.
Interpretation:	A higher rate implies more eligible female patients in the physician panel are screened.
Target/Benchmark:	No benchmarks have been identified.

INDICATOR CALCULATION	
Calculation:	**Description** Pap test rate = $$\left(\frac{\text{Number of eligible women who completed at least one pap test}}{\text{Total number of eligible women in physician panel}}\right) \times 100$$ Pap test rates are broken into the following age groups: ▪ 21 – 24 ▪ 25 – 69 ▪ 70 and older **Type of Measure** Rate **Adjustment Applied** None

Denominator:	**Description**
	 The number of eligible women in the physician panel. The physician patient panel is based on either assignment by the HQCA algorithm or a confirmed patient list (CPL) submitted by the physician.
	
	 Inclusion Criteria
	
	 ▪ Women in the following age groups:
	     o 21 – 24
	     o 25 – 69

	o 70 and older
	▪ Patient list specifically submitted by physician.
	▪ Patients assigned to a physician based on the HQCA algorithm (Proxy panel).
	Exclusions
	▪ Women younger than 18 years.
	▪ Women who had a complete hysterectomy.
	▪ Women in colposcopy follow up.
	▪ Patients not assigned to physician by the HQCA algorithm or patients not on list submitted by physician.
	Limitations & Technical Notes
Numerator:	**Description** The total number of screen-eligible women who have completed at least one Pap test in a given 42-month reporting period.
	Inclusion Criteria
	▪ Women in the following age groups:
	o 21 – 24
	o 25 – 69
	o 70 and older
	▪ Identifying pap tests:
	o Pap test (SPAP and CPAP) identified in the Alberta Cervical Cancer Screening Program (ACCP) database.
	o Colposcopy exams identified in ACCP's Colposcopy database.
	Exclusions
	▪ Women younger than 18 years.
	▪ Women with cervical cancer and who have had pap tests identified as screening services.
	▪ Women who had a complete hysterectomy.
	Limitations & Technical Notes Each woman is counted once regardless of the number of pap tests performed in a 42-month period.
Data Details	
Data Sources:	Alberta Health physician claims.
	Alberta Health Care Insurance Plan (AHCIP) Registry.
	Alberta Cervical Cancer Screening Program (ACCSP) data.

Available Data Years:	**Type of Year** Fiscal year [April 1 to March 31]
	First Available Year 2016/17
	Last Available Year 2020/21
Geographic Coverage:	The province of Alberta excluding the military and prisoners.
Reporting Level:	Patient level. Physician level, based on confirmed patient list submitted by physician or panel assigned by the HQCA algorithm.

Quality Statement

Limitations:	- Some women who are not currently considered eligible for pap tests are not currently removed from the denominator; data of women with hysterectomy in not complete. This leads to an underestimated Pap test screening rate. - All calculations include only patients who are currently listed as '**Active**' in the Alberta Health Care Insurance Plan (AHCIP) Registry database. This may lead to underestimation of the calculated measure above. - About 18% of Albertans do not visit a General Practitioner in a year. - Patients are excluded in the physician panel assignment if they do not visit a physician in 3 years (the current fiscal year, plus the 2 preceding fiscal years). - The physician claims dataset consists of Fee-for-service and shadow billing. The data submitted based on shadow billing may not be entirely accurate. As a result, this might affect the accuracy of the results of this measure.
Comments:	

More Information

References
Canadian Cancer Society - website.

Additional Notes
None

Alignments

- For this measure, the HQCA has aligned with Alberta Health Services Cancer Screening Program (AHSCSP) in relation to screening timeframes. This is due to the fact that AHSCSP is responsible for sending out notifications to patients when they are due for screening.
- Alberta Cervical Cancer Screening Program
    - Choosing Wisely Canada (CWC) recommendation:

      ○   Do not screen women with Pap smears if under the age of 21 or over the age of 69.

Review Frequency
Yearly

IDENTIFYING INFORMATION	
Name:	Breast cancer screening
Short/Other Names:	N/A
BACKGROUND, INTERPRETATION AND BENCHMARKS	
Description:	The percentage of eligible women in a physician patient panel that completed at least one mammogram screening within a 30-month period.
Rationale:	Providing screening information to physicians will encourage them in their screening activities to identify early onset of breast cancer. Early detection may also mean less treatment and less time spent recovering.
Interpretation:	A higher rate implies more eligible female patients in the physician panel are screened.
Target/Benchmark:	No benchmarks have been identified.
INDICATOR CALCULATION	
Calculation:	**Description** Mammogram screening rate = $$\left(\frac{\text{Number of eligible women who completed at least one screening mammogram}}{\text{Total number of eligible women in physician panel}} \right) \times 100$$ **Type of Measure** Rate **Adjustment Applied** None
Denominator:	**Description** The number of eligible women in the physician panel. The physician patient panel is based on either assignment by the HQCA algorithm or a confirmed patient list (CPL) submitted by the physician. **Inclusion Criteria** ▪ Women aged between 50 and 74 years. ▪ Patient list specifically submitted by physician. ▪ Patients assigned to a physician based on the HQCA algorithm (Proxy panel). **Exclusions** ▪ Women younger than 50 years and older than 74 years.

	▪ Patients not assigned to physician by the HQCA algorithm or patients not on list submitted by physician.
	Limitations & Technical Notes
Numerator:	**Description** The total number of eligible women who have completed at least one mammogram in a given 30-month period.

	Inclusion Criteria
	    ▪ Women aged between 50 and 74 years.
	    ▪ Identifying mammography procedure codes:
	        ○ X27 (Mammography – both breast).
	        ○ X27 D (Screening mammography – age 50-74 years inclusive).

	Exclusions
	    ▪ Women younger than 50 years and older than 74 years.
	    ▪ Women with an invasive breast cancer who have had mammograms identified as screening services.

	Limitations & Technical Notes Each woman is counted once regardless of the number of mammograms performed in a 30-month period.
Data Details	
Data Sources:	Alberta Health physician claims. Alberta Health Care Insurance Plan (AHCIP) Registry. Alberta Breast Cancer Screening Program (ABCSP) data.
Available Data Years:	**Type of Year** Fiscal year [April 1 to March 31] **First Available Year** 2016/17 **Last Available Year** 2020/21
Geographic Coverage:	The province of Alberta excluding the military and prisoners.
Reporting Level:	Patient level. Physician level, based on confirmed patient list submitted by physician or panel assigned by the HQCA algorithm.
Quality Statement	
Limitations:	▪ Except for screening mammograms, the rest of the mammography services are identified as diagnostic services.

	- All calculations include only patients who are currently listed as '**Active**' in the Alberta Health Care Insurance Plan (AHCIP) Registry database. This may lead to underestimation of the calculated measure above. - About 18% of Albertans do not visit a General Practitioner in a year. - Patients are excluded in the physician panel assignment if they do not visit a physician in 3 years (the current fiscal year, plus the 2 preceding fiscal years). - The physician claims dataset consists of Fee-for-service and shadow billing. The data submitted based on shadow billing may not be entirely accurate. As a result, this might affect the accuracy of the results of this measure.
Comments:	

More Information

References
Canadian Cancer Society - website.

Additional Notes
None

Alignments

- For this measure, the HQCA has aligned with Alberta Health Services Cancer Screening Program (AHSCSP) in relation to screening timeframes. This is due to the fact that AHSCSP is responsible for sending out notifications to patients when they are due for screening.
- Alberta Breast Cancer Screening Program

Review Frequency
Yearly

IDENTIFYING INFORMATION	
Name:	Lumbar Spine Scans (PCN report only)
Short/Other Names:	Lower back scan

BACKGROUND, INTERPRETATION AND BENCHMARKS	
Description:	The number of times that eligible patients in the physician panel received lumbar spine scans. These scans are grouped using the common procedure and examination list (CPEL) modality code.
Rationale:	Lower back pain is one of the most common reasons for all family physician visits. Research has found evidence of substantial overuse of lumbar spine MRI scans. Reporting this measure offers physicians an opportunity to self-reflect on their practice habits.
Interpretation:	Having a disproportionate number of patients imaged compared to their peers may encourage a physician to reflect on or revisit their approach to lower-back imaging.
Target/Benchmark:	No benchmarks have been identified.

INDICATOR CALCULATION	
Calculation:	**Description** Lumbar spine scans = Number of eligible patients in physician panel with lumbar spine scans [Grouped by CPEL Modality Code] **Type of Measure** Number **Adjustment Applied** None
Population:	**Description** Any patient in the physician patient with a lumbar spine scan. Lumbar spine scans are identified by Common Procedure and Examination List (CPEL) catalogue codes as indicated below. The number of scans are grouped according to the following CPEL modality codes: ▪ CT [Computed Tomography] ▪ MR [Magnetic Resonance Imaging] **Inclusion Criteria** ▪ Patients 18 years and older. ▪ CPEL catalogue codes: o 300500 (CT Lumbar Spine, Nonenhanced).

	o 510160 (MR L-spine WITHOUT Contrast).
	Exclusions Patients younger than 18 years.
	Limitations & Technical Notes Lumbar spine scan counts may be under reported as only scans completed in Alberta Health Services facilities are available (Private clinics not included).

Data Details

Data Sources:	Alberta Health physician claims. Alberta Health Care Insurance Plan (AHCIP) Registry. Alberta Health Services diagnostic imaging data.
Available Data Years:	**Type of Year** Fiscal year [April 1 to March 31] **First Available Year** 2015/16 **Last Available Year** 2020/21
Geographic Coverage:	The province of Alberta excluding the military and prisoners.
Reporting Level:	Patient level. Physician level.

Quality Statement

Limitations:	▪ All calculations include only patients who are currently listed as '**Active**' in the Alberta Health Care Insurance Plan (AHCIP) Registry database. This may lead to underestimation of the calculated measure above. ▪ About 18% of Albertans do not visit a General Practitioner in a year. ▪ The physician claims dataset consists of Fee-for-service and shadow billing. The data submitted based on shadow billing may not be entirely accurate. As a result, this might affect the accuracy of the results of this measure.
Comments:	This measure is only included in the PCN panel report.

More Information

References
Overuse of Magnetic Resonance Imaging - Article.

Additional Notes
None

Alignments

▪ Choosing Wisely Canada (CWC) recommendations:

- Do not do imaging for lower back pain unless red flags are present.
- Do not order lumbosacral (lower back) spinal imaging in patients with non-traumatic low back pain who have no red flags/pathologic indicators.

- Alberta Physician Learning Program (PLP):
  - Knowledge transfer
- Alberta Health Services:
  - DIMR and the Diagnostic Imaging Shared Data Model project.

Review Frequency
Yearly

IDENTIFYING INFORMATION

Name:	Influenza vaccination for all panel patients
Short/Other Names:	N/A

BACKGROUND, INTERPRETATION AND BENCHMARKS

Description:	The percentage of patients in the physician panel who, in the past year, received an influenza immunization.
Rationale:	Influenza immunization has many benefits to the patient including but not limited to: • reduces the risk of flu-related hospitalizations • acts as an important preventive tool for patients with chronic health conditions • helps protect women during and after pregnancy Thus, providing influenza immunization rates to physicians will encourage them to promote these benefits to their patients.
Interpretation:	A higher rate implies more patients in the physician panel are immunized.
Target/Benchmark:	No benchmarks have been identified.

INDICATOR CALCULATION

Calculation:	**Description** Influenza immunization rate = $$\left(\frac{\text{Number of patients immunized against influenza}}{\text{Total number of patients in physician panel}}\right) \times 100$$ **Type of Measure** Rate **Adjustment Applied** None
Denominator:	**Description** The number of patients in the physician panel. The physician patient panel is based on either assignment by the HQCA algorithm or a confirmed patient list (CPL) submitted by the physician. **Inclusion Criteria** • Patient list specifically submitted by physician. • Patients assigned to a physician based on the HQCA algorithm (Proxy panel). **Exclusions** Patients not assigned to physician by the HQCA algorithm or patients not on list submitted by physician.

	Limitations & Technical Notes
Numerator:	**Description** The total number of patients that received a flu (influenza) vaccine from a physician, pharmacist or Alberta Health Services public health. **Inclusion Criteria** Patients with influenza immunization records. **Exclusions** **Limitations & Technical Notes** ▪ Only patients with immunization records are included in the Alberta Immunization Registry Dataset. ▪ Immunization given by other practitioners is not included as individual-level data is not provided. ▪ Alberta Health Services immunizations are recorded at aggregate levels.
Data Details	

Data Sources:	▪ Alberta Immunization Registry[1]
	
	      o Immunization / Adverse Reactions to Immunization System (Imm / ARI)
	
	      o Pharmacy Data through Alberta Blue Cross (Publically funded influenza immunizations)
	
	      o Physician Billing (Through the Supplemental Enhance Event System Database [SESE])
	
	 ▪ Alberta Health physician claims.
	
	 ▪ Alberta Health Care Insurance Plan (AHCIP) Registry.

Available Data Years:	**Type of Year** Fiscal year [April 1 to March 31] **First Available Year** 2015/16 **Last Available Year** 2020/21
Geographic Coverage:	The province of Alberta excluding the military and prisoners.
Reporting Level:	Patient level. Physician level, based on confirmed patient list submitted by physician or panel assigned by the HQCA algorithm.

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[1] This data includes influenza immunization information from pharmacists, physicians and Alberta Health Services public health.

Quality Statement	
Limitations:	▪ All calculations include only patients who are currently listed as '**Active**' in the Alberta Health Care Insurance Plan (AHCIP) Registry database. This may lead to underestimation of the calculated measure above.
	▪ About 18% of Albertans do not visit a General Practitioner in a year.
	▪ Patients are excluded in the physician panel assignment if they do not visit a physician in 3 years (the current fiscal year, plus the 2 preceding fiscal years).
	▪ The physician claims dataset consists of Fee-for-service and shadow billing. The data submitted based on shadow billing may not be entirely accurate. As a result, this might affect the accuracy of the results of this measure.
Comments:	

More Information

References
Alberta Health - Flu-facts.

Alberta Health Immunization Policy - Website.

Additional Notes
None

Alignments
Alberta Health Immunization Policy

Review Frequency
Yearly

CHRONIC CONDITIONS

The Chronic Conditions and Frequent Diagnoses section provides data definition information on the following metrics:

- Selected chronic conditions
- Mental health conditions
- Kidney disease screening in adults
- Drug therapy for kidney disease in adults
- Statin use in patients with diabetes
- Lung testing in patients with asthma
- Drug therapy for diabetic kidney disease in adults

IDENTIFYING INFORMATION

Name:	Select chronic conditions
Short/Other Names:	N/A

BACKGROUND, INTERPRETATION AND BENCHMARKS

Description:	The percentage of a physician's patient panel that have been diagnosed with chronic conditions. These patients are often the focus of chronic disease management programs in primary care. The number of patients for each chronic disease is based on the prevalence of the CIHI health condition codes from the CIHI Risk Grouper for the respective populations.
Rationale:	Chronic diseases are the largest drivers of healthcare costs in Alberta; they are the most common reason for emergency department visits, hospitalizations and family physician visits. Providing physicians with the percentages of patients in their panel who have a predominant chronic disease (e.g. hypertension) will help physicians in their chronic disease management efforts. Effective management of chronic conditions is therefore critical to the health of Albertans, and the healthcare system as a whole.
Interpretation:	
Target/Benchmark:	No benchmarks have been identified.

INDICATOR CALCULATION

Calculation:	**Description** Percentage of patients with a particular chronic disease = $$\left(\frac{\text{Number of patients with [a particular chronic disease]}}{\text{Total number of patients in physician panel}}\right) \times 100$$ **Type of Measure** Percentage **Adjustment Applied** None
Denominator:	**Description** The number of patients in the physician panel. The physician patient panel is based on either assignment by the HQCA algorithm or a confirmed patient list (CPL) submitted by the physician. **Inclusion Criteria** ▪ Patient list specifically submitted by physician. ▪ Patients assigned to a physician based on the HQCA algorithm (Proxy panel).

	Exclusions Patients not assigned to physician by the HQCA algorithm or patients not on list submitted by physician. **Limitations & Technical Notes**
Numerator:	**Description** The number of patients in the physician patient panel who have one of the following chronic conditions: • Hypertension • Diabetes Mellitus • Chronic Obstructive Pulmonary Disease (COPD) • Asthma • Heart Failure (CHF) • Coronary Artery Disease (IHD and Angina) • Chronic Kidney Disease/Failure **Inclusion Criteria** Chronic conditions are identified by CIHI health condition codes. Hypertension: • CIHI health condition codes D04, E10 Diabetes Mellitus: • CIHI health condition code J02 Chronic Obstructive Pulmonary Disease (COPD): • CIHI health condition code D03 Asthma: • CIHI health condition code D06 Heart Failure (CHF): • CIHI health condition code E01 Coronary Artery Disease (IHD and Angina): • CIHI health condition codes E04, E43 Chronic Kidney Disease/Failure: • CIHI health condition code K01 **Exclusions** Patients who do not have a particular chronic condition. **Limitations & Technical Notes** Patients can have more than one chronic condition, and as such will be counted towards the conditions they have.
Data Details	

Data Sources:	Alberta Health physician claims.
	Alberta Health Care Insurance Plan (AHCIP) Registry.
	Canadian Institute for Health Information (CIHI) Risk Grouper data.
Available Data Years:	**Type of Year** Fiscal year [April 1 to March 31] **First Available Year** 2011/12 **Last Available Year** 2020/21
Geographic Coverage:	The province of Alberta excluding the military and prisoners.
Reporting Level:	Physician level, based on confirmed patient list submitted by physician or panel assigned by the HQCA algorithm.

Quality Statement	
Limitations:	▪ All calculations include only patients who are currently listed as '**Active**' in the Alberta Health Care Insurance Plan (AHCIP) Registry database. This may lead to underestimation of the calculated measure above. ▪ About 18% of Albertans do not visit a General Practitioner in a year. ▪ Patients are excluded in the physician panel assignment if they do not visit a physician in 3 years (the current fiscal year, plus the 2 preceding fiscal years). ▪ Missing data.
Comments:	

More Information	

References
Report of the Auditor General of Alberta - HEALTH-CHRONIC DISEASE MANAGEMENT.

Comprehensive Annual Care Plan - form.

Additional Notes
None

Alignments

Review Frequency
Yearly

IDENTIFYING INFORMATION	
Name:	Mental health conditions
Short/Other Names:	N/A

BACKGROUND, INTERPRETATION AND BENCHMARKS	
Description:	The percentage of a physician's patient panel that has been diagnosed with specific mental health conditions.
	The number of patients for each mental health condition is based on the prevalence of the CIHI health condition codes from the CIHI Risk Grouper for the respective populations.
Rationale:	Chronic diseases are the largest drivers of healthcare costs in Alberta; they are the most common reason for emergency department visits, hospitalizations and family physician visits. Providing physicians with the percentages of patients in their panel who have a particular mental health condition will help physicians in their mental health conditions management efforts. Effective management of mental health conditions is therefore critical to the health of Albertans, and the healthcare system as a whole.
Interpretation:	
Target/Benchmark:	No benchmarks have been identified.

INDICATOR CALCULATION	
Calculation:	**Description** Percentage of patients with a particular chronic disease = $$\left(\frac{\text{Number of patients with [a particular mental health condition]}}{\text{Total number of patients in physician panel}}\right) \times 100$$ **Type of Measure** Percentage **Adjustment Applied** None
Denominator:	**Description** The number of patients in the physician panel. The physician patient panel is based on either assignment by the HQCA algorithm or a confirmed patient list (CPL) submitted by the physician. **Inclusion Criteria** ■ Patient list specifically submitted by physician. ■ Patients assigned to a physician based on the HQCA algorithm (Proxy panel).

	Exclusions Patients not assigned to physician by the HQCA algorithm or patients not on list submitted by physician. **Limitations & Technical Notes**
Numerator:	**Description** The number of patients in the physician patient panel who have one of the following mental health conditions: ▪ Dementia (including Alzheimer's) ▪ Bipolar/Manic Mood Disorder ▪ Delusional Disorder (including Schizophrenia) ▪ Depression ▪ Neurotic/Anxiety/Obsessive Compulsive Disorder (Acute stress and anxiety) **Inclusion Criteria** Mental health conditions are identified by CIHI health condition codes. Dementia (including Alzheimer's): ▪ CIHI health condition code Q01 Bipolar/Manic Mood Disorder: ▪ CIHI health condition code Q05 Delusional Disorder (including Schizophrenia): ▪ CIHI health condition code Q02 Depression: ▪ CIHI health condition code Q04 Neurotic/Anxiety/Obsessive Compulsive Disorder (Acute stress and anxiety): ▪ CIHI health condition code Q11 **Exclusions** Patients who do not have a particular mental health condition. **Limitations & Technical Notes** Patients can have more than one mental health condition, and as such will be counted towards the conditions they have.

Data Details

Data Sources:	Alberta Health physician claims. Alberta Health Care Insurance Plan (AHCIP) Registry. Canadian Institute for Health Information (CIHI) Risk Grouper data.
Available Data Years:	**Type of Year** Fiscal year [April 1 to March 31]

	First Available Year 2011/12
	Last Available Year 2020/21
Geographic Coverage:	The province of Alberta excluding the military and prisoners.
Reporting Level:	Physician level, based on confirmed patient list submitted by physician or panel assigned by the HQCA algorithm.
Quality Statement	
Limitations:	▪ All calculations include only patients who are currently listed as '**Active**' in the Alberta Health Care Insurance Plan (AHCIP) Registry database. This may lead to underestimation of the calculated measure above. ▪ About 18% of Albertans do not visit a General Practitioner in a year. ▪ Patients are excluded in the physician panel assignment if they do not visit a physician in 3 years (the current fiscal year, plus the 2 preceding fiscal years). ▪ Missing data.
Comments:	
More Information	
References None **Additional Notes** None **Alignments** **Review Frequency** Yearly	

IDENTIFYING INFORMATION

Name:	Kidney Disease Screening in adults (with diabetes)
Short/Other Names:	CKD screening

BACKGROUND, INTERPRETATION AND BENCHMARKS

Description:	The percentage of patients in a physician panel who had a chronic kidney disease (CKD) screening based on an Albumin/Creatinine Ratio (ACR) test and an estimated Glomerular filtration rate (eGFR) test. Patients at risk: - Hypertension. - Diabetes Mellitus. - Family history of Stage 5 CKD or hereditary kidney disease. - Vascular disease (prior diagnosis of CVD, stroke/TIA or PVD). - Multisystem disease with potential kidney involvement.
Rationale:	Chronic diseases are the largest drivers of healthcare costs in Alberta; they are the most common reason for emergency department visits, hospitalizations and family physician visits. Chronic diseases also serve as risk factors for further chronic diseases (e.g. diabetes being a major risk factor for chronic kidney disease). The presence of comorbidities further exacerbates the healthcare resources complex patients require. Therefore, providing physicians with the percentages of patients in their panel who have both diabetes and chronic kidney disease could assist physicians in determining their resource requirements and how they manage their patients.
Interpretation:	A higher value is desirable.
Target/Benchmark:	No benchmarks have been identified.

INDICATOR CALCULATION

Calculation:	**Description** Percentage of patients with a CKD diagnosis = $$\left(\frac{\text{Number of patients with an ACR test and an eGFR test}}{\text{Total number of patients in physician panel}}\right) \times 100$$ **Type of Measure** Percentage **Adjustment Applied** None
Denominator:	**Description** The number of patients in the physician panel. The physician patient panel is based

	on either assignment by the HQCA algorithm or a confirmed patient list (CPL) submitted by the physician.
	Inclusion Criteria
	▪ Patients 18 years and older.
	▪ Patient list specifically submitted by physician.
	▪ Patients assigned to a physician based on the HQCA algorithm (Proxy panel).
	Exclusions
	▪ Patients younger than 17 years and younger.
	▪ Patients not assigned to physician by the HQCA algorithm or patients not on list submitted by physician.
	Limitations & Technical Notes
	▪ This measure will focus on two patient groups diabetic and hypertensive patients.
	▪ Diabetic patients are identified through CIHI health condition codes.
	▪ Hypertensive patients are identified through CIHI health condition codes.
Numerator:	**Description** The number of patients in the physician patient panel who had urine ACR (albumin creatinine ratio) test and an estimated Glomerular filtration rate (eGFR) test.
	Inclusion Criteria
	▪ Patients who had an ACR and eGFR test.
	▪ Patients 18 years and older.
	Exclusions
	▪ Patients who did not have an ACR and eGFR test, or had only one of ACR or eGFR test.
	▪ Patients 17 years and younger.
	Limitations & Technical Notes Patients with chronic kidney disease who did not have a chronic kidney screening in the time period under consideration will not be included.
Data Details	
Data Sources:	Alberta Health physician claims.
	Alberta Health Care Insurance Plan (AHCIP) Registry.
	Canadian Institute for Health Information (CIHI) Risk Grouper data.
	AHS laboratory data.
Available Data Years:	**Type of Year** Fiscal year [April 1 to March 31]
	First Available Year 2008/09

	Last Available Year 2020/21
Geographic Coverage:	The province of Alberta excluding the military and prisoners.
Reporting Level:	Patient level. Physician level, based on confirmed patient list submitted by physician or panel assigned by the HQCA algorithm.

Quality Statement	
Limitations:	▪ CIHI's health condition data may not identify all diabetic or hypertensive patients and may misidentify patients with questionable diagnoses. ▪ All calculations include only patients who are currently listed as '**Active**' in the Alberta Health Care Insurance Plan (AHCIP) Registry database. This may lead to underestimation of the calculated measure above. ▪ About 18% of Albertans do not visit a General Practitioner in a year. ▪ Patients are excluded in the physician panel assignment if they do not visit a physician in 3 years (the current fiscal year, plus the 2 preceding fiscal years). ▪ Missing data.
Comments:	The data is diagnostic specific.

More Information	

References
None

Additional Notes
Notes and resources available at: http://www.ckdpathway.ca/

Alignments
Chronic Kidney Disease (CKD) Clinical Pathway

Review Frequency
Yearly

IDENTIFYING INFORMATION

Name:	Drug therapy for kidney disease in adults (with diabetes)
Short/Other Names:	N/A

BACKGROUND, INTERPRETATION AND BENCHMARKS

Description:	The percentage of patients with an Albumin/Creatinine Ratio (ACR) test ≥ 30 mg/g (or ≥ 3 mg/mmol) or an estimated Glomerular filtration rate (eGFR) test < 60 mL/min/1.73m³ who were dispensed an ACE (Angiotensin-Converting Enzyme) inhibitor or an ARB (Angiotensin II Receptor Blocker). This measure will focus on patients with diabetes and hypertension.
Rationale:	Drug therapy is recommended for all adults who have an abnormal urine albumin/creatinine ratio (ACR) or an abnormal estimated Glomerular filtration rate (eGFR).
Interpretation:	A higher rate is desirable as patients who have CKD are receiving the recommended drug therapy.
Target/Benchmark:	No benchmarks have been identified.

INDICATOR CALCULATION

Calculation:	**Description** Percentage of patients with CKD on drug therapy = $$\left(\frac{\text{Number of patients with an abnormal ACR or eGFR who were dispensed an ACE inhibitors or an ARB}}{\text{Total number of patients with an abnormal ACR or eGFR in physician panel}} \right) \times 100$$ **Type of Measure** Percentage **Adjustment Applied** None
Denominator:	**Description** The number of patients with an ACR > 30 mg/g (or 3 mg/mmol) or an estimated Glomerular filtration rate (eGFR) test < 60 mL/min/1.73m³ in the physician panel. The physician patient panel is based on either assignment by the HQCA algorithm or a confirmed patient list (CPL) submitted by the physician. **Inclusion Criteria** ▪ Patients with an ACR ≥ 30 mg/g (or ≥ 3 mg/mmol) or an estimated Glomerular filtration rate (eGFR) test < 60 mL/min/1.73m³. ▪ Patients 18 years and older. ▪ Patient list specifically submitted by physician.

	▪ Patients assigned to a physician based on the HQCA algorithm (Proxy panel).
	Exclusions
	▪ Patients with an ACR < 30 mg/g (or < 3 mg/mmol) or an estimated Glomerular filtration rate (eGFR) test ≥ 60 mL/min/1.73m^3.
	▪ Patients 17 years and younger.
	▪ Patients not assigned to physician by the HQCA algorithm or patients not on list submitted by physician.
	Limitations & Technical Notes
	The identification of the presence of chronic kidney disease follows the steps used the chronic kidney disease (CKD) clinical pathway.
Numerator:	**Description**
	The number of patients in the physician patient panel who were dispensed at least one ACE inhibitor or at least one ARB.
	ACE inhibitor and ARB prescriptions are identified using the American Hospital Formulary Service (AHFS)[2] Pharmacologic-Therapeutic drug classification system.
	The following are classified as ACE inhibitors or ARB:
	▪ 24:32.04 (Angiotensin-Converting Enzyme inhibitors).
	▪ 24:32.08 (Angiotensin II Receptor Blockers).
	Inclusion Criteria
	▪ Patients with an ACR ≥ 30 mg/g (or ≥ 3 mg/mmol) or an estimated Glomerular filtration rate (eGFR) test < 60 mL/min/1.73m^3.
	▪ Patients 18 years and older.
	▪ Patients who dispensed at least one ACE inhibitor or at least one ARB.
	▪ Patients diagnosed with CKD.
	Exclusions
	▪ Patients with an ACR < 30 mg/g (or < 3 mg/mmol) or an estimated Glomerular filtration rate (eGFR) test ≥ 60 mL/min/1.73m^3.
	▪ Patients who did not dispensed an ACE inhibitor on an ARB.
	▪ Patients 17 years and younger.
	Limitations & Technical Notes
Data Details	
Data Sources:	Alberta Health physician claims.
	Alberta Health Care Insurance Plan (AHCIP) Registry.
	Canadian Institute for Health Information (CIHI) Risk Grouper data.

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[2] The American Hospital Formulary System (AHFS) Pharmacologic-Therapeutic drug classification is used to identify a drug and all of its core uses. The AHFS class number can have up to for tiers and looks like XX:XX.XX (3 tiers) or XX:XX.XX.XX (4 tiers). Each tier includes a level of information arranged in a step-up or step-down manner.

	AHS laboratory data.
	Pharmaceutical Information Network (PIN) dispense data.
	Health Canada Drug Product Database (HC-DPD).
	Anatomical Therapeutic Chemical (ATC) Classification System.
Available Data Years:	**Type of Year** Fiscal year [April 1 to March 31] **First Available Year** 2008/09 **Last Available Year** 2020/21
Geographic Coverage:	The province of Alberta excluding the military and prisoners.
Reporting Level:	Patient level. Physician level, based on confirmed patient list submitted by physician or panel assigned by the HQCA algorithm.

Quality Statement	
Limitations:	▪ CIHI's health condition data may not identify all diabetic or hypertensive patients and may misidentify patients with questionable diagnoses. ▪ All calculations include only patients who are currently listed as '**Active**' in the Alberta Health Care Insurance Plan (AHCIP) Registry database. This may lead to underestimation of the calculated measure above. ▪ About 18% of Albertans do not visit a General Practitioner in a year. ▪ Patients are excluded in the physician panel assignment if they do not visit a physician in 3 years (the current fiscal year, plus the 2 preceding fiscal years). ▪ Missing data.
Comments:	The data is diagnostic specific.

More Information
References None **Additional Notes** Notes and resources available at: http://www.ckdpathway.ca/ **Alignments** Chronic Kidney Disease (CKD) Clinical Pathway **Review Frequency** Yearly

IDENTIFYING INFORMATION	
Name:	Statin use in patients with diabetes
Short/Other Names:	Diabetic patients' HMG-CoA reductase inhibitor prescriptions

BACKGROUND, INTERPRETATION AND BENCHMARKS	
Description:	The percentage of diabetic patients over 40 years of age in a physician panel with dispensed statin prescription.
Rationale:	Providing physicians with information on their diabetic patients on Statins can help disease management as diabetic patients face a greater risk of heart attack and stroke and Statins are a cholesterol-lowering drug.
Interpretation:	Ensuring that patients receive cholesterol-lowering drugs as appropriate is preferred.
Target/Benchmark:	No benchmarks have been identified.

INDICATOR CALCULATION	
Calculation:	**Description** Percentage of diabetic patients over 40 years with **dispensed** statins = $$\left(\frac{\text{Number of diabetic patients with at least one dispensed statin prescription}}{\text{Total number of diabetic patients in physician panel}} \right) \times 100$$ **Type of Measure** Percentage **Adjustment Applied** None
Denominator:	**Description** The number of diabetic patients in the physician panel. The physician patient panel is based on either assignment by the HQCA algorithm or a confirmed patient list (CPL) submitted by the physician. **Inclusion Criteria** - Patients aged 40 years and older. - Diabetic patients identified through the CIHI health condition codes. - Patient list specifically submitted by physician. - Patients assigned to a physician based on the HQCA algorithm (Proxy panel). **Exclusions** - Diabetic patients younger than 40 years.

	• Patients not assigned to physician by the HQCA algorithm or patients not on list submitted by physician.
	Limitations & Technical Notes

Numerator:	**Description**
	The number of diabetic patients in the physician patient panel with at least one dispensed statin prescription.
	
	Statin prescriptions are identified using the American Hospital Formulary Service (AHFS)[3] Pharmacologic-Therapeutic drug classification system. The following are classified as statins:
	
	    • 24:06.08 (Statins or HMG-CoA Reductase Inhibitors)
	
	        o Class names: Atorvastatin, Amlodipine and Atorvastatin, Fluvastatin, Lovastatin, Pravastatin, Rosuvastatin, Simvastatin.
	
	Inclusion Criteria
	
	    • Patients over 40 years or older.
	
	    • Diabetic patients identified through the CRG EDC aggregate codes.
	
	    • Currently marketed (refers to an active Drug Identification Number [DIN] that is currently being sold in Canada) statin drugs in the Health Canada Drug Product Database.
	
	    • Statin prescriptions that were not cancelled (DSPN_CANCEL_DATE is missing).
	
	Exclusions
	
	    • Patients younger than 40 years.
	
	    • Statin drugs not marketed.
	
	    • Statin prescriptions that were cancelled (DSPN_CANCEL_DATE is **not missing**).
	
	Limitations & Technical Notes
	
	    • Prescriptions include both new prescriptions and refills.
	
	    • It is assumed that the Drug Identification Number (DIN) is comparable across datasets.
	
	    • Prescriptions filled by patients could be written by other family physicians including specialist physicians.

Data Details	
Data Sources:	Alberta Health physician claims. Alberta Health Care Insurance Plan (AHCIP) Registry. Canadian Institute for Health Information (CIHI) Risk Grouper data.

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[3] The American Hospital Formulary System (AHFS) Pharmacologic-Therapeutic drug classification is used to identify a drug and all of its core uses. The AHFS class number can have up to for tiers and looks like XX:XX.XX (3 tiers) or XX:XX.XX.XX (4 tiers). Each tier includes a level of information arranged in a step-up or step-down manner.

	Pharmaceutical Information Network (PIN) dispense data.
	Health Canada Drug Product Database (HC-DPD).
	American Hospital Formulary Service (AHFS) Pharmacologic-Therapeutic drug classification.
Available Data Years:	**Type of Year** Fiscal year [April 1 to March 31] **First Available Year** 2008/09 **Last Available Year** 2020/21
Geographic Coverage:	The province of Alberta excluding the military and prisoners.
Reporting Level:	Patient level. Physician level, based on confirmed patient list submitted by physician or panel assigned by the HQCA algorithm.

Quality Statement

Limitations:	▪ This measure includes only currently marketed drugs, as such drugs that are cancelled post-market (refers to a Drug Identification Number that is cancelled further to the discontinuation of sale by manufacturer) will not be captured. ▪ CRG EDC aggregate data may not identify all diabetics or may misidentify patients with questionable diagnoses. ▪ All calculations include only patients who are currently listed as '**Active**' in the Alberta Health Care Insurance Plan (AHCIP) Registry database. This may lead to underestimation of the calculated measure above. ▪ About 18% of Albertans do not visit a General Practitioner in a year. ▪ Patients are excluded in the physician panel assignment if they do not visit a physician in 3 years (the current fiscal year, plus the 2 preceding fiscal years). ▪ Missing data.
Comments:	The data is diagnostic specific.

More Information

References
None

Additional Notes
None

Alignments
Diabetes Canada – Clinical Practice Guidelines.

Review Frequency
Yearly

IDENTIFYING INFORMATION	
Name:	Lung testing in patients with asthma
Short/Other Names:	N/A
BACKGROUND, INTERPRETATION AND BENCHMARKS	
Description:	The percentage of patients with asthma aged 12 years and older who received a post-bronchodilator spirometry test.
Rationale:	Post-bronchodilator spirometry test (also called flow volume loop or simply spirometry) is the recommended clinical best practice for making a definitive diagnosis of asthma (Global Initiative for Asthma/GINA). Some patients may not have had a spirometry performed prior to receiving a diagnosis of asthma. This metric is intended to prompt further investigation of your patient panel to assess whether objective testing is needed.
Interpretation:	A higher value is desirable.
Target/Benchmark/ Recommendation:	The majority of patients aged 12 years and older should have a post-bronchodilator spirometry test to confirm diagnosis of asthma.
INDICATOR CALCULATION	

Calculation	**Description**
	Percentage of patients with asthma aged 12 years and older who had a post-bronchodilator spirometry performed =
	    (Number of patients with asthma aged >12 and spirometry) x 100
	        (Total number of patients with asthma aged >12 in physician panel)
	
	Type of Measure
	Percentage
	
	Adjustment Applied
	None

Denominator	**Description** The number of eligible patients in the physician panel. The physician patient panel is based on either assignments by the HQCA algorithm or a confirmed patient list (CPL) submitted by the physician. **Inclusion Criteria** • Patients aged 12 years and older. • Patient list specifically submitted by physician. • Patients assigned to a physician based on the HQCA algorithm (Proxy panel). • Patient has a diagnosis of asthma since 2001-02, as identified by CIHI health condition codes. ○ Asthma: CIHI health condition code D06 • A diagnosis of asthma is based on the presence of ICD-9 (493) or ICD-10 (J45) codes in two outpatient visits or one inpatient visit over a three year period. **Exclusions** • Patients aged younger than 12 years. • Patients not assigned to physician by the HQCA algorithm or patients not on list submitted by physician.

	• Patients who do not have a diagnosis of asthma, as identified by the CIHI health condition codes. **Limitations & Technical Notes** • The number of eligible patients is based on available years of past data. Alberta Health physician billing data extends to 2010-2011.

Numerator	**Description**
	A patient is eligible if they meet the inclusion criteria outlined below:
	Inclusion
	• Patients aged 12 years and older.
	• Patient has Asthma, as identified by CIHI health condition codes.
	    ○ Asthma: CIHI health condition code D06
	    ○ A diagnosis of asthma is based on the presence of ICD-9 (493) or ICD-10 (J45) codes in two outpatient visits or one inpatient visit over a three year period.
	• Patient has had a spirometry performed.
	    ○ Spirometry: Record of billing 03.38A, C, F and possibly some but not all of H, N, S, T on the same patient on the same day.
	Exclusions
	• Patients younger than 12 years of age.
	• Patients not assigned to physician by the HQCA algorithm or patients not on list submitted by physician.
	• Patients who do not have a diagnosis of asthma as identified by the CIHI health condition codes.
	• Patients who do not meet definition for having had spirometry (see inclusions).
	• Tests performed in public AHS facilities are not included.
	
	Limitations & Technical Notes
	• The number of eligible patients is based on available years of past data. Alberta Health physician billing data extends to 2010-2011.
	• Each patient is counted once regardless of the number of tests performed in a given time period. Some patients may have had both a spirometry and a full PFT in the time period under consideration.
	• Patient may have been referred for spirometry testing by a different physician.

DATA DETAILS	
Data Sources	Alberta Health physician claims. Alberta Health Care Insurance Plan (AHCIP) Registry. Canadian Institute for Health Information (CIHI) Risk Grouper data.
Available Data Years	**Type of Year** Fiscal year [April 1 to March 31] **First Available Year** 2010-11 **Last Available Year**

	2020/21
Geographic Coverage	The province of Alberta excluding the military and prisoners.
Reporting Level	Patient level, based on confirmed patient list submitted by physician or panel assigned by the HQCA algorithm.
QUALITY STATEMENT	
Limitations	• CIHI's health condition data may not identify all patients with asthma and may misidentify patients with questionable diagnoses. • All calculations include only patients who are currently listed as 'Active' in the Alberta Health Care Insurance Plan (AHCIP) Registry database. This may lead to underestimation of the calculated measure above. • About 18% of Albertans do not visit a General Practitioner in a year. • The physician claims dataset consists of fee-for-service and shadow billing. The data submitted based on shadow billing may not be entirely accurate. As a result, this might affect the accuracy of the results of this measure. • Missing data.
Comments	The data is diagnostic specific.
More Information	

References: GINA

Aaron SD, et al. Reevaluation of Diagnosis in Adults With Physician-Diagnosed Asthma. JAMA. 2017 Jan 17;317(3):269-279. PMID: 28114551.

Aaron, SD, Boulet, LP, Reddel, HK & Gershon, AS. Underdiagnosis and Overdiagnosis of Asthma. *Am J Respir Crit Care Med*, 2018;Vol 198, Iss 8:pp. 1012-1020.

Additional Notes

N/A

Alignments

• Towards Optimized Practice – Asthma Clinical Practice Guidelines: https://actt.albertadoctors.org/CPGs/Pages/Asthma.aspx
• Choosing Wisely Canada – Respiratory Medicine Recommendations: https://choosingwiselycanada.org/respiratory-medicine/
  1. Don't initiate medications for asthma in patients $\geq$ 6 years old who have not had a confirmation of reversible airflow limitation with spirometry, and in its absence, a positive methacholine or exercise challenge test, or sufficient peak expiratory flow variability.
• Alberta Health Services Medicine Strategic Clinical Network

Review Frequency

Yearly

IDENTIFYING INFORMATION

Name:	Drug therapy for diabetic kidney disease in adults
Short/Other Names:	N/A

BACKGROUND, INTERPRETATION AND BENCHMARKS

Description:	The percentage of patients with an estimated Glomerular filtration rate (eGFR) $\geq$ 30 mL/min/1.73m^3 *and* an Albumin/Creatinine Ratio (ACR) test $\geq$ 30 mg/g (or $\geq$ 3 mg/mmol) who were dispensed an SGLT2 inhibitor. Limited to patients with diabetes.
Rationale:	Drug therapy is recommended for all adults with diabetes who have an abnormal estimated Glomerular filtration rate(eGFR) and abnormal urine albumin/creatinine ratio (ACR).
Interpretation:	A higher rate is desirable as patients who have diabetes and chronic kidney disease (CKD) are receiving the recommended drug therapy.
Target/Benchmark:	No benchmarks have been identified.

INDICATOR CALCULATION

Calculation:	**Description** Percentage of diabetic patients with CKD on drug therapy = $$\frac{\text{Number of patients with an abnormal ACR or eGFR who were dispensed an SGLT2 inhibitor}}{\text{Total number of patients with an abnormal ACR or eGFR in physician panel}} \times 100$$ **Type of Measure** Percentage **Adjustment Applied** None
Denominator:	**Description** The number of patients with diabetes and an estimated Glomerular filtration rate (eGFR) test $\geq$ 30 mL/min/1.73m^3 *and* an Albumin/Creatinine Ratio (ACR) test $\geq$ 30 mg/g (or $\geq$ 3 mg/mmol) in the physician panel. The physician patient panel is based on either assignment by the HQCA algorithm or a confirmed patient list (CPL) submitted by the physician. **Inclusion Criteria** Patients with an estimated glomerular filtration rate (eGFR) test $\geq$ 30 mL/min/1.73m^3 *and* an ACR $\geq$ 30 mg/g (or $\geq$ 3 mg/mmol)

	- Patients 18 years and older - Outpatient labs only - Patient list specifically submitted by physician - Patients assigned to a physician based on the HQCA algorithm (Proxy panel) **Exclusions** - Patients with an estimated glomerular filtration rate < 30 mL/min/1.73m^3 - Patients with an ACR < 30 mg/g (or < 3 mg/mmol) - Patients 17 years and younger - Patients not assigned to physician by the HQCA algorithm or patients not on list submitted by physician. **Limitations & Technical Notes**
Numerator:	**Description** The number of patients in the physician patient panel who were dispensed at least one SGLT2 inhibitor. SGLT2 inhibitors are identified using the American Hospital Formulary Service (AHFS)[2] Pharmacologic-Therapeutic drug classification system. ATC codes: - A10BK - A10BD15 - A10BD16 - A10BD19 - A10BD20 - A10BD21 - A10BD23 - A10BD24 - A10BD25 **Inclusion Criteria** - Patients with an estimated glomerular filtration rate (eGFR) test $\geq$ 30 mL/min/1.73m^3 *and* with an ACR ≥ 30 mg/g (or ≥ 3 mg/mmol) - Patients 18 years and older. - Outpatient labs only - Patients who received at least one dispensation for an SGLT2 inhibitor during the fiscal year under evaluation. **Exclusions** - Patients with an estimated glomerular filtration rate < 30 mL/min/1.73m^3

	- Patients with an ACR < 30 mg/g (or < 3 mg/mmol) *and* an estimated glomerular filtration rate (eGFR) test ≥ 60 mL/min/1.73m^3 - Patients 17 years and younger. **Limitations & Technical Notes**

Data Details

Data Sources:	Alberta Health physician claims.
	Alberta Health Care Insurance Plan (AHCIP) Registry.
	Canadian Institute for Health Information (CIHI) Risk Grouper data AHS laboratory data.
	Pharmaceutical Information Network (PIN) dispense data.
	Health Canada Drug Product Database (HC-DPD).
	Anatomical Therapeutic Chemical (ATC) Classification System.
Available Data Years:	**Type of Year** Fiscal year [April 1 to March 31] **First Available Year** **Last Available Year** 2020/2021
Geographic Coverage:	Individuals residing within the province of Alberta excluding Canadian Forces personnel and prisoners.
Reporting Level:	Patient level. Physician level, based on confirmed patient list submitted by physician or panel assigned by the HQCA algorithm.

Quality Statement

Limitations:	▪ CIHI's health condition data may not identify all persons with diabetes and may misidentify patients with type 1 or other forms of diabetes.
	▪ All calculations include only patients who are currently listed as '**Active**' in the Alberta Health Care Insurance Plan (AHCIP) Registry database. This may lead to underestimation of the calculated measure above.
	▪ About 18% of Albertans do not visit a General Practitioner in a year.
	▪ Patients are excluded in the physician panel assignment if they do not visit a physician in 3 years (the current fiscal year, plus the 2 preceding fiscal years).
	▪ Missing lab data.
Comments:	The data is diagnostic specific.

More Information

KDIGO Guidelines[1]: (**Recommendation 4.2.1) We recommend treating patients with T2D, CKD, and an eGFR ≥30 ml/min per 1.73 m^2 with an SGLT2i** *(1A)*.

Diabetes Canada Clinical Practice Guidelines[2]. (Recommendation 9.b.) In adults with type 2 diabetes and CKD and an estimated eGFR >30 mL/min/1.73m^2: An SGLT2i should be used to reduce the risk of progression of nephropathy (1A).

References
1. KDIGO 2020 Clinical Practice Guidelines for Diabetes Management in Chronic Kidney Disease. Available here: https://www.kidney-international.org/article/S0085-2538(20)30718-3/fulltext
2. Diabetes Canada Clinical Practice Guidelines. Pharmacologic Glycemic Management of Type 2 Diabetes in Adults: 2020 Update. Available here: Diabetes Canada | Clinical Practice Guidelines - Chapter 13: Pharmacologic Glycemic Management of Type 2 Diabetes in Adults: 2020 Update

Additional Notes
Notes and resources available at: http://www.ckdpathway.ca/

Alignments
Chronic Kidney Disease (CKD) Clinical Pathway

Review Frequency
Yearly

PHARMACEUTICAL METRICS

The Pharmaceuticals section provides data definition information on the following metrics:

▪ Sedative use in older adults

▪ Proton pump inhibitor use

▪ Antibiotics for acute sinusitis

▪ Opiates (PCN report only)

IDENTIFYING INFORMATION

Name:	Sedating medication
Short/Other Names:	N/A

BACKGROUND, INTERPRETATION AND BENCHMARKS

Description:	The count of unique patients dispensed at least one sedating medications on new and refill prescriptions written by any physician, including specialists.
Rationale:	This measure provides physicians with information on their patients who are dispensed at least one medication with potential for causing sedating effects in older adults. On average, older adults are prescribed more medications than any other age group. The use of multiple medications is associated with a higher rate of adverse events and potentially inappropriate use. Despite evidence of harms, sedating medications in particular are frequently prescribed to older adults to treat symptoms of dementia and insomnia.
Interpretation:	A higher value indicates that many patients who are 65 years and older are prescribed a sedating medication.
Target/Benchmark:	No benchmarks have been identified.

INDICATOR CALCULATION

Calculation:	**Description** Percentage (and number) of patients with **dispensed** a sedating medication = $$\left(\frac{\text{Number of patients who are 65 years or older dispensed at least one sedating medication by an Albertan physician}}{\text{Total number of patients in physician panel who are 65 years or older}} \right) \times 100$$ **Type of Measure** Percentage, Number **Adjustment Applied** None
Denominator:	**Description** The number of patients in the physician panel who are 65 years or older. The physician patient panel is based on either assignment by the HQCA algorithm or a confirmed patient list (CPL) submitted by the physician. **Inclusion Criteria** ▪ Patients 65 years or older. ▪ Patient list specifically submitted by physician.

	▪ Patients assigned to a physician based on the HQCA algorithm (Proxy panel).
	Exclusions
	▪ Patients with Schizophrenia and end-of-life.
	▪ Patients younger than 65 years.
	▪ Patients not assigned to physician by the HQCA algorithm or patients not on list submitted by physician.
	Limitations & Technical Notes
Numerator:	**Description**
	The number of patients in the physician patient panel who are 65 years or older dispensed at least one sedating medication.
	Sedating prescriptions are identified according to the Beers criteria. The following medications are queried:

L3_PHARMACOLOGICAL_SUBGRP	L5_CHEMICAL_SUBSTANCE
ANTIDEPRESSANTS	amitriptyline
ANTIDEPRESSANTS	bupropion
ANTIDEPRESSANTS	citalopram
ANTIDEPRESSANTS	doxepin
ANTIDEPRESSANTS	duloxetine
ANTIDEPRESSANTS	escitalopram
ANTIDEPRESSANTS	fluoxetine
ANTIDEPRESSANTS	imipramine
ANTIDEPRESSANTS	mirtazapine
ANTIDEPRESSANTS	nortriptyline
ANTIDEPRESSANTS	paroxetine
ANTIDEPRESSANTS	sertraline
ANTIDEPRESSANTS	trazodone
ANTIDEPRESSANTS	trimipramine
ANTIDEPRESSANTS	desipramine
ANTIDEPRESSANTS	clomipramine
ANTIDEPRESSANTS	venlafaxine
ANTIEPILEPTICS	clonazepam
ANTIEPILEPTICS	phenobarbital
ANTIPSYCHOTICS	aripiprazole
ANTIPSYCHOTICS	haloperidol
ANTIPSYCHOTICS	lurasidone
ANTIPSYCHOTICS	olanzapine
ANTIPSYCHOTICS	paliperidone
ANTIPSYCHOTICS	quetiapine
ANTIPSYCHOTICS	risperidone
ANTIPSYCHOTICS	Brexpiprazole
ANTIPSYCHOTICS	Clozapine
ANTIPSYCHOTICS	Ziprasidone
ANXIOLYTICS	alprazolam
ANXIOLYTICS	bromazepam
ANXIOLYTICS	chlordiazepoxide

ANXIOLYTICS	clobazam
ANXIOLYTICS	diazepam
ANXIOLYTICS	lorazepam
ANXIOLYTICS	oxazepam
HYPNOTICS AND SEDATIVES	flurazepam
HYPNOTICS AND SEDATIVES	nitrazepam
HYPNOTICS AND SEDATIVES	temazepam
HYPNOTICS AND SEDATIVES	triazolam
HYPNOTICS AND SEDATIVES	zolpidem
HYPNOTICS AND SEDATIVES	zopiclone
HYPNOTICS AND SEDATIVES	midazolam

Inclusion Criteria

- Patients 65 years or older.

- Currently marketed (refers to an active Drug Identification Number [DIN] that is currently being sold in Canada) antipsychotic drugs in the Health Canada Drug Product Database.

- Prescriptions that were not cancelled (DSPN_CANCEL_DATE is missing).

Exclusions

- Patients with Schizophrenia and end-of-life.

- Patients younger than 65 years.

- Sedating drugs not marketed.

- Prescriptions that were not filled.

Limitations & Technical Notes

- Prescriptions include both new prescriptions and refills.

- It is assumed that the Drug Identification Number (DIN) is comparable across datasets.

- Prescriptions filled by patients could be written by other family physicians including specialist physicians.

Data Details	
Data Sources:	Alberta Health physician claims.
	Alberta Health Care Insurance Plan (AHCIP) Registry.
	Pharmaceutical Information Network (PIN) dispense data.
	Health Canada Drug Product Database (HC-DPD).
Available Data Years:	**Type of Year** Fiscal year [April 1 to March 31] **First Available Year** 2008/09 **Last Available Year** 2020/21

Geographic Coverage:	The province of Alberta excluding the military and prisoners.
Reporting Level:	Patient level.
	Physician level, based on confirmed patient list submitted by physician or panel assigned by the HQCA algorithm.

Quality Statement	
Limitations:	- The list of medications queried for this measure is based on commonly prescribed medications to seniors and on the Beers List for Potentially Inappropriate Medications in Older Adults. This is not a comprehensive list of medications used for sedating purposes in older adults in Alberta. - This measure includes only currently marketed drugs, as such drugs that are cancelled post-market (refers to a Drug Identification Number that is cancelled further to the discontinuation of sale by manufacturer) will not be captured. - All calculations include only patients who are currently listed as '**Active**' in the Alberta Health Care Insurance Plan (AHCIP) Registry database. This may lead to underestimation of the calculated measure above. - About 18% of Albertans do not visit a General Practitioner in a year. - Patients are excluded in the physician panel assignment if they do not visit a physician in 3 years (the current fiscal year, plus the 2 preceding fiscal years). - Missing data.
Comments:	The data is not diagnostic specific.

More Information	

References
None

Additional Notes

Medications can be filtered by age, gender, continuity with physician and by location (supportive living or long-term care)

Alignments
Choosing Wisely Canada (CWC) recommendations:

1. Do not use antipsychotics as first choice to treat behavioural and psychological symptoms of dementia.
2. Do not use benzodiazepines or other sedative-hypnotics in older adults as first choice for insomnia, agitation or delirium.

Choosing Wisely Canada. Canadian Geriatrics Society: five things physicians and patients should question. Available from: choosingwiselycanada.org/geriatrics/

American Geriatrics Society 2015 Beers Criteria Update Expert Panel:
American Geriatrics Society 2015 updated Beers Criteria for potentially inappropriate medication use in older adults. *J Am Geriatr Soc* 2015;**63**:2227-2246.

Alberta Health Services Seniors Health Strategic Clinical Network

Review Frequency
Yearly

IDENTIFYING INFORMATION	
Name:	My patients dispensed sedating medications by major sub-group: Antidepressants, Antipsychotics, Sedatives
Short/Other Names:	N/A

BACKGROUND, INTERPRETATION AND BENCHMARKS	
Description:	The number of medications dispensed to unique patients categorized into major sub-groups of antidepressants, antipsychotics, and sedatives (anxiolytics, antiepileptics, and hypnotics and sedatives).
Rationale:	This measure provides physicians with information on their patients who are dispensed medications with the potential for causing sedating effects in older adults by major pharmaceutical sub-group. Categorization into major groups may assist physicians in their efforts to de-prescribe.
	On average, older adults are prescribed more medications than any other age group. The use of multiple medications is associated with a higher rate of adverse events and potentially inappropriate use.
	Despite evidence of harms, sedating medications in particular are frequently prescribed to older adults to treat symptoms of dementia and insomnia.
Interpretation:	A value in any of the pharmaceutical sub-groups indicates that a patient has been dispensed at least one sedating medication in that group. A patient may be counted in more than one group.
Target/Benchmark:	No benchmarks have been identified.

INDICATOR CALCULATION	
Calculation:	**Description** Percentage (and number) of patients **dispensed** a sedating medication = $$\left(\frac{\substack{\text{Number of patients who are 65 years or older dispensed} \\ \text{any antidepressant, antipsychotic, or sedative medication} \\ \text{by an Albertan physician}}}{\substack{\text{Total number of patients in physician panel who are 65 years or older} \\ \text{and dispsensed at least one sedating medication}}} \right) \times 100$$ **Type of Measure** Number; Rate **Adjustment Applied** None
Denominator:	**Description** The number of patients in the physician panel who are 65 years or older dispensed at least one sedating medication. The physician patient panel is based on either

assignment by the HQCA algorithm or a confirmed patient list (CPL) submitted by the physician.

Inclusion Criteria

- Patients 65 years or older.

- Patient list specifically submitted by physician.

- Patients assigned to a physician based on the HQCA algorithm (Proxy panel).

Exclusions

- Patients with Schizophrenia and end-of-life

- Patients younger than 65 years.

- Patients not assigned to physician by the HQCA algorithm or patients not on list submitted by physician.

Limitations & Technical Notes

Numerator:	**Description**

Description

The number of patients in the physician patient panel who are 65 years or older dispensed at least one sedating medication in any of the major pharmaceutical sub-groups: antidepressants, antipsychotics, or sedatives (anxiolytics, antiepileptics and hypnotics and sedatives).

Sedating prescriptions are identified according to the Beers criteria. The following medications are queried:

L3_PHARMACOLOGICAL_SUBGRP	L5_CHEMICAL_SUBSTANCE
ANTIDEPRESSANTS	amitriptyline
ANTIDEPRESSANTS	bupropion
ANTIDEPRESSANTS	citalopram
ANTIDEPRESSANTS	doxepin
ANTIDEPRESSANTS	duloxetine
ANTIDEPRESSANTS	escitalopram
ANTIDEPRESSANTS	fluoxetine
ANTIDEPRESSANTS	imipramine
ANTIDEPRESSANTS	mirtazapine
ANTIDEPRESSANTS	nortriptyline
ANTIDEPRESSANTS	paroxetine
ANTIDEPRESSANTS	sertraline
ANTIDEPRESSANTS	trazodone
ANTIDEPRESSANTS	trimipramine
ANTIDEPRESSANTS	desipramine
ANTIDEPRESSANTS	clomipramine
ANTIDEPRESSANTS	venlafaxine
ANTIEPILEPTICS	clonazepam
ANTIEPILEPTICS	phenobarbital
ANTIPSYCHOTICS	aripiprazole
ANTIPSYCHOTICS	haloperidol
ANTIPSYCHOTICS	lurasidone
ANTIPSYCHOTICS	olanzapine

ANTIPSYCHOTICS	paliperidone
ANTIPSYCHOTICS	quetiapine
ANTIPSYCHOTICS	risperidone
ANTIPSYCHOTICS	Brexpiprazole
ANTIPSYCHOTICS	Clozapine
ANTIPSYCHOTICS	Ziprasidone
ANXIOLYTICS	alprazolam
ANXIOLYTICS	bromazepam
ANXIOLYTICS	chlordiazepoxide
ANXIOLYTICS	clobazam
ANXIOLYTICS	diazepam
ANXIOLYTICS	lorazepam
ANXIOLYTICS	oxazepam
HYPNOTICS AND SEDATIVES	flurazepam
HYPNOTICS AND SEDATIVES	nitrazepam
HYPNOTICS AND SEDATIVES	temazepam
HYPNOTICS AND SEDATIVES	triazolam
HYPNOTICS AND SEDATIVES	zolpidem
HYPNOTICS AND SEDATIVES	zopiclone
HYPNOTICS AND SEDATIVES	midazolam

Inclusion Criteria

- Patients 65 years or older.
- Currently marketed (refers to an active Drug Identification Number [DIN] that is currently being sold in Canada) antipsychotic drugs in the Health Canada Drug Product Database.
- Prescriptions that were not cancelled (DSPN_CANCEL_DATE is missing).

Exclusions

- Patients with Schizophrenia and end-of-life
- Patients younger than 65 years.
- Sedating drugs not marketed.
- Prescriptions that were not filled.

Limitations & Technical Notes

- Prescriptions include both new prescriptions and refills.
- It is assumed that the Drug Identification Number (DIN) is comparable across datasets.
- Prescriptions filled by patients could be written by other family physicians including specialist physicians

Data Details	
Data Sources:	Alberta Health physician claims. Alberta Health Care Insurance Plan (AHCIP) Registry. Pharmaceutical Information Network (PIN) dispense data.

	Health Canada Drug Product Database (HC-DPD).
Available Data Years:	**Type of Year** Fiscal year [April 1 to March 31] **First Available Year** 2008/09 **Last Available Year** 2020/21
Geographic Coverage:	The province of Alberta excluding the military and prisoners.
Reporting Level:	Patient level. Physician level, based on confirmed patient list submitted by physician or panel assigned by the HQCA algorithm.
Quality Statement	
Limitations:	- The list of medications queried for this measure is based on commonly prescribed medications to seniors and on the Beers List for Potentially Inappropriate Medications in Older Adults. This is not a comprehensive list of medications used for sedating purposes in older adults in Alberta. - This measure includes only currently marketed drugs, as such drugs that are cancelled post-market (refers to a Drug Identification Number that is cancelled further to the discontinuation of sale by manufacturer) will not be captured. - All calculations include only patients who are currently listed as '**Active**' in the Alberta Health Care Insurance Plan (AHCIP) Registry database. This may lead to underestimation of the calculated measure above. - About 18% of Albertans do not visit a General Practitioner in a year. - Patients are excluded in the physician panel assignment if they do not visit a physician in 3 years (the current fiscal year, plus the 2 preceding fiscal years). - Missing data.
Comments:	The data is not diagnostic specific.
More Information	

References
None

Additional Notes
Medications can be filtered by age, gender, continuity with physician and by location (supportive living or long-term care)

Alignments
Choosing Wisely Canada (CWC) recommendations:

1. Do not use antipsychotics as first choice to treat behavioural and psychological symptoms of dementia.

2. Do not use benzodiazepines or other sedative-hypnotics in older adults as first choice for insomnia, agitation or delirium.

Choosing Wisely Canada. Canadian Geriatrics Society: five things physicians and patients should question. Available from: choosingwiselycanada.org/geriatrics/

American Geriatrics Society 2015 Beers Criteria Update Expert Panel:
American Geriatrics Society 2015 updated Beers Criteria for potentially inappropriate medication use in older adults. *J Am Geriatr Soc* 2015;**63**:2227-2246.

Alberta Health Services Seniors Health Strategic Clinical Network

Review Frequency
Yearly

IDENTIFYING INFORMATION

Name:	My Patients Dispensed Multiple Sedating Medications (Polypharmacy)
Short/Other Names:	N/A

BACKGROUND, INTERPRETATION AND BENCHMARKS

Description:	The total number of sedating medications dispensed to unique patients categorized by none, one, two, three, or four or more.
Rationale:	This measure identifies patients who have been dispensed multiple sedating medications and may be at higher risk for adverse events as a result of polypharmacy.
	On average, older adults are prescribed more medications than any other age group. The use of multiple medications is associated with a higher rate of adverse events and potentially inappropriate use.
	Despite evidence of harms, sedating medications in particular are frequently prescribed to older adults to treat symptoms of dementia and insomnia.
Interpretation:	A higher value in categories of 2, 3 or 4+ medications indicates the physician's number of unique patients dispensed multiple sedating medications.
Target/Benchmark:	No benchmarks have been identified.

INDICATOR CALCULATION

Calculation:	**Description** Percentage (and number) of patients with **dispensed** a sedating medication = $$\left(\frac{\begin{array}{c}\text{Number of patients who are 65 years or older dispensed } \textbf{none, one, two,}\\ \textbf{three, and four or more} \text{ sedating medication by an Albertan physician}\end{array}}{\text{Total number of patients in physician panel who are 65 years or older}} \right) \times 100$$ **Type of Measure** Number; Rate **Adjustment Applied** None
Denominator:	**Description** The number of patients in the physician panel who are 65 years or older. The physician patient panel is based on either assignment by the HQCA algorithm or a confirmed patient list (CPL) submitted by the physician. **Inclusion Criteria** - Patients 65 years or older. - Patient list specifically submitted by physician.

	▪ Patients assigned to a physician based on the HQCA algorithm (Proxy panel).
	Exclusions
	▪ Patients with Schizophrenia and end-of-life.
	▪ Patients younger than 65 years.
	▪ Patients not assigned to physician by the HQCA algorithm or patients not on list submitted by physician.
	Limitations & Technical Notes
Numerator:	**Description**
	The number of patients in the physician patient panel who are 65 years or older dispensed none, one, two, three, or four or more sedating medications.
	Sedating prescriptions are identified according to the Beers criteria. The following medications are queried:

L3_PHARMACOLOGICAL_SUBGRP	L5_CHEMICAL_SUBSTANCE
ANTIDEPRESSANTS	amitriptyline
ANTIDEPRESSANTS	bupropion
ANTIDEPRESSANTS	citalopram
ANTIDEPRESSANTS	doxepin
ANTIDEPRESSANTS	duloxetine
ANTIDEPRESSANTS	escitalopram
ANTIDEPRESSANTS	fluoxetine
ANTIDEPRESSANTS	imipramine
ANTIDEPRESSANTS	mirtazapine
ANTIDEPRESSANTS	nortriptyline
ANTIDEPRESSANTS	paroxetine
ANTIDEPRESSANTS	sertraline
ANTIDEPRESSANTS	trazodone
ANTIDEPRESSANTS	trimipramine
ANTIDEPRESSANTS	desipramine
ANTIDEPRESSANTS	clomipramine
ANTIDEPRESSANTS	venlafaxine
ANTIEPILEPTICS	clonazepam
ANTIEPILEPTICS	phenobarbital
ANTIPSYCHOTICS	aripiprazole
ANTIPSYCHOTICS	haloperidol
ANTIPSYCHOTICS	lurasidone
ANTIPSYCHOTICS	olanzapine
ANTIPSYCHOTICS	paliperidone
ANTIPSYCHOTICS	quetiapine
ANTIPSYCHOTICS	risperidone
ANTIPSYCHOTICS	Brexpiprazole
ANTIPSYCHOTICS	Clozapine
ANTIPSYCHOTICS	Ziprasidone
ANXIOLYTICS	alprazolam
ANXIOLYTICS	bromazepam
ANXIOLYTICS	chlordiazepoxide

ANXIOLYTICS	clobazam
ANXIOLYTICS	diazepam
ANXIOLYTICS	lorazepam
ANXIOLYTICS	oxazepam
HYPNOTICS AND SEDATIVES	flurazepam
HYPNOTICS AND SEDATIVES	nitrazepam
HYPNOTICS AND SEDATIVES	temazepam
HYPNOTICS AND SEDATIVES	triazolam
HYPNOTICS AND SEDATIVES	zolpidem
HYPNOTICS AND SEDATIVES	zopiclone
HYPNOTICS AND SEDATIVES	midazolam

Inclusion Criteria

- Patients 65 years or older.
- Currently marketed (refers to an active Drug Identification Number [DIN] that is currently being sold in Canada) antipsychotic drugs in the Health Canada Drug Product Database.
- Prescriptions that were not cancelled (DSPN_CANCEL_DATE is missing).

Exclusions

- Patients with Schizophrenia and end-of-life.
- Patients younger than 65 years.
- Sedating drugs not marketed.
- Prescriptions that were not filled.

Limitations & Technical Notes

- Prescriptions include both new prescriptions and refills.
- It is assumed that the Drug Identification Number (DIN) is comparable across datasets.
- Prescriptions filled by patients could be written by other family physicians including specialist physicians.

Data Details

Data Sources:	Alberta Health physician claims. Alberta Health Care Insurance Plan (AHCIP) Registry. Pharmaceutical Information Network (PIN) dispense data. Health Canada Drug Product Database (HC-DPD).
Available Data Years:	**Type of Year** Fiscal year [April 1 to March 31] **First Available Year** 2008/09 **Last Available Year** 2020/21

Geographic Coverage:	The province of Alberta excluding the military and prisoners.
Reporting Level:	Patient level. Physician level, based on confirmed patient list submitted by physician or panel assigned by the HQCA algorithm.

Quality Statement	
Limitations:	▪ The list of medications queried for this measure is based on commonly prescribed medications to seniors and on the Beers List for Potentially Inappropriate Medications in Older Adults. This is not a comprehensive list of medications used for sedating purposes in older adults in Alberta. ▪ This measure includes only currently marketed drugs, as such drugs that are cancelled post-market (refers to a Drug Identification Number that is cancelled further to the discontinuation of sale by manufacturer) will not be captured. ▪ All calculations include only patients who are currently listed as '**Active**' in the Alberta Health Care Insurance Plan (AHCIP) Registry database. This may lead to underestimation of the calculated measure above. ▪ About 18% of Albertans do not visit a General Practitioner in a year. ▪ Patients are excluded in the physician panel assignment if they do not visit a physician in 3 years (the current fiscal year, plus the 2 preceding fiscal years). ▪ Missing data.
Comments:	The data is not diagnostic specific.

More Information

References
None

Additional Notes
Medications can be filtered by age, gender, continuity with physician and by location (supportive living or long-term care)

Alignments
Choosing Wisely Canada (CWC) recommendations:

1. Do not use antipsychotics as first choice to treat behavioural and psychological symptoms of dementia.
2. Do not use benzodiazepines or other sedative-hypnotics in older adults as first choice for insomnia, agitation or delirium.

Choosing Wisely Canada. Canadian Geriatrics Society: five things physicians and patients should question. Available from: choosingwiselycanada.org/geriatrics/

American Geriatrics Society 2015 Beers Criteria Update Expert Panel:
American Geriatrics Society 2015 updated Beers Criteria for potentially inappropriate medication use in older adults. *J Am Geriatr Soc* 2015;**63**:2227-2246.

Alberta Health Services Seniors Health Strategic Clinical Network

Review Frequency
Yearly

IDENTIFYING INFORMATION

Name:	Proton pump inhibitor use
Short/Other Names:	PPI use

BACKGROUND, INTERPRETATION AND BENCHMARKS

Description:	The percentage of patients in a physician's panel with a dispensed episode drug therapy (EDT) of PPIs for 1 to 60 days (short term), and the percentage of patients with a dispensed episode drug therapy (EDT) of PPIs for over 60 days (long term). EDTs are defined as the combined PPI prescription events for any PPI for one patient where the lag between the dispensed date of a new prescription and the end date of a previous prescription is less than 60 days.
Rationale:	PPIs are commonly used for upper gastrointestinal disorders, including gastroesophageal reflux disease, dyspepsia, and peptic ulcer disease. Prolonged use of PPIs may expose patients to a number of potential risks such as hypergastrinemia, enterochromaffin-like cell hyperplasia, and parietal cell hypertrophy, leading to rebound acid hypersecretion. Providing physicians with information on how long their patients use PPIs will encourage them to self-reflect on the length of time they prescribe PPIs.
Interpretation:	A lower value is desirable for EDTs for over 60 days.
Target/Benchmark:	No benchmarks have been identified.

INDICATOR CALCULATION

Calculation:	**Description** A. Percentage of patients with **dispensed** PPI EDTs for 1 to 60 days = $$\left(\frac{\text{Number of patients with dispensed PPI EDTs for 1 to 60 days cummulative}}{\text{Total number of patients in physician panel}}\right) \times 100$$ B. Percentage of patients with **dispensed** PPI EDTs for over 60 days = $$\left(\frac{\text{Number of patients with dispensed PPI EDTs for over 60 days cummulative}}{\text{Total number of patients in physician panel}}\right) \times 100$$ **Type of Measure** Percentage **Adjustment Applied** None
Denominator:	**Description**

	The number of patients in the physician panel. The physician patient panel is based on either assignment by the HQCA algorithm or a confirmed patient list (CPL) submitted by the physician. **Inclusion Criteria** ▪ Patient list specifically submitted by physician. ▪ Patients assigned to a physician based on the HQCA algorithm (Proxy panel). **Exclusions** Patients not assigned to physician by the HQCA algorithm or patients not on list submitted by physician. **Limitations & Technical Notes**
Numerator:	**Description** A. The number of patients in the physician patient panel with dispensed PPI episodes of drug therapy (EDTs) for 1 to 60 days. B. The number of patients in the physician patient panel with dispensed PPI episodes of drug therapy (EDTs) for more than 60 days. PPI prescriptions are identified using the American Hospital Formulary Service (AHFS)[4] Pharmacologic-Therapeutic drug classification system. The following are classified as proton pump inhibitors (PPIs): ▪ 56:28.36 (Proton pump inhibitors). o Class names: Omeprazole (ATC code: A02BC01), Pantoprazole (ATC code: A02BC02), Lansoprazole (ATC code: A02BC03), Rabeprazoel (ATC code: A02BC04), Esomeprazole (ATC code: A02BC05), Dexlansoprazole (ATC code: A02BC06), Dexrabeprazole (ATC code: A02BC07). **Inclusion Criteria** ▪ Currently marketed (refers to an active Drug Identification Number [DIN] that is currently being sold in Canada) proton pump inhibitor drugs in the Health Canada Drug Product Database. ▪ Proton pump inhibitor prescriptions that were not cancelled (DSPN_CANCEL_DATE is missing). **Exclusions** ▪ Proton pump inhibitor drugs not marketed. ▪ Proton pump inhibitor prescriptions that were not filled. **Limitations & Technical Notes** ▪ An episode drug therapy (EDT) is defined as the combined PPI prescription events for any PPI for one patient where the lag between the dispensed date

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[4] The American Hospital Formulary System (AHFS) Pharmacologic-Therapeutic drug classification is used to identify a drug and all of its core uses. The AHFS class number can have up to for tiers and looks like XX:XX.XX (3 tiers) or XX:XX.XX.XX (4 tiers). Each tier includes a level of information arranged in a step-up or step-down manner.

	of a new prescription and the end date of a previous prescription is less than 60 days.
	▪ The end date of a prescription event is calculated as the dispensed date (DSPN_DATE) plus the number of days supplied in the prescription (DSPN_DAY_SUPPLY_QTY).
	▪ Duration of therapy for each EDT is calculated as the sum of all the days supplied (DSPN_DAY_SUPPLY_QTY) for all the captured prescription events in a single EDT.
	▪ Prescriptions include both new prescriptions and refills.
	▪ It is assumed that the Drug Identification Number (DIN) is comparable across datasets.
	▪ Prescriptions filled by patients could be written by other family physicians including specialist physicians.

Data Details

Data Sources:	Alberta Health Physician Claims. Alberta Health Care Insurance Plan (AHCIP) Registry. Pharmaceutical Information Network (PIN Dispense) Data. Health Canada Drug Product Database (HC-DPD). American Hospital Formulary Service (AHFS) Pharmacologic-Therapeutic drug classification.
Available Data Years:	**Type of Year** Fiscal year [April 1 to March 31] **First Available Year** 2017/18 **Last Available Year** 2020/21
Geographic Coverage:	The province of Alberta excluding the military and prisoners.
Reporting Level:	Patient level. Physician level, based on confirmed patient list submitted by physician or panel assigned by the HQCA algorithm.

Quality Statement

Limitations:	▪ This measure includes only currently marketed drugs, as such drugs that are cancelled post-market (refers to a Drug Identification Number that is cancelled further to the discontinuation of sale by manufacturer) will not be captured.
	▪ Only episodes of drug therapy (EDTs) that begin on April 1 and ends on March 31 are included for each fiscal year. As a result EDTs that began before April 1 of the fiscal year under consideration will not be included in

	the EDT calculation. Also, no data beyond March 31 of the fiscal year under consideration will be used in the duration of therapy calculation.
	▪ All calculations include only patients who are currently listed as '**Active**' in the Alberta Health Care Insurance Plan (AHCIP) Registry database. This may lead to underestimation of the calculated measure above.
	▪ About 18% of Albertans do not visit a General Practitioner in a year.
	▪ Patients are excluded in the physician panel assignment if they do not visit a physician in 3 years (the current fiscal year, plus the 2 preceding fiscal years).
	▪ Missing data.
Comments:	The data is not diagnostic specific.

More Information

References
None

Additional Notes
None

Alignments
Alberta Health Services Digestive Health Strategic Clinical Network

Review Frequency
Yearly

![HQCA - Health Quality Council of Alberta]

IDENTIFYING INFORMATION	
Name:	Antibiotics for acute sinusitis
Short/Other Names:	N/A
BACKGROUND, INTERPRETATION AND BENCHMARKS	
Description:	The percentage of patients in a physician panel with at least one dispensed antibiotic prescription within 7 days of a visit to a family physician (GP) for acute sinusitis.
Rationale:	Providing physicians with information on the percentage of their patients who dispensed an antibiotic prescription after a sinusitis-related visit can assist patient prescription management as sinus infections are usually caused by a virus and don't require an antibiotic.
Interpretation:	Lower values are desirable.
Target/Benchmark:	No benchmarks have been identified.
INDICATOR CALCULATION	
Calculation:	**Description** Percentage of patients with **dispensed** antibiotics after a sinusitis related GP visit = $$\left(\frac{\text{Number of patients with dispensed antibiotic prescriptions within 7 days of a sinusitis related GP visit}}{\text{Total number of patients in physician panel with a sinusitis related GP visit}} \right) \times 100$$ **Type of Measure** Percentage **Adjustment Applied** None

Denominator:	**Description**
	The number of patients in the physician panel with a sinusitis related GP visit. The physician patient panel is based on either assignment by the HQCA algorithm or a confirmed patient list (CPL) submitted by the physician.
	
	Inclusion Criteria
	    ▪ Patient list specifically submitted by physician.
	    ▪ Patients assigned to a physician based on the HQCA algorithm (Proxy panel).
	    ▪ A visit to a GP for which the service site is blank or the service is delivered in one of the following places:
	        ○ Practitioners Office
	        ○ Ambulatory Care Services
	        ○ Long Term Care center

	▪ Sinusitis is identified using the first diagnostic code (HLTH_DX_ICD9X_CODE_1) in the physician claims dataset
	
	    ○ ICD- 9 codes: 461.0 – 461.9.
	
	    ○ ICD-10 codes: J01.0 – J01.9.
	
	Exclusions
	
	▪ Patients not assigned to physician by the HQCA algorithm or patients not on list submitted by physician.
	
	▪ Patients who were not diagnosed with sinusitis.
	
	Limitations & Technical Notes

Numerator:	**Description** The number of patients in the physician patient panel with at least one dispensed antibiotic prescription within 7 days after a sinusitis related GP visit. Antibiotic prescriptions are identified using the American Hospital Formulary Service (AHFS)[5] Pharmacologic-Therapeutic drug classification system. The following are classified as antibiotics: ▪ 08:12.02 (Aminoglycosides) ▪ 08:12.06 (Cephalosporins) ▪ 08:12.06.04 (First Generation) ▪ 08:12.06.08 (Second Generation) ▪ 08:12.06.12 (Third Generation) ▪ 08:12.06.16 (Four Generation) ▪ 08:12.06.20 (Fifth Generation) ▪ 08:12.07 (Miscellaneous beta-Lactams) ▪ 08:12.07.08 (Carbapenems) ▪ 08:12.07.12 (Cephamycins) ▪ 08:12.07.16 (Monobactams) ▪ 08:12.08 (Chloramphenicol) ▪ 08:12.12 (Macrolides) ▪ 08:12.12.04 (Erythromycins) ▪ 08:12.12.12 (Ketolides) ▪ 08:12.12.92 (Other Macrolides) ▪ 08:12.16 (Penicillins) ▪ 08:12.16.04 (Natural Penicillins) ▪ 08:12.16.08 (Aminopenicillins)

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[5] The American Hospital Formulary System (AHFS) Pharmacologic-Therapeutic drug classification is used to identify a drug and all of its core uses. The AHFS class number can have up to for tiers and looks like XX:XX.XX (3 tiers) or XX:XX.XX.XX (4 tiers). Each tier includes a level of information arranged in a step-up or step-down manner.

- 08:12.16.12 (Penicillinase-Resistant Penicillins)
- 08:12.16.16 (Extended-Spectrum Penicillins)
- 08:12.18 (Quinolones)
- 08:12.20 (Sulfonamides)
- 08:12.24 (Tetracyclines)
- 08:12.24.12 (Glycopeptides)
- 08:12.28 (Antibacterial, Miscellaneous)
- 08:12.28.04 (Aminocyclitols)
- 08:12.28.08 (Bacitracins)
- 08:12.28.12 (Cyclic Lipopeptides)
- 08:12.28.16 (Glycopeptides)
- 08:12.28.20 (Lincomycins)
- 08:12.28.24 (Oxzolidinones)
- 08:12.28.28 (Polymyxins)
- 08:12.28.30 (Rifamycins)
- 08:12.28.32 (Steptogramins)
- 08:12.28.92 (Other Miscellaneous Antibacterial Agents)
- 84:04.04 (Antibiotics)

Inclusion Criteria

- Sinusitis is identified using the first diagnostic code (HLTH_DX_ICD9X_CODE_1) in the physician claims dataset
  - ICD-9 codes: 461.0 – 461.9.
  - ICD-10 codes: J01.0 – J01.9.
- A visit to a GP for which the service site is blank or the service is delivered in one of the following places:
  - Practitioners Office
  - Ambulatory Care Services
  - Long Term Care center
- Patients who visited a GP and were diagnosed with sinusitis and dispensed an antibiotic prescription.
- Currently marketed (refers to an active Drug Identification Number [DIN] that is currently being sold in Canada) antibiotic drugs in the Health Canada Drug Product Database.
- Antibiotic prescriptions that were not cancelled (DSPN_CANCEL_DATE is missing).

Exclusions

	• Duplicate family physician visits based on Patient Health Number (PHN), date, procedure and diagnostic codes, and physicians are removed.
	
	• Visits to General practitioners where the service was delivered in one of the following:
	    o Emergency
	    o Pediatric Emergency
	
	• Patients who visited a GP and were diagnosed with sinusitis but did not dispense an antibiotic prescription.
	
	• Antibiotic drugs not marketed.
	
	Limitations & Technical Notes
	
	• Prescriptions include both new prescriptions and refills.
	
	• It is assumed that the Drug Identification Number (DIN) is comparable across datasets.
	
	• Prescriptions filled by patients could be written by other family physicians including specialist physicians.
	
	• An individual patient can have a GP visit multiple times in a day.

Data Details	
Data Sources:	Alberta Health physician claims. Alberta Health Care Insurance Plan (AHCIP) Registry. Canadian Institute for Health Information (CIHI) Risk Grouper data AHS laboratory data. Pharmaceutical Information Network (PIN) dispense data. Health Canada Drug Product Database (HC-DPD). American Hospital Formulary Service (AHFS) Pharmacologic-Therapeutic drug classification.
Available Data Years:	**Type of Year** Fiscal year [April 1 to March 31] **First Available Year** 2008/09 **Last Available Year** 2020/21
Geographic Coverage:	The province of Alberta excluding the military and prisoners.
Reporting Level:	Patient level. Physician level, based on confirmed patient list submitted by physician or panel assigned by the HQCA algorithm.
Quality Statement	

Limitations:	▪ Using 7 days may either underestimate or overestimate the percentage.
	▪ This measure includes only currently marketed drugs, as such drugs that are cancelled post-market (refers to a Drug Identification Number that is cancelled further to the discontinuation of sale by manufacturer) will not be captured.
	▪ All calculations include only patients who are currently listed as '**Active**' in the Alberta Health Care Insurance Plan (AHCIP) Registry database. This may lead to underestimation of the calculated measure above.
	▪ About 18% of Albertans do not visit a General Practitioner in a year.
	▪ Patients are excluded in the physician panel assignment if they do not visit a physician in 3 years (the current fiscal year, plus the 2 preceding fiscal years).
	▪ Missing data.
Comments:	The data is diagnostic specific.

More Information
References None **Additional Notes** None **Alignments** None **Review Frequency** Yearly

IDENTIFYING INFORMATION	
Name:	Opiates (PCN report only)
Short/Other Names:	N/A
BACKGROUND, INTERPRETATION AND BENCHMARKS	
Description:	The percentage of patients in a physician's panel with at least one dispensed opiate prescription.
Rationale:	Opiates are commonly prescribed to treat various forms of pain, ranging from acute to chronic. Some opiates are prescribed to treat opioid dependence. In some situations, opiate use is associated with harms such as respiratory depression, coma or death. Providing physicians with information on how their patients use opiates will encourage them to self-reflect on the appropriateness of their opiate prescription.
Interpretation:	
Target/Benchmark:	No benchmarks have been identified.
INDICATOR CALCULATION	
Calculation:	**Description** Percentage of patients with **dispensed** Opiates = $$\left(\frac{\text{Number of patients with a dispensed opiate prescription}}{\text{Total number of patients in physician panel}} \right) \times 100$$ **Type of Measure** Percentage **Adjustment Applied** None
Denominator:	**Description** The number of patients in the physician panel. The physician patient panel is based on either assignment by the HQCA algorithm or a confirmed patient list (CPL) submitted by the physician. **Inclusion Criteria** ▪ Patient list specifically submitted by physician. ▪ Patients assigned to a physician based on the HQCA algorithm (Proxy panel). **Exclusions** Patients not assigned to physician by the HQCA algorithm or patients not on list submitted by physician. **Limitations & Technical Notes**

Numerator:	**Description**
	The number of patients in the physician patient panel with at least one dispensed opiate prescription.
	Opiate prescriptions are identified using the Anatomical Therapeutic Chemical (ATC) Classification System. The following ATC codes are classified as opiates:
	▪ M03BA53
	▪ M03BB53
	▪ N01AH01
	▪ N01AH03
	▪ N01AH06
	▪ N01AX03
	▪ N02AA01
	▪ N02AA03
	▪ N02AA05
	▪ N02AA55
	▪ N02AA59
	▪ N02AA79
	▪ N02AB02
	▪ N02AB03
	▪ N02AD01
	▪ N02AE01
	▪ N02AF01
	▪ N02AX06
	▪ N02BA51
	▪ N02BA71
	▪ N02BE51
	▪ N07BC02
	▪ N07BC51
	▪ R05DA03
	▪ R05DA04
	▪ R05DA20
	▪ R05FA02
	Inclusion Criteria
	▪ Currently marketed (refers to an active Drug Identification Number [DIN] that is currently being sold in Canada) opiate drugs in the Health Canada Drug Product Database.

	▪ Opiate prescriptions that were not cancelled (DSPN_CANCEL_DATE is missing).
	Exclusions
	▪ Opiate drugs not marketed.
	▪ Prescriptions that were not filled.
	Limitations & Technical Notes
	▪ Prescriptions include both new prescriptions and refills.
	▪ It is assumed that the Drug Identification Number (DIN) is comparable across datasets.
	▪ Prescriptions filled by patients could be written by other family physicians including specialist physicians.
Data Details	
Data Sources:	Alberta Health physician claims.
	Alberta Health Care Insurance Plan (AHCIP) Registry.
	Pharmaceutical Information Network (PIN) dispense data.
	Health Canada Drug Product Database (HC-DPD).
	Anatomical Therapeutic Chemical (ATC) Classification System.
Available Data Years:	**Type of Year** Fiscal year [April 1 to March 31] **First Available Year** 2008/09 **Last Available Year** 2020/21
Geographic Coverage:	The province of Alberta excluding the military and prisoners.
Reporting Level:	Patient level. Physician level, based on confirmed patient list submitted by physician or panel assigned by the HQCA algorithm.
Quality Statement	
Limitations:	▪ All calculations include only patients who are currently listed as '**Active**' in the Alberta Health Care Insurance Plan (AHCIP) Registry database. This may lead to underestimation of the calculated measure above.
	▪ About 18% of Albertans do not visit a General Practitioner in a year.
	▪ Patients are excluded in the physician panel assignment if they do not visit a physician in 3 years (the current fiscal year, plus the 2 preceding fiscal years).
	▪ Missing data.

Comments:	The data is not diagnostic specific. This measure is only included in the PCN panel report.

More Information

References
None

Additional Notes
None

Alignments

- Choosing Wisely Canada (CWC) recommendation:
    - Do not use opiates or other sedative-hypnotics in older adults as first choice for insomnia, agitation or delirium.
- College of Physicians and Surgeons of Alberta (CPSA):
    - Alberta Triplicate Prescription Program (TPP) administered by CPSA.

Review Frequency
Yearly

UTILIZATION METRICS

The Utilization section provides data definition information on the following metrics:

- Visits to any family physician

- Specialist visits (PCN reports only)

- Emergency Department (ED) visits & Emergency department (ED) visits by type

- Potentially avoidable emergency department (ED) visits

- Potentially avoidable ED visits by time of day

- Acute inpatient hospital length of stay (LOS) vs. expected LOS

- Unplanned Hospital Readmissions

- Alternate Level of Care (ALC) days (PCN report only)

    o   ALC days for those who had an inpatient length of stay

IDENTIFYING INFORMATION

Name:	Visits to any family physician
Short/Other Names:	Total and adjusted average number of visits per panel patient to any family physician in each fiscal year (April 1 – March 31).

BACKGROUND, INTERPRETATION AND BENCHMARKS

Description:	The average number of visits by a patient panel to a family physician. A GP **visit** is a single encounter between a unique patient and a unique physician (General Practitioner) on a unique day. It requires that an individual patient has at least one service claim per day submitted by a physician on a given day.
Rationale:	The purpose of this measure is to see how often patients utilize primary health care physicians. This could also be an indicator for measuring access to primary care physicians.
Interpretation:	The higher the value, the more patients seen by the physician.
Target/Benchmark:	No benchmarks have been identified.

INDICATOR CALCULATION

Calculation:	**Description** Average GP visits = $$\frac{\text{Sum of individual patients' GP visits}}{\text{Total number of patients in physician panel}}$$ **Type of Measure** Average
Denominator:	**Description** The number of patients in the physician panel. The physician patient panel is based on either assignment by the HQCA algorithm or a confirmed patient list (CPL) submitted by the physician. **Inclusion Criteria** ▪ Patient list specifically submitted by physician. ▪ Patients assigned to a physician based on the HQCA algorithm (Proxy panel). **Exclusions** Patients not assigned to physician by the HQCA algorithm or patients not on list submitted by physician. **Limitations & Technical Notes**
Numerator:	**Description** The sum of all individual patients' family physician visits to a physician whose specialty is General Practitioner (GP).

Inclusion Criteria

A visit to a GP for which the service site is blank or the service is delivered in one of the following places:

- Practitioners Office
- Long Term Care center
- Home

Exclusions

- Duplicate family physician visits based on Patient Health Number (PHN), date, procedure and diagnostic codes, and physicians are removed.
- Visits to General practitioners where the service was delivered in one of the following:
  - Emergency
  - Pediatric Emergency

Limitations & Technical Notes

An individual patient can have a GP visit multiple times in a day.

Data Details

Data Sources:	Alberta Health physician claims. Alberta Health Care Insurance Plan (AHCIP) Registry.
Available Data Years:	**Type of Year** Fiscal year [April 1 to March 31] **First Available Year** 2007/08 **Last Available Year** 2020/21
Geographic Coverage:	The province of Alberta excluding the military and prisoners.
Reporting Level:	Patient level. Physician level, based on confirmed patient list submitted by physician or panel assigned by the HQCA algorithm.

Quality Statement

Limitations:	▪ All calculations include only patients who are currently listed as '**Active**' in the Alberta Health Care Insurance Plan (AHCIP) Registry database. This may lead to underestimation of the calculated measure above. ▪ About 18% of Albertans do not visit a General Practitioner in a year. ▪ Patients are excluded in the physician panel assignment if they do not visit a physician in 3 years (the current fiscal year, plus the 2 preceding fiscal years).

	▪ The physician claims dataset consists of Fee-for-service and shadow billing. The data submitted based on shadow billing may not be entirely accurate. As a result, this might affect the accuracy of the results of this measure.
Comments:	

More Information

References
None

Additional Notes
None

Alignments
None

Review Frequency
Yearly

IDENTIFYING INFORMATION	
Name:	Specialist visits (PCN report only)
Short/Other Names:	N/A

BACKGROUND, INTERPRETATION AND BENCHMARKS	
Description:	The average number of visits by a patient panel to a specialist physician. A **specialist physician** is a physician with a specialty training that another physician (general practitioner) will refer a patient. A specialist **visit** is a single encounter between a unique patient and a unique specialty on a unique day. It requires that an individual patient must have at least one specialty service claim per day submitted by a specialist physician on a given day. Specialist physicians reported on include: - Cardiology. - Internal Medicine. - Obstetrics and Gynecology. - Ophthalmology. - Psychiatry – Specialty.
Rationale:	The purpose of this measure is to see how often patients utilize specialist physicians. This could also be an indicator for measuring access to specialist physicians.
Interpretation:	The higher the value, the more times the patient panel sees specialist physicians.
Target/Benchmark:	No benchmarks have been identified.

INDICATOR CALCULATION	
Calculation:	**Description** Average specialist visits = $$\frac{\text{Sum of individual patients' [to particular specialty]}}{\text{Total number of patients in physician panel}}$$ **Type of Measure** Average **Adjustment Applied** None
Denominator:	**Description** The number of patients in the physician panel. The physician patient panel is based on either assignment by the HQCA algorithm or a confirmed patient list (CPL) submitted by the physician. **Inclusion Criteria**

	· Patient list specifically submitted by physician.
	· Patients assigned to a physician based on the HQCA algorithm (Proxy panel).
	Exclusions Patients not assigned to physician by the HQCA algorithm or patients not on list submitted by physician.
	Limitations & Technical Notes
Numerator:	**Description** The sum of all individual patients' visits to a specialist physician who is not a General Practitioner and is listed in the inclusion criteria below. **Inclusion Criteria** A specialist physician is identified as a physician whose specialty is one of the following: · Cardiology (CARD) · Internal Medicine (INMD) · Obstetrics and Gynecology (OBGY) · Ophthalmology (OPHT) · Psychiatry – Specialty (PSYC) **Exclusions** · Physician specialties not listed in the inclusion criteria. · Duplicate specialist physician visits based on Patient Health Number (PHN), date, procedure and diagnostic codes, and physicians are removed. **Limitations & Technical Notes** **An individual patient can visit multiple specialist physicians multiple times a day.**
Data Details	
Data Sources:	Alberta Health physician claims. Alberta Health Care Insurance Plan (AHCIP) Registry.
Available Data Years:	**Type of Year** Fiscal year [April 1 to March 31] **First Available Year** 2007/08 **Last Available Year** 2020/21
Geographic Coverage:	The province of Alberta excluding the military and prisoners.
Reporting Level:	Patient level.

	Physician level, based on confirmed patient list submitted by physician or panel assigned by the HQCA algorithm.
Quality Statement	
Limitations:	- All calculations include only patients who are currently listed as '**Active**' in the Alberta Health Care Insurance Plan (AHCIP) Registry database. This may lead to underestimation of the calculated measure above. - About 18% of Albertans do not visit a General Practitioner in a year. - Patients are excluded in the physician panel assignment if they do not visit a physician in 3 years (the current fiscal year, plus the 2 preceding fiscal years). - The physician claims dataset consists of Fee-for-service and shadow billing. The data submitted based on shadow billing may not be entirely accurate. As a result, this might affect the accuracy of the results of this measure.
Comments:	This measure is only included in the PCN panel report.
More Information	

References
None

Additional Notes
None

Alignments
None

Review Frequency
Yearly

IDENTIFYING INFORMATION	
Name:	Emergency department (ED) visits
Short/Other Names:	Percentage of panel patients visiting the ED and adjusted number of visits per panel patient in each fiscal year (April 1 – March 31).

BACKGROUND, INTERPRETATION AND BENCHMARKS	
Description:	The average number of visits by a patient panel to the emergency department. The percentage of ED visits grouped in the following categories (types): ▪ Mental health related visits. ▪ General Practitioner Sensitive Condition (GPSC) visits. ▪ Injury related visits. ▪ All other ED visits. The percentage of frequent users of the ED is also presented. Frequent users of the ED is defined as patients with 4 or more ED visits within a fiscal year.
Rationale:	To provide information on how the patient panel utilizes emergency department services. This will help in highlighting access to emergency department services and the service needs of the population. Repeated ED care can be detrimental to patients seeking care for a chronic condition, whose symptoms or complications can be quickly managed by the ED. However, a quick fix is likely to hurt patients in the long run. Having these patients managed by a family physician with be more beneficial.
Interpretation:	A lower value is desirable.
Target/Benchmark:	No benchmarks have been identified.

INDICATOR CALCULATION	
Calculation:	**Description** A. Average ED visits = $$\frac{\text{Sum of individual patients' ED visits}}{\text{Total number of patients in physician panel}}$$ B. Percentage of ED visits [by category] = $$\left(\frac{\text{The number of patients with ED visits [by category]}}{\text{Total number of patients in physician panel}}\right) \times 100$$ C. Percentage of Frequent users of ED =

$$\left(\frac{\text{The number of patients with four or more ED visits}}{\text{Total number of patients in physician panel}}\right) \times 100$$

Type of Measure

A. Average

B. Percentage

C. Percentage

Denominator:	**Description** The number of patients in the physician panel. The physician patient panel is based on either assignment by the HQCA algorithm or a confirmed patient list (CPL) submitted by the physician. **Inclusion Criteria** • Patient list specifically submitted by physician. • Patients assigned to a physician based on the HQCA algorithm (Proxy panel). **Exclusions** Patients not assigned to physician by the HQCA algorithm or patients not on list submitted by physician. **Limitations & Technical Notes**

Numerator:	**Description**
	
	A. The sum of all individual patients' visits to the emergency department.
	
	B. The number of patients with ED visits grouped by category.
	
	C. The number of patients with four or more ED visits.
	
	Inclusion Criteria
	• Emergency department visits are identified by the MIS_CODE 71310 (the first 5 digits of the MIS functional code).
	• Mental health related ED visits are identified by the following ICD-10 codes:
	    o F01 – F99 [Mental behavioural and neurodevelopmental disorders].
	• GPSCs (see definition).
	• Injury related ED visits are identified by the first letter of the first diagnostic code (DXCODE1) as:
	    o S, T, U, V, W, X, Y.

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Exclusions

- Duplicate ED visits based on Patient Health Number (PHN), date, and time are removed.

- Urgent Care Center visits (MIS_CODE: 71513[first 5 digits])

Limitations & Technical Notes
An individual patient can visit an emergency department multiple times a day.

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Data Details

Data Sources:	National Ambulatory Care Reporting System (NACRS). Alberta Health physician claims. Alberta Health Care Insurance Plan (AHCIP) Registry.
Available Data Years:	**Type of Year** Fiscal year [April 1 to March 31] **First Available Year** 2007/08 **Last Available Year** 2020/21
Geographic Coverage:	The province of Alberta excluding the military and prisoners.
Reporting Level:	Patient level. Physician level, based on confirmed patient list submitted by physician or panel assigned by the HQCA algorithm.

Quality Statement

Limitations:	- All calculations include only patients who are currently listed as '**Active**' in the Alberta Health Care Insurance Plan (AHCIP) Registry database. This may lead to underestimation of the calculated measure above. - About 18% of Albertans do not visit a General Practitioner in a year. - Patients are excluded in the physician panel assignment if they do not visit a physician in 3 years (the current fiscal year, plus the 2 preceding fiscal years). - Missing data.
Comments:	

More Information

References   None   **Additional Notes**   None

Alignments
None

Review Frequency
Yearly

IDENTIFYING INFORMATION

Name:	Potentially avoidable emergency department (ED) visits
Short/Other Names:	General Practitioner Sensitive Condition visits

BACKGROUND, INTERPRETATION AND BENCHMARKS

Description:	*Note the description will be updated for the new calculation The average number of potentially avoidable ED visits by a patient panel. A potentially avoidable ED visit is an emergency department (ED) visit for a condition (diagnosis) that occurs more than 100 times over the fiscal years 2002/2003 to 2009/10, and has a less than one percent (1%) likelihood of resulting in a patient being admitted as an inpatient. The percentage of potentially avoidable ED visits grouped by time of day. There are three groupings: ▪ Monday to Friday, 7AM to 5PM [Day] ▪ Monday to Friday, 5:01PM to 9PM, and Saturday-Sunday, 7AM to 5PM ▪ All other hours (Overnight, Weekend evenings, Statutory holidays)
Rationale:	To provide information on how the patient panel utilizes emergency department services for conditions that could be treated in a primary care setting. Potentially avoidable ED visits represent an indirect measure of access to primary healthcare.
Interpretation:	A lower value is desirable.
Target/Benchmark:	No benchmarks have been identified.

INDICATOR CALCULATION

Calculation:	**Description** A. Average GPSC visits = $$\frac{\text{Sum of individual patients' potentially avoidable visits}}{\text{Total number of patients in physician panel}}$$ B. Percentage of GPSC visits by time of day = $$\left(\frac{\text{Sum of individual patients' potentially avoidable visits by time}}{\text{Total number of patients in physician panel}}\right) \times 100$$ **Type of Measure** A. Average B. Percentage **Adjustment Applied**

	None.
Denominator:	**Description** The number of patients in the physician panel. The physician patient panel is based on either assignment by the HQCA algorithm or a confirmed patient list (CPL) submitted by the physician. **Inclusion Criteria** - Patient list specifically submitted by physician. - Patients assigned to a physician based on the HQCA algorithm (Proxy panel). **Exclusions** Patients not assigned to physician by the HQCA algorithm or patients not on list submitted by physician. **Limitations & Technical Notes**
Numerator:	**Description** The sum of all individual patients' potentially avoidable emergency department (ED) visits. **Inclusion Criteria** - Emergency department visits are identified by the MIS_CODE 71310 (the first 5 digits of the MIS functional code). - A valid potentially avoidable ED visit is identified by the first 3 digits of the following ICD-10 diagnostic codes (the DXCODE1 field in the NACRS dataset): - A56, A59, A63, A64 (Infections with a Predominantly Sexual Mode of Transmission) - A74 (Other Diseases Caused by Chlamydiae) - B06, B07, B08, B09 (Viral Infections Characterized by Skin and Mucous Membrane Lesions) - B30 (Other Viral Diseases) - B35, B36, B37, B48 (Mycoses) - B65, B80, B82, B83 (Protozoal Diseases) - B85, B86, B88, B89 (Pediculosis, Acariasis, and Other Infestations) - C44 (Malignant Neoplasms) - D04 (In Situ Neoplasms) - D16, D17, D22, D23, D24 (Benign Neoplasms) - E29 (Disorders of Other Endocrine Glands) - G43 (Episodic and Paroxysmal Disorders) - G56 (Nerve, Root and Plexus Disorders) - H00, H01, H04 (Disorders of Eyelid, Lacrimal System and Orbit)

	o H10, H11 (Disorders of Conjunctiva)
	o H15, H18 (Disorders of Sclera, Cornea, Iris and Ciliary Body)
	o H57 (Visual Disturbances and Blindness)
	o H60, H61 (Diseases of External Ear)
	o H65, H66, H68, H69, H72, H73, H74 (Diseases of Middle Ear and Mastoid)
	o H92, H93 (Other Diseases of the Ear)
	o J00, J01, J02, J06 (Acute Upper Respiratory Infections)
	o J30, J31, J32, J33 (Other Diseases of Upper Respiratory Tract)
	o K00, K01, K02, K04, K05, K07, K08, K13 (Diseases of Oral Cavity, Salivary Glands and Jaws)
	o L01 (Infections of the Skin and Subcutaneous Tissue)
	o L20, L21, L22, L23, L24, L25, L28, L29, L30 (Dermatitis and Eczema)
	o L42, L43 (Papulosquamous Disorders)
	o L50, L55, L56, L57 (Radiation-Related Disorders of the Skin and Subcutaneous Tissue)
	o L60, L63, L65, L70, L71, L72, L73, L74 (Disorder of Skin Appendages)
	o L81, L82, L84, L85, L90, L91, L92 (Other Disorders of the Skin and Subcutaneous Tissue)
	o M18, M20, M22 (Arthoropathies)
	o M67, M70, M75, M76, M77 (Soft Tissue Disorders)
	o M92, M94 (Osteopathies and Chondropathies)
	o N34 (Other Diseases of Urinary System)
	o N60, N62, N63, N64 (Disorders of Breast)
	o N77 (Inflammatory Diseases of Female Pelvic Organs)
	o N91, N94, N97 (Non-inflammatory Disorders of Female Genital Tract)
	o O92 (Complications Predominantly related to the Puerperium)
	o P37 (Infections Specific to the Perinatal Period)
	o Q10 (Congenital malformations of Eye, Ear, Face and/or Neck)
	o Q38 (Other Congenital Malformations of the Digestive System)
	o Q66 (Congenital Malformations and Deformations of the Musculoskeletal System)
	o R30, R36 (Symptoms and Signs Involving the Urinary System)
	o Z02, Z09, Z11, Z12, Z13 (Persons Encountering Health Services for Examination and Investigation)

	- Z20, Z23, Z24, Z25, Z26, Z27, Z29 (Persons with Potential Health Hazards related to Communicable Diseases) - Z30, Z31, Z32 (Persons Encountering Health Services in Circumstances related to Reproduction) - Z56, Z57, Z64 (Persons with Potential Health Hazards related to Socioeconomic and Psychosocial Circumstances) - Z70, Z71, Z76 (Persons Encountering Health Services in Other Circumstances) - Z92 (Persons with Potential Health Hazards related to Family and Personal History and Certain Conditions Influencing Health Status) **Exclusions** - ED visits with a triage level (CTAS) 1, 2 or 3 are removed. - Duplicate ED visits based on Patient Health Number (PHN), date, time and location are removed. - Visits to the ED that is as a result of injury (i.e. ICD-9 or ICD-10 diagnostic codes beginning with the letter 'S' or 'T'). - Visits to the ED with the first 3 digits of the ICD-9 or ICD-10 diagnostic (DXCODE1) not in the criteria above. **Limitations & Technical Notes** An individual patient can visit an emergency department multiple times a day.
Data Details	
Data Sources:	National Ambulatory Care Reporting System (NACRS). Alberta Health physician claims. Alberta Health Care Insurance Plan (AHCIP) Registry.
Available Data Years:	**Type of Year** Fiscal year [April 1 to March 31] **First Available Year** 2007/08 **Last Available Year** 2020/21
Geographic Coverage:	The province of Alberta excluding the military and prisoners.
Reporting Level:	Patient level. Physician level, based on confirmed patient list submitted by physician or panel assigned by the HQCA algorithm.
Quality Statement	
Limitations:	This measure is diagnostic post-hoc biased.

	▪ All calculations include only patients who are currently listed as '**Active**' in the Alberta Health Care Insurance Plan (AHCIP) Registry database. This may lead to underestimation of the calculated measure above.
	▪ About 18% of Albertans do not visit a General Practitioner in a year.
	▪ Patients are excluded in the physician panel assignment if they do not visit a physician in 3 years (the current fiscal year, plus the 2 preceding fiscal years).
Comments:	

More Information
References None
Additional Notes None
Alignments None
Review Frequency Yearly

IDENTIFYING INFORMATION	
Name:	Potentially avoidable ED visits by time of day
Short/Other Names:	Emergency Department visits by Canadian Triage Acuity Scale level and Time of Day

BACKGROUND, INTERPRETATION AND BENCHMARKS	
Description:	*Note the description will be updated for the new calculation The Canadian Triage Acuity Scale (CTAS) is a tool that allows emergency department (ED) nurses and physicians to: ▪ Triage patients according to the type and severity of their presenting conditions (signs and symptoms). ▪ Ensure that the sickest patients are seen first. There are 5 CTAS levels: ▪ 1 (Resuscitation). ▪ 2 (Emergent). ▪ 3 (Urgent). ▪ 4 (Less Urgent). ▪ 5 (Non Urgent). This measure groups and reports on : ▪ CTAS12 for levels 1 & 2 ▪ CTAS3 for level 3 ▪ CTAS45 for level 4 & 5. CTAS by time of day grouped by: ▪ 7:01am – 5pm (07:01 – 17:00) [Day] ▪ 5:01pm – 10pm (17:01 – 22:00) [Evening/After-hours] ▪ 10:01pm – 7:00am (22:01 – 07:00) [Night].
Rationale:	To provide information on how the patient panel utilizes ED services based on the severity of their presenting conditions. This will help in highlighting the appropriateness of ED visits by the physician patient panel.
Interpretation:	A lower value is desirable for levels 4 & 5 during daytime [7:01am – 5pm (07:01 – 17:00)].
Target/Benchmark:	No benchmarks have been identified.

INDICATOR CALCULATION

Calculation:	**Description** Average ED visits by CTAS = $$\frac{\text{Sum of individual patient' ED visits by CTAS}}{\text{Total number of patients in physician panel}}$$ Average ED visits by CTAS 4 and 5, by Time = $$\frac{\text{Sum of individual patients' ED visits by CTAS 4 and 5, and by Time}}{\text{Total number of patients in physician panel}}$$ **Type of Measure** Average **Adjustment Applied** None
Denominator:	**Description** The number of patients in the physician panel. The physician patient panel is based on either assignment by the HQCA algorithm or a confirmed patient list (CPL) submitted by the physician. **Inclusion Criteria** - Patient list specifically submitted by physician. - Patients assigned to a physician based on the HQCA algorithm (Proxy panel). **Exclusions** Patients not assigned to physician by the HQCA algorithm or patients not on list submitted by physician. **Limitations & Technical Notes**
Numerator:	**Description** The sum of all individual patients' visits to the emergency department by CTAS levels. **Inclusion Criteria** - Emergency department visits are identified by the MIS_CODE 71310 (the first 5 digits of the MIS functional code). - Any ED visit that has a valid triage code. **Exclusions** - Duplicate ED visits based on Patient Health Number (PHN), date, and time are removed. - Urgent Care Center visits (MIS_CODE: 71513[first 5 digits]) **Limitations & Technical Notes** An individual patient can visit an emergency department multiple times a day.
Data Details	
Data Sources:	National Ambulatory Care Reporting System (NACRS).

	Alberta Health physician claims.
	Alberta Health Care Insurance Plan (AHCIP) Registry.
Available Data Years:	**Type of Year** Fiscal year [April 1 to March 31] **First Available Year** 2007/08 **Last Available Year** 2020/21
Geographic Coverage:	The province of Alberta excluding the military and prisoners.
Reporting Level:	Patient level. Physician level, based on confirmed patient list submitted by physician or panel assigned by the HQCA algorithm.

Quality Statement	
Limitations:	▪ Missing triage values. ▪ All calculations include only patients who are currently listed as '**Active**' in the Alberta Health Care Insurance Plan (AHCIP) Registry database. This may lead to underestimation of the calculated measure above. ▪ About 18% of Albertans do not visit a General Practitioner in a year. ▪ Patients are excluded in the physician panel assignment if they do not visit a physician in 3 years (the current fiscal year, plus the 2 preceding fiscal years).
Comments:	Emergency department visits for low acuity conditions (CTAS 4 & 5) is included only in the PCN report.

More Information	

References
For more information on CTAS, see the Canadian Association of Emergency Physicians website here.

Additional Notes
None

Alignments
None

Review Frequency
Yearly

IDENTIFYING INFORMATION

Name:	Acute inpatient hospital length of stay (LOS) vs. expected LOS
Short/Other Names:	Acute LOS to Expected LOS Ratio

BACKGROUND, INTERPRETATION AND BENCHMARKS

Description:	The average number of acute days in acute care hospitals compared to the Canadian Institute of Health Information (CIHI) expected LOS.
	Inpatient length of stay is defined as the number of days from the date of admission to the hospital to the date of discharge as indicated in a hospital record (Statistics Canada, 2012). The total hospital LOS includes acute days and alternate level of care (ALC) days. Only the acute portion of inpatient LOS is included in the calculation of this measure.
	Expected length of stay is calculated based on patients in the same Case Mix Group Plus (CMG+[6]). That is, patients with the same resource intensity weight. It also takes into account the reasons for hospitalization, age, comorbidity, and complications.
Rationale:	This is a measure the compares the acute LOS to the Canadian expected LOS (determined by CIHI) for acute care patients with similar disease complexity. Reporting this ratio to physicians or PCNs can help them ensure appropriateness and efficiency of care for acute care patients. This measure also presents an opportunity for care improvement for acute care patients.
Interpretation:	A ratio of 1 or less indicates actual acute inpatient days was as or shorter than expected. A ratio greater than 1 indicates actual acute inpatient days was longer than expected.
Target/Benchmark:	No benchmarks have been identified.

INDICATOR CALCULATION

Calculation:	**Description** Acute LOS to Expected LOS ratio = $$\frac{\text{Sum of all acute days for acute care patients}}{\text{Sum of all expected days as determined by CMG plus groupers from CIHI}}$$ **Type of Measure** Ratio **Adjustment Applied** None

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[6] The CMG+ assignment is based on the patient's Most Responsible Diagnosis (MRDx); the diagnosis that, at discharge, is determined to have been responsible for the greatest portion of the patient's LOS.
The case mix classification categories patients as typical or atypical, based on several criteria. A typical patient is one who has a normal LOS, whose treatment is completed in a single facility, and whose resource use is relatively homogenous within the case mix classification. An atypical patient is one where the hospitalization involves a transfer, sign-out against medical advice, ends in death, includes non-acute days, or has a length of stay beyond the trim point established by CIHI (additional days are deemed outliers) - (Alberta Health, 2015).

Denominator:	**Description**
	The sum of all expected days by acute care patients in a physician panel. Physician patient panel is either assigned by the HQCA algorithm or a confirmed patient list (CPL) is submitted by the physician.
	Inclusion Criteria
	▪ Typical inpatient cases (Resource intensity weight code = 0).
	▪ Hospitalized patients discharged home or a home setting with support services.
	▪ Patient list specifically submitted by physician; patients assigned to a physician based on the HQCA algorithm (Proxy panel).
	Exclusions
	▪ Atypical inpatient cases (Resource intensity weight code > 0).
	▪ Acute care inpatient days classified as alternative level of care (ALC).
	▪ Patients not assigned to physician by the HQCA algorithm or patients not on list submitted by physician.
	Data Limitations & Technical Notes
	▪ CIHI's CMG Plus groupers are updated on a yearly basis and applied retrospectively to historical data. This results in slight changes to the results in previous report iterations every year. The process of applying this update historically was established by CIHI in order to minimize historical change of reported results (due to different CMG Plus groupers being applied to different years of data) and to allow for the reliable comparison of Alberta results with results of other Canadian provinces.
Numerator:	**Description**
	The sum of all acute inpatient days by acute care patients in a physician panel.
	Inclusion Criteria
	▪ Typical inpatient cases (Resource intensity weight code = 0).
	▪ Hospitalized patients discharged home or a home setting with support services.
	Exclusions
	▪ Atypical inpatient cases (Resource intensity weight code > 0).
	▪ Acute care inpatient days classified as alternative level of care (ALC).
	Data Limitations & Technical Notes
Data Details	
Data Source(s):	Discharge Abstract Database (DAD).
	Alberta Health physician claims.
	Alberta Health Care Insurance Plan (AHCIP) Registry.

Available Data Years:	**Type of Year** Fiscal year [April 1 to March 31]
	First Available Year 2007/08
	Last Available Year 2020/21
Geographic Coverage:	The province of Alberta excluding the military and prisoners.
Reporting Level:	Patient level. Physician level, based on confirmed patient list submitted by physician or panel assigned by the HQCA algorithm.
Quality Statement	
Limitations:	▪ Atypical cases such as long inpatient stay cases where the acute (actual) LOS greatly exceeds the expected LOS or the cut-off determined by CIHI. This may result in the ratio not being sensitive to frequent long stay cases and resource implications for this patient population. ▪ The data accuracy is highly dependent on the accuracy of the resource intensity weights code field of DAD for identifying typical and atypical inpatient cases. ▪ All calculations include only patients who are currently listed as '**Active**' in the Alberta Health Care Insurance Plan (AHCIP) Registry database. This may lead to underestimation of the calculated measure above. ▪ About 18% of Albertans do not visit a General Practitioner in a year. ▪ Patients are excluded in the physician panel assignment if they do not visit a physician in 3 years (the current fiscal year, plus the 2 preceding fiscal years). ▪ Missing data.
Comments:	This data includes hospital admissions of all causes for typical inpatient cases.
More Information	

References
Alberta Health. Performance Measure Definition: Acute LOS to Expected LOS Ratio (February 2015).
Available at: https://open.alberta.ca/dataset/c7e3fc16-7aea-455c-96a1-
20811a640b1a/resource/085a9b1a-c7f3-48ac-b307-dbfbdad0fe22/download/pmd-acute-expected-los-
ratio.pdf

Statistics Canada (Johansen and Fines). Acute care hospital days and mental diagnoses (November 2012).
Available at: https://www150.statcan.gc.ca/n1/pub/82-003-x/2012004/article/11761-eng.pdf

Additional Notes
None

Alignments
Alberta Health

Review Frequency
Yearly

IDENTIFYING INFORMATION	
Name:	Unplanned Hospital Readmissions
Short/Other Names:	N/A

BACKGROUND, INTERPRETATION AND BENCHMARKS	
Description:	The percentage of patients in a physician's panel who were readmitted to hospital within 7 or 30 days of their initial hospital discharge.
Rationale:	Hospital readmission can be difficult for patients and costly for the health system. Hospital readmission rates may be influenced by factors including but not limited to quality of care during hospitalization, care transition to or coordination with community care, and patient compliance with post-discharge therapy during the initial hospital stay. While not all readmissions can be prevented, the rate can often be reduced through better follow-up and coordination of care for patients after discharge.
Interpretation:	Lower is better; it means that a lower percentage of patients discharged from hospital are returning within 7 or 30 days.
Target/Benchmark:	No benchmarks have been identified.

INDICATOR CALCULATION	
Calculation:	**Description** Hospital readmission rate = $\left(\dfrac{\text{Sum of all readmissions within 7 or 30 days for discharged patients}}{\text{Total number of hospital discharges for patients in physician panel}}\right) \times 100$ **Type of Measure** Rate **Adjustment Applied** None
Denominator:	**Description** The total number of hospital discharges for patients in the physician. Physician patient panel is either assigned by the HQCA algorithm or a confirmed patient list (CPL) is submitted by the physician. **Inclusion Criteria** - Inpatient care from acute care hospitals. - Hospitalized patients discharged home or a home setting with support services (Discharge disposition code = 04, 05). - Planned and Unplanned hospitalization (Admit category = 'L' – Scheduled/Elective, 'U' – Urgent/Emergent).

	▪ Patient list specifically submitted by physician; patients assigned to a physician based on the HQCA algorithm (Proxy panel).
	Exclusions
	▪ Hospitalized patients who died, transferred out or within the same facility, Cadaveric donor, newborns and stillbirths (Discharge disposition code = 01, 02, 03, 06, 07, 08, 09, 12).
	▪ Inpatient care from non-acute care hospitals.
	▪ Invalid admit or discharge date times.
	▪ Duplicate records based on PHN, admit date and time, and discharge date and time.
	▪ Patients not assigned to physician by the HQCA algorithm or patients not on list submitted by physician.
	Limitations & Technical Notes
Numerator:	**Description** The sum of all readmissions within 7 or 30 days after initial discharge for discharged patients in the physician panel.
	Inclusion Criteria
	▪ Unplanned hospitalization (Admit category = 'U' – Urgent/Emergent).
	▪ Inpatient care from acute care hospitals.
	Exclusions
	▪ Hospitalized patients who died, transferred out or within the same facility, Cadaveric donor, newborns and stillbirths (Discharge disposition code = 01, 02, 03, 06, 07, 08, 09, 12).
	▪ Planned hospitalization (Admit category = 'L' – Scheduled/Elective).
	▪ Invalid admit or discharge date times.
	▪ Duplicate records based on PHN, admit date and time, and discharge date and time.
	Data Limitations & Technical Notes
	▪ Readmission are counted as many times as they occur (not limited to one per patient).
	▪ Readmission tracking begins 24 hours (1 day) after initial discharge and ends 168 hours (7 days) and 720 hours (30 days) after initial discharge for 7 and 30 days rates respectively.
	▪ Data from the first month of the next fiscal year is included in order to track patients who were hospitalized in the last month of the current fiscal year. E. g., if the current fiscal year is 2015/16, data from the first month of the next fiscal year 2016/17 is included in determining readmissions for the 2015/16 fiscal year.
Data Details	

Data Source(s):	Discharge Abstract Database (DAD).
	Alberta Health physician claims.
	Alberta Health Care Insurance Plan (AHCIP) Registry.
Available Data Years:	**Type of Year** Fiscal year [April 1 to March 31] **First Available Year** 2007/08 **Last Available Year** 2020/21
Geographic Coverage:	The province of Alberta excluding the military and prisoners.
Reporting Level:	Patient level.
	Physician level, based on confirmed patient list submitted by physician or panel assigned by the HQCA algorithm.

Quality Statement	
Limitations:	▪ This measure is to provide physicians a general trend of unplanned readmission within 7 or 30 days for all causes including but not limited to related complications, no-related instances and accidents. ▪ The data accuracy is highly dependent on the accuracy of the admit category and discharge disposition fields of DAD. ▪ All calculations include only patients who are currently listed as '**Active**' in the Alberta Health Care Insurance Plan (AHCIP) Registry database. This may lead to underestimation of the calculated measure above. ▪ About 18% of Albertans do not visit a General Practitioner in a year. ▪ Patients are excluded in the physician panel assignment if they do not visit a physician in 3 years (the current fiscal year, plus the 2 preceding fiscal years). ▪ Missing data.
Comments:	This data includes hospital admissions of all causes.

More Information

References
All-Cause Readmission to Acute Care and Return to the Emergency Department, CIHI (2012). Available at: https://secure.cihi.ca/free_products/Readmission_to_acutecare_en.pdf

30 Day Unplanned Readmission Rate, Alberta Health Services (2012). Available at: https://www.albertahealthservices.ca/publications/ahs-pub-pr-def-readmit.pdf

Additional Notes
None

Alignments
None

Review Frequency
Yearly

IDENTIFYING INFORMATION

Name:	Alternative Level of Care (ALC) Days (PCN report only)
Short/Other Names:	ALC Days

BACKGROUND, INTERPRETATION AND BENCHMARKS

Description:	The average number of days a patient occupies a bed in a hospital, and whose care could be better provided in an alternative care facility (e.g., continuing care).
Rationale:	In most cases, alternative level of care days are associated with the time spent waiting for a supportive living facility or a long-term care facility. This is an indirect measure of the physicians' patient panel's ability to get into their appropriate level of care setting (facility) at the appropriate time.
Interpretation:	A higher value will indicate that patients wait longer to get placement into an appropriate care setting. Thus, a lower value is desirable.
Target/Benchmark:	No benchmarks have been identified.

INDICATOR CALCULATION

Calculation:	**Description** A. Average ALC days = $$\dfrac{\text{Sum of individual patients' ALC days}}{\text{Total number of patients in physician panel}}$$ B. Average ALC (Patients with an inpatient stay) days = $$\dfrac{\text{Sum of all individual patients' ALC days}}{\text{Total number of patients with an inpatient stay in physician panel}}$$ **Type of Measure** Average **Adjustment Applied** None
Denominator:	**Description** The number of patients in the physician panel. Physician patient panel is either assigned by the HQCA algorithm or a confirmed patient list (CPL) is submitted by the physician. **Inclusion Criteria** A. Patient list specifically submitted by physician; patients assigned to a physician based on the HQCA algorithm (Proxy panel). B. Patients in physician panel who had an inpatient stay in a health facility.

	Exclusions
	A. Patients not assigned to physician by the HQCA algorithm or patients not on list submitted by physician.
	B. Patients in physician panel who did not have an inpatient stay in a health facility.
	Limitations & Technical Notes
Numerator:	**Description** The sum of all individual patients' alternative level of care days. **Inclusion Criteria** Alternative level of care days. **Exclusions** Duplicate records based on Patient Health Number (PHN) and dates are removed. **Limitations & Technical Notes**
Data Details	
Data Sources:	Discharge Abstract Database (DAD). Alberta Health physician claims. Alberta Health Care Insurance Plan (AHCIP) Registry.
Available Data Years:	**Type of Year** Fiscal year [April 1 to March 31] **First Available Year** 2007/08 **Last Available Year** 2020/21
Geographic Coverage:	The province of Alberta excluding the military and prisoners.
Reporting Level:	Patient level. Physician level, based on confirmed patient list submitted by physician or panel assigned by the HQCA algorithm.
Quality Statement	
Limitations:	▪ ALC days are based on calculated values in DAD. ▪ All calculations include only patients who are currently listed as '**Active**' in the Alberta Health Care Insurance Plan (AHCIP) Registry database. This may lead to underestimation of the calculated measure above. ▪ About 18% of Albertans do not visit a General Practitioner in a year. ▪ Patients are excluded in the physician panel assignment if they do not visit a physician in 3 years (the current fiscal year, plus the 2 preceding fiscal years).

Comments:	
More Information	

References
None

Additional Notes
None

Alignments
None

Review Frequency
Yearly

LAB UTILIZATION METRICS

The Lab Utilization section provides data definition information on the following metrics:

- Overall test rate and volume

- Complete blood count

- Thyroid stimulating hormone

- Lipid profile

- Hemoglobin A1c

- Urinalysis

IDENTIFYING INFORMATION	
Name:	Overall test rate and volume
Short/Other Names:	N/A

BACKGROUND, INTERPRETATION AND BENCHMARKS	

Description:	Overall test ordering (CBC, TSH, Lipid Profile, Hemoglobin A1c, Urinalysis) 28 days before and 28 days after a ***Periodic Health Exam*** (PHE).
	
	 A PHE is defined as the physician having billed 03.04A and a diagnosis of V70 or V20.2.
	
	 Overall test ordering in a given year (April 1 – March 31).
	
	 Tests will be counted in two different manners
	      1) Tests ordered on your ***paneled patients***
	      2) Tests ordered by you on your ***paneled patients***.

Rationale:	Providing physicians an overall look at their lab test ordering on all patients. Tests are analyzed within the context of a PHE and on an overall yearly basis. Meant for self-reflection and to encourage physicians to assess their lab utilization practice in order to maximize appropriate lab test ordering on their patients.
Interpretation:	A higher or lower value than peers could indicate a difference in patient population or a difference in ordering practices.
Target/Benchmark:	As physicians, we are now more aware that laboratory mis-utilization practices lead to patient harm and low quality of care. Non-selectively ordering a high number of laboratory tests may lead to increased number of abnormal test results that consists of false-positive test results.[1] We know that false-positive test results can harm our patients by causing unnecessary anxiety and physiological issues as seen in breast cancer, prenatal and cystic fibrosis screening.[2,3,4] Rapidly increasing laboratory test volumes has resulted in increased scrutiny of appropriateness of test ordering. For example, in Calgary, laboratory test volume increased annually 6-8% from 2004 to 2014, but there was only an annual increase in population of 2.2%.[5] In 2017, of the 51 commonly laboratory tests ordered in Calgary, over 11 million laboratory tests were ordered in the community setting alone, with complete blood count (CBC), thyroid stimulating hormone (TSH), lipid panel, hemoglobin A1c (HbA1c) and urinalysis (with microscopic if indicated) were amongst the top 10 ordered laboratory tests.[6] It is estimated that between 10-50% of laboratory testing is unnecessary.[7] It is also estimated that up to 30% of laboratory tests are repeated inappropriately.[8] If you are ordering more or less than your peers practicing in a similar setting, it could be due to: • changes in medical science (e.g.: increase in numbers of available tests, increase in tests due to new diagnoses and treatments), • medical organizational changes (e.g.: protocol ordering, barriers to following clinical practice guidelines, more preventative healthcare),

	• physician changes (physician experience and knowledge, cost awareness/ unawareness, lack of awareness of recommended repeat testing intervals, defensive test ordering to avoid criticism by licensing authorities), or • patient changes (patient and family requests, aging and increased co-morbidities of the population, defensive ordering to avoid criticism by patients and families).[5]

INDICATOR CALCULATION

Calculation:	Description		
	Overall test volume in relation to PHE	=	*Total number of tests ordered by you in relation to a PHE (within 28 days)*
	Overall test rate in relation to PHE	=	$\dfrac{\textit{Number of lab tests ordered by you in relation to a PHE}}{\textit{Number of paneled patients who you billed as a PHE}}$
	Overall test volume (ordered by you and ordered on your patient panel)	=	*Total number of all tests ordered on your paneled patients in given year*
	Overall test rate	=	$\dfrac{\textit{Overall test volume}}{\textit{Number of patients in your panel}}$
	Percentage of patients who had 0 tests ordered in relation to PHE	=	$\dfrac{\textit{Total number of patients that you ordered 0 tests for in relation to a PHE}}{\textit{Total number of paneled patients you billed as a PHE}} \times 100$
	Number of patients who had 1-4 tests ordered in relation to PHE	=	*Total number of patients that you ordered 1 to 4 tests for in relation to a PHE*
	Percentage of patients who had 1-4 tests ordered in relation to PHE	=	$\dfrac{\textit{Total number of patients that you ordered 1 to 4 tests for in relation to a PHE}}{\textit{Total number of paneled patients you billed as a PHE}} \times 100$

	Number of patients who had all 5 tests ordered in relation to PHE	=	*Total number of patients that you ordered all 5 tests for in relation to a PHE*

	Percentage of patients who had all 5 tests ordered in relation to PHE	=	$\dfrac{\text{\textit{Total number of patients that you ordered all 5 tests for in relation to a PHE}}}{\text{\textit{Total number of paneled patients you billed as a PHE}}} \times 100$

Type of Measure
Number; Rate; Percentage

Adjustment Applied
None

Denominator:	**Inclusion Criteria**
	▪ Patient list specifically submitted by physician.
	▪ Patients assigned to a physician based on the HQCA algorithm (proxy panel).
	Exclusions
	Patients not in physician panel.
	Limitations & Technical Notes

Numerator:	**Inclusion Criteria**
	▪ Patient list specifically submitted by physician.
	▪ Patients assigned to a physician based on the HQCA algorithm (Proxy panel).
	Exclusions
	Patients not in physician panel.
	Limitations & Technical Notes

Data Details	
Data Sources:	Alberta Health physician claims.
	Consolidated Laboratory Data Repository (CLDR) in AHS Analytics (DIMR).
Available Data Years:	**Type of Year** Fiscal year [April 1 to March 31]
	First Available Year 2018/2019

	Last Available Year 2019/2020
Geographic Coverage:	The province of Alberta excluding the military and prisoners.
Reporting Level:	Physician level, based on confirmed patient list submitted by physician or panel assigned by the HQCA algorithm.

Quality Statement

Limitations:	▪ All calculations include only patients who are currently listed as 'Active' in the Alberta Health Care Insurance Plan (AHCIP) Registry database. This may lead to underestimation of the calculated measure above. ▪ The Physician claims dataset consists of Fee-for-Service and shadow billing. The data submitted based on shadow billing may not be entirely accurate. As a result, this might affect the accuracy of the results of this measure.
Comments:	

More Information

References

1. Naugler, C., and Ma, I. (**2018**) More than half of abnormal results from laboratory tests ordered by family physicians could be false-positive. Can. Fam. Phys. 64(3):202-203.
2. Brodersen J, Siersma VD. (**2013**) Long-term psychosocial consequences of false-positive screening mammography. Ann Fam Med. 11(2):106-15.
3. Kwon C, Farrell PM. (**2000**) The magnitude and challenge of false-positive newborn screening test results. Arch Pediatr Adolesc Med. 154(7):714-8.
4. Tluczek A, Orland KM, Cavanagh L. (**2011**) Psychosocial consequences of false-positive newborn screens for cystic fibrosis. Qual Health Res. 21(2):174-86. Epub 2010 Sep 17.
5. Thomas, R.E., Vaska, M., Naugler, C., and Turin, T.C. (**2015**) Interventions at the laboratory level to reduce laboratory test ordering by family physicians: systematic review. Clin. Biochem. 48:1358-1365.
6. Ma, I., Guo, M., Lau, C.K., Ramdas, Z., Jackson, R., and Naugler, C. (**2019**) Test volume data for 51 most commonly ordered laboratory tests in Calgary, Alberta, Canada. Data in Brief. 23: 103748.
7. Lewandrowski, K. (**2003**) Managing utilization of new diagnostic tests. Clin. Leadersh. Manag. Rev. 17:318-324.
8. Morgen, E.K., and Naugler, C. (**2015**) Inappropriate repeats of six common tests in a Canadian city: a population cohort study within a laboratory informatics framework. Am. J. Clin. Pathol. 144(5): 704-712.

Additional Notes
None

Alignments
None

Review Frequency
Yearly

IDENTIFYING INFORMATION

Name:	Complete Blood Count
Short/Other Names:	CBC

BACKGROUND, INTERPRETATION AND BENCHMARKS

Description:	Blood test including; hemoglobin, hematocrit, WBC, Differential, RBC, MCV, MCHC, RDW, and Platelet Count
Rationale:	It is all tests ordered by all physicians on the specific physician's patient panel as well as the number of tests the individual physician ordered in relation to a PHE.

Meant for self-reflection and to encourage physicians to assess their lab utilization practice in order to maximize appropriate lab test ordering on their patients. |
| **Interpretation:** | A higher or lower value than peers could indicate a difference in patient population or a difference in ordering practices. |
| **Target/Benchmark:** | Can the CBC be helpful for screening patients? Almost certainly not.

Patients generally want lab tests ordered in their Periodic Health Exam (historically called "the annual physical"). Around 40% of doctors report supporting ordering CBC with a PHE but more (two thirds to three quarters) appear to order CBC tests on healthy, asymptomatic middle aged patients. Lab tests reference values establish "normal" as the values that include 95% of patients who are healthy. Therefore, 5% healthy people will have abnormal tests. As well, normal variance influences results. For example, hemoglobin can vary by approximately 10% per test and still not represent real change so for a reading of 130 and a repeat of 140 to 120, might simply be normal variance and not represent and real or clinical change.

Only four randomized controlled trials have examined the use of the CBC or it's' components in the periodic health exam and none found improvements in overall mortality or cancer specific mortality. From 18 observational studies of case-finding or pre-op/admission screening, approximately 6-11% have abnormal results but often less than 1% led to any change in management and the number that actually benefitted would be smaller than that. In fact, when disease prevalence is low (1%), only about 16% of abnormal results represent real disease (84% of abnormal results are false positives). All those false positives require physician time, patient follow-up with further testing, and costs to the system and patient.

While CBC testing for patients with symptoms or known/ suspected disease is appropriate and helpful, screening with CBC in non-pregnant, asymptomatic patients is very unlikely to be helpful. |

INDICATOR CALCULATION

Calculation:	**Description**

CBC test volume in relation to PHE   =   *Total number of CBC tests ordered by you on your panel in relation to a PHE (within 28 days)* |

	CBC test rate in relation to PHE	$=$	$\dfrac{CBC\ test\ volume\ in\ relation\ to\ PHE}{Number\ of\ paneled\ patients\ who\ were\ billed\ as\ a\ PHE}$
	CBC test volume, overall (ordered by you and ordered on your patient panel)	$=$	$Total\ number\ of\ CBC\ tests\ ordered\ on\ your\ patient\ panel\ in\ a\ given\ year$
	Overall test rate	$=$	$\dfrac{CBC\ test\ volume,\ overall}{Number\ of\ paneled\ patients}$
	Type of Measure Number; Rate		
	Adjustment Applied None		

Denominator:	**Inclusion Criteria**
	
	  ▪ Patient list specifically submitted by physician.
	
	  ▪ Patients assigned to a physician based on the HQCA algorithm (proxy panel).
	
	Exclusions
	Patients not in physician panel.
	
	Limitations & Technical Notes

Numerator:	**Inclusion Criteria**
	
	  ▪ Patient list specifically submitted by physician.
	
	  ▪ Patients assigned to a physician based on the HQCA algorithm (proxy panel).
	
	Exclusions
	Patients not in physician panel.
	
	Limitations & Technical Notes

Data Details	
Data Sources:	Alberta Health physician claims. Consolidated Laboratory Data Repository (CLDR) in AHS Analytics (DIMR).
Available Data Years:	**Type of Year** Fiscal year [April 1 to March 31] **First Available Year** 2018/2019

	Last Available Year 2020/2021
Geographic Coverage:	The province of Alberta excluding the military and prisoners.
Reporting Level:	Physician level, based on confirmed patient list submitted by physician or panel assigned by the HQCA algorithm.
Quality Statement	
Limitations:	▪ All calculations include only patients who are currently listed as 'Active' in the Alberta Health Care Insurance Plan (AHCIP) Registry database. This may lead to underestimation of the calculated measure above. ▪ The Physician claims dataset consists of Fee-for-Service and shadow billing. The data submitted based on shadow billing may not be entirely accurate. As a result, this might affect the accuracy of the results of this measure.
Comments:	
More Information	

References
None

Additional Notes
None

Alignments
None

Review Frequency
Yearly

IDENTIFYING INFORMATION	
Name:	Thyroid Stimulating Hormone
Short/Other Names:	TSH

BACKGROUND, INTERPRETATION AND BENCHMARKS	
Description:	Blood test
Rationale:	It is all tests ordered by all physicians on the specific physician's patient panel as well as the number of tests the individual physician ordered in relation to a PHE. Meant for self-reflection and to encourage physicians to assess their lab utilization practice in order to maximize appropriate lab test ordering on their patients.
Interpretation:	A higher or lower value than peers could indicate a difference in patient population or a difference in ordering practices.
Target/Benchmark:	Thyroid disease is common, however many people suffer symptoms that could overlap with clinical presentations associated with thyroid disease. How many of us have patients every day that are tired or overweight? Does it make sense then to screen all patients for thyroid disease? There are no randomized controlled trials assessing the utility of thyroid function (TSH) screening. TSH may vary up to 50% from test to test and daily fluctuations can be up to 26% in a single individual. Prevalence of subclinical hypothyroidism is 4-10% and of these, 2-6% will develop overt thyroid disease. Subclinical hyperthyroidism prevalence is ~2% and of these, 1-2% will develop overt hyperthyroidism. Many cases are transient. For example, 40% of subclinical hypothyroidism will revert to normal over ~2.5 years. When it comes to managing patients with subclinical hypothyroidism (TSH 4-10 with a normal T3/T4), we have much more evidence. In the last 5 years, four systematic reviews, examining up to 21 randomized controlled trials, provide substantial evidence of managing subclinical hypothyroidism. Treating subclinical hypothyroidism does not improve any outcome of significance: There is no effect on mortality, cardiovascular disease, quality of life, thyroid related symptom scores, depression/fatigue symptoms, cognitive function or BMI/weight. Surrogate marker changes are reported inconsistently, with systolic BP decreasing by 0-2.5 mmHg (none found diastolic improvements) and LDL lowering 0 to 0.6mmol/L. Even if these changes were consistent, they are generally small and we have no evidence they result in clinically important outcomes. Guidelines recommend against screening for thyroid function in asymptomatic non-pregnant patients or treating subclinical hypothyroidism.

INDICATOR CALCULATION	
Calculation:	**Description**
	TSH test volume in relation to PHE = *Total number of TSH tests ordered by you on your panel in relation to a PHE (within 28 days)*

	TSH test rate in relation to PHE	=	$\dfrac{TSH\ test\ volume\ in\ relation\ to\ PHE}{\substack{Number\ of\ paneled\ patients\ who \\ were\ billed\ as\ a\ PHE}}$
	TSH test volume, overall (ordered by you and ordered on your patient panel)	=	$\substack{Total\ number\ of\ TSH\ tests\ ordered\ on \\ your\ patient\ panel\ in\ a\ given\ year}$
	Overall test rate	=	$\dfrac{TSH\ test\ volume, overall}{Number\ of\ patients\ on\ panel}$

Type of Measure
Number; Rate

Adjustment Applied
None

Denominator:	**Inclusion Criteria** ▪ Patient list specifically submitted by physician. ▪ Patients assigned to a physician based on the HQCA algorithm (Proxy panel). **Exclusions** Patients not in physician panel. **Limitations & Technical Notes**
Numerator:	**Inclusion Criteria** ▪ Patient list specifically submitted by physician. ▪ Patients assigned to a physician based on the HQCA algorithm (Proxy panel). **Exclusions** Patients not in physician panel. **Limitations & Technical Notes**
Data Details	
Data Sources:	Alberta Health physician claims. Consolidated Laboratory Data Repository (CLDR) in AHS Analytics (DIMR).
Available Data Years:	**Type of Year** Fiscal year [April 1 to March 31] **First Available Year** 2018/2019 **Last Available Year** 2020/2021
Geographic Coverage:	The province of Alberta excluding the military and prisoners.

Reporting Level:	Physician level, based on confirmed patient list submitted by physician or panel assigned by the HQCA algorithm.
Quality Statement	
Limitations:	• All calculations include only patients who are currently listed as 'Active' in the Alberta Health Care Insurance Plan (AHCIP) Registry database. This may lead to underestimation of the calculated measure above. • The Physician claims dataset consists of Fee-for-Service and shadow billing. The data submitted based on shadow billing may not be entirely accurate. As a result, this might affect the accuracy of the results of this measure.
Comments:	
More Information	

References

Additional Notes
None

Alignments
None

Review Frequency
Yearly

IDENTIFYING INFORMATION

Name:	Lipid Profile
Short/Other Names:	LDL

BACKGROUND, INTERPRETATION AND BENCHMARKS

Description:	Blood test including: Total Cholesterol (CHOL), Triglycerides (TRIG), HDL Cholesterol (HDL), Calculated LDL Cholesterol (LDLCALC), Non-HDL Cholesterol calculation.
Rationale:	It is all tests ordered by all physicians on the specific physician's patient panel as well as the number of tests the individual physician ordered in relation to a PHE. Meant for self-reflection and to encourage physicians to assess their lab utilization practice in order to maximize appropriate lab test ordering on their patients.
Interpretation:	A higher or lower value than peers could indicate a difference in patient population or a difference in ordering practices.
Target/Benchmark:	Lipid testing can provide valuable information. It can be a key piece in determining if a patient suffers from true hyperlipidemia. Lipid levels can also be used as part of a general assessment of cardiovascular risk, particularly when applied to risk assessment tools like Framingham or the ASVD risk calculators. However, frequent measurements are likely of little value. A recent study found when lipid tests were ordered annually in primary prevention, 89% did not result in any management change. Variance in an individual's lipid levels is estimated to be 7% to ~25%. The average increase in cholesterol is ~0.3-1%/year. If total cholesterol was 5 and variance was 7%, a repeat test value could range from 4.65 to 5.35, simply representing the variance range rather than a real change in cholesterol. Even over 3 years, the expected change in cholesterol would be, at most, 0.15 and this change is too small to reliably identify with testing, given the average test variance is approximately 0.8. In patients who do not have true familial hyperlipidemia, lipid levels themselves are of limited value. The greatest clinical utility comes from the overall assessment of risk. In fact, over a five year span, small average changes in cholesterol (e.g. increases ≤5%) will have minimal impact on risk compared to the age increase of 5 years (such as moving from age 50 to 55). Given all of the above, in patients not on therapy, lipid testing more frequently than every five years may not provide additional clinical utility. Testing once on therapy is another issue. Some guidelines recommend no repeat testing once a statin is initiated, while others recommend trying to attain lipid targets and therefore encourage more frequent testing to tailor dosing to the surrogate marker change. Please consult examples of each guideline, to read the justifications encouraging testing or not testing after therapy is initiated.

INDICATOR CALCULATION

Calculatio:	Description
	LDL test volume in relation to PHE $=$ *Total number of LDL tests ordered by you in relation to a PHE*
	LDL test rate in relation to PHE $=$ $\dfrac{LDL\ Test\ Volume\ in\ relation\ to\ PHE}{Number\ of\ paneled\ patients\ who\ were\ billed\ as\ a\ PHE}$
	LDL test volume, overall (ordered by you and ordered on your patient panel) $=$ *Total number of LDL tests ordered on your patient panel in a given year*
	Overall test rate $=$ $\dfrac{LDL\ test\ volume,\ overall}{Number\ of\ paneled\ patients}$
	Type of Measure Number; Rate
	Adjustment Applied None
Denominator:	**Inclusion Criteria** ■ Patient list specifically submitted by physician. ■ Patients assigned to a physician based on the HQCA algorithm (Proxy panel). **Exclusions** Patients not in physician panel. **Limitations & Technical Notes**
Numerator:	**Inclusion Criteria** ■ Patient list specifically submitted by physician. ■ Patients assigned to a physician based on the HQCA algorithm (proxy panel). **Exclusions** Patients not in physician panel. **Limitations & Technical Notes**
Data Details	
Data Sources:	Alberta Health physician claims. Consolidated Laboratory Data Repository (CLDR) in AHS Analytics (DIMR).
Available Data Years:	**Type of Year** Fiscal year [April 1 to March 31] **First Available Year** 2018/2019

	Last Available Year 2020/2021
Geographic Coverage:	The province of Alberta excluding the military and prisoners.
Reporting Level:	Physician level, based on confirmed patient list submitted by physician or panel assigned by the HQCA algorithm.
Quality Statement	
Limitations:	▪ All calculations include only patients who are currently listed as 'Active' in the Alberta Health Care Insurance Plan (AHCIP) Registry database. This may lead to underestimation of the calculated measure above. ▪ The Physician claims dataset consists of Fee-for-Service and shadow billing. The data submitted based on shadow billing may not be entirely accurate. As a result, this might affect the accuracy of the results of this measure.
Comments:	
More Information	

References

Additional Notes
None

Alignments
None

Review Frequency
Yearly

IDENTIFYING INFORMATION	
Name:	Hemoglobin A1c
Short/Other Names:	HA1c, HBA1C, A1c

BACKGROUND, INTERPRETATION AND BENCHMARKS	
Description:	Blood Test
Rationale:	It is all tests ordered by all physicians on the specific physician's patient panel as well as the number of tests the individual physician ordered in relation to a PHE. Meant for self-reflection and to encourage physicians to assess their lab utilization practice in order to maximize appropriate lab test ordering on their patients.
Interpretation:	A higher or lower value than peers could indicate a difference in patient population or a difference in ordering practices.
Target/Benchmark:	A1c testing to screen for diabetes has simplified things considerably for our patients. Guidelines regarding testing frequencies:

Guideline	Screening Frequency	Define Risk
Canadian Task Force for Preventative Health	If low-mod risk: no testing If high risk: every 3-5 years If very high: every 1 year	Access Risk using FINDRISC or CANRISK
Diabetes Canada (formerly CDA)	Every 3 years	"If you are ≥40, you are at risk for DM"
NICE guidelines (UK)	If low risk: every 5 years If moderate: every 3 years High risk, every 1 year	40 (some subgroups sooner) Risk Assessment tools - Diabetes risk score assessment tool, QDiabetes risk calculator and Leicester practice risk score. High risk includes impaired glucose tolerance
US Preventive Task Force	Target group every 3 years	Age 40 who are overweight or obese

Most require a second confirmatory test (unless hyperglycemic symptoms).

Based on the above guidelines, three years is the most commonly recommended interval, although some have caveats (around lower risk intervals) in which the frequency can be extended. In patients with impaired glucose tolerance or impaired fasting glucose, after 5 years, 70-85% of patients with impaired glucose will not progress to a diabetes diagnosis (15-30% will). No diabetes test is perfect: A1c will miss some diagnosed with fasting glucose and fasting glucose will miss some diagnosed with A1c. Additionally, A1c has an estimated variance of 10-20%, so subtle changes like 6.2 to 6.5 can be normal variance rather than meaningful change (which, in part, is why repeat testing to confirm the diagnosis is recommended).

INDICATOR CALCULATION

Calculation:	**Description** HbA1c test volume in relation to PHE $=$ *Total number of HbA1c tests ordered by you in relation to a PHE (within 28 days)* HbA1c test rate in relation to PHE $= \dfrac{HbA1c\ test\ volume\ in\ relation\ to\ PHE}{Number\ of\ paneled\ patients\ who\ were\ billed\ as\ a\ PHE}$ HbA1c test volume, overall (ordered by you and ordered on your patient panel) $=$ *Total number of HbA1c tests ordered on your patient panel in a given year* Overall test rate $= \dfrac{HbA1c\ test\ volume,\ overall}{Number\ of\ paneled\ patients}$ **Type of Measure** Number; Rate **Adjustment Applied** None
Denominator:	**Inclusion Criteria** ▪ Patient list specifically submitted by physician. ▪ Patients assigned to a physician based on the HQCA algorithm (Proxy panel). **Exclusions** Patients not in physician panel. **Limitations & Technical Notes**
Numerator:	**Inclusion Criteria** ▪ Patient list specifically submitted by physician. ▪ Patients assigned to a physician based on the HQCA algorithm (Proxy panel). **Exclusions** Patients not in physician panel. **Limitations & Technical Notes**
Data Details	
Data Sources:	Alberta Health physician claims. Consolidated Laboratory Data Repository (CLDR) in AHS Analytics (DIMR).
Available Data Years:	**Type of Year** Fiscal year [April 1 to March 31]

	First Available Year 2018/2019 **Last Available Year** 2020/2021
Geographic Coverage:	The province of Alberta excluding the military and prisoners.
Reporting Level:	Physician level, based on confirmed patient list submitted by physician or panel assigned by the HQCA algorithm.
Quality Statement	
Limitations:	▪ All calculations include only patients who are currently listed as 'Active' in the Alberta Health Care Insurance Plan (AHCIP) Registry database. This may lead to underestimation of the calculated measure above. ▪ The Physician claims dataset consists of Fee-for-Service and shadow billing. The data submitted based on shadow billing may not be entirely accurate. As a result, this might affect the accuracy of the results of this measure.
Comments:	
More Information	

References

Additional Notes
None

Alignments
None

Review Frequency
Yearly

IDENTIFYING INFORMATION	
Name:	Urinalysis
Short/Other Names:	U

BACKGROUND, INTERPRETATION AND BENCHMARKS	
Description:	Urine
Rationale:	It is all tests ordered by all physicians on the specific physician's patient panel as well as the number of tests the individual physician ordered in relation to a PHE. Meant for self-reflection and to encourage physicians to assess their lab utilization practice in order to maximize appropriate lab test ordering on their patients.
Interpretation:	A higher or lower value than peers could indicate a difference in patient population or a difference in ordering practices.
Target/Benchmark:	Urinalysis as a screening method has been part of the periodic health exam for at least five decades for many clinicians. Research suggests that between one half and three-quarters of patients would prefer to have a urinalysis[1] and about one third to one half of doctors order or believe it should be ordered as part of routine health checks.[2] Urinalysis could potentially help identify infections of the bladder, cancer of the urinary tract (through microscopic hematuria), proteinuria, and even diabetes. However, for at least five decades, research has been proving that urinalysis does not work well for screening for any of these conditions. Infections of the bladder: We should not screen for or treat asymptomatic bacteriuria in non-pregnant adults. Cancer of the urinary tract: Though microscopic hematuria can be a sign of bladder cancer, the baseline risk is too low in a normal healthy population, thus increasing the number of false positives. Proteinuria: We don't screen for this proteinuria and when testing is clinically warranted, ACR is a better test. Glucose: Blood tests like A1c and fasting glucose are far better tests for diabetes. Guidelines consistently recommend against screening with urinalysis.[3] In a review by the United States Preventative Task Force, no high quality randomized controlled trial or observational study evaluated urinalysis for cancer screening. Including poorer quality studies, the positive predictive value of hematuria never got above 10% (even in high risk groups like older smokers).[4] Other evidence reviews also recommend against urinalysis as a screening method.[5] However, over a five-year study with 37 million PHE visits, 37% had a urinalysis ordered, at an immediate cost of ~11.1 million dollars.[6] In two studies [7,8] that followed patients over 3 years (~21,000 and 309,000 patients), new hematuria was present in 2.9% and 51%, and cancer rates were 0.17% and 0.68% respectively. The positive predictive value for the positive hematuria results was between 1-6%, meaning that 99-94% of positive results were false positives. Interestingly, bladder/renal cancers were found in 0.17% and 0.18% of the patients with a negative urinalysis.

INDICATOR CALCULATION	
Calculation:	**Description**
	Urinalysis test volume in relation to PHE $=$ *Total number of urinalysis tests ordered by you in relation to a PHE (within 28 days)*
	Urinalysis test rate in relation to PHE $= \dfrac{\textit{Urinalysis test volume in relation to PHE}}{\textit{Number of paneled patients who were billed as a PHE}}$
	Urinalysis test volume, overall (ordered by you and ordered on your patient panel) $=$ *Total number of urinalysis tests ordered on your patient panel in a given year*
	Overall test rate $= \dfrac{\textit{Urinalysis test volume, overall}}{\textit{Number of paneled patients}}$
	Type of Measure Number; Rate
	Adjustment Applied None
Denominator:	**Inclusion Criteria** ▪ Patient list specifically submitted by physician. ▪ Patients assigned to a physician based on the HQCA algorithm (Proxy panel). **Exclusions** Patients not in physician panel. **Limitations & Technical Notes**
Numerator:	**Inclusion Criteria** ▪ Patient list specifically submitted by physician. ▪ Patients assigned to a physician based on the HQCA algorithm (Proxy panel). **Exclusions** Patients not in physician panel. **Limitations & Technical Notes**
Data Details	
Data Sources:	Alberta Health physician claims. Consolidated Laboratory Data Repository (CLDR) in AHS Analytics (DIMR).

Available Data Years:	**Type of Year** Fiscal year [April 1 to March 31]
	First Available Year 2018/2019
	Last Available Year 2020/2021
Geographic Coverage:	The province of Alberta excluding the military and prisoners.
Reporting Level:	Physician level, based on confirmed patient list submitted by physician or panel assigned by the HQCA algorithm.

Quality Statement	
Limitations:	▪ All calculations include only patients who are currently listed as 'Active' in the Alberta Health Care Insurance Plan (AHCIP) Registry database. This may lead to underestimation of the calculated measure above. ▪ The Physician claims dataset consists of Fee-for-Service and shadow billing. The data submitted based on shadow billing may not be entirely accurate. As a result, this might affect the accuracy of the results of this measure.
Comments:	

More Information

References

1. Naugler, C., and Ma, I. (**2018**) More than half of abnormal results from laboratory tests ordered by family physicians could be false-positive. Can. Fam. Phys. 64(3):202-203.
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4. Tluczek A, Orland KM, Cavanagh L. (**2011**) Psychosocial consequences of false-positive newborn screens for cystic fibrosis. Qual Health Res. 21(2):174-86. Epub 2010 Sep 17.
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6. Ma, I., Guo, M., Lau, C.K., Ramdas, Z., Jackson, R., and Naugler, C. (**2019**) Test volume data for 51 most commonly ordered laboratory tests in Calgary, Alberta, Canada. Data in Brief. 23: 103748.
7. Lewandrowski, K. (**2003**) Managing utilization of new diagnostic tests. Clin. Leadersh. Manag. Rev. 17:318-324.
8. Morgen, E.K., and Naugler, C. (**2015**) Inappropriate repeats of six common tests in a Canadian city: a population cohort study within a laboratory informatics framework. Am. J. Clin. Pathol. 144(5): 704-712.

Additional Notes
None

Alignments
None

Review Frequency
Yearly

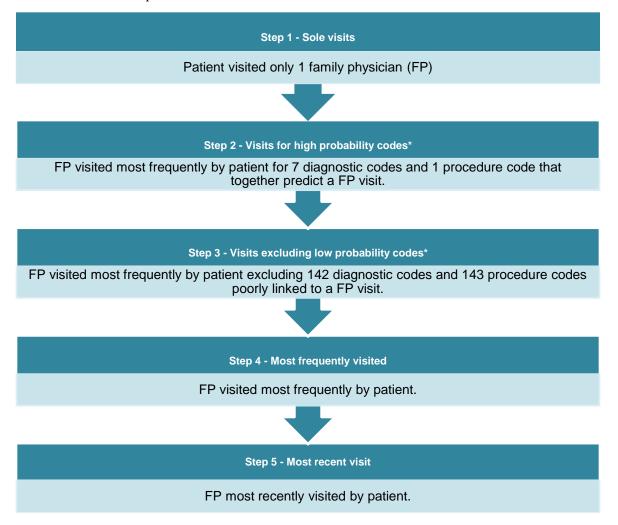## THE HQCA PROXY PANEL SELECTION ALGORITHM

The HQCA proxy panel is an **estimate** of a physician's active panel based on the pattern of family physician billing claims over a three year period. The current data period covers the years **April 1, 2018 to March 31, 2021**.

The HQCA proxy panel selection algorithm is a step-wise process that predicts which family physician, from all those seen by a patient over the three year time period, is most likely to be the patient's main family physician. If there is a tie between two or more family physicians at any step, assignment moves to the next step.

The proxy panel will be most accurate for physicians who had a stable practice during the data period and who saw few patients of other family physicians (e.g., in an after-hours or walk-in clinic).

How this algorithm was built

Using over 200 physicians' confirmed panels representing over 200,000 patients we examined which diagnostic and procedure codes predicted a relationship between a patient and a family physician. This included looking at the physicians' panel patients billing to the confirmed (assigned) physician, the patients' billing to other physicians, and the physicians' billings for patients where there wasn't a confirmed relationship.

Step 1 - Sole visits

Patient visited only 1 family physician (FP)

Step 2 - Visits for high probability codes*

FP visited most frequently by patient for 7 diagnostic codes and 1 procedure code that together predict a FP visit.

Step 3 - Visits excluding low probability codes*

FP visited most frequently by patient excluding 142 diagnostic codes and 143 procedure codes poorly linked to a FP visit.

Step 4 - Most frequently visited

FP visited most frequently by patient.

Step 5 - Most recent visit

FP most recently visited by patient.

158

Step 1 – Sole visits

The algorithm begins by looking at sole visits. If the patient visited only one FP over the three years they were assigned to that FP. This is identical to AH's four-cut, and is an unavoidable initial step because there are no other FPs to choose from. Sole visits as compared to the FP-patient validated panels were found to be a fairly successful method of linking patients and FPs.

Step 2 – Visits for high probability codes

The second step of the algorithm looks at the frequency of visits for 7 diagnostic and 1 procedure codes that has a high probability of predicting a FP. If there is a tie in terms of most visits to a number of FPs, the tied FPs were carried forward and tie breakers were determined by subsequent steps.

The 7 diagnostic and 1 procedure codes are:

Diagnostic codes:

- 305.5   Nondependent Morphine Abuses
- 471   Polyp of Nasal Cavity
- 793.9   Other Abnormal finding / other exam
- 53.7   Herpes Zoster with other compl
- V42.2   Heart valve replaced transplant
- 796.4   Other Abnormal Clinical findings
- V67.3   Follow-up exams psychiatry

Procedure code:

- 03.05TX Other diagnostic interview and evaluation {Administering of treatment and/or medication prescribed by a physician performed by a Professional Nurse, per 15 minutes}

Step 3 – Visits excluding low probability codes

The third step of the algorithm looked at the frequency of FP visits. The HQCA excluded diagnostic and procedure codes that didn't seem to predict a FP very well. If there is a tie in terms of most visits to a number of FPs, the tied FPs were carried forward and tie breakers were determined by subsequent steps.

The diagnostic and procedure codes are:

Diagnostic codes:

- 786   Dyspnea and Respiratory Abnorm
- 998   Postoperative shock
- 511.9   Unspecified pleural effusion
- V19.2   Family HX deafness/hearing loss
- 188   Mal Neoplasm of bladder trigone
- 821   Fracture shaft/ Nos femur closed
- 560.9   Unspecified intestinal obstruction
- 379.9   Unspecified disorders eye and adnexa

- 292   Drug withdrawal syndrome
- 999   Generalized vaccinia
- 644   Threatened labour
- 696.1   Other psoriasis
- 586   #N/A
- 750   Tongue tie
- 202   Nodular lymphoma
- 873   Open wound scalp no compl
- 707.9   Chronic ulcer unspecified site
- 345.9   Unspecified epilepsy
- 298.9   Unspecified psychosis
- 813.4   Fracture Lower end rad/ulna cl
- 593   Nephroptosis
- 276.5   Volume depletion
- 38   Streptococcal septicemia
- 662   Prolonged first stage
- 721   Cerv spondylosis no myelopathy
- 918.1   Superficial injury cornea
- V23   #N/A
- 295.3   Paranoid schizophrenic pysch
- 295.7   Schizoaffective psychosis
- 648   Diabetes mellitus in pregnancy
- 998.5   Postoperative infection
- V76.4   Special screen mal neo other site
- 799   Asphyxia
- 478   Hypertrophy of nasal turbinates
- V68.9   Encounter for admin purpose nos
- V23.8   Supervision of other high risk pregnancy
- 553.2   Ventral hernia nos
- 560.8   Other intestinal obstruction
- 676.5   Suppressed lactation pregnancy
- 656.3   Fetal distress
- 622.1   Dysplasia of cervix (uteri)
- 784.9   Other symptoms head and neck
- 591   #N/A

- 374   Entropion and trichiasis eyelid
- 735   Hallux valgus (acquired)
- 783.4   Lack expected normal physical development
- 642   Essential hypertension preg
- 374.3   Ptosis of eyelid
- 375   Dacryoadenitis
- 790.9   Other non-specified findings exam blood
- 313   Child/Adolescent disturbance with anxiety/fear
- 426   Atrioventricular block complete
- 676.9   Disorders lactation nos preg
- 669   Maternal distress
- 592.1   Calculus of ureter
- 540   AC appendicitis w gen peritonit
- 476   Chronic laryngitis
- 366   Infant/juvenile/presen cataract
- 310   Frontal lobe syndrome
- 368   Amblyopia ex anopsia
- 701.1   Keratoderma acquired
- 735.4   Other hammer toe (acquired)
- 658.1   Premature rupture of membranes
- 429.2   Cardiovascular disease unspecified
- 781.9   Other symptoms nervous/musculoskeletal system
- 695.8   Other erythematous conditions
- 701.8   Other Hypertroph/atroph condition skin
- 312   Unsocialized disturbance of conduct
- 470   Deflected nasal septum
- 38.9   Unspecified septicemia
- 296.1   Manic-depressive psychiatric depression
- 205   Acute myeloid leukemia
- 646   Papyraceous fetus
- 578.9   Hemorrhage of GI tract unspecified
- 977   Poisoning by dietetics
- V70.9   Unspecified general medical exam
- 425.4   Other primary cardiomyopathies
- 703.8   Other diseases of nail

- 370   Corneal ulcer
- 211   Benign neoplasm of esophagus
- 651   Twin pregnancy
- 211.3   Benign neoplasm of colon
- 411   #N/A
- 304.7   Drug dependence morphine with other
- 660   Obstruction malposition fetus
- 477.8   Allergy rhinitis D/T other allergy
- 785.9   Other symptoms cardiovascular system
- 656   fetal-maternal hemorrhage
- 715.06   #N/A
- 362.1   Other backgr retinopthy/vasc chng
- 641   Placenta previa no hemorrhage
- 296.3   Manic-depress psych circ/depression
- 964.2   Poisoning by anticoagulants
- 173.3   Mal neo skin other/unspecified face
- 715.1   Loc prim osteoarth/allied dis
- 980   Toxic effect of ethyl alcohol
- 569.8   Other disorders of intestine
- 729.47   #N/A
- 364   Acute/Subacute iridocyclitis
- 760   Maternal hypertension disorder affecting fetus/newborn
- 440.2   Atherosclerosis arteries extrem
- 959.9   Other/unspecified injury unspecified site
- 635   Legal abortion w pelvic infect
- 661   Primary uterine inertia
- 378   Converg concomitant strabismus
- 721.3   Lumbosacral spondylosis no myelopathy
- 769   #N/A
- 721.1   Cervical spondylosis w myelopathy
- 361   Retinal detach with retinal defect
- 379.2   Disorders of vitreous body
- 362.3   Retinal vascular occlusion
- 371   Corneal scars and opacities
- 655   CNS malformation in fetus

- 735.2 Hallux rigidus
- V42.6 Lung replaced by transplant
- 799.1 Respiratory failure
- 367.2 Astigmatism
- 365 Borderline glaucoma
- V81.2 Spec screen other/nos cardiovascular
- 366.1 Senile cataract
- 367.1 Myopia
- 654.2 Uterine scar previous surgery
- 362.8 Other retinal disorders
- 377 Papilledema
- 370.2 Other superficial keratit no conjunct
- 370.3 Certain types keratoconjunctivitis
- 379.3 Aphakia and other disorders lens
- 362.5 Degeneration macular/post pole
- 765.1 Other preterm infants
- 250.4 Diabetes with ophthalmic management
- 371.9 Unspecified corneal disorder
- 100 Leptospirosis icterohemorrhagic
- 234.8 Carcinoma in situ other specified site
- 353.8 Other nerve root/plexus disorders
- V23.9 Supervision unspecified high risk pregnancy
- V60.2 Inadequate maternal resources
- 362 Diabetic retinopathy
- 365.1 Open-angle glaucoma
- 366.5 After-cataract
- 367 Hypermetropia
- 785.5 Shock without mention of trauma
- V71.7 Observation suspected cardiovascular disorder

Procedure codes:

- 03.01AA Diagnostic interview and evaluation, unqualified {After hours time premium}
- 03.03LA Diagnostic interview and evaluation, described as limited {Special callback to hospital emergency/outpatient department, AACC, UCC, auxiliary hospital or nursing home, when specially called from home or office, weekdays 1700-2200 hours, weekends and statutory holidays 0700-2200 hours}

- 98.22A   Suture of skin and subcutaneous tissue of other sites {Laceration, face, up to 2.5 cms (1 unit) or body, up to 5 cms (1 unit)}

- 87.54A   Fetal monitoring, unqualified {Interpretation of non-stress test}

- 03.08A   Consultation, described as comprehensive {Comprehensive consultation}

- 03.01LJ   Diagnostic interview and evaluation, unqualified {Physician or podiatric surgeon to physician telephone or telehealth videoconference consultation, consultant, weekdays 0700 to 1700 hours}

- 03.38R   Other nonoperative respiratory measurements {Interpretation of diagnostic procedures involving vitalometry}

- 03.52B   Other electrocardiogram {Electrocardiogram, interpretation}

- 03.03MD   Diagnostic interview and evaluation, described as limited {Special callback to hospital emergency/outpatient department, AACC, UCC, auxiliary hospital or nursing home, when specially called from home or office, any day (2400-0700 hours)}

- 03.03MC   Diagnostic interview and evaluation, described as limited {Special callback to hospital emergency/outpatient department, AACC, UCC, auxiliary hospital or nursing home, when specially called from home or office, any day (2200-2400 hours)}

- 03.05WT   Patient Assessment/Evaluation {Time allotted for patient who did not attend appointment, per 15 minutes}

- 03.07A   Consultation, described as limited {Minor consultation}

- 03.03AR   Diagnostic interview and evaluation, described as limited {Urgent or priority attendance on hospital inpatient or long term care inpatient, at request of facility staff when physician is already on site.}

- 98.89E   Other invasive diagnostic procedures on skin and subcutaneous tissue {Skin test, airborne allergens, intradermal or prick, per test}

- 13.53B   Injection of steroid {Intralesional injection(s) of steroid}

- 1.22   Other nonoperative colonoscopy {Other nonoperative colonoscopy}

- 98.22B   Suture of skin and subcutaneous tissue of other sites {Laceration, face, over 2.5 cms (1 unit) and/or body, over 5 cms (1 unit)} <For each layer or unit, refer to Price List>

- 75.64   Vasectomy (complete) (partial)

- 03.05R   Other diagnostic interview and evaluation {Special callback to hospital inpatient, weekends and statutory holidays 0700-2200 hours}

- 98.11A   Debridement of wound or infected tissue {Non-functional area, up to 32 total square cms}

- 1.14   Other nonoperative gastroscopy <Esophagogastroscopy>

- 13.99J   Other diagnostic interview and evaluation {Medical emergency detention time, per 15 minutes}

- 8.45   Family therapy {Assessment or therapy of a family, requiring comprehensive psychiatric or family systems evaluation, first full 45 minutes or major portion thereof for the first call when only one call is claimed}

- 13.99JA   Other miscellaneous diagnostic & therapeutic procedures NEC {Management of complex labour, per 15 minutes}

- 86.9D   Cesarean section of unspecified type {Cesarean section of unspecified type following trial of labour for any reason}

- 03.01LM   Diagnostic interview and evaluation, unqualified {Patient care advice to active treatment facility worker or nurse practitioner in relation to the obstetrical outpatient, weekdays 0700 - 1700 hours}

- 03.01LO   Diagnostic interview and evaluation, unqualified {Patient care advice to active treatment facility worker or nurse practitioner in relation to the obstetrical outpatient, any day 2200 - 0700 hours}

- 57.21A   Fulguration of lesion of large intestine {Polypectomy of large intestine, additional benefit}

- 03.01LI   Diagnostic interview and evaluation, unqualified {Physician to physician or podiatric surgeon telephone or telehealth videoconference consultation, referring physician, any day 2200 to 0700 hours}

- 98.11D   Debridement of wound or infected tissue {Functional area, up to 32 total square cms}

- 37.91A   Lingual frenotomy {Release of simple tongue tie, clipping}

- 03.01LN   Diagnostic interview and evaluation, unqualified {Patient care advice to active treatment facility worker or nurse practitioner in relation to the obstetrical outpatient, weekdays 1700 - 2200 hours, weekends and statutory holidays 0700 - 2200 hours}

- 03.05FG   Other diagnostic interview and evaluation {Follow-up care of a patient remaining in a non-rotation duty emergency department after awaiting further evaluation, treatment, and/or waiting for a bed, transfer to another facility, or requiring extended care by a physician 1700 - 2200 hours, weekday, 0700 - 2200 hours weekend and statutory holiday}

- 09.01A   Limited eye examination {Biomicroscopy (slit lamp examination)}

- 03.05QB   Other diagnostic interview and evaluation {Special callback to hospital inpatient, (2400-0700 hours)}

- 87.54B   Interpretation and supervision of continuous fetal monitoring (includes application of internal electrode)

- 03.05QA   Other diagnostic interview and evaluation {Special callback to hospital inpatient, (2200-2400 hours)}

- 66.91A   Percutaneous abdominal paracentesis {Paracentesis}

- 01.22A   Other nonoperative colonoscopy for screening of high risk patients

- 03.05FF   Other diagnostic interview and evaluation {Follow-up care of a patient remaining in a non-rotation duty emergency department after awaiting further evaluation, treatment, and/or waiting for a bed, transfer to another facility, or requiring extended care by a physician, 0700 - 1700 hours, weekdays}

- 03.38E   Other nonoperative respiratory measurements {Vitalometry, before and after bronchodilators}

- 03.01LK   Diagnostic interview and evaluation, unqualified {Physician or podiatric surgeon to physician telephone or telehealth videoconference consultation, consultant, weekdays 1700 to 2200 hours, weekends and statutory holidays 0700 to 2200 hours}

- 03.12A   Measurements and manual examination of nervous system and sense organs {Intraocular pressure measurement, unilateral or bilateral}

- 13.59K   Other injection or infusion of other therapeutic or prophylactic substance {Injection of Botulinum A Toxin} <For treatment of spasticity due to upper motor neuron injury or disease>

- 86.9C   Cesarean section of unspecified type {Elective Cesarean section, any approach}

- 09.43A   Audiological evaluation {Pure tone audiometry, technical}

- 98.12Q   Local excision or destruction of lesion or tissue of skin and subcutaneous tissue {Removal of (any method)} <<Multiple dysplastic or localized carcinomatous lesions of the skin>>

- 08.12A   Psychiatric commitment evaluation {Certification under the Mental Health Act}

- 08.19F   Other psychiatric evaluation and interview {Formal, scheduled, professional conference related to the care and treatment of a psychiatric patient with other physician(s), and/or direct therapeutic supervision of, allied health professionals, educational, correctional and other community agencies on behalf of a specific patient, provided by the physician most responsible for the patient's care, per 15 minutes or major portion thereof}

- 13.99E   Other miscellaneous diagnostic and therapeutic procedures NEC {Resuscitation, full 60 minutes or a portion thereof for the first call when only one call is claimed}

- 16.91C   Injection of anesthetic into spinal canal for analgesia {Epidural catheter insertion for labour analgesia including set-up and initial injection}

- 01.24B   Other non-operative proctosigmoidoscopy {Flexible proctosigmoidoscopy, diagnostic only}

- 03.05T   Other diagnostic interview and evaluation {Formal, scheduled, professional interview relating to the care and treatment of a palliative care patient with other physicians, family, and/or direct therapeutic supervision of allied health professionals or community agencies, on behalf of a specific patient, full 15 minutes or major portion thereof for the first call when only one call is claimed}

- 13.99H   Other miscellaneous diagnostic & therapeutic procedures NEC {Critical care of severely ill or injured patient in a hospital emergency department requiring major treatment intervention(s), per 15 minutes}

- 65.01A   Repair of inguinal hernia, unqualified {Repair of inguinal hernia - incarcerated, obstructed or strangulated}

- 97.81   Percutaneous (needle) biopsy of breast

- 16.91G   Insertion of anaesthetic into spinal canal for analgesia {Epidural analgesia for labour and delivery, monitoring and/or top-up/adjustment, each additional full 5 minutes, per patient}

- 03.01O   Diagnostic interview and evaluation, unqualified {Physician to Physician E-Consultation, consultant}

- 03.05V   Other diagnostic interview and evaluation {Formal, scheduled, professional interview relating to the care and treatment of a patient with chronic pain with other physicians, and/or direct therapeutic supervision of allied health professionals or community agencies, on behalf of a specific patient, per 15 minutes}

- 63.14   Laparoscopic cholecystectomy

- 65.49A   Other repair of umbilical hernia {Repair of umbilical and/or epigastric hernia}

- 98.13B   Radical excision of skin lesion {Excision of large malignant facial lesion with primary closure}

- 03.07B   Consultation, described as limited {Repeat consultation}

- 10.16A   Insertion of other vaginal pessary {Pessary fitting}

- 69.94   Insertion of indwelling urinary catheter

- 78.99B   Excision of paratubal or fimbrial cysts {Other tubal sterilization, any method}

- 84.21B   Mid forceps delivery with episiotomy {Assisted mid-cavity delivery, forceps or vacuum, with or without rotation}

- 91.01L   Closed reduction of fracture (without internal fixation), radius and ulna {Greenstick}

- 95.09A   Incision of other soft tissue {Removal of deep foreign body, with or without imaging, full 15 minutes of operating time or major portion thereof for the first call when only one call is claimed}

- 98.53   Advancement of flap or pedicle graft (no donor defect)

- 03.04K   Diagnostic interview and evaluation, described as comprehensive {Comprehensive geriatric assessment, first full 90 minutes}

- 13.55A   Chemotherapy<That for treatment of malignant disease>

- 13.59B   Injection or infusion of other therapeutic or prophylactic substance NEC {Intravenous injections}

- 13.59C   Injection or infusion of other therapeutic or prophylactic substance NEC {Initiation of intravenous}

- 36.99C   Other dental operations NEC {Dental rehabilitation (extensive must exceed one hour), anaesthetic benefit}

- 59.1 A   Drainage of appendiceal abscess {Appendectomy with or without abscess}

- 65.61A   Repair of incisional hernia with graft or prosthesis {Repair of incisional hernia including mesh, if used}

- 01.22C   Other nonoperative colonoscopy for screening of average risk patients.

- 03.05SA   Other diagnostic interview and evaluation {Professional interview relating to care and treatment of a patient with other physicians, family, allied health professionals or community agencies, per 15 minutes}

- 16.81A   Spinal tap {For diagnosis or imaging studies}

- 57.21C   Fulguration of lesion of large intestine {Removal of sessile polyp, additional benefit}

- 65.11A   Repair of inguinal hernia, unqualified, with graft or prosthesis {Repair of recurrent inguinal hernia, including mesh, if used}

- 79.29E   Other excision or destruction of lesion or tissue of cervix NEC {Biopsy of cervix}

- 84.21C   Mid forceps delivery with episiotomy {Lower cavity assisted delivery (greater than or equal to +2 station)}

- 87.98C   Delivery NEC {Vaginal delivery following trial of labour after previous cesarean section}

- 91.01C   Closed reduction of fracture (without internal fixation), radius and ulna {Radius, shaft}

- 91.01K   Closed reduction of fracture (without internal fixation), radius and ulna {Undisplaced}

- 91.02A   Closed reduction of fracture, carpals and metacarpals {Metacarpal}
- 91.71   Closed reduction of dislocation of elbow
- 98.52A   Cutting and preparation of flap or pedicle graft {Less than 2 cms}
- 98.52C   Cutting and preparation of flap or pedicle graft {2-5 cms}
- 03.01C   Telehealth assistance service
- 3.26   Gynecological examination
- 40   Incision and drainage of tonsil and peritonsillar structures
- 50.4 B   Ligation and stripping of varicose veins {Ligation and stripping of long saphenous vein}
- 50.99B   Other puncture of vein {Insertion of long dwelling intravascular catheter requiring subcutaneous tunnel}
- 66.83   Laparoscopy <Diagnostic, with or without biopsy>
- 78.52C   Salpingectomy {Surgical treatment of ectopic pregnancy}
- 81.01D   Dilation and curettage following delivery or abortion {D & C for missed abortion or following delivery}
- 83.2 B   Other local excision or destruction of vulva and perineum {Other local excision or destruction of vulva and perineum}
- 87.6   Removal of retained placenta <Manual removal of retained placenta and membranes>
- 87.82   Repair of obstetric laceration of sphincter ani
- 91.01F   Closed reduction of fracture (without internal fixation), radius and ulna {Colles}
- 91.02D   Closed reduction of fracture (without internal fixation), carpals and metacarpals {Scaphoid}
- 91.03A   Closed reduction of fracture (without internal fixation), phalanges of hand {Phalanx}
- 91.70A   Closed reduction of dislocation of shoulder {Primary}
- 92.32B   Excision of semilunar cartilage of knee {Arthroscopy knee, including menisectomy}
- 93.83H   Other repair of shoulder {Rotator cuff repair, including tendon transfer}
- 01.22B   Other nonoperative colonoscopy for screening of moderate risk patients
- 03.05UN   Telephone contact {Telephone contact with a Medical Health Professional regarding advise or care of a patient, per 5 minutes}
- 03.52D   Other electrocardiogram {Tape ECG - ambulatory ECG monitoring record (greater than 12 hours), interpretation}
- 10.04B   Endotracheal intubation for aspiration of sputum {Intubation performed in an emergency room, AACC or UCC}
- 13.72A   Other electric countershock of heart {Cardioversion}
- 13.99DD   Other miscellaneous diagnostic & therapeutic procedures NEC {Non-surgical reduction of abdominal or inguinal hernia}
- 17.33   Release of carpal tunnel

- 22.13A   Other excision of single lesion of eyelids {Excision of eyelid lesion requiring pathology analysis}

- 33.22A   Local excision or destruction of intranasal lesion {Nasal polyp removal}

- 39.91B   Labial frenotomy {Labial frenotomy} <That for clipping of frenulum of lip>

- 40.1 A   Tonsillectomy without adenoidectomy {Tonsillectomy for patient under 14 years of age}

- 46.91   Other operations on thorax {Thoracentesis}

- 55.41B   Endoscopic excision or destruction of lesion or tissue of stomach {Endoscopic gastric polypectomy(s)}

- 59   Appendectomy

- 59.0 A   #N/A

- 65.01C   Repair of inguinal hernia, unqualified {Incarcerated inguinal}

- 81.29C   Other excision or destruction of lesion or tissue of uterine supports {Laparoscopy, for conservative procedures for endometriosis and/or lysis of adhesions first full 15 minutes of operating time or major portion thereof for the first call when only one call is claimed}

- 83.9 A   Other operations on female genital organs NEC {Operations on the adnexa, any method}

- 89.41PA   Bunionectomy with soft tissue correction and osteotomy of the first metatarsal {Bunionectomy with distal osteotomy of the first metatarsal or proximal phalanx}

- 91.01M   Closed reduction of fracture (without internal fixation), radius and ulna {Closed reduction of fracture, radius and ulna, displaced}

- 91.05B   Closed reduction of fracture (without internal fixation), tibia and fibula {Tibia, shaft, with or without fibula}

- 91.05H   Closed reduction of fracture, tibula and fibula {Lateral malleolus}

- 92.32D   Excision of semilunar cartilage of knee {Arthroscopy knee, including non-reconstructive procedures (loose body, plica, etc.)}

- 92.8 D   Arthroscopy {Arthroscopy, (wrist, elbow, ankle, shoulder, knee) therapeutic intervention, including debridement/drilling, etc.}

- 93.59A   Other total hip replacement {Total hip arthroplasty}

- 93.8 A   Arthroplasty of upper extremity, except hand {Acromio-clavicular or sterno-clavicular}

- 93.96K   Other repair of joint {Revision total joint arthroplasty with major reconstruction both sides including structural allograft/protrusio ring/custom implant}

- 94.21A   Excision of lesion of tendon (sheath) of hand {Ganglion of hand}

- 97.11B   Local excision of lesion of breast {Biopsy and/or local excision of lesion(s)}

- 97.27B   Resection of quadrant of breast {Segmental resection, with formal axillary node dissection and/or sentinel node biopsy, with or without removal of pectoral muscles}

- 97.89A   Other invasive diagnostic procedures on breast {Needle localization under mammographic control, single lesion}

- **98.03D** Other incision with drainage of skin and subcutaneous tissue {Abscess requiring procedural sedation and extensive drainage and packing}

- **98.14A** Excision of pilonidal sinus or cyst {Pilonidal cyst - excision or marsupialization}

- **98.55A** Attachment of flap or pedicle graft to other sites {Less than 2 cms (insetting)}

- **98.55B** Attachment of flap or pedicle graft to other sites {2-5 cms (insetting)}

Step 4 – Frequency of visits

The fourth step of the algorithm looked at the frequency of all visits to FP with no diagnostic or procedure codes excluded. If there is a tie in terms of most visits to a number of FPs, the tied FPs were carried forward and tie breakers were determined by subsequent steps.

Step 5 – Most recent visit

This step was the same as the final step in AH's four-cut methodology which was last (most recent) visit. Though the accuracy of this step isn't as high as other steps in the HQCA methodology, very few patients are assigned on this criterion alone.