Data Impact Challenge Question Set

Additional questions may be added as the challenge proceeds. Team leads will be notified if additional questions are added

NOTE: *The guiding specifications describe the elements of an ideal analysis. Teams are encouraged to submit analyses using the data available to them.*

Question 1: What is the rate of repeated laboratory tests within a ninety (90) day period?

Rationale: At the health system level, we are not sufficiently informed about the nature of laboratory testing occurring across all settings in Canada, or the appropriateness of the current utilization patterns. This question examines some foundational information gaps relating to this issue: the total volume of laboratory activity happening across public and private testing facilities and all settings for a defined patient population, and the frequency within which tests are repeated. Note: It is understood that sometimes repeated tests are required for clinical reasons, while other times they are repeated because earlier results are not readily available. An example of a US study examining this question can be found here.

Guiding Specifications:

Numerator: number of times a patient has the same laboratory test (public and private across all settings) for a specific geographic area or patient population within 90 days

Denominator: total number of laboratory tests (public and private across all settings) for the same specific geographic area or patient population

Sample: Minimum sample size of 100,000 tests. Sample must represent a defined geographic area or other patient population and include all tests conducted for that population (public and private, inpatient and outpatient)

Timeframe: analysis should include at least one year of data, which is no more than five (5) years old.

Question 2: What is the rate of repeated diagnostic imaging tests within a ninety (90) day period?

Rationale: At the health system level, we are not sufficiently informed about the nature of diagnostic imaging occurring across all settings in Canada, or the appropriateness of the current utilization patterns. This question examines some foundational information gaps relating to this issue: the total volume of imaging activity happening across public and private testing facilities and all settings, and the frequency with which tests are repeated. Note: it is understood that sometimes repeated tests are required for clinical reasons, while other times they are repeated because earlier results are not readily available.

Guiding Specifications:

Numerator: number of times a patient has the same diagnostic imaging exam (public and private across all settings) for a specific geographic area or patient population within 90 days

Denominator: total number of diagnostic imaging exams (public and private across all settings) for the same specific geographic area or patient population

Sample: minimum sample size of 100,000 exams. Sample must represent a defined geographic area or patient population, and include all tests conducted for that population (public and private, inpatient and outpatient)

Timeframe: analysis should include at least one year of data, which is no more than five (5) years old.

Question 3: Does prompt access to a discharge summary (within 2-4 days) by primary care providers reduce the rate of readmissions and/or emergency department (ED) visits?

Rationale: Reducing unnecessary readmissions and ED visits is an important objective from both cost reduction and patient outcome perspectives. Successful transfer of care to a primary care provider is recognized as an important component of avoiding unnecessary readmission or ED visit in many cases, and timely information flow to these providers is seen as a key to a successful transfer. More evidence is required to understand this relationship and determine the importance of promptly delivering discharge summaries. For the purposes of this analysis, prompt delivery is defined as receipt by the primary care provider in less than 4 days post discharge (i.e. if discharged on a Monday, summary would be received between Monday and Thursday). Note: it is recognized that not all readmissions or emergency department visits are potentially avoidable.

Required metrics: Populate each square of this table

	# and rate of 30 day readmission and/or ED visit
discharge summary received within 3 days or less *	
discharge summary received in greater than 30 days or not received*	
Total, regardless of when discharge summary received	

*could be patient, clinician or regional sample
Sample: minimum sample size of 10,000 discharges
Timeframe: analysis should include at least one year of data, which is no more than five (5) years old.

Question 4: Does pharmacist access to a patient's dispensed medication history at the time of dispensing affect the rate of inappropriate prescriptions for opioid analgesics and benzodiazepines?

Rationale: A 2012 article by Dormuth et al. in British Columbia found that "The implementation of a centralized prescription network was associated with a dramatic reduction in inappropriate filled prescriptions for opioids and benzodiazepines". With such networks of medication information now available and in use across many provinces and territories (see Infoway 2013/14 annual report), more evidence is required to assess the impact on inappropriate prescriptions in other provinces and territories. The full article including the specifics of the algorithm to identify a potentially inappropriate prescription having been filled can be found here.

Guiding Specifications:
The analysis will provide the following potentially inappropriate prescription rate (numerator/denominator below) for both pre and post-go-live of a provincial or territorial drug information system (centralized prescription network).
Numerator: total prescriptions deemed inappropriate applying the inappropriate prescription algorithm described by Dormuth et al.
Denominator: total prescriptions with denominator as per Dormuth et al.

Sample: minimum sample size of 100,000 prescriptions in denominator
Timeframe: analysis should include at least one year of data prior to the deployment year of the provincial/territorial drug information system (centralized prescription network) and at least one year following the deployment year. Deployment years for fully deployed known systems include: Manitoba – 1994, Alberta – 2008, Saskatchewan – 2008, PEI - 2008

Question 5: What is the rate of follow-up (first patient contact by the ordering clinician) for abnormal lab results, within one week?

Rationale: Timeliness and consistency of follow-up to abnormal test results is accepted as an important component of effective healthcare. Further assessment of current performance could inform practice. For the purposes of this analysis, we are interested in how often patients are contacted by the ordering clinician within one week (7 days counting the day that the test result is received by the ordering clinician) of the receipt of an abnormal test result. Analysts should specify how they are identifying abnormal results (e.g. out of the normal range specified by the testing laboratory), as well as how they are identifying first patient contact (e.g. visit or phone call recorded in a chart, electronic notification of test results).

Guiding Specifications:
Numerator: Number of abnormal test results for which first patient contact occurs in the first week
Denominator: Total number of abnormal test results
Sample: minimum sample size of 100,000 tests with abnormal results. Sample must represent a defined geographic area or patient population
Timeframe: analysis should include data which is no more than five (5) years old.

Question 6: For one of the Choosing Wisely Canada recommendations referenced below, provide the specified baseline metric

Rationale: Choosing Wisely Canada is a campaign to help physicians and patients engage in conversations about unnecessary tests, treatments and procedures. Canadian national specialty societies participating in the campaign, representing a broad spectrum of physicians, were asked to develop lists of "Five Things Physicians and Patients Should Question." These lists identify tests, treatments or procedures commonly used in each specialty, which are not supported by evidence, and/or could expose patients to unnecessary harm. A complete list of these recommendations is available here. Below is a list of the specific questions related to recommendations of interest for this challenge. Increasing understanding of the frequency with which care does or does not follow these recommendations could support targeted improvement and potentially could impact policy interventions.

Guiding Specifications:
For each of the questions below, provide the relevant numerator and denominator.
Sample: minimum of 10,000 records
Timeframe: analysis should include at least six months of data

Specific CWC question list:

- For what portion of patients with metastatic disease is cancer screening, or surveillance for a new primary cancer, conducted in a given year? (Relates to CWC Oncology recommendation #2)
- For what portion of adults is a dual energy X-ray absorptiometry (DEXA) scans repeated more often than every 2 years? (Relates to CWC Rheumatology recommendation #3)
- What portion of older adults (65+) has been prescribed benzodiazepine or other sedative-hypnotics for insomnia, agitation or delirium. (Relates to CWC Geriatrics recommendation #2)
- What portion of older adults (65+) has been prescribed antipsychotics to treat behavioural and psychological symptoms of dementia. (Relates to CWC Geriatrics recommendation #4)
- How frequently in the inpatient setting, is repeat CBC and chemistry testing conducted? (Relates to CWC Internal Medicine recommendation #4)
- For what portion of adults were screening blood tests conducted in any given year? (Relates to CWC Family Medicine recommendation #5)
- How frequently is preoperative testing (such as chest X-rays, echocardiograms, or cardiac stress tests) conducted for patients undergoing low risk surgeries? (Relates to CWC Internal Medicine recommendation #5)
- How frequently do physicians order ANA as a screening test, and what level of variation exists across physicians? (Relates to CWC Rheumatology recommendation #1)
- For what portion of adults is an annual physical exam conducted in any given year? (Relates to CWC Family Medicine recommendation #8)