

Data Impact Challenge Answer Submission Template

- How frequently in the inpatient setting, is repeat CBC and chemistry testing conducted?
([Relates to CWC Internal Medicine recommendation #4](#))
- **Team and list of all team member names:** Christopher Naugler, Maggie Guo

Describing the Data and Analysis

- **Data Custodian Organization(s) and data sources:**
Test-ordering data from the Calgary Laboratory Services Laboratory Information System
- **List of Datasets Used (e.g. names of database and/or data origins):**
Millennium data
- **Exclusions:**
Inpatient data only
- **Nature and Size of Cohort (e.g. geographic area covered, number of patients included):**
Calgary and surrounding areas of south-central Alberta, population of approximately 1.4 million people
- **Data timeframe:** Jan 1 2014 to Dec 31 2014

Please provide a brief summary of the analysis methodology:

The LIS was queried for inpatient test results for: CBC, Creatinine, CO2, Sodium, Chloride, and Potassium. The first time a given test was recorded was considered the index case. We then looked for repeat tests on the same encounter occurring within the data timeframe. This represents all cases of repeat tests for a given hospital admission within the year timeframe considered. If the same patient was later admitted under another encounter (i.e discharged and re-admitted) this was included as a separate event in the dataset. For electrolytes orders we considered tests both ordered individually and as part of electrolyte panels.

Describing the Findings

- **Numerator and Denominator (as specified in the question definition)**
Numerator is number of patients with repeat testing for each analyte considered

Denominator is the total number of patient admissions with at least one test ordered for each analyte considered

- Please also provide a brief summary of the findings including any key limitations or interpretation issues (may also include one figure/table)

Percentages of repeated tests based on a large series of hospital admission from Calgary in 2014 showed that 64% of CBC and 72% of chemistry tests were repeated at least one during an admission.

Table 1. Data on repeated CBC and chemistry tests.

CBC	
Total records of all tests in analysis	372461
Total number of patient admissions	85958
Number of patient admissions with at least one repeat test	54855
Percentage repeated at least once	64%
Of tests repeated, average number of times test repeated for a given admission	6.2
Of tests repeated, % repeated within 1 day	70%
Of tests repeated, % repeated with 7 days	97%
Creatinine	
Total records of all tests in analysis	303046
Total number of patient admissions	61781
Number of patient admissions with at least one repeat test	44470
Percentage repeated at least once	72%
Of tests repeated, average number of times test repeated for a given admission	6.4
Of tests repeated, % repeated within 1 day	72%
Of tests repeated, % repeated with 7 days	97%
CO2	
Total records of all tests in analysis	330258
Total number of patient admissions	61771
Number of patient admissions with at least one repeat test	44563
Percentage repeated at least once	72%
Of tests repeated, average number of times test repeated for a given admission	7
Of tests repeated, % repeated within 1 day	72%
Of tests repeated, % repeated with 7 days	97%
Potassium	
Total records of all tests in analysis	334550
Total number of patient admissions	62527
Number of patient admissions with at least one repeat test	44976
Percentage repeated at least once	72%

Of tests repeated, average number of times test repeated for a given admission	7
Of tests repeated, % repeated within 1 day	72%
Of tests repeated, % repeated with 7 days	97%

Sodium

Total records of all tests in analysis	336589
Total number of patient admissions	63268
Number of patient admissions with at least one repeat test	45479
Percentage repeated at least once	72%
Of tests repeated, average number of times test repeated for a given admission	7
Of tests repeated, % repeated within 1 day	72%
Of tests repeated, % repeated with 7 days	97%

Chloride

Total records of all tests in analysis	330808
Total number of patient admissions	61850
Number of patient admissions with at least one repeat test	44598
Percentage repeated at least once	72%
Of tests repeated, average number of times test repeated for a given admission	7
Of tests repeated, % repeated within 1 day	72%
Of tests repeated, % repeated with 7 days	97%