

Laboratory test utilization in Microbiology: where do we begin?

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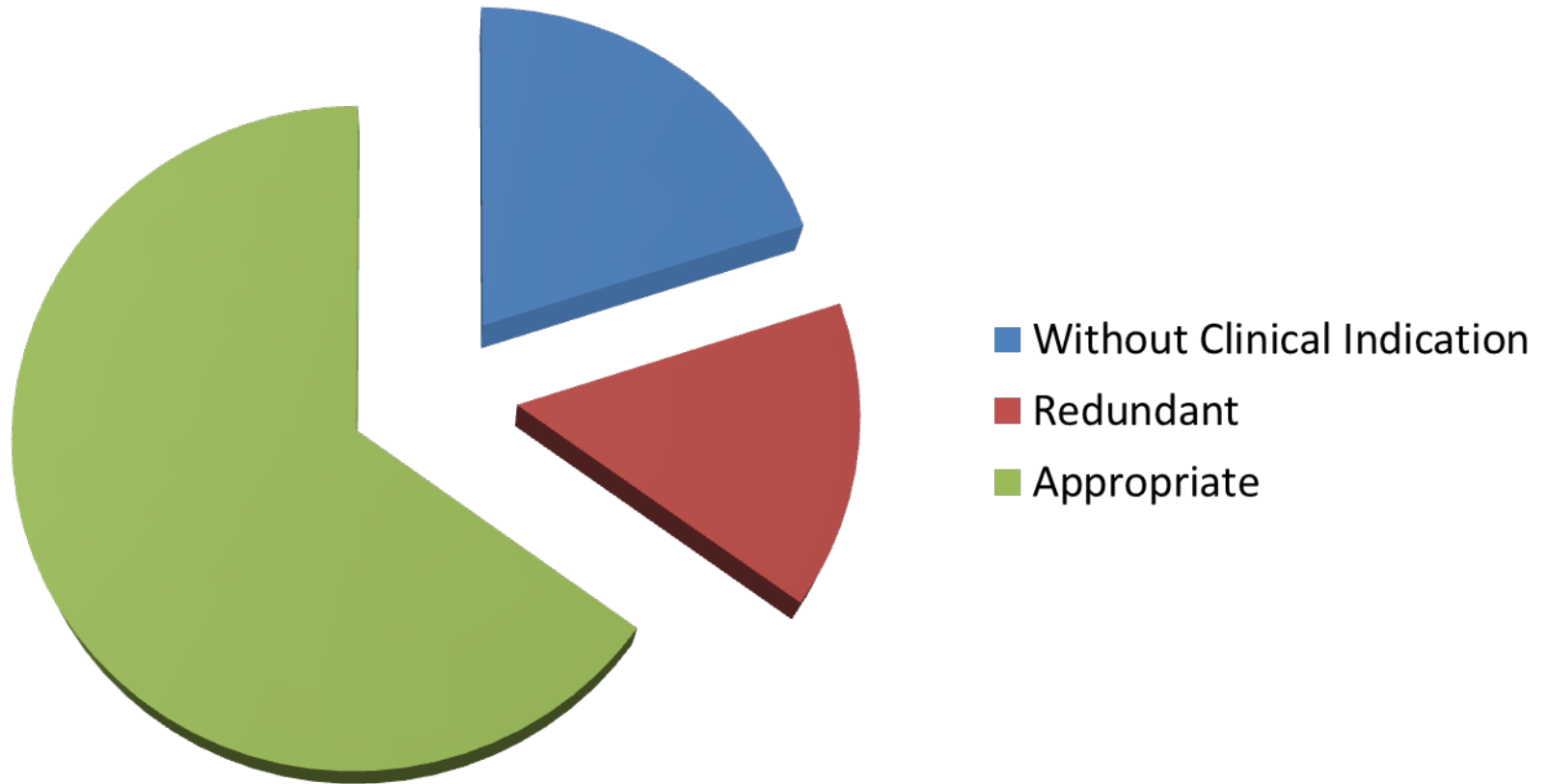
Disclosure - COIs

I participate in laboratory research sponsored by Abbott Laboratories Ltd.

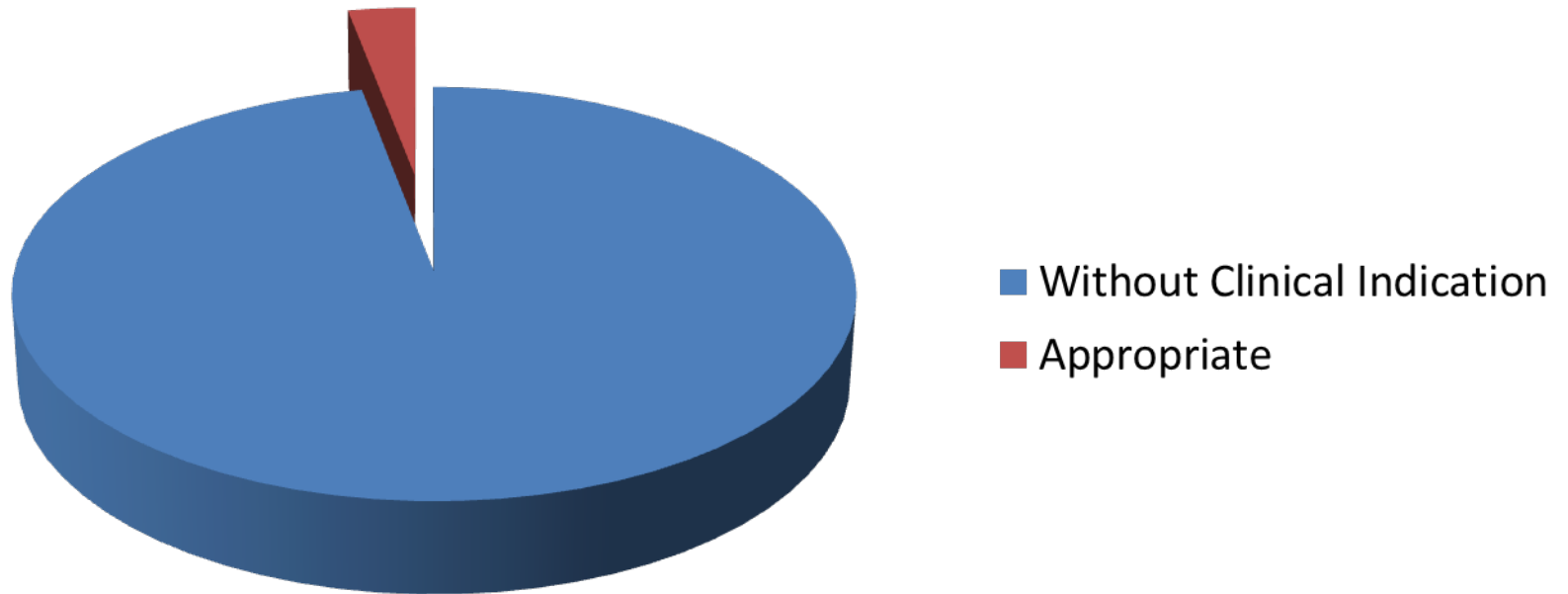
Honoraria:

- Abbott Pharmaceuticals
 - University of Alberta
 - University of Calgary
 - Alberta Society of Clinical Chemists
 - Ontario Society of Clinical Chemists
 - LifeLabs
 - McGill University
 - Alberta Society of Pharmacists
 - Consulting: KPMG, Abbott Laboratories Ltd.
- Other: Stock in Merus Labs, Tekmira
 - Book on appropriate lab testing

Chemistry/hematology tests



Vitamin D in Alberta



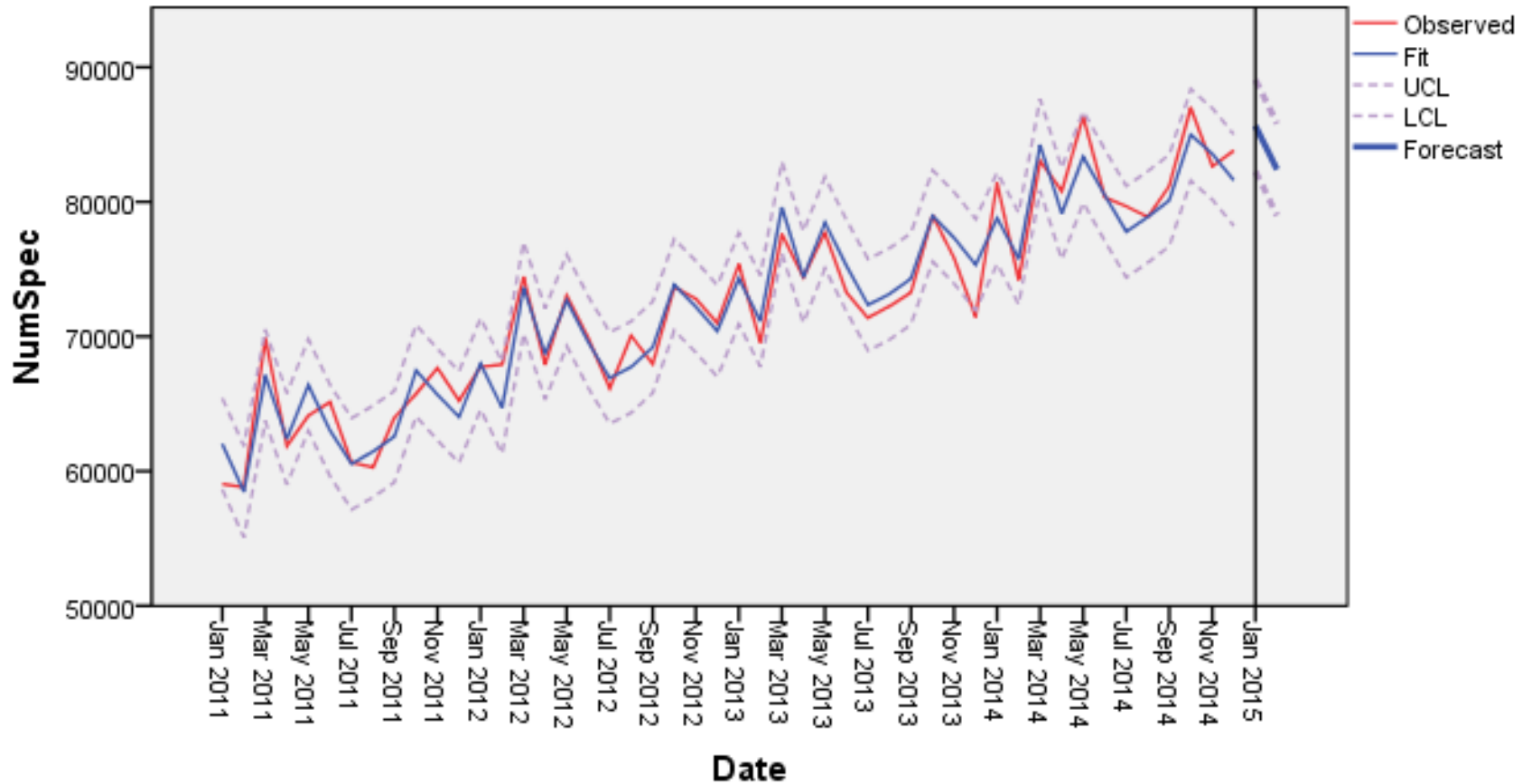
Objectives

- To identify goals: getting the most bang for your buck
- To emphasize the importance of the laboratory-physician partnership
- To describe the challenges and gains experienced in the course of laboratory utilization projects

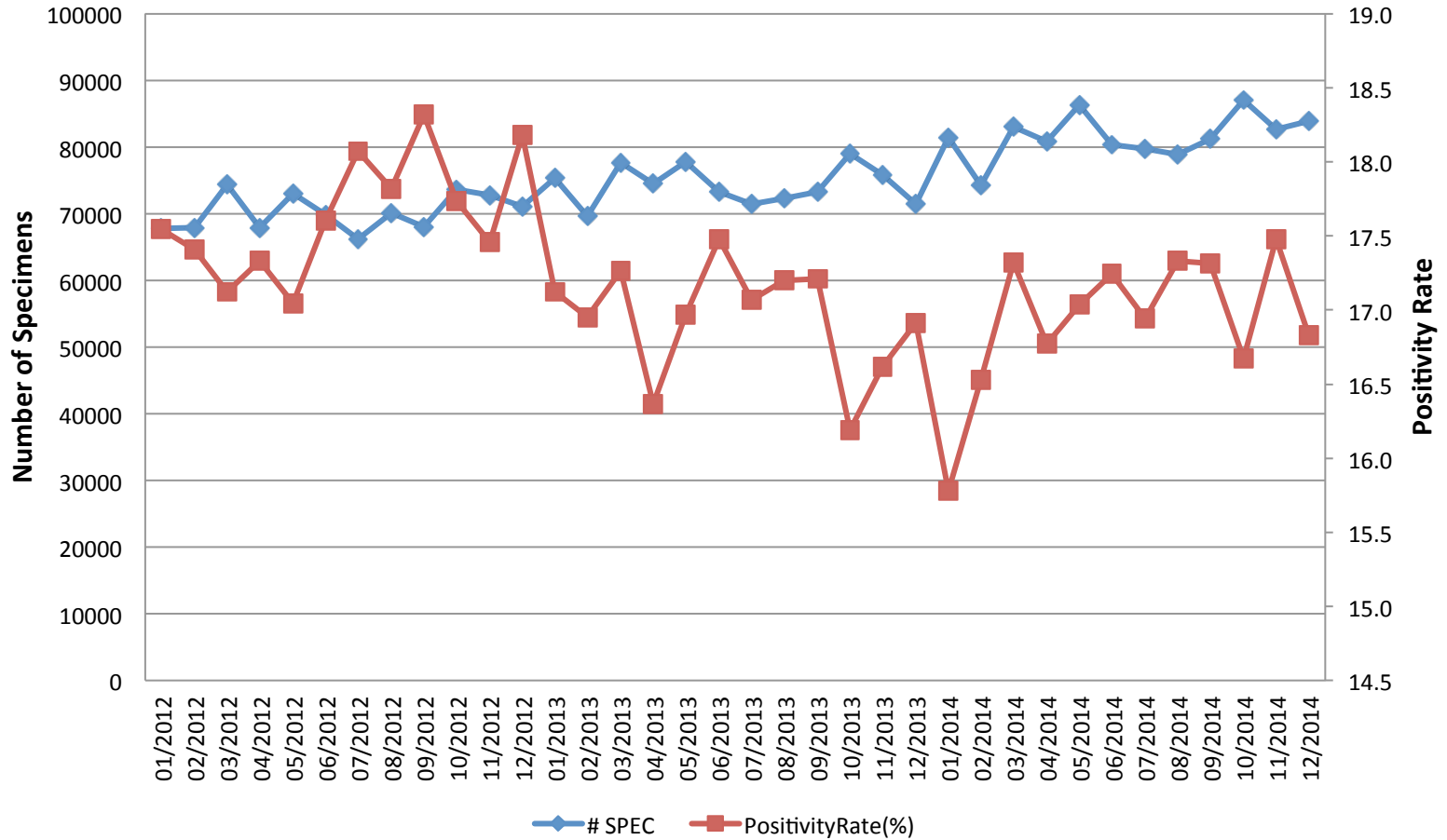
Caveats

- High level overview
- Based on my involvement with:
 - Choosing Wisely Canada
 - Choosing Wisely Alberta
 - Alberta Laboratory Utilization Office
 - Clinical labs, Alberta Health Services
 - New research

Calgary Volumes - All Micro Tests



Calgary Positivity Rate for All Microbiology Tests



Question and answer

- How have test volumes changed over time in your lab?

Getting the most bang for your buck

- Which utilization management strategies work?
- Which physician groups should be targeted?
- Which tests should be targeted?

What does the literature say?

- Many gaps
- Small sample sizes
- Uncontrolled studies
- Not enough quality studies for meta-analysis
- No direction as to why some studies worked and others didn't

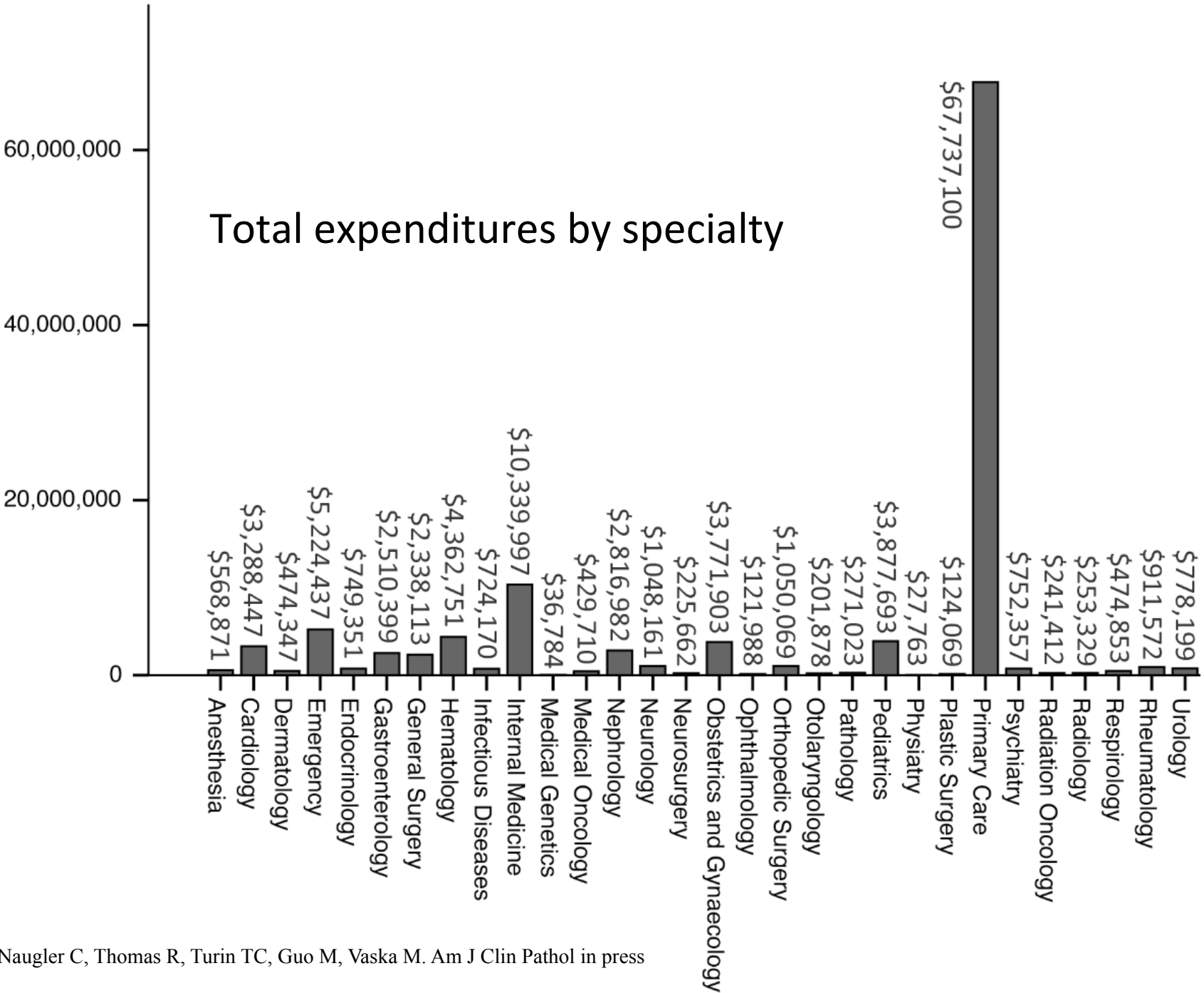
What can you expect?

- Education: 1-5%
- Audit and feedback: 10%
- Administrative interventions: 10-20%
 - Test restrictions: 50%+
 - Vitamin D: 97% in Alberta

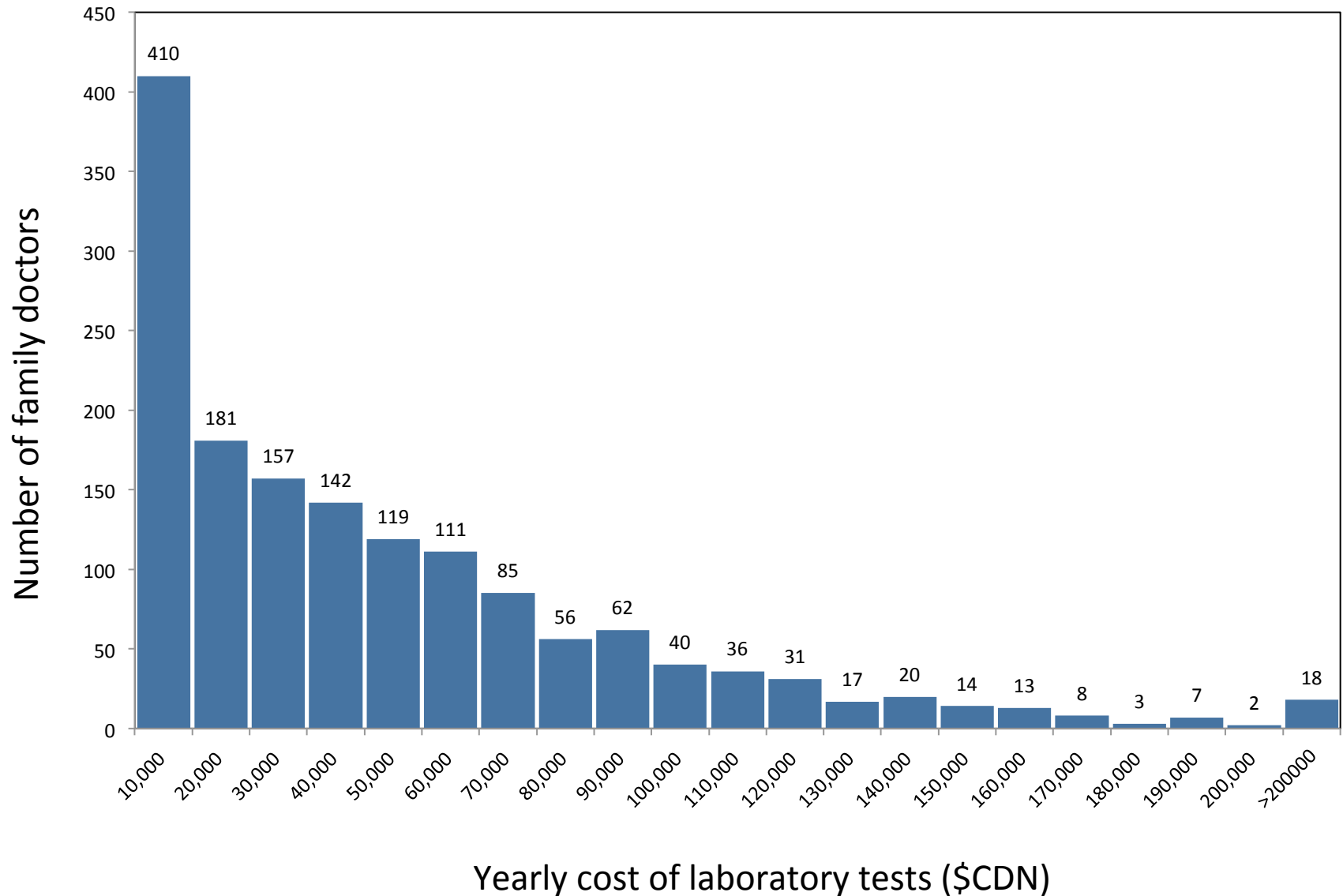
Which physicians groups to target?

- High utilizers
- Greatest practice variance

Total expenditures by specialty



Laboratory testing costs by physician



Which tests to target

- Most common
- Most expensive
- Greatest practice variance
- Where CPGs exist

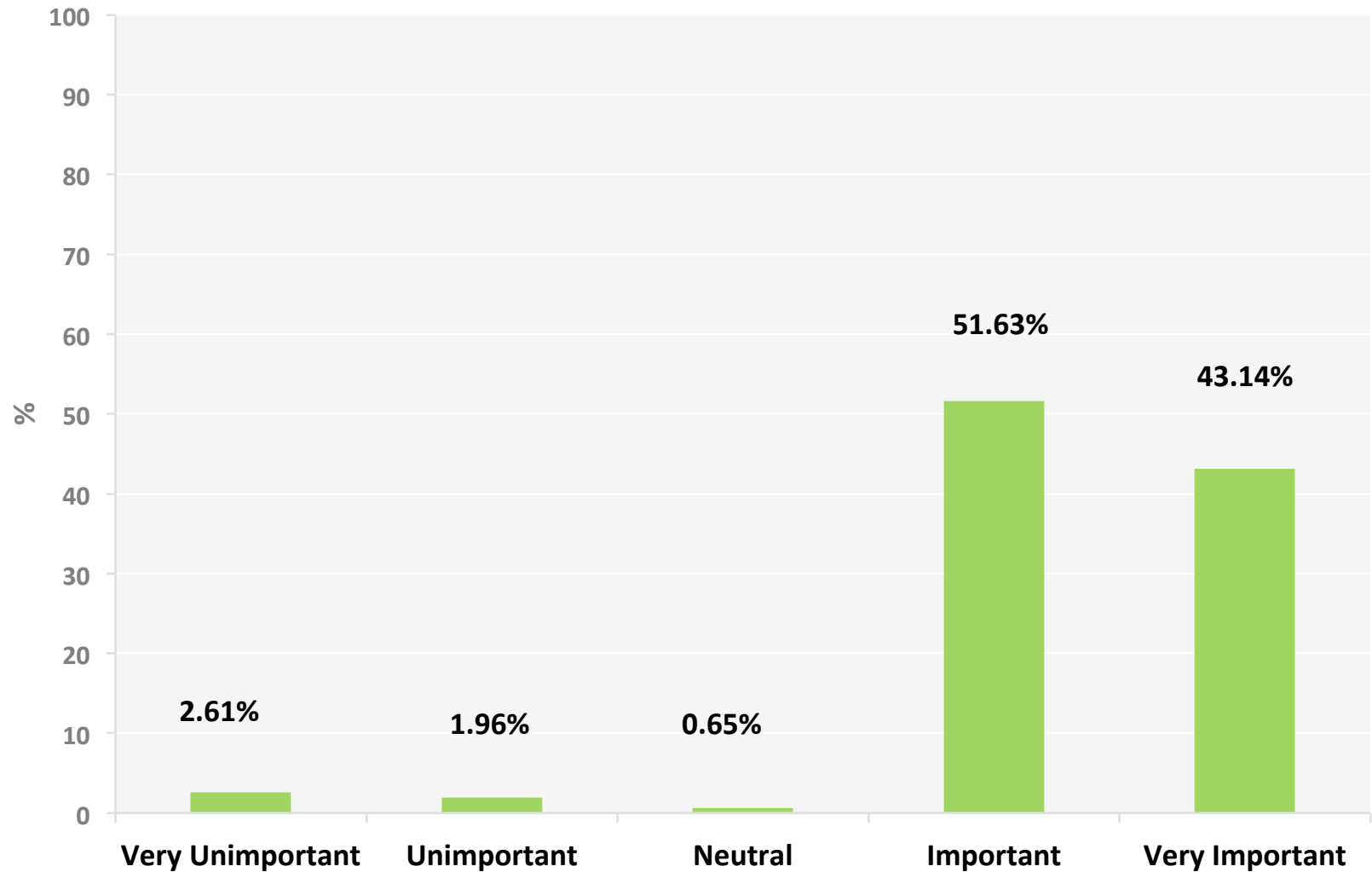
Question and answer

- What tests would you target?

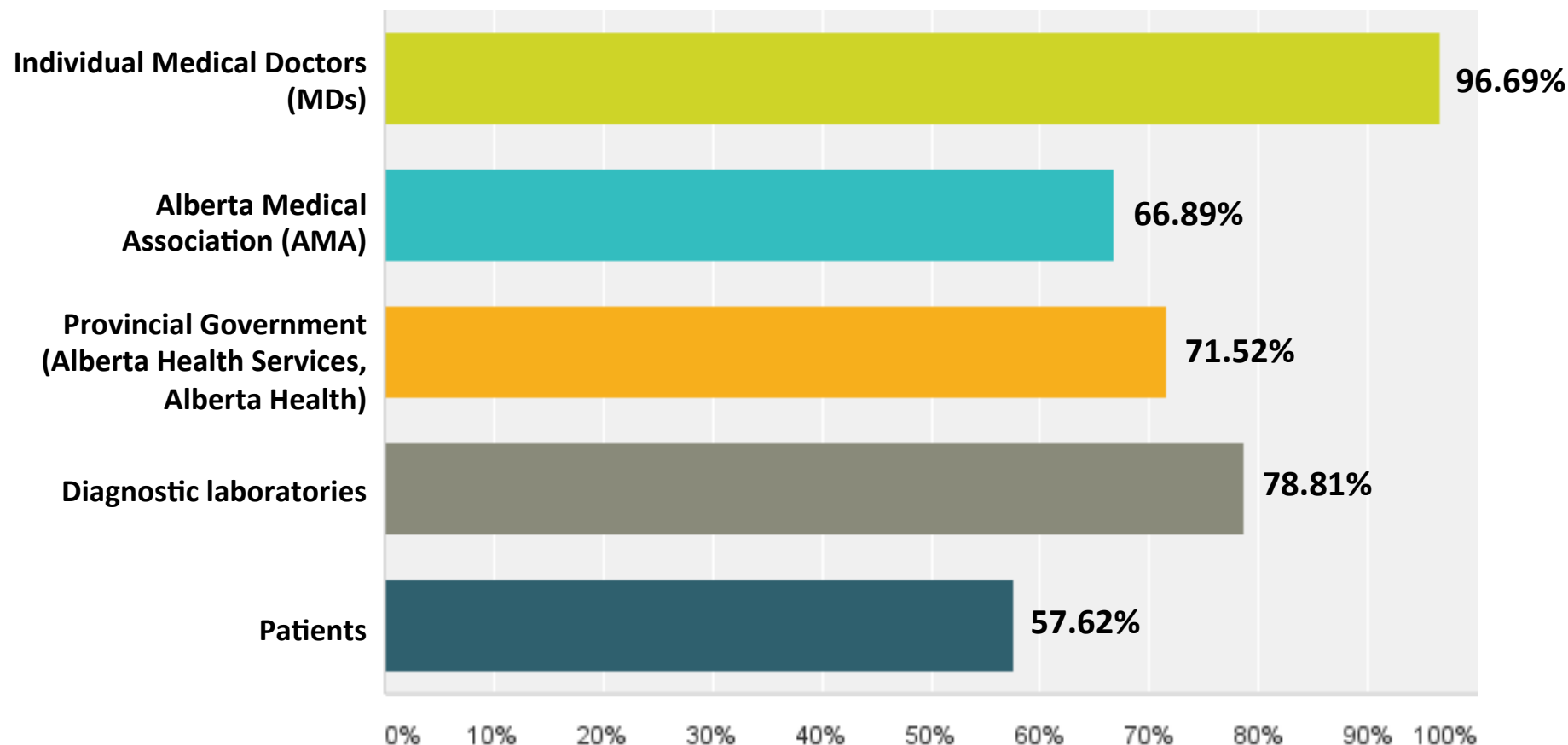
The laboratory-physician partnership

- Usually physicians are not involved in lab utilization decisions
- Very little data on knowledge and attitudes of physicians
- Very little data on which approaches are most acceptable to physicians

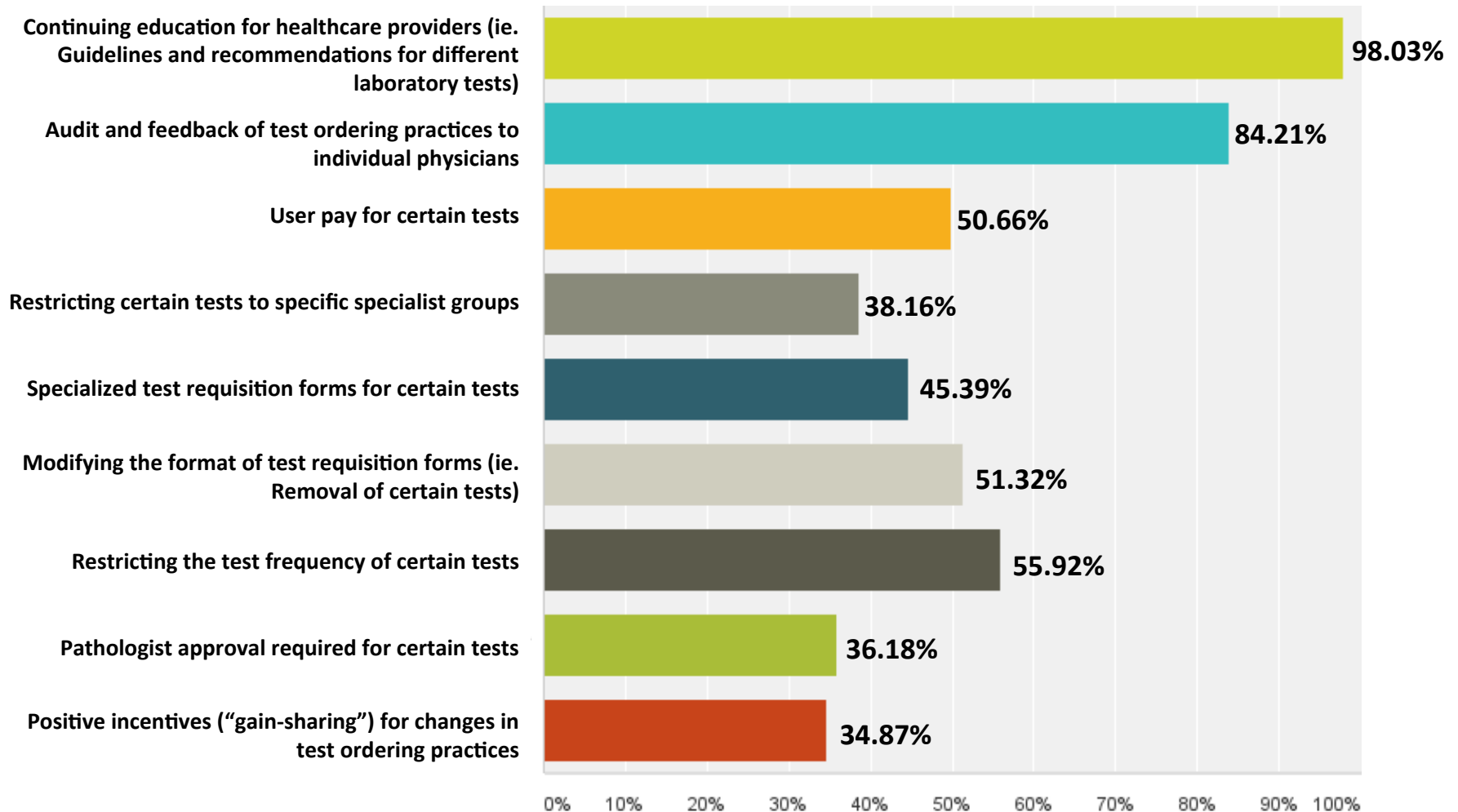
Q1: How important do you consider the issue of laboratory test overuse?



Q4: Who is responsible for addressing issues regarding appropriate laboratory utilization? Please check all that apply.



Q5: Which of the following are acceptable approaches to improving the quality of laboratory testing (ie. Reducing unnecessary and duplicate testing)? Please check all that apply.



The challenge of identification of inappropriate tests

- What data is available?
- Probably secondary lab data:
 - Who is being tested?
 - Who is ordering tests?
 - What is the variance of test ordering in similar circumstances?
 - What is the compliance with CPGs?
 - What is the positivity rate?

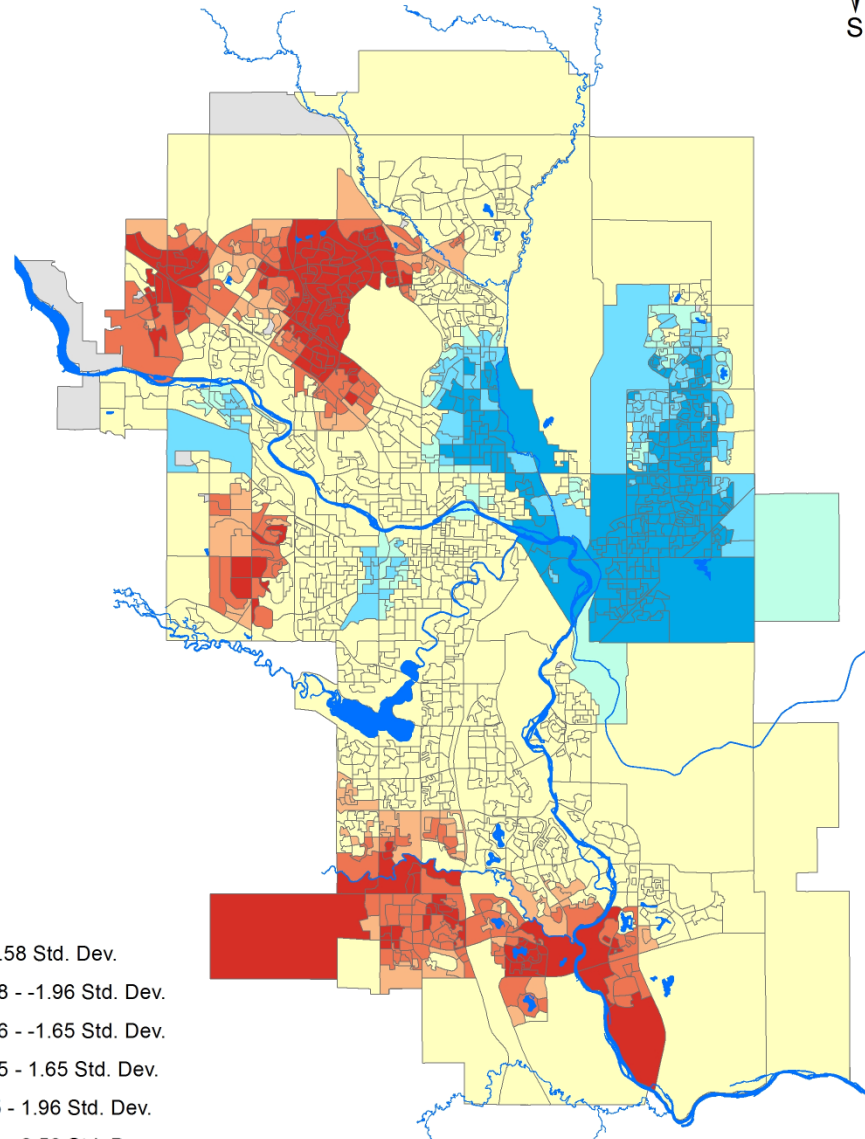
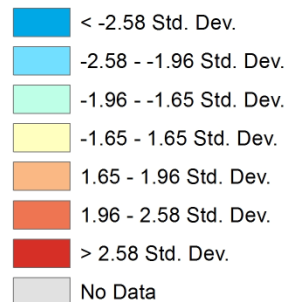
Age Group 50-59 2011



PSA testing in the city of Calgary

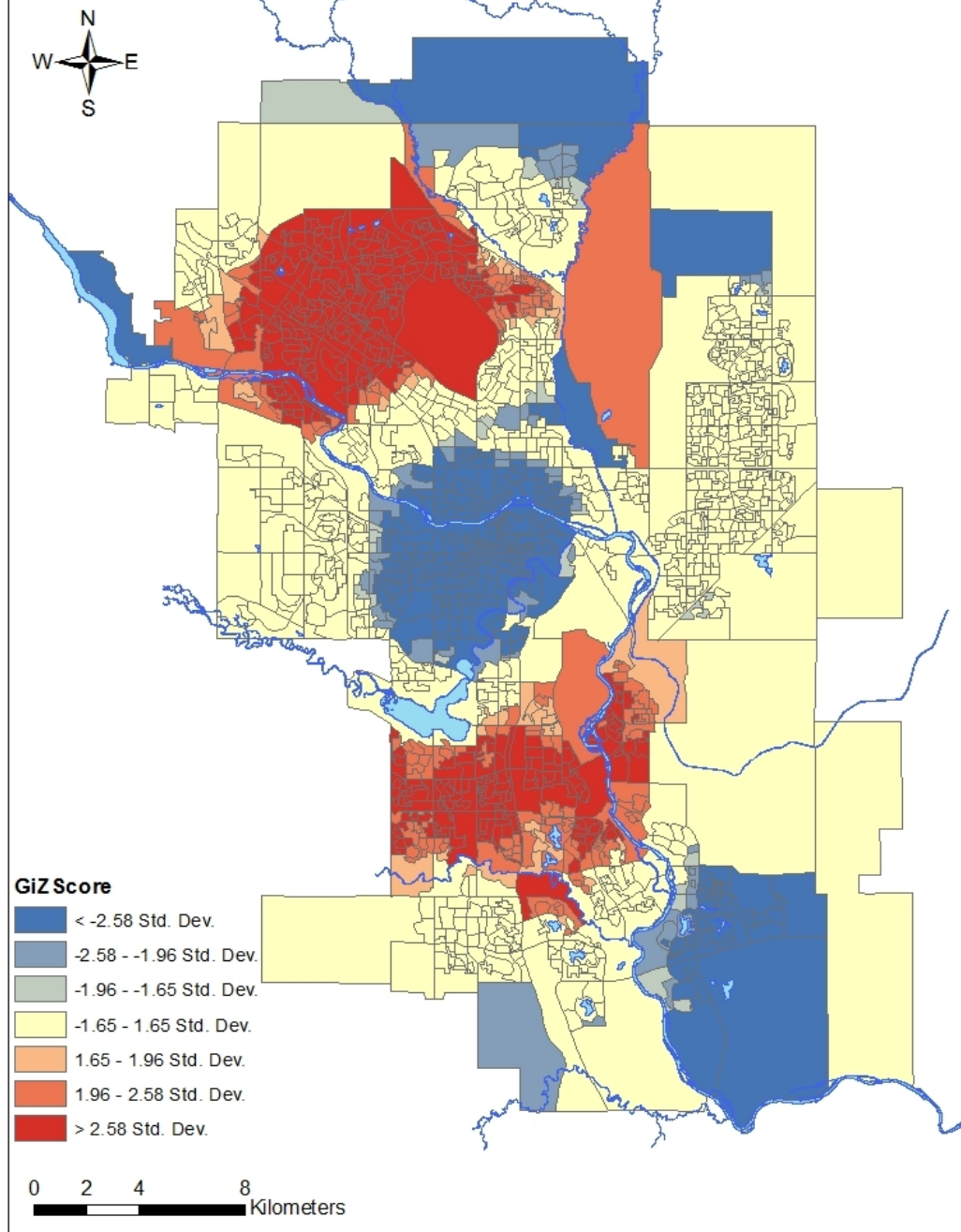
Gorday, W, Sadzradeh H, de Koning L, Naugler C. Sociodemographic variables associated with PSA testing. Clin Biochem 2014;47:164-169.

Legend



0 2.5 5 10 Kilometers

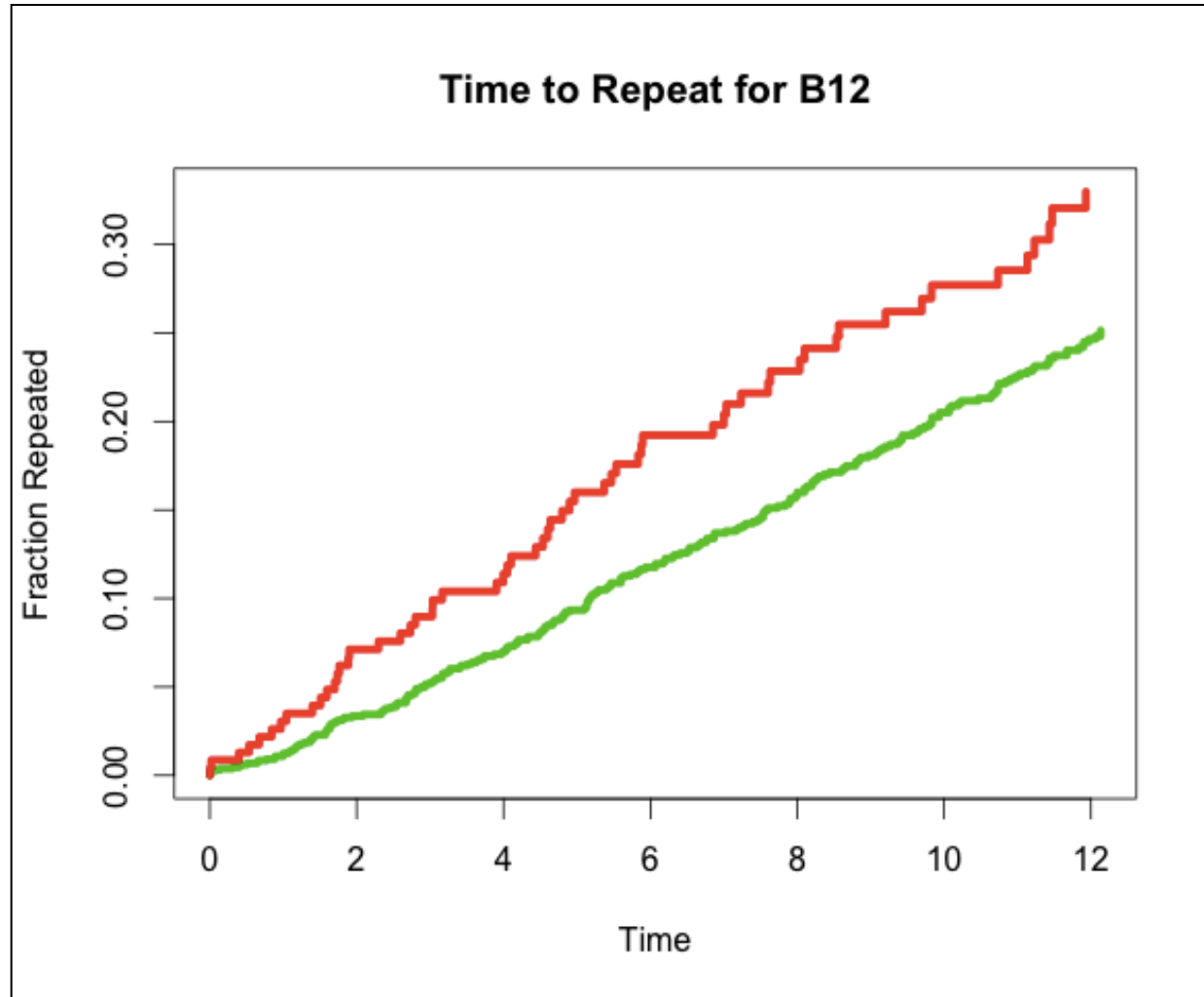
FIT Test Rate



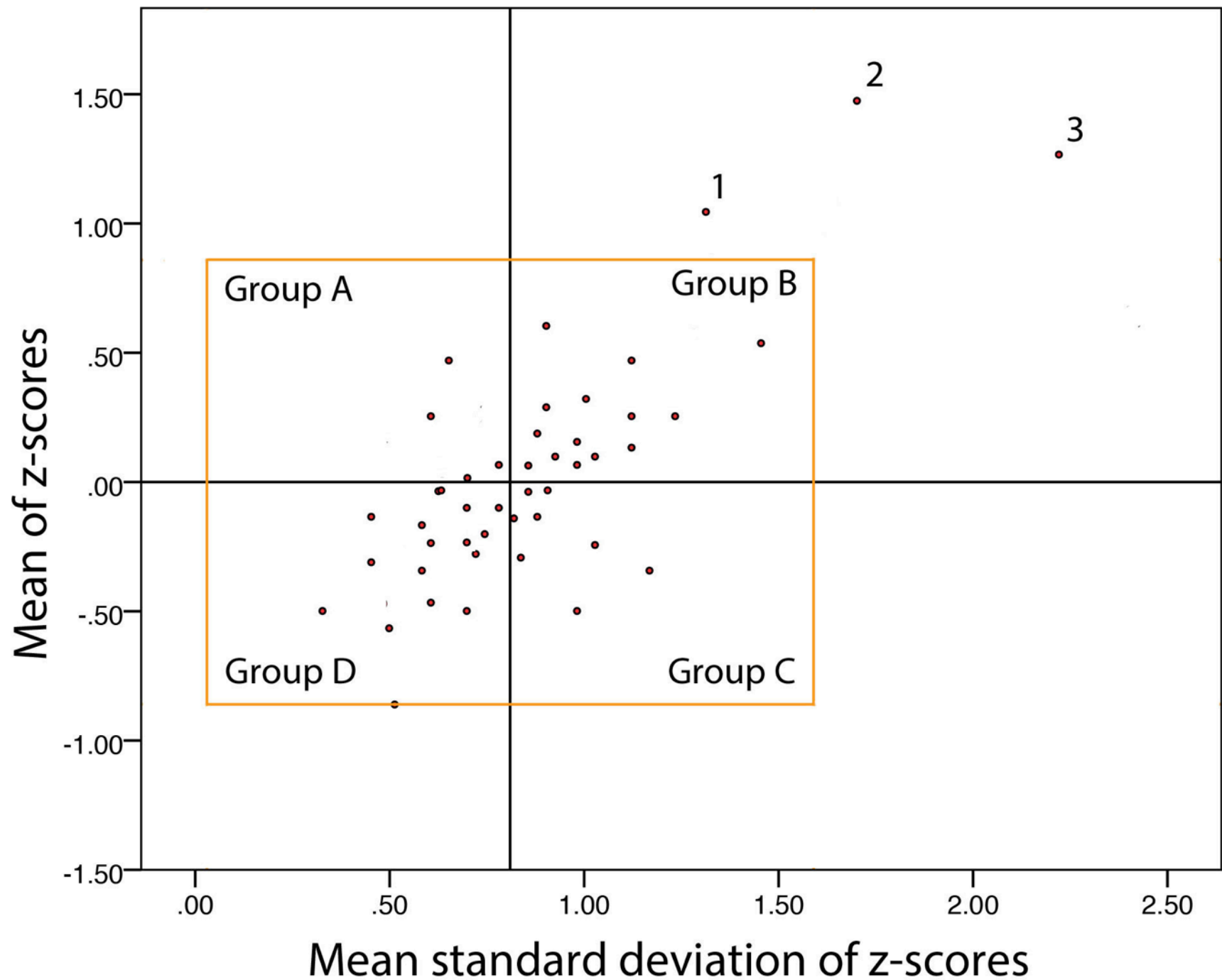
Colon Cancer Screening

- There is marked variation in screening rates throughout Calgary, related to a number of sociodemographic factors
- Crouse AL, Sadrzadeh H, de Koning L, Naugler C. Clin Biochem 2015;48:105-109.

Redundant laboratory tests



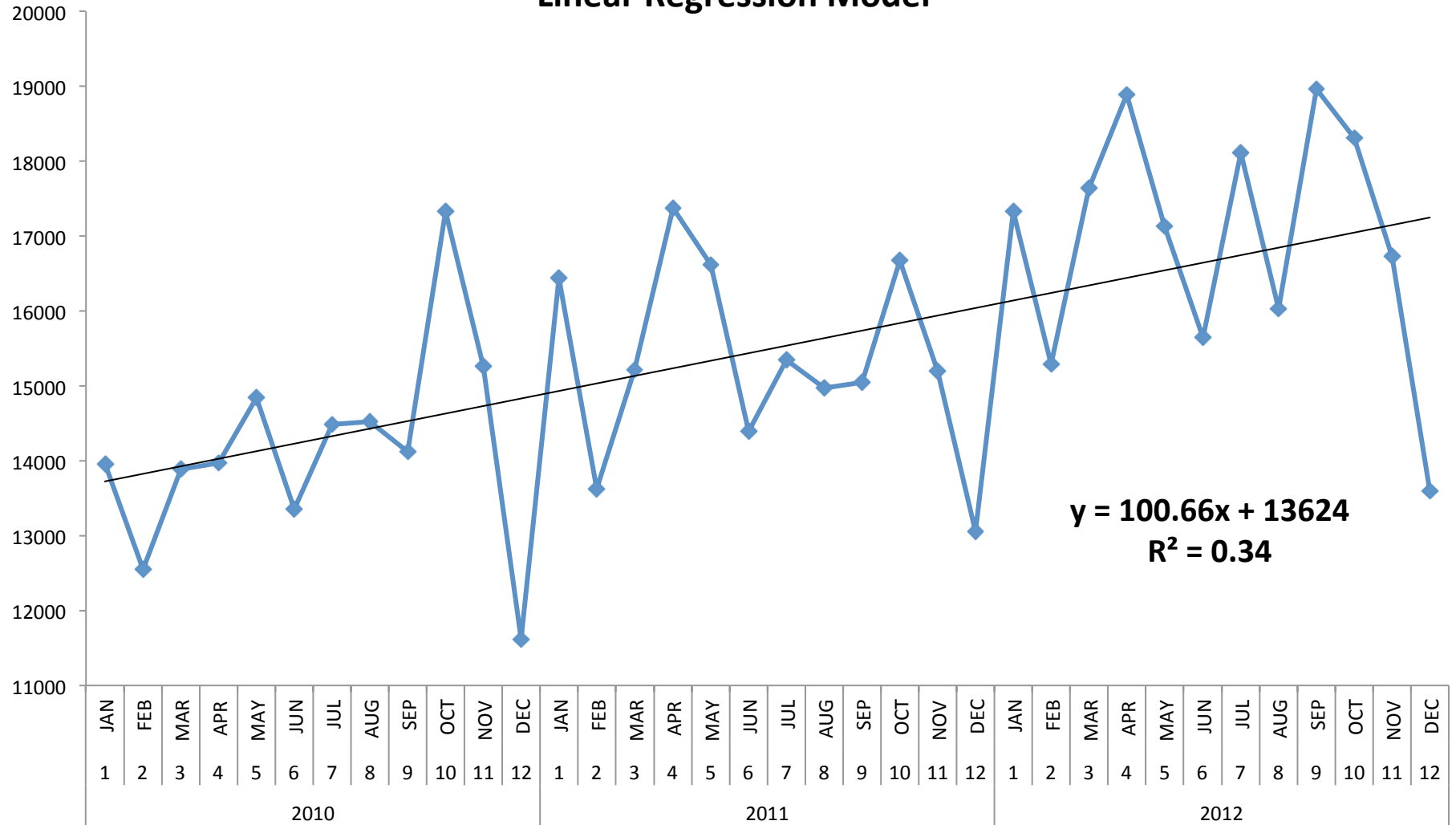
- Morgen E, Naugler C. Am J Clin Pathol in press



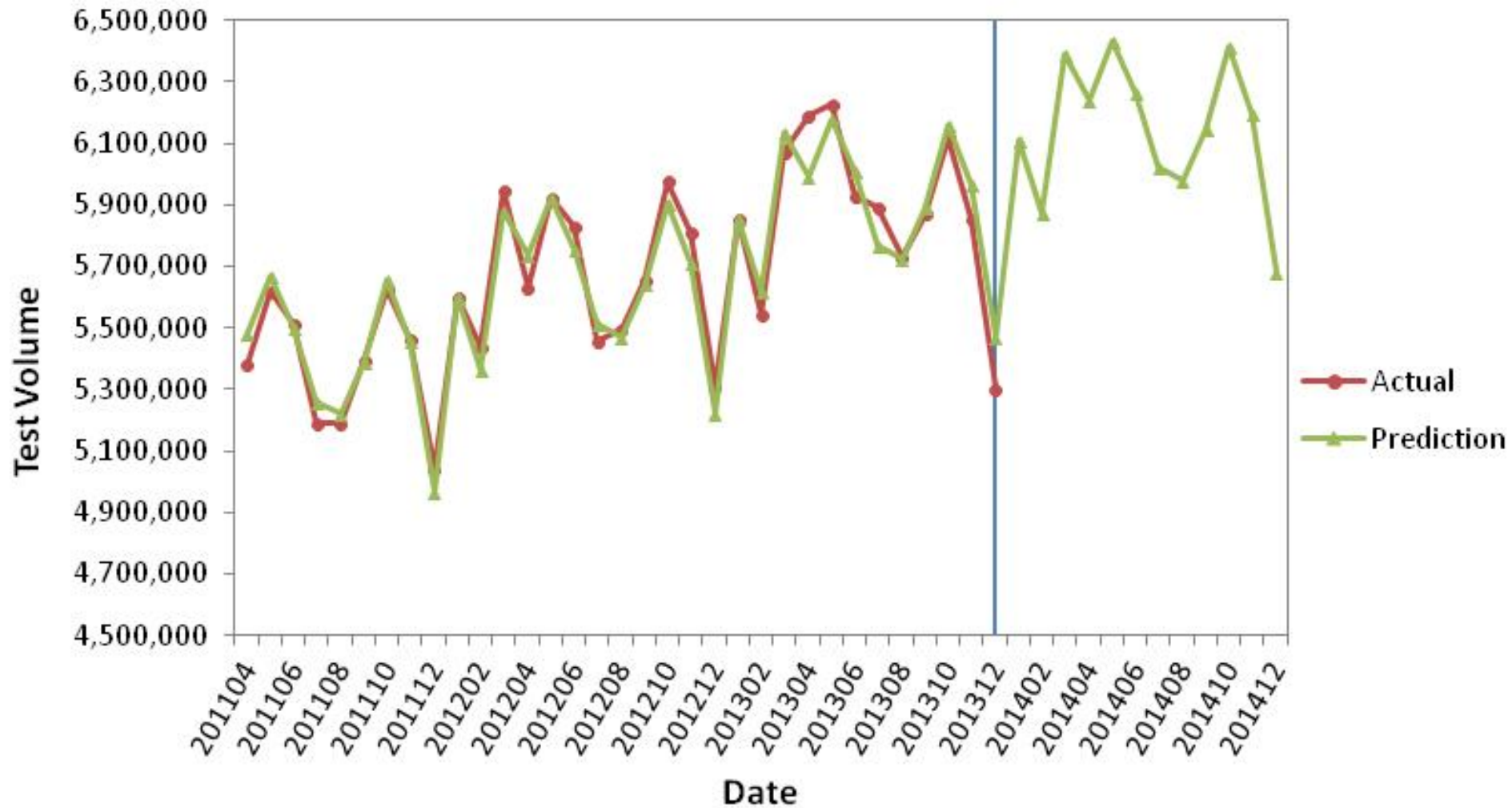
The challenge of measurement

- Not as simple as it sounds
- Two superimposed patterns:
 - Long term (year over year) trend
 - Short term (seasonal) trend

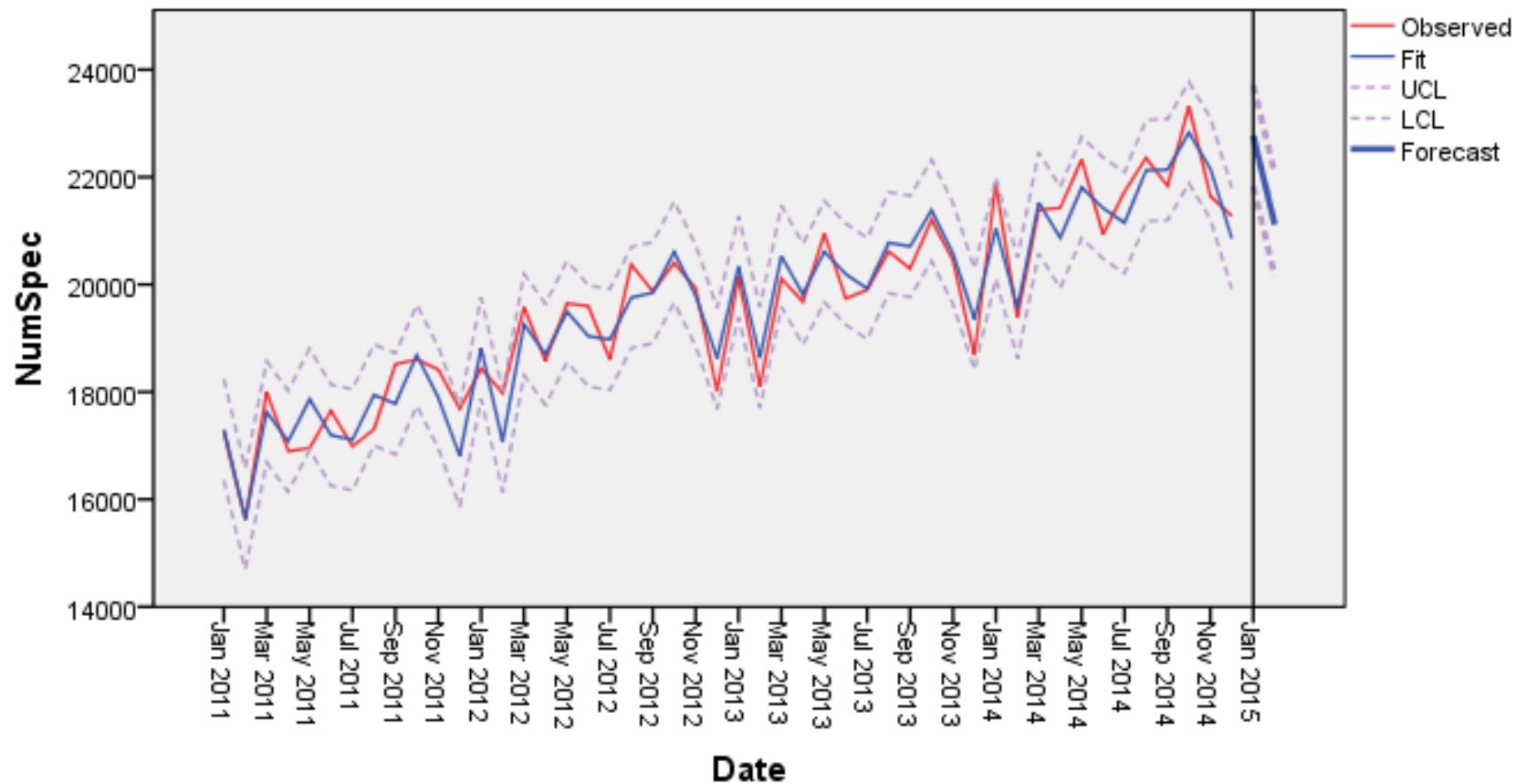
Linear Regression Model



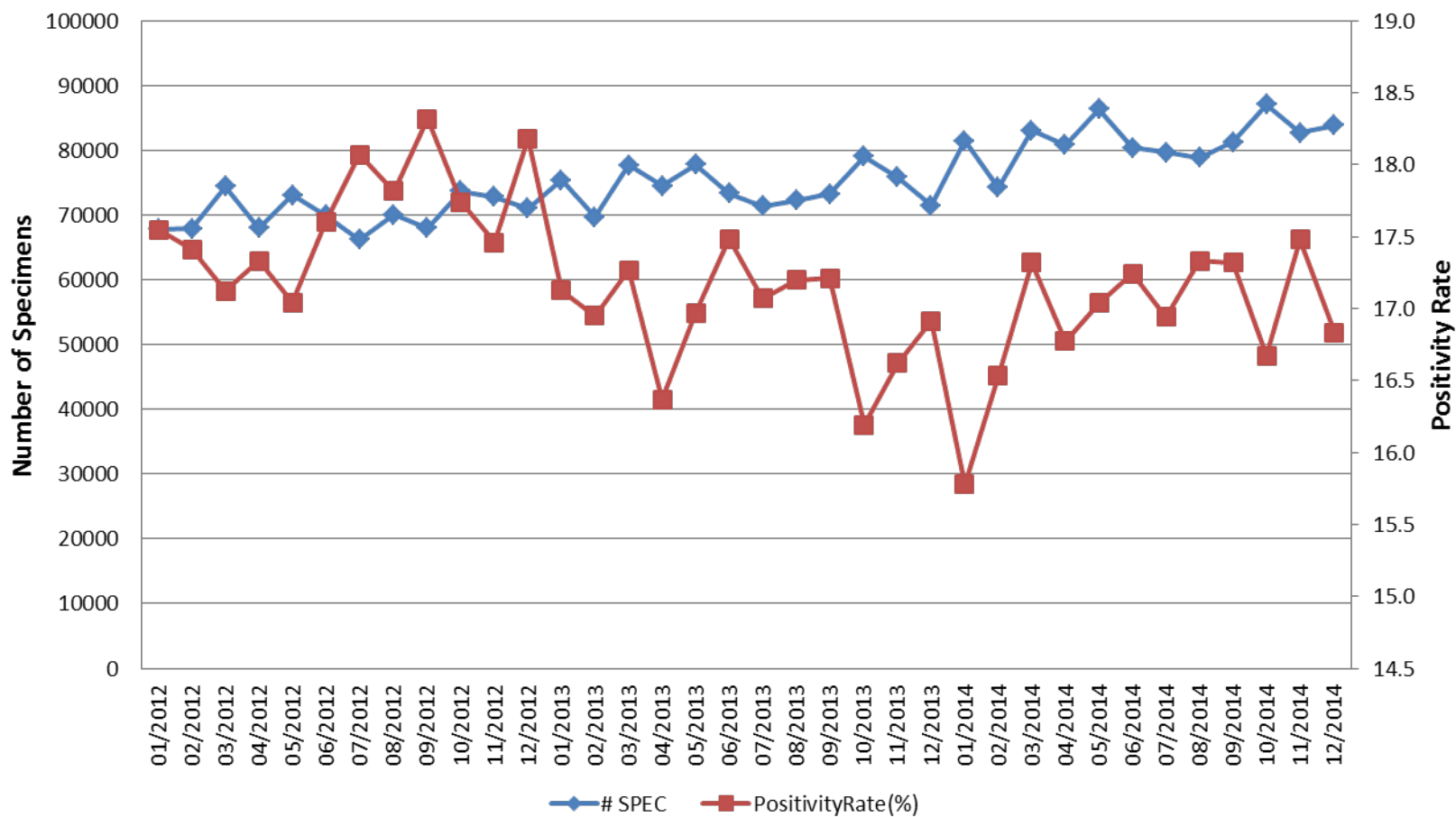
Provincial Test Volume Prediction



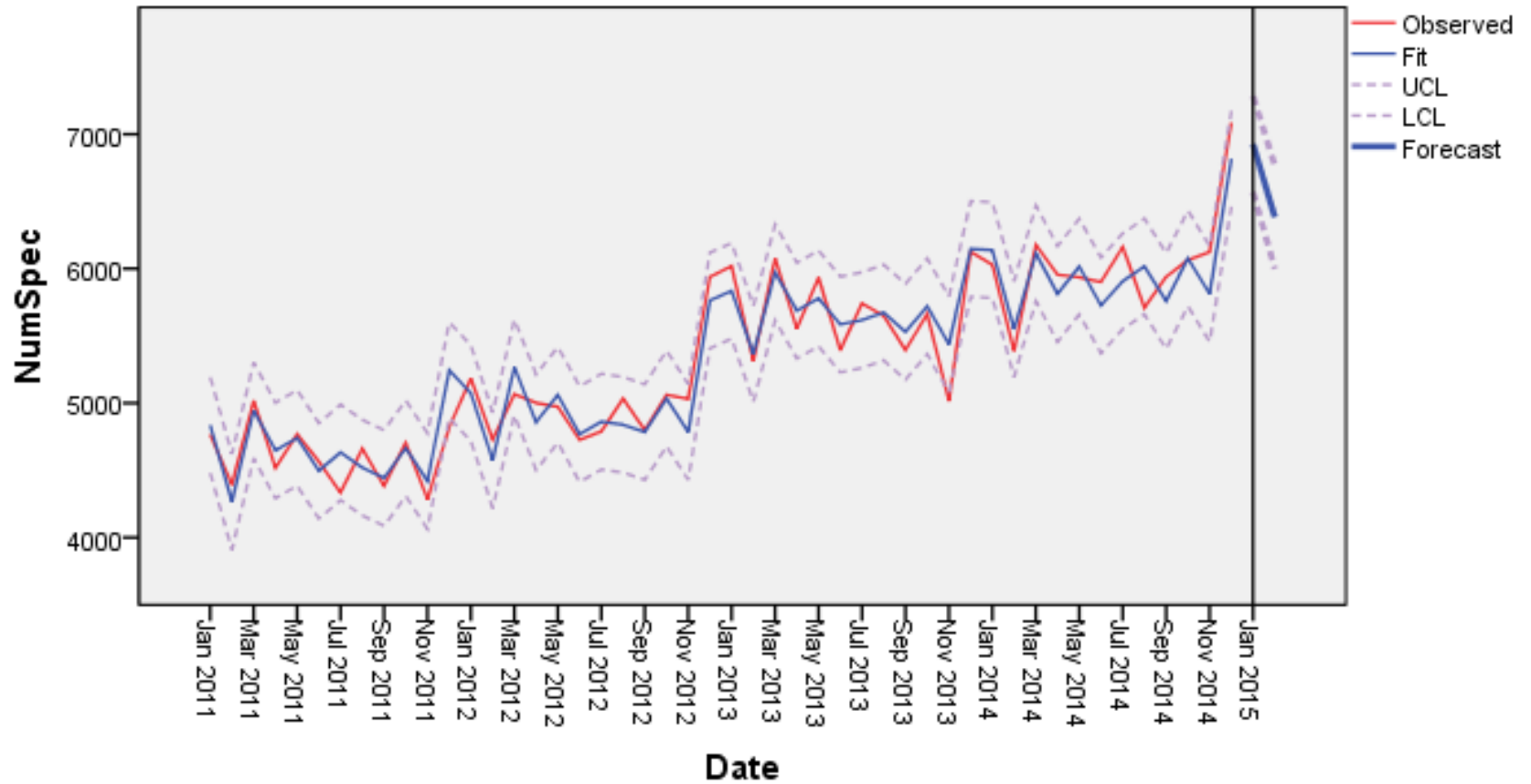
Calgary Volumes - Urine Cultures



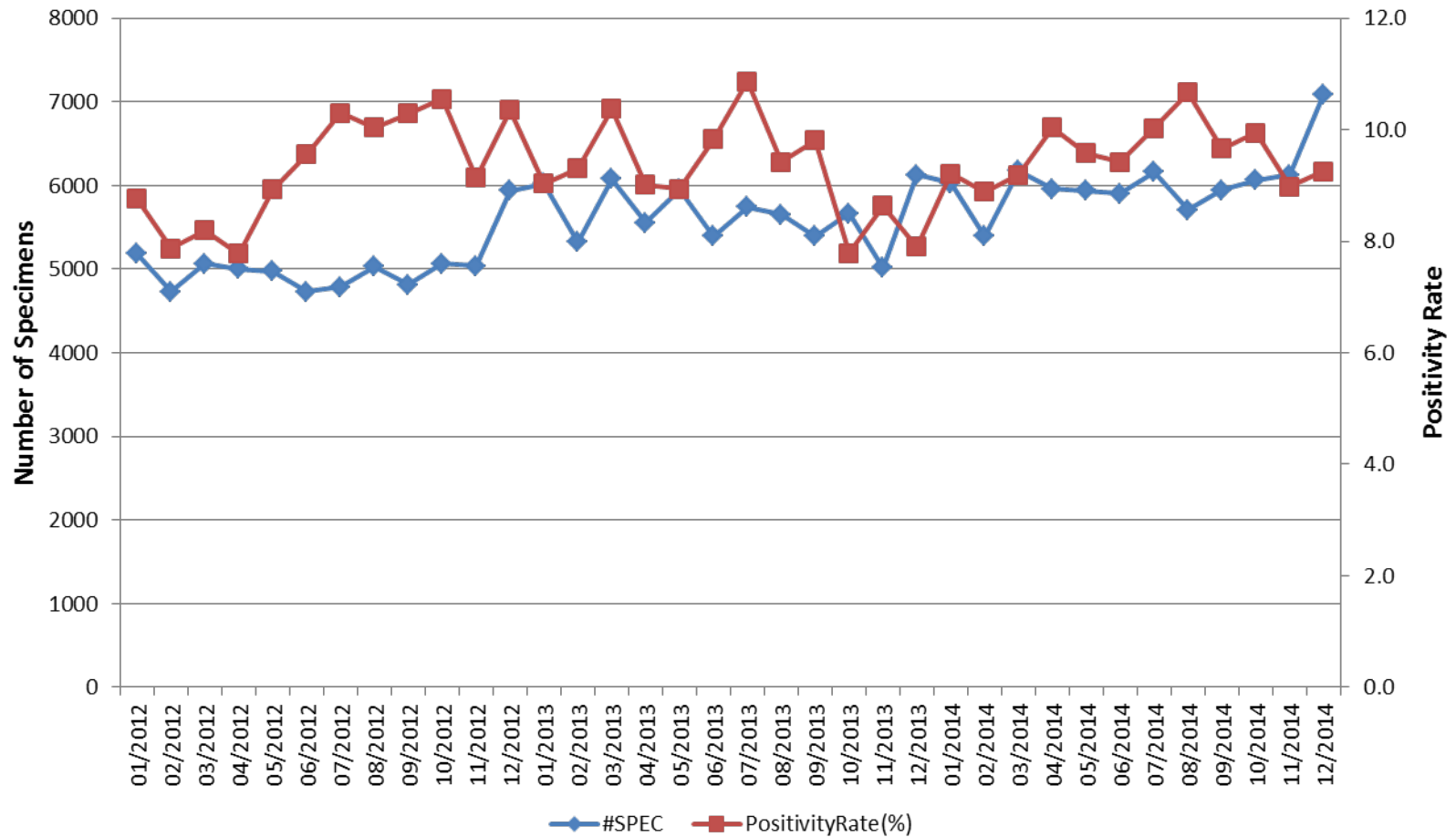
Calgary Positivity Rate for Urine Cultures



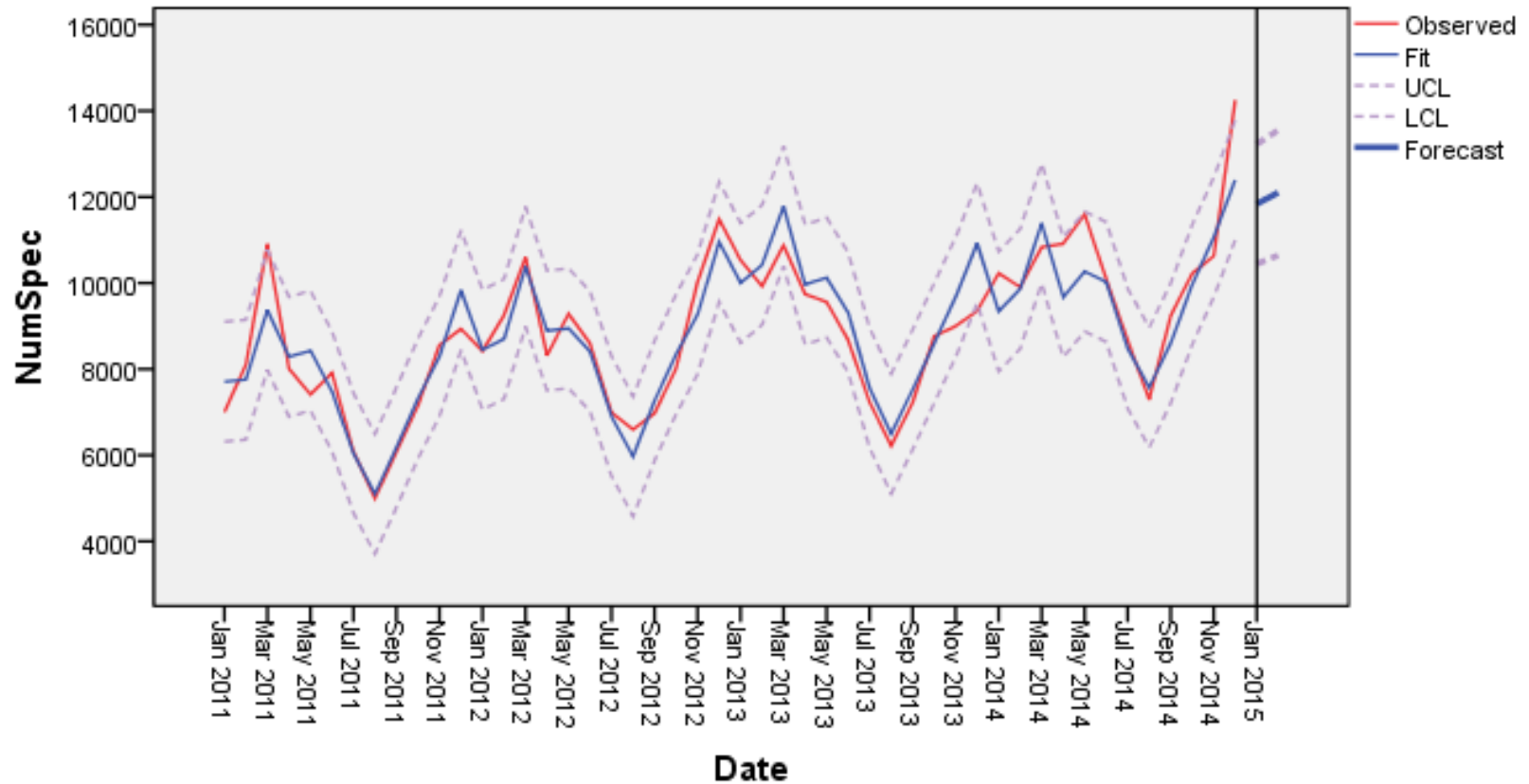
Calgary Volumes - Blood Cultures



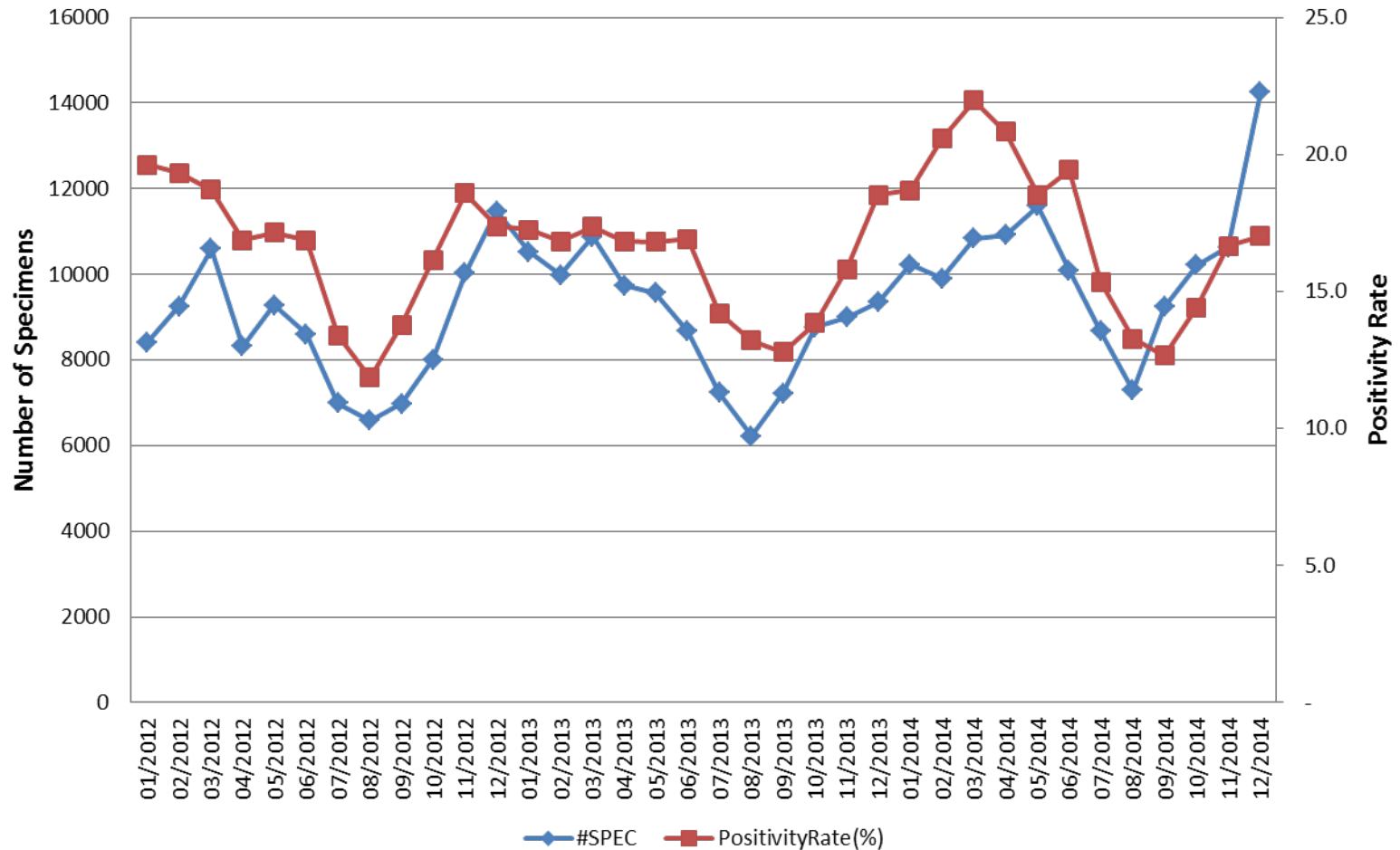
Calgary Positivity Rate for Blood Cultures



Calgary Volumes – Throat Cultures



Calgary Positivity Rate for Throat Cultures



The winning conditions step 1

- Pick a test to address
 - High volume
 - High cost
 - High variance
 - Gather data
 - Tie to published recommendations where possible
 - Choosing Wisely Canada
 - CPGs

The winning conditions step 2

- Buy-in from:
 - Physician champions (content experts, professional groups)
- Demonstrate practice gaps and variation
- Demonstrate harm of over-testing
 - Misuse of public funds
 - Direct patient harm
 - Misdirected clinical effort

The winning conditions step 3

- Present a united front to administrators and politicians
 - Laboratory
 - Physician groups
 - Health department

The winning conditions step 4

- Be prepared for push-back
 - Politicians
 - Physicians
 - Public

Question and answer

- What has worked or not worked in your lab?

Questions?





laboratory utilization report card

This is your laboratory test utilization report
card for: 09.28.2013 - 01.03.2014

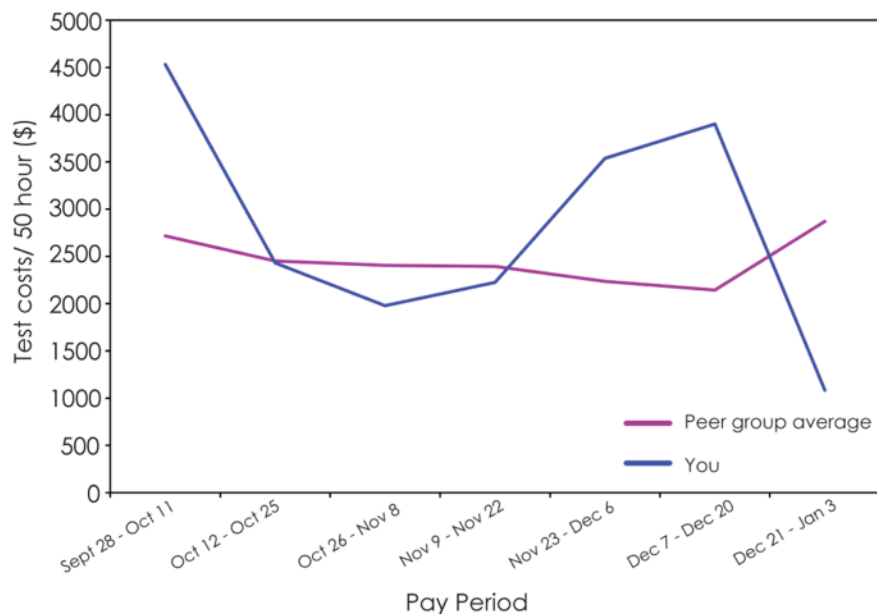
Name: [REDACTED]
Practitioner ID: [REDACTED]
Email: [REDACTED]
Tel: [REDACTED]

Summary

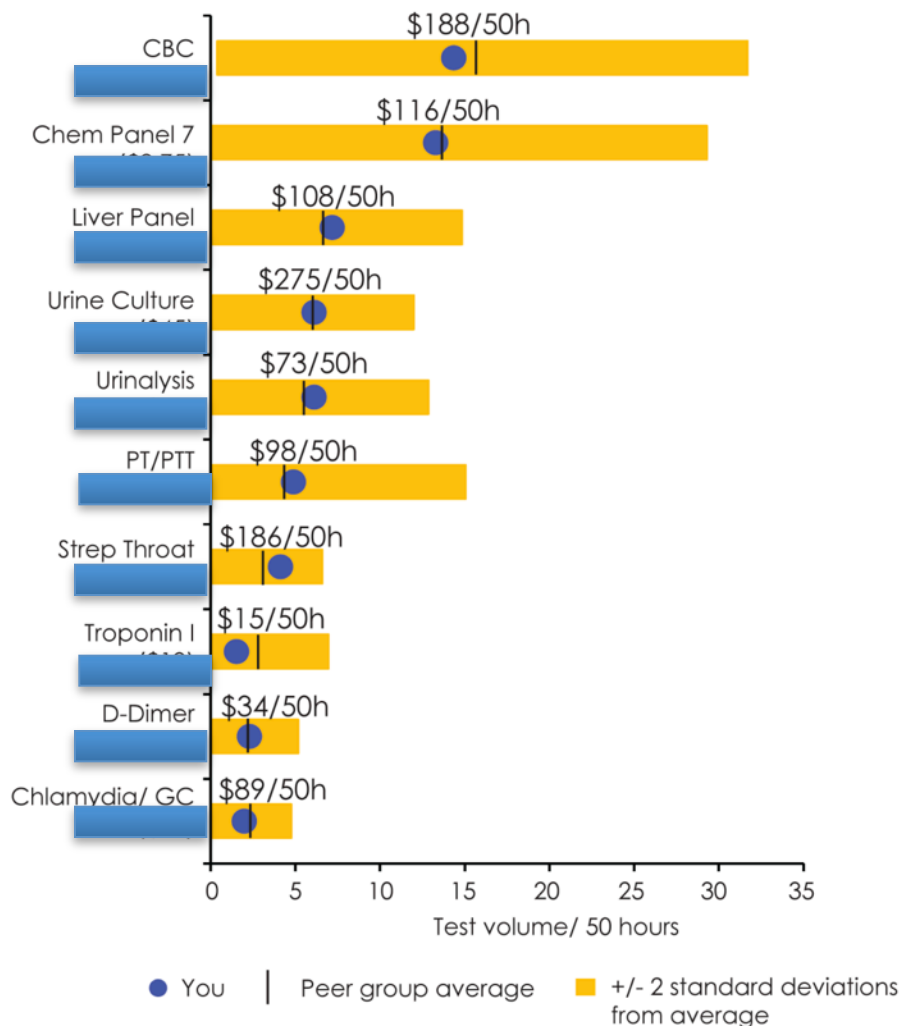
Site: [REDACTED]
Number of pay periods: 7
Total number of hours worked: 327.50

This is your confidential lab utilization report. If you have questions, please speak to your medical director or Dr. Christopher Naugler, AHS Laboratory Utilization Office medical/scientific director.

Total laboratory costs incurred by pay period



Individual laboratory test volumes and costs



INITIAL

Testing algorithm example

- >1000 flow cytometry tests on peripheral blood for lymphocytosis
- An algorithm incorporating Age, CBC and Ferritin can eliminate 25% of flow cytometry tests with >97% specificity
- Healey R, Naugler C, De Koning L, Patel J. Leuk Lymphoma, in press

