

Data Impact Challenge Answer Submission

1. Question addressed

For what portion of adults were screening blood tests conducted in any given year?

2. Team name and members: Team Fiscally Responsible - Anna Chu (Lead), Laura Maclagan, Mohammad-Reza Rezai, Annette Robertson, Jack Tu

3. Description of the data

- a. Data custodian and data sources: Institute for Clinical Evaluative Sciences – data sources used in this analysis are obtained from Ontario’s Ministry of Health and Long-Term Care
- b. Datasets used:
 - i. Registered Persons Database files (RPDB) — Provides basic demographic information about anyone who has ever received an Ontario health card number, including date of birth, date of death, sex and time periods for which an individual was eligible for coverage under the Ontario Health Insurance Plan (OHIP).
 - ii. Ontario Health Insurance Plan Claims Database (OHIP) – Captures all reimbursement claims made since 1991 by registered health care providers who are eligible to claim under OHIP. This includes fee-for-service physicians, other health care providers and community-based labs. Information available includes encrypted service provider and specialty if a physician, diagnosis, service provided, date of service and fee paid.
- c. Exclusions:
 - i. Not an Ontario resident at the beginning of the study year.
 - ii. Not eligible for OHIP at the beginning of the study year.
 - iii. For time trend analysis of lipid screening rates, males <40 years and females <50 years on January 1st of each study year.
 - iv. For time trend analysis of glucose screening rates, males and females <40 years on January 1st of each study year.
- d. Nature and size of cohort:
 - i. Geographic area studied – Ontario
 - ii. Study sample size – 11,345,328 in 2014
 - iii. Data timeframe – 2010 to 2014

4. Summary of the analysis methodology

Choosing Wisely Canada is a campaign aimed at engaging both physicians and patients in conversations regarding unnecessary treatments, tests and procedures, including recommendations against the use of annual blood screening tests amongst asymptomatic otherwise healthy individuals unless indicated by their risk profile. This analysis focuses on blood glucose and lipid screening tests as these are two of the most common blood screening tests conducted in the general population. The current Canadian Cardiovascular Society Dyslipidemia Guidelines

recommend lipid screening every 3-5 years only in low risk men age 40 and older and women age 50 and older. The Canadian Diabetes Association recommends blood glucose screening for diabetes every three years for individuals age 40 and older or those at high risk.

In this analysis, we have calculated the rates of blood glucose and lipid screening among Ontario adults 18 years and over in 2014, by sex and age group (18-39, 40-64, 65+). Examining time trends, we have also calculated glucose and lipid screening rates among the population meeting age/sex criteria recommended by the above Canadian guidelines for 2010 to 2014. Glucose screening tests conducted on individuals were identified from laboratory claims made under OHIP for intravenous and biochemical glucose tolerance tests, fasting or random blood glucose tests and hemoglobin A1c (HbA1c) tests. Lipid screening was identified from claims for fasting blood total cholesterol, high density lipoprotein and triglycerides testing made on the same day (considered a lipid assessment or profile).

5. Description of findings

Table 1A shows blood glucose and lipid screening rates among Ontario adults, 18 years and over in 2014. Both glucose and lipid screening rates were lowest in the younger age groups, as well as lower in males compared with females. **Table 1B** shows screening rates between 2010 and 2014 among the populations recommended by the Canadian Dyslipidemia and Diabetes Guidelines. Rates were relatively stable from 2010 to 2014, with glucose screening ranging from a low of 46.2% in 2012 to a high of 47.8% in 2011 among men and from 51.8% in 2013 to 54.0% in 2010 among women; and lipid screening ranging from a low of 41.9% in 2012 to 43.7% in 2011 among men and 48.4% in 2013 to 50.9% in 2011 among women. These results suggest over screening for both glucose and lipids since screening is recommended every three years.

The results should be interpreted with caution as the screening rates reported only capture testing performed at out-patient and community labs. However, individuals may also receive hospital-based testing, which is not captured in this analysis. Thus, these results may be an underestimate of the true population screening rates. The results also reflect individuals who actually received testing, rather than the proportion provided with a blood test requisition by a health care provider, some of whom may not have followed through with testing.

Age Group	Population size, n	Received blood glucose screening, n	Blood glucose screening rate, %	Received lipid screening, n	Lipid screening rate, %
OVERALL					
18-39	4,125,119	772,466	18.7	484,802	11.8
40-64	5,037,051	2,230,090	44.3	2,000,880	39.7
65+	2,183,158	1,439,803	66.0	1,228,143	56.3
Overall	11,345,328	4,442,359	39.2	3,713,825	32.7
MEN					
18-39	2,052,834	261,578	12.7	210,766	10.3
40-64	2,493,933	1,014,769	40.7	941,819	37.8
65+	986,943	650,968	66.0	573,676	58.1
Overall	5,533,710	1,927,315	34.8	1,726,261	31.2
WOMEN					
18-39	2,072,285	510,888	24.7	274,036	13.2
40-64	2,543,118	1,215,321	47.8	1,059,061	41.6
65+	1,196,215	788,835	65.9	654,467	54.7
Overall	5,811,618	2,515,044	43.3	1,987,564	34.2

Table 1B. Trends in blood glucose and lipid screening among populations recommended by Canadian guidelines, 2010-2014

Age/Sex group	Year				
	2010	2011	2012	2013	2014
Glucose screening rate, %					
Men 40+	47.5	47.8	46.2	46.5	47.2
Women 40+	54.0	53.9	52.1	51.8	52.8
Lipid screening rate, %					
Men 40+	43.4	43.7	41.9	42.1	42.9
Women 50+	50.7	50.9	48.7	48.4	49.5