

# For What Proportion of Adults are Screening Tests Ordered in a Given Year?

## Choosing Wisely Question 6f

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### Describing the Data and Analysis

- **Data Custodian Organization(s) and data sources:** Manitoba Primary Care Research Network - MaPCReN
- **List of Datasets Used (e.g. names of database and/or data origins):** De-identified primary care data collected from primary care clinics participating in the MaPCReN. Database managed in partnership with the Canadian Primary Care Sentinel Surveillance Network (CPCSSN). The database located at the Queen's University High Performance Computing lab.
- **Exclusions:** Patients under the age of 18, clinics that did not have digitized laboratory results.
- **Nature and Size of Cohort (e.g. geographic area covered, number of patients included):** MaPCReN currently collects Electronic Medical Record Data from 167 sentinels (primary care practices) from 35 sites (clinics) participating in the Winnipeg and the Southern Health Region of Manitoba. This represents data from over 182,000 patients. Clinics are recruited to participate in MaPCReN directly by the Network Director and represent a diversity of primary care providers including Family Physicians and Nurse Practitioners in both Fee-for-Service and Salary models. The services offered at the primary care clinics include but are not limited to same day access, inter-professional team care, social services and specialty medical care. The Research Ethics Board Approval at the University of Manitoba has granted permission for all data collected from EMRs related to MaPCReN's work in building this repository.
- **Data timeframe:** March 31, 2014 – March 31, 2015

### Please provide a brief summary of the analysis methodology:

Using the de-identified data held by the Canadian Primary Care Sentinel Surveillance Network and collected by MaPCReN, we performed SQL queries to identify the following screening tests: Fasting Blood Glucose, Prostate Specific Antigen (PSA) and Low Density Lipoprotein (LDL). These were chosen due to their common use in primary care and their potential for meeting the criteria of limited use based on the Choosing Wisely initiative. LDL was chosen as a surrogate for cholesterol testing in general. We specifically tried to avoid tests that may also be used for monitoring such as HbA1c, but recognized that in the case of PSA this may not be possible despite its limited use in screening. Given that we captured nearly 100,000 primary care visits in the one year we assessed, we feel this data set is likely representative of primary care in multiple settings among a wide range of patients.

## **Describing the Findings**

**Choosing Wisely #6 – Part 6 – What proportion of adults have screening blood tests done in a given year?**

**Total number of Visits (denominator) = 99,026**

**Total Number of Screening Tests (numerator) = 25,291**

**Total Number of Fasting Glucose = 8913**

**Total number of PSA tests = 1594**

**Total number of LDL tests = 14784**

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

The table below show the 23 sites for which we had data during the study period. We detected a total number of 25,291 screening tests in the previous year, affecting 16,682 individual patients. Because we limited our query to the past year we did not report on the number of tests that were performed in previous years nor did we consider which had abnormal results. While PSA was the least frequently ordered, it may represent the most ideal for intervention given recent changes in the Canadian guidelines recommending against its use as a screening test. Both cholesterol and glucose testing remain recommended for selected patients and we are unable to asses from this data if a conversation regarding conducting the screening had occurred.

We could also not establish the purpose of the lab result being ordered. In the case of LDL and PSA, these may have been ordered by the primary care provider for follow-up purposes. Fasting glucose is more strictly a screening test, as an HbA1c would be ordered for diagnosis. We could have eliminated some follow-up testing by considering problem list entries or billing diagnosis, but this data has not been sufficiently validated for this purpose to lead to reliable results. Further data quality work and validation of case definitions for prostate cancer and cardiovascular disease could help elucidate this.

The most significant limitation of this methodology is that we could not detect all screening results because many are received as faxed/scanned paper. It is possible that more screening lab tests were conducted, but not captured in the primary care EMR. Unfortunately, not all clinics in Manitoba have a digital laboratory interface; however this type of interoperability is rapidly improving. We noticed some clinics had very low numbers of some of the screening tests reported, which likely represents that manual entry of these lab results is being utilized to facilitate tracking for ongoing care.

Based on these limited findings it appears that for the Choosing Wisely initiative to have the greatest impact, further analysis should be conducted to identify patient and practitioner trends that lead to unnecessary or harmful testing. Primary care EMR data such as that collected and analysed by the MaPCReN and CPCSSN are ideal for this purpose.

<b>Site_ID</b>	<b>Visits</b>	<b>Fasting Glucose</b>	<b>LDL</b>	<b>PSA</b>	<b>Total tests</b>	<b>Pts with screening test</b>
1	12161	733	701	77	1511	979
2	2290	541	236	21	798	630
3	10904	522	597	156	1275	628
4	2522	82	106	0	188	113
5	5513	794	1261	1	2056	1308
6	6165	468	558	91	1117	588
7	4635	970	1027	185	2182	1176
8	9126	22	1886	349	2257	1970
9	2101	86	93	0	179	96
10	831	206	334	39	579	370
11	1685	332	403	14	749	463
12	2748	480	966	12	1458	1043
13	3598	122	713	49	884	755
14	3563	30	650	43	723	688
15	1144	30	131	4	165	140
18	4126	291	941	83	1315	1008
19	3142	703	874	30	1607	954
20	576	0	59	21	80	61
22	381	1	61	14	76	66
23	972	0	47	16	63	53
25	474	4	35	10	49	41
33	14616	1047	1404	379	2830	1556
34	5753	1449	1701	0	3150	1996
<b>Totals</b>	<b>99026</b>	<b>8913</b>	<b>14784</b>	<b>1594</b>	<b>25291</b>	<b>16682</b>