



Raging Hormones – what do you really need to measure?

Endocrine Day
June 2, 2017

ChoosingWiselyManitoba



DIAGNOSTIC SERVICES
MANITOBA



GEORGE & FAY YEE
Centre for Healthcare Innovation

Faculty/Presenter Disclosure

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Conflict of Interest/Commercial Relationships: N/A

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Objectives: Physician Leadership Resource St

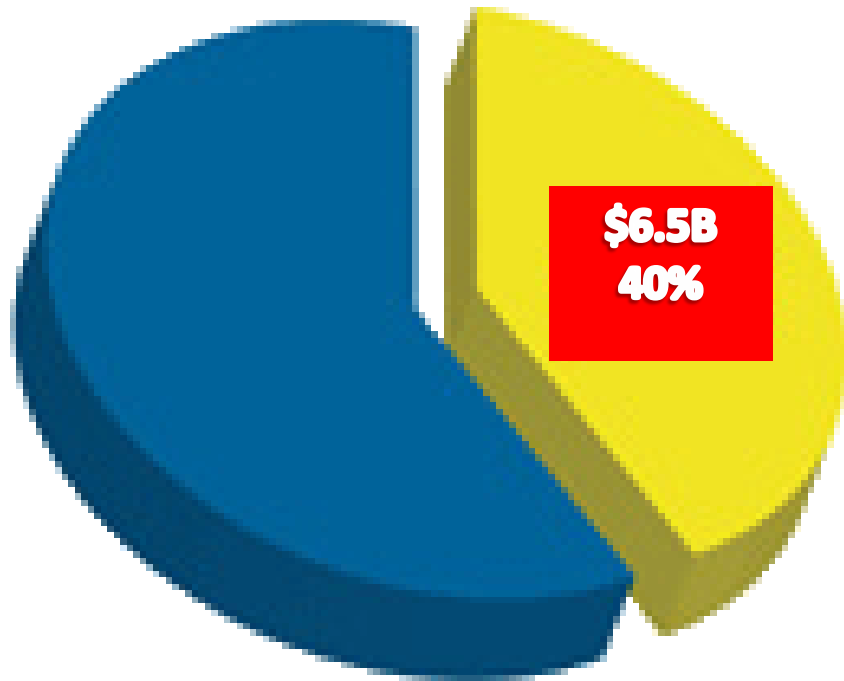
- Discuss the
“app

CHALLENGE

RISE TO THE CHALLENGE. MAKE A CHANGE.

- practice and discuss the
and effective use of Thyroid
ion Tests

Health Spending in MB

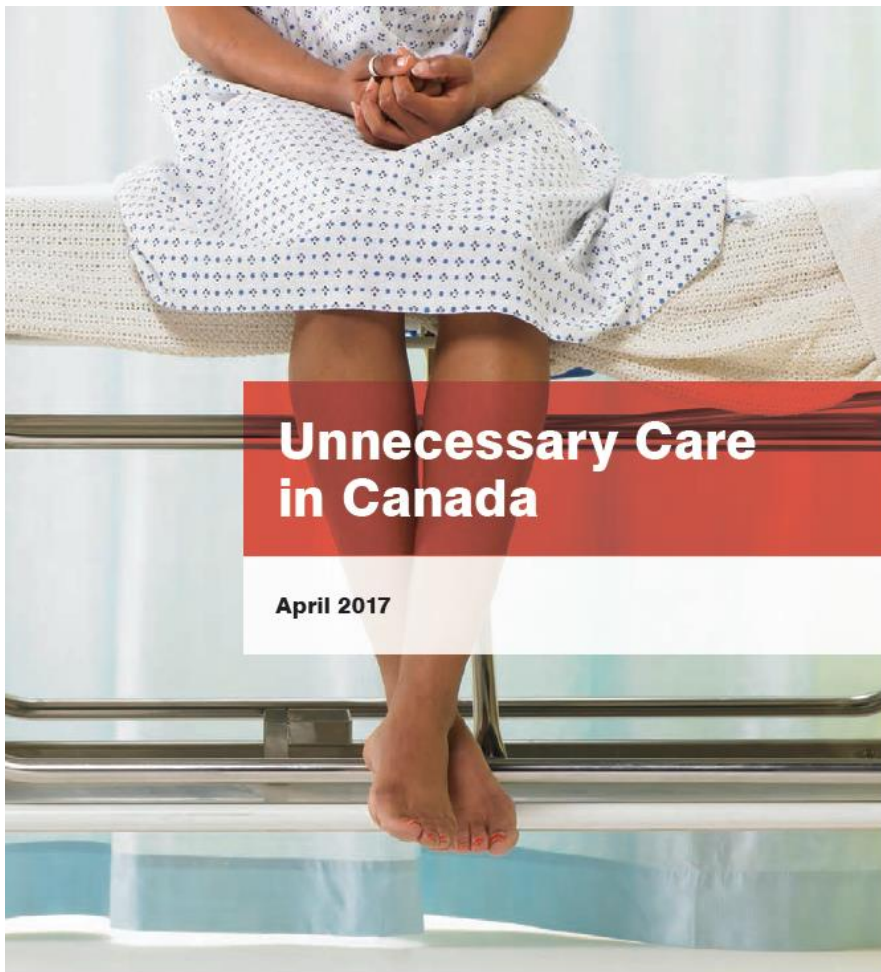


Value = $\frac{\text{Quality (Outcomes, Safety, Service)}}{\text{Cost}}$

1.8%

-3.5%

危機



Unnecessary Care in Canada

April 2017



Analysis in Brief
March 2017

Wait Times for Priority Procedures in Canada, 2017





healthintelligenceinc.
and associates

PROVINCIAL CLINICAL AND PREVENTIVE SERVICES PLANNING
FOR MANITOBA
Doing Things Differently and Better

Final Report
Submitted to Project Advisory Committee



January 13, 2017

Department of Health, Seniors and Active Living
Diagnostic Services Manitoba
Prairie Mountain Health
Winnipeg Regional Health Authority
Management of MRI Services

April 2017

Web Site Version



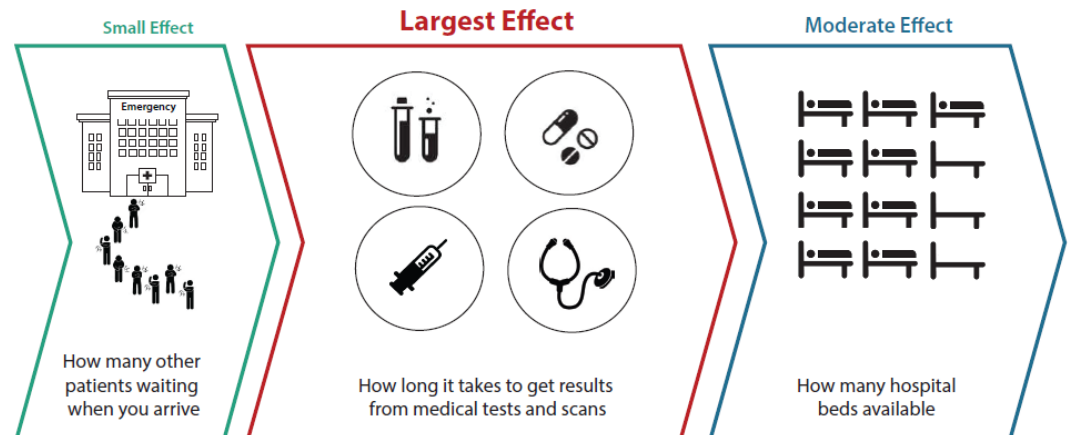
ChoosingWiselyManitoba

FACTORS AFFECTING EMERGENCY DEPARTMENT WAITING ROOM TIMES IN WINNIPEG



Medical tests and scans done in the ER help doctors treat patients, but can be very time consuming. It's important that ER doctors agree on when these tests are truly needed. Healthcare planners could also focus on ways to admit patients to hospital more quickly once it's decided that a hospital stay is needed.

Figure 3. The Most Important Factors for Emergency Room Wait Times



Doing the Right Thing...

Do the right thing...

...at the right time...

...for the right reason



the patient!

...isn't supposed to be easy!!!

START

HOW GREAT LEADERS INSPIRE
EVERYONE TO TAKE ACTION

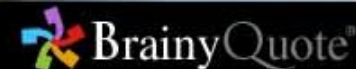
WITH

SIMON SINEK

WHY

There is nothing so useless as
doing efficiently that which
should not be done at all.

Peter Drucker



- The primary barrier will be resistance to practice change.
- The biggest challenge will be communicating evidence-based, best-practices and following-through on uptake and adoption in regular clinical practice

Engaging Physicians More in Systems Transformation

- Physicians are the key to any future renewal of the health sector in Canada.
- For physician engagement to occur, physicians need to be invited and to show up to meetings and other events, and to volunteer for projects.
- Physicians need to be trained to become leaders in our health care system.

Inappropriate Repeats of Six Common Tests in a Canadian City

A Population Cohort Study Within a Laboratory Informatics Framework

Eric K. Morgen, MD, MPH, FRCPC,^{1,2} and Christopher Naugler, MD, MSc, FRCPC³

From the ¹Department of Laboratory Medicine and Pathobiology, University of Toronto, Toronto, Canada; ²Department of Pathology and Laboratory Medicine, Mount Sinai Hospital, Toronto, Canada; and ³Department of Pathology and Laboratory Medicine, University of Calgary and Calgary Laboratory Services, Calgary, Canada.

Key Words: Laboratory utilization; Repeated testing; Inappropriate testing; Cholesterol; HbA_{1c}; Vitamin D; Vitamin B₁₂; TSH; Ferritin

Am J Clin Pathol November 2015;144:704-712

Yearly Clinical Laboratory Test Expenditures for Different Medical Specialties in a Major Canadian City

*Christopher Naugler, MD,¹ Roger Thomas, MD,² Tanvir Chowdhury Turin, PhD,² Maggie Guo, MSc,³ and Marcus Vaska, MLIS,⁴ on behalf of COAPT
(Collaboration On Assessing Physician Testing)*

From the Departments of ¹Pathology and Laboratory Medicine and ²Family Medicine, and ⁴Knowledge Resource Service, University of Calgary, Calgary, Canada; and ³Calgary Laboratory Services, Calgary, Canada.

Key Words: Clinical chemistry; Informatics; Management/administration

Am J Clin Pathol July 2015;144:97-102



Clinical

Canadian family physician knowledge and attitudes toward laboratory utilization management



Amy Thommasen^a, Fiona Clement^b, David W. Kinniburgh^c, Cheryl K. Lau^d, Maggie Guo^d, Jeannine Viczko^d, Kelly Guggisberg^a, Roger E. Thomas^e, Tanvir Chowdhury Turin^e, James C. Wesenberg^f, Amid Abdullah^a, William S. Hnydyk^g, Christopher Naugler^{a,e,*}

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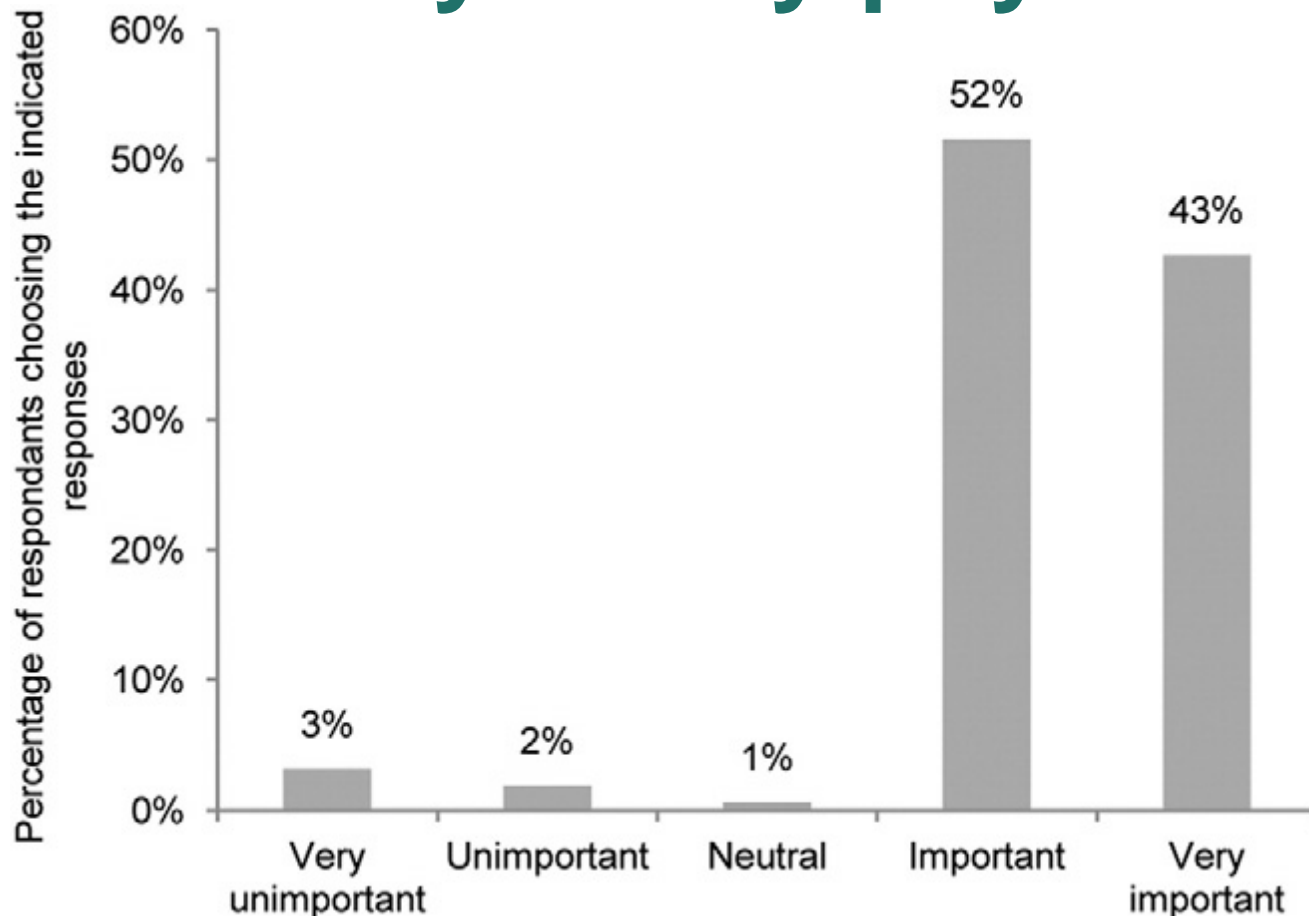
^f Red Deer Regional Hospital Centre, Clinical Laboratory, 3942 50A Avenue, Red Deer, Alberta T4N 4E7, Canada

^g Alberta Medical Association, 12230 106 Ave NW, Edmonton, Alberta, T5N 3Z1, Canada

Manitoba Survey (2016) – CW with clinical partners can play an important role in?

| Answer Choices | Responses | |
|--|-----------|----|
| Increasing the appropriate utilization of tests | 91.67% | 55 |
| Increasing the appropriate utilization of treatments | 90.00% | 54 |
| Increasing the appropriate utilization of procedures | 85.00% | 51 |
| Reducing patient delays | 70.00% | 42 |
| Reducing unintended harm | 71.67% | 43 |
| Increasing cost saving opportunities | 93.33% | 56 |
| Assisting with health system sustainability | 86.67% | 52 |
| Total Respondents: 60 | | |

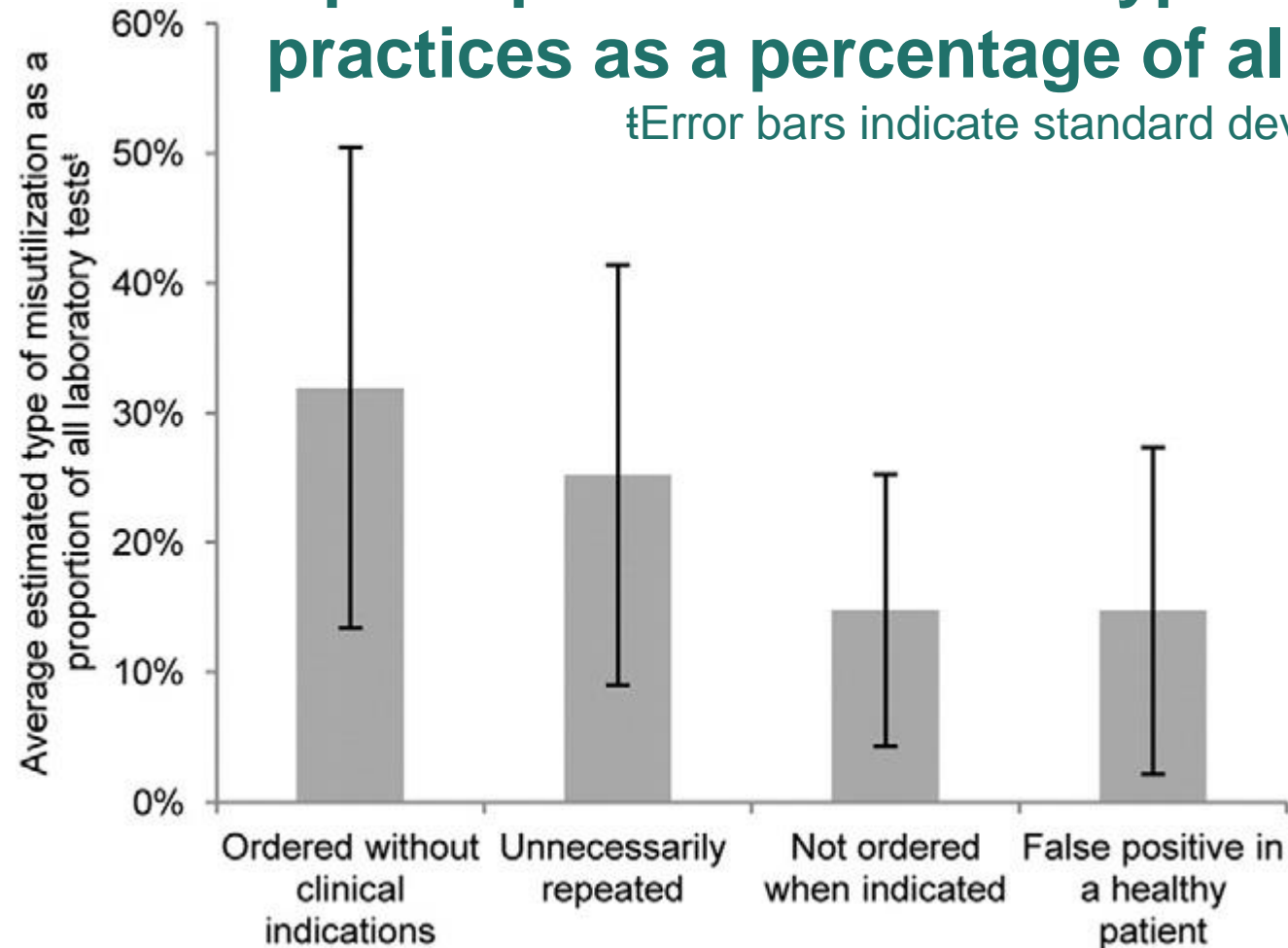
Perceived importance of lab overuse by family physicians



Thommasen, A., Clement, F., Kinniburgh, David W., et al. Canadian family physician knowledge and attitudes toward laboratory utilization management, *Clin Biochem*, 2015 (49): 4-7.

Summary of Alberta family physicians perceptions of various types of lab testing practices as a percentage of all tests ordered.

†Error bars indicate standard deviation.

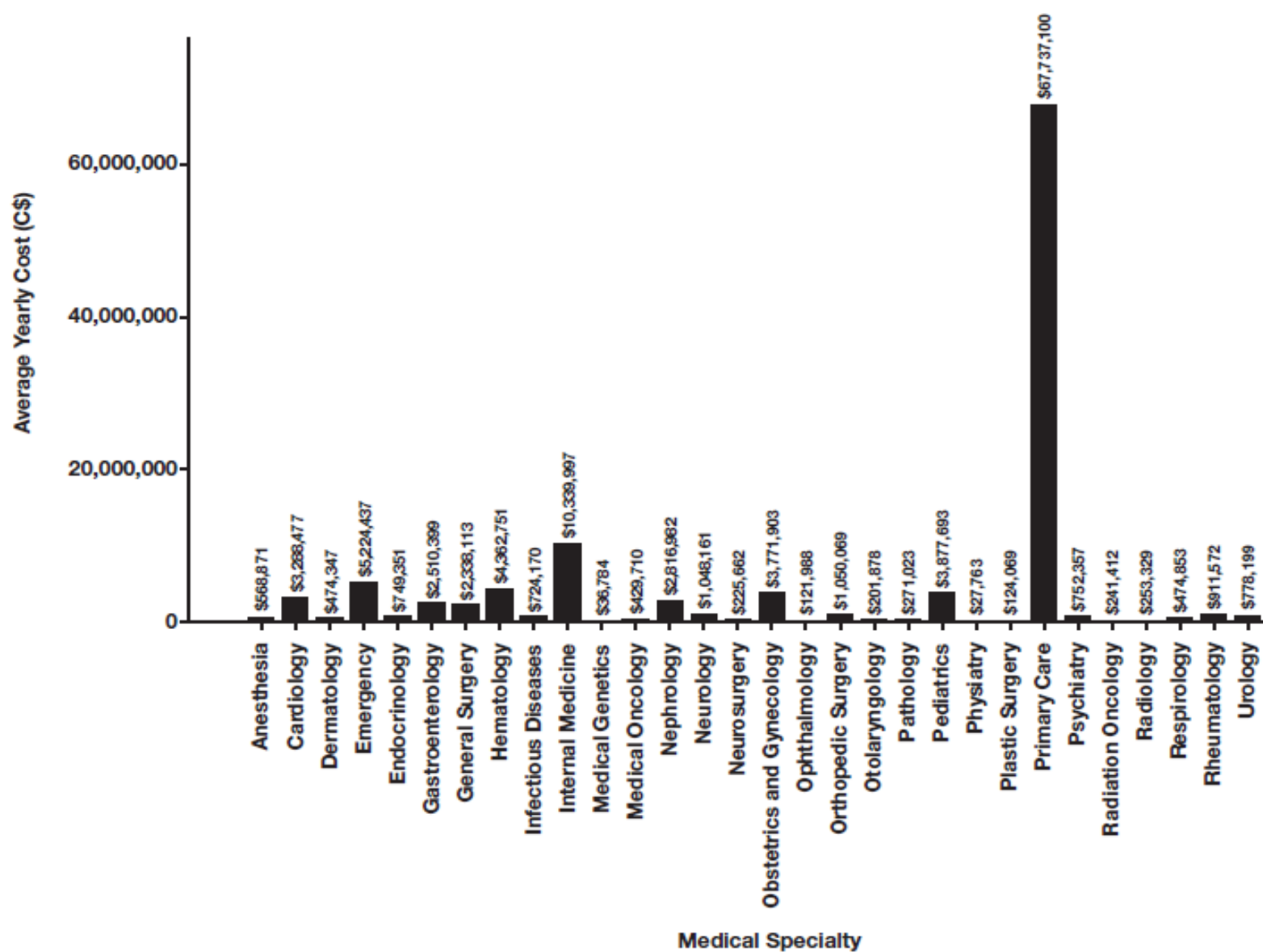


Thommasen, A., Clement, F., Kinniburgh, David W., et al. Canadian family physician knowledge and attitudes toward laboratory utilization management, Clin Biochem, 2015 (49): 4-7.

Family physician perception of various approaches to improving utilization of laboratory testing (total of 156 responses)

| Answer option | Percent response (%) | Response count (n) |
|--|----------------------|--------------------|
| Continuing education | 98.1 | 153 |
| Audit and feedback of test ordering practices to individual physicians | 84.6 | 132 |
| Restricting the test frequency of certain tests | 57.1 | 89 |
| Modifying the format of test requisition forms (i.e. Removal of certain tests) | 51.3 | 80 |
| User pay for certain tests | 50.6 | 79 |
| Specialized test requisition forms for certain tests | 44.9 | 70 |
| Restricting certain tests to specific specialist groups | 38.5 | 60 |
| Pathologist approval required for certain tests | 36.5 | 57 |
| Positive incentives ("gain-sharing") for changes in test ordering practices | 35.9 | 56 |

Thommasen, A., Clement, F., Kinniburgh, David W., et al. Canadian family physician knowledge and attitudes toward laboratory utilization management, Clin Biochem, 2015 (49): 4-7.

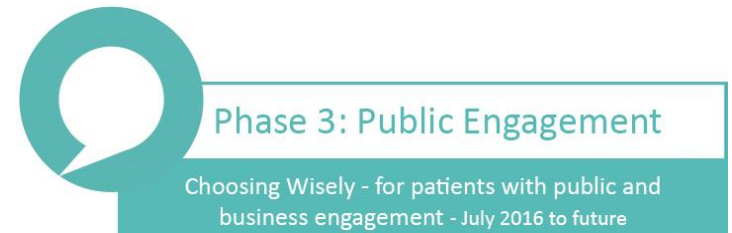


Naugler, C., Thomas, RT., Turin, TC., Guo, M., and Vaska, M., on behalf of COAPT (Collaboration On Assessing Physician Testing). Yearly Clinical Laboratory Test Expenditures for Different Medical Specialties in a Major Canadian City. *Am J Clin Pathol* 2015;144:97-102.

We need to change the conversation

- **62%** of Canadians agree that there is a significant amount of unnecessary care in the health care system
- **92%** of Canadians believe patients need more support to know which services are really necessary for their health
- **68%** of Canadian family physicians agree that more tools are needed to help them make decisions about which services are inappropriate for their patients

What is Choosing Wisely Manitoba?



Providing quality care:
doing the right thing for Manitobans and delivering value for money



Improved health outcomes
Improved patient and provider experience
Improved health system efficiencies
Improved health system sustainability



The Ripple Effect



ONE SMALL CHANGE
CAN HAVE AN ENORMOUS IMPACT

Creating Ripples – Avoiding Waves
Data; Evidence; Debate



Are you Choosing Wisely ...Really...???

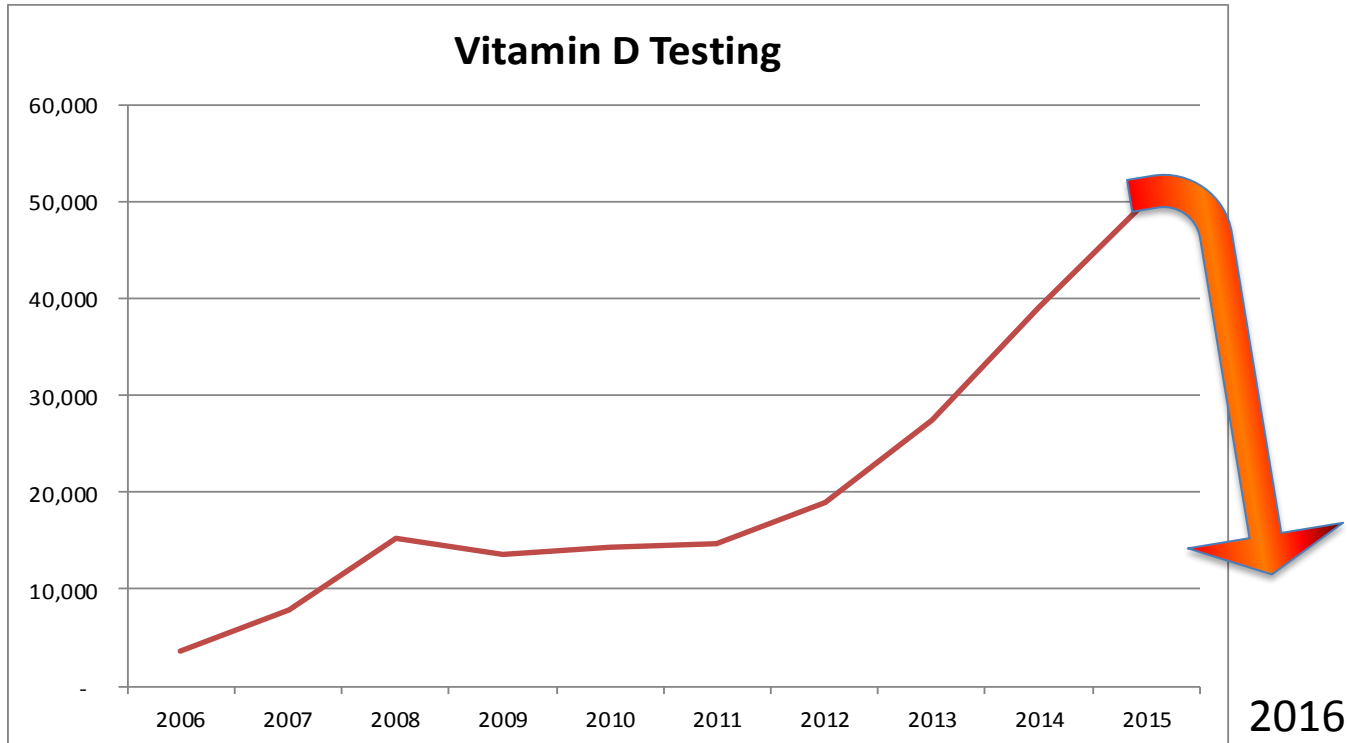
Choosing
Wisely
Canada



- PSA
- CEA
- Sedatives
- PPI
- Antipsychotics
- MRI
- CT
- Antibiotics
- OPIOIDS

ESR vs CRP

Vitamin D Testing



- 2015 volumes are estimated
- Vitamin D testing has increased by approx. 1,000% since 2006
- Approx. \$800,000 annually on unnecessary Vit D tests

Preoperative Diagnostic testing

| Test Name | \$ / individual test | Test Not indicated and Ordered | Test Not indicated and Ordered (Phase 3 audit) | Test Not indicated and Ordered (annual estimate) | Annual \$ Estimate | % of \$ |
|----------------------|----------------------|--------------------------------|--|--|------------------------|-------------|
| Chest X Ray | \$ 28.55 | 66 | \$ 1,884.30 | 15,619 | \$ 445,916.11 | 21% |
| Liver Function Tests | \$ 24.30 | 58 | \$ 1,409.40 | 13,726 | \$ 333,531.90 | 15% |
| ECG | \$ 22.15 | 56 | \$ 1,240.40 | 13,252 | \$ 293,538.36 | 14% |
| Electrolytes | \$ 19.00 | 62 | \$ 1,178.00 | 14,672 | \$ 278,771.52 | 13% |
| TSH | \$ 19.30 | 30 | \$ 579.00 | 7,099 | \$ 137,019.28 | 6% |
| PTT | \$ 9.12 | 62 | \$ 565.44 | 14,672 | \$ 133,810.33 | 6% |
| Creatinine | \$ 8.65 | 63 | \$ 544.95 | 14,909 | \$ 128,961.41 | 6% |
| INR | \$ 6.45 | 73 | \$ 470.85 | 17,275 | \$ 111,425.78 | 5% |
| Glucose | \$ 4.95 | 88 | \$ 435.60 | 20,825 | \$ 103,083.93 | 5% |
| CBC | \$ 5.95 | 73 | \$ 434.35 | 17,275 | \$ 102,788.12 | 5% |
| Iron indices | \$ 16.15 | 20 | \$ 323.00 | 4,733 | \$ 76,437.35 | 4% |
| Urinalysis | \$ 4.90 | 25 | \$ 122.50 | 5,916 | \$ 28,989.40 | 1% |
| Total | | 676 | \$ 9,187.79 | 159,974 | \$ 2,174,273.49 | 100% |

62%

- 4 tests account for 62% of the dollars spent on tests not indicated and ordered

Initiative

Benefits

Clinical Value*

Wait Times**

Financial (\$)***

Cancer Wait Times/Delays:

- Breast: Direct Referral
- Breast: Pathology
- Colorectal: Pathology
- Lung: Pathology
- Gyne-Cervical: Pathology

Immunology:

Hematology:

- Coagulation:
- Bone Marrow Collections and processing (rural)
- Hematology:
- ESR: tube change
- Coag: tube change
- Cellavision: automated cell morphology and differential

Transfusion Medicine:

- Decreased blood and blood product wastage
- Trace Line reduced Crossmatch to Transfused ratio from 2.3 to 1.1
- Trace Line reduced TAT

Chemistry:

- Vitamin D Testing
- Serum Protein Analyzer (new technology)

Preoperative Diagnostics:

- Cervical Cancer Screening (Liquid Based Cytology vs PAP smears)

Microbiology:

- MALDI-TOF: automated culturing and identification
- Mycobacteriology Testing Standardization

Pathology:

- Tissues for Disposal
- Cytotechnology

Clinical Practice Change

- Establishing a standard to communicate Clinical Practice Changes
- Awareness and Information
- Evidence and Data
- Performance, Audit, and Review
- Reinforce and ?

Choosing Wisely Manitoba | **Choosing Wisely Canada**

New history and physical form for patients who require a history and physical prior to undergoing cataract surgery at the Misericordia Health Centre.

September 9, 2015

Clinical Practice Change

- Effective September 9, 2015, the '**CATARACT SURGERY Pre-op History and Physical Form**' <attached> replaces the '*Pre-op History and Physical - Cataract Form*'. Please incorporate this new Choosing Wisely-branded form into your practice (including your EMR if applicable) and ensure all old forms are removed by September 18, 2015.

Rationale for Change

- Cataract surgeries generate approximately 25% of the unnecessary preoperative diagnostic tests performed within the WRHA. **The new form removes cues believed to prompt unnecessary tests**, as identified by the Choosing Wisely preoperative testing guideline, which indicates:
 - "diagnostic tests are **not** required for patients undergoing cataract surgery unless being used to address deterioration in the patient's condition within the last 6 months".

Anticipated Impacts & Improvements

- Patients will save time by avoiding unnecessary effort before undergoing cataract surgery
- Your staff will save time by avoiding unnecessary effort.
- Dollars **saved** through improved efficiencies and sustainability will be reinvested in other areas of healthcare.

Background information

- Changes to the new form reflect the collaboration between The Department of Anesthesia, Department of Family Medicine, the Ophthalmology Surgeons, and the Centre for Healthcare Innovation.
- This improved form aligns with the Choosing Wisely Campaign, a physician led initiative to improve the use of tests, investigations and procedures. Visit <http://chimb.ca/choosingwisely> to learn more.

Clinical Practice Change issued by: Dr. Lorne Bellan, Professor and Department Head of Ophthalmology; Dr. Archie Benoit, Associate Professor of Anesthesia, Site Medical Manager, MHC Misericordia

Distribution: This Clinical Practice Change has been sent to all WRHA Ophthalmologists and Family Physicians

- 1 -

This Clinical Practice Change is a directive of Choosing Wisely Manitoba, an initiative to improve the appropriate use of diagnostic testing in our province. CWM is a partnership of the Center for Healthcare Innovation and Diagnostic Services Manitoba.

chimb.ca/choosingwisely

DIAGNOSTIC SERVICES MANITOBA
Centre for Healthcare Innovation



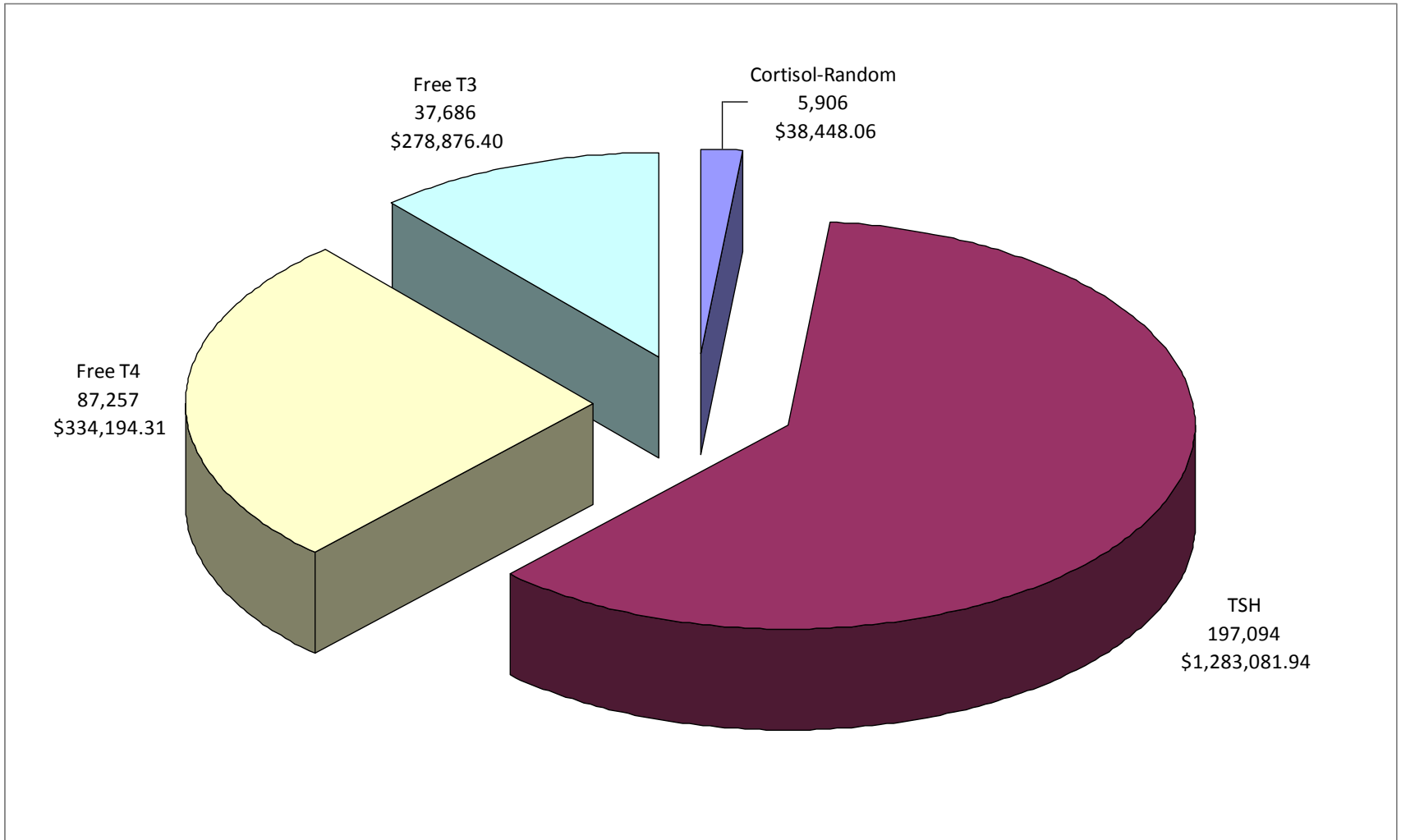
American Society for
Clinical Pathology

Don't order multiple tests in the initial evaluation of a patient with suspected non-neoplastic thyroid disease. Order thyroid-stimulating hormone (TSH), and if abnormal, follow up with additional evaluation or treatment depending on the findings.

The TSH test can detect subclinical thyroid disease in patients without symptoms of thyroid dysfunction. A TSH value within the reference interval excludes the majority of cases of primary overt thyroid disease. If the TSH is abnormal, confirm the diagnosis with free thyroxine (T4).

High Volume Hormones (2016)

Test Volumes: 327,943 Test Costs: \$1,934,600.71



Choosing Wisely: Thyroid Function

- **Don't use Free T4 or T3 to screen for hypothyroidism or to monitor and adjust levothyroxine (T4) dose in patients with known primary hypothyroidism.**



Don't routinely order a thyroid ultrasound in patients with abnormal thyroid function tests if there is no palpable abnormality of the thyroid gland.

Thyroid ultrasound is used to identify and characterize thyroid nodules, and is not part of the routine evaluation of abnormal thyroid function tests (over- or underactive thyroid function) unless the patient also has a large goiter or a lumpy thyroid. Incidentally discovered thyroid nodules are common. Overzealous use of ultrasound will frequently identify nodules, which are unrelated to the abnormal thyroid function, and may divert the clinical evaluation to assess the nodules, rather than the thyroid dysfunction. Imaging may be needed in thyrotoxic patients; when needed, a thyroid scan, not an ultrasound, is used to assess the etiology of the thyrotoxicosis and the possibility of focal autonomy in a thyroid nodule.

Don't order a total or free T3 level when assessing levothyroxine (T4) dose in hypothyroid patients.

T4 is converted into T3 at the cellular level in virtually all organs. Intracellular T3 levels regulate pituitary secretion and blood levels of TSH, as well as the effects of thyroid hormone in multiple organs; a normal TSH indicates an adequate T4 dose. Conversion of T4 to T3 at the cellular level may not be reflected in the T3 level in the blood. Compared to patients with intact thyroid glands, patients taking T4 may have higher blood T4 and lower blood T3 levels. Thus the blood level of total or free T3 may be misleading (low normal or slightly low); in most patients a normal TSH indicates a correct dose of T4.

Don't routinely order a thyroid ultrasound in patients with abnormal thyroid function tests unless there is a palpable abnormality of the thyroid gland.

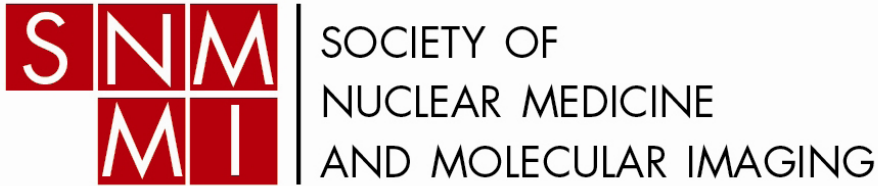
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Don't use Free T4 or T3 to screen for hypothyroidism or to monitor and adjust levothyroxine (T4) dose in patients with known primary hypothyroidism.

T4 is converted into T3 at the cellular level in virtually all organs. Intracellular T3 levels regulate pituitary secretion and blood levels of TSH, as well as the effects of thyroid hormone in multiple organs. Therefore, in most people a normal TSH indicates either normal endogenous thyroid function or an adequate T4 replacement dose. TSH only becomes unreliable in patients with suspected or known pituitary or hypothalamic disease when TSH cannot respond physiologically to altered levels of T4 or T3.

Don't routinely test for Anti-Thyroid Peroxidase Antibodies (anti – TPO).

Positive anti-TPO titres are not unusual in the 'normal' population. Their presence in the context of thyroid disease only assists in indicating that the pathogenesis is probably autoimmune. As thyroid autoimmunity is a chronic condition, once diagnosed there is rarely a need to re-measure anti-TPO titres. In euthyroid pregnant patients deemed at high risk of developing thyroid disease, anti-TPO antibodies may influence the frequency of surveillance for hypothyroidism during the pregnancy. It is uncommon that measurement of anti-TPO antibodies influences patient management.



Don't use nuclear medicine thyroid scans to evaluate thyroid nodules in patients with normal thyroid gland function.

Nuclear medicine thyroid scanning does not conclusively determine whether thyroid nodules are benign or malignant.

- Cold nodules on thyroid scans will still require biopsy.
- Nuclear medicine thyroid scans are useful to evaluate the functional status of thyroid nodules in patients who are hyperthyroid.

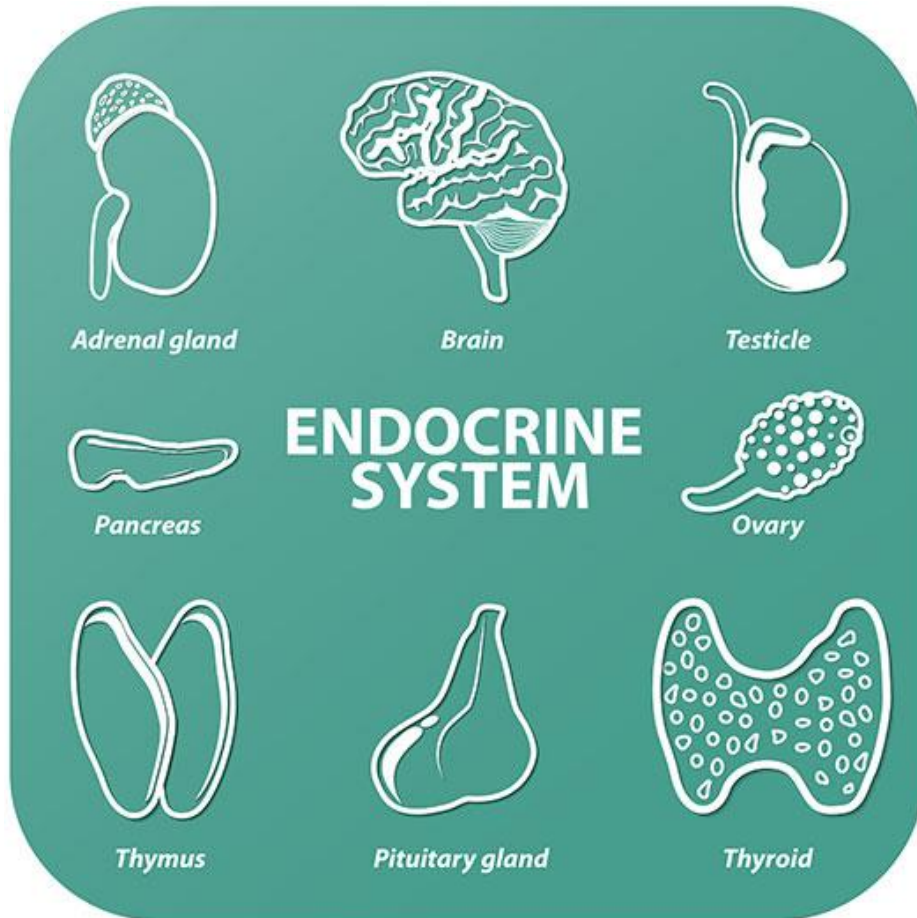


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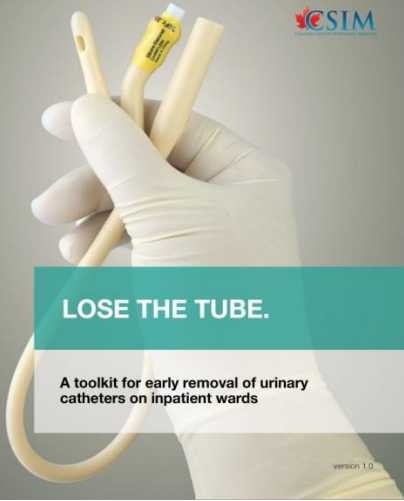
Nuclear medicine thyroid scanning does not conclusively determine whether thyroid nodules are benign or malignant; cold nodules on thyroid scans will still require biopsy. Nuclear medicine thyroid scans are useful to evaluate the functional status of thyroid nodules in patients who are hyperthyroid.

We're just getting starter...!!!

Testosterone



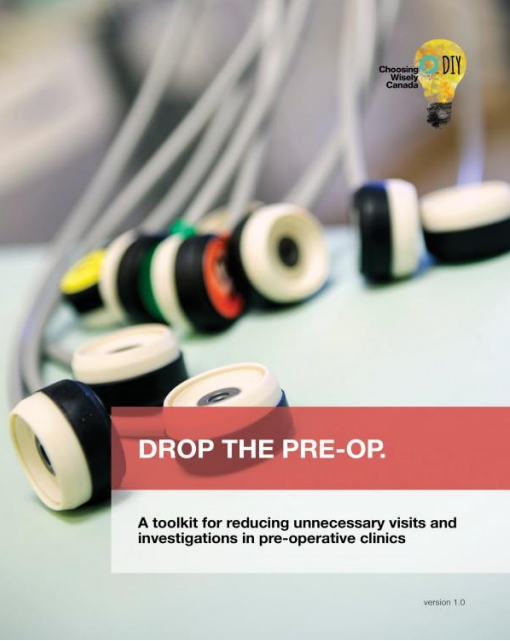
- Aldosterone
- Cortisol
- 18-Hydroxycortisol
- DHEA-S
- Growth hormone (GH),
- Insulin-like growth factor-1 (IGF-1)
- Prolactin
- ACTH
- Luteinizing hormone (LH),
- Follicle-stimulating hormone (FSH)
- CA125
- Alpha feta protein (AFP)
- Human chorionic gonadotropin (HCG)
- Lactate dehydrogenase (LDH)
- Amylase
- Lipase



LOSE THE TUBE.

A toolkit for early removal of urinary catheters on inpatient wards

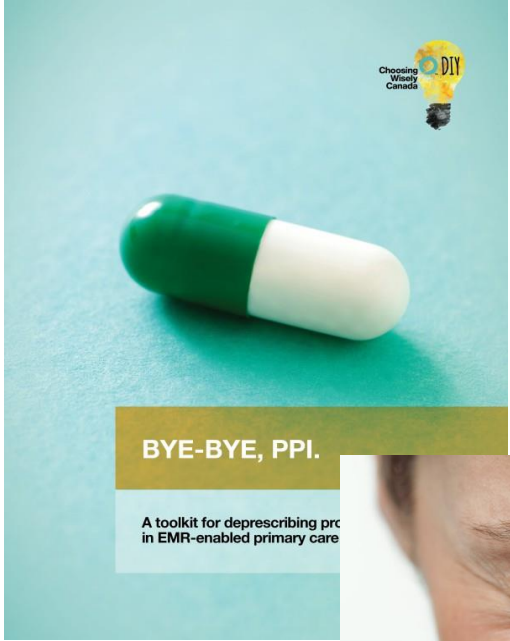
version 1.0



DROP THE PRE-OP.

A toolkit for reducing unnecessary visits and investigations in pre-operative clinics

version 1.0



BYE-BYE, PPI.

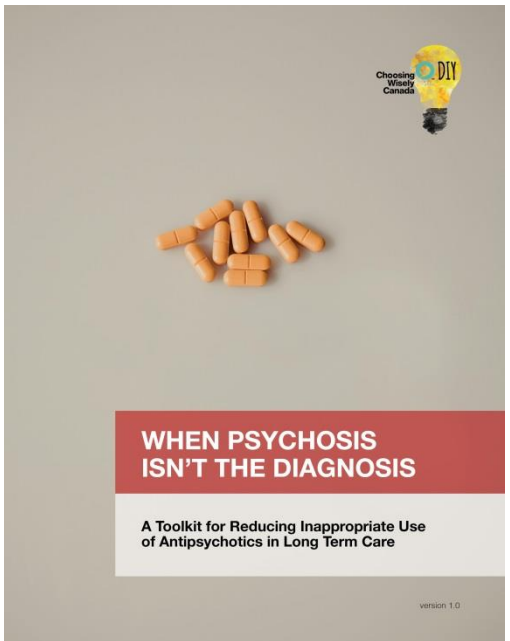
A toolkit for deprescribing proton pump inhibitors in EMR-enabled primary care



WHY GIVE TWO WHEN ONE WILL DO?

A toolkit for reducing unnecessary red blood cell transfusions in hospitals

version 1.0



WHEN PSYCHOSIS ISN'T THE DIAGNOSIS

A Toolkit for Reducing Inappropriate Use of Antipsychotics in Long Term Care

version 1.0



Think you need antibiotics?
Let's think again.

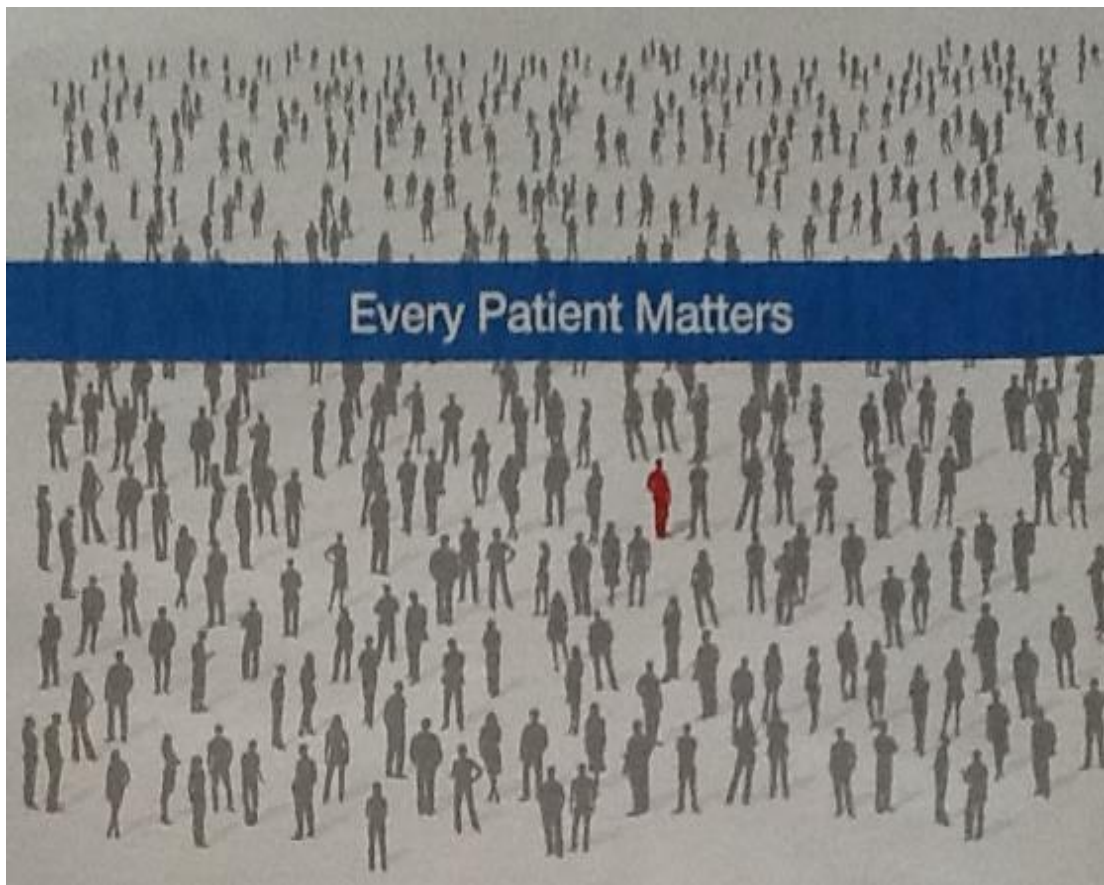
A healthy conversation about medical tests, treatments and procedures.
Talk with your doctor or visit ChoosingWiselyCanada.org
@ChooseWiselyCA



LESS SEDATIVES FOR YOUR OLDER RELATIVES.

A toolkit for reducing inappropriate use of benzodiazepines and sedative-hypnotics among older adults in hospitals

version 1.1



Physician Role Conflict?

- Doing best for each and every patient that presents to Emerg?
- Ensuring sustainable resources to serve all patients across the system and the next ones that come to Emerg?

Are we really adding clinical value?
Are we improving patient outcomes?

We are at cross roads

- Never a better time to stop doing those things that don't add clinical value
- Never a better time to develop evidence based guidelines and lead the way
- Never a better time to save healthcare money while improving care
- Never had so much buy in from providers
- Choosing Wisely Manitoba – more support and ideas than resources to execute
- Collaboration – working together to lead our own practice changes

WIIFM

We can embrace the opportunity to continue our own education, prepare ourselves for the future, review our services, and lead our own practice and system change

OR

We can react to changes that will occur and allow others to lead the change in our business and profession, and be victims of those changes to our careers and personal lives.

Become a Clinical Champion



**Tell us how you are
Choosing Wisely for your patients**

“Everyone thinks of changing the world, but no one thinks of changing himself.”

Leo Tolstoy



For more information and support

Choosing
Wisely
Manitoba

Choosing
Wisely
Canada



Choosing Wisely Regional Networks: Coast-to-Coast



DIAGNOSTIC SERVICES
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Centre for Healthcare Innovation



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