Nudging in Health
Why Nudge in Health?

• Healthcare is the most expensive, most complex and universal policy sector with life and death implications for every citizen
  – Every traditional means has been tried

• Decision making is highly complex – high level of variation and risk in each case

• Doctors, allied health professionals and patients all resistant to directive approach
An early case of nudging in health

• The toothbrush
  – invented 7\textsuperscript{th} century;
  – imported to Europe sometime after 13\textsuperscript{th} century
  – Common usage begins 20\textsuperscript{th} century

• The nudging innovation – toothpaste and its psychological underpinnings:
  – Foam, though non-functional, provides feedback
  – Minty freshness, though it doesn’t last, indicated successful completion
  – Film removal, though insignificant to oral health, makes teeth feel clean and healthy.
Case study: Appropriateness

- Appropriateness is the proper or correct use of health services, products and resources.
- Inappropriate care can involve overuse, underuse and/or misuse of health services, products and resources.
Some Appropriateness Data

• As much as 30% of healthcare in Canada is unnecessary

• Radiation from a full body CT scan = 200,000 airport scans; mammogram = 4,000 scans

• Half of antibiotic prescriptions are unnecessary and contribute to resistant strains.

• 70% of diagnoses can be determined on the basis of medical history alone – no tests.
## More appropriateness data

<table>
<thead>
<tr>
<th>Service</th>
<th>Condition(s)</th>
<th>No. of Studies</th>
<th>Range of Overuse Rates, % (2000–2009)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coronary angiography</td>
<td>MI, CAD</td>
<td>17</td>
<td>8.0 – 21.8</td>
</tr>
<tr>
<td>Coronary revascularization</td>
<td>CAD</td>
<td>16</td>
<td>1.4 – 14.0</td>
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<tr>
<td>Upper endoscopy</td>
<td>Bleeding (upper), PUD</td>
<td>7</td>
<td>19.0 – 23.0</td>
</tr>
<tr>
<td>Radiographs in acute respiratory illnesses</td>
<td>Bronchiolitis, asthma</td>
<td>5</td>
<td>32.0 – 72.0</td>
</tr>
<tr>
<td>Colonoscopy</td>
<td>Colon CA</td>
<td>4</td>
<td>23.0 – 60.8</td>
</tr>
<tr>
<td>Antibiotics</td>
<td>URI, acute bronchitis</td>
<td>59</td>
<td>2.0 – 89.0</td>
</tr>
<tr>
<td>Bronchodilators</td>
<td>Obstructive diseases</td>
<td>6</td>
<td>30.0 – 81.0</td>
</tr>
</tbody>
</table>

Appropriateness Examples

• Electrocardiograms (ECGs)
• Back Pain Imaging (X-Ray; CT; MRI)
• CT Scans and MRIs for headaches
• Bone-density Tests
• Antibiotics for sinusitis
Why Does Overuse Happen?

- Physician habit
- Patient demand
- Physician lack of knowledge
- Fear of litigation
- Financial incentives
- Specialist requirements for referrals
- “More or New is Better” fallacy
- Time pressures
“Choosing Wisely” Initiative

• Reduce 10 Million Unnecessary Tests and Treatments by 2020
• Reduction is about overuse, waste and harm – not cost savings (though cost savings will happen).
• Why nudge? – a directive approach dangerous; shouldn’t tell patients not to ask for tests or treatments
• Approach – stimulate thinking and patient-physician conversation.
  – Patient facing material
  – Physician facing material
  – “5 Things Physicians and Patients Should Question” lists
Don’t place or leave in a urinary catheter without reassessment or an acceptable indication.

The use of urinary catheters among hospitalized patients is common. Urinary catheter use is associated with preventable harm such as catheter-associated urinary tract infection, sepsis and delirium. Appropriate indications include acute urinary obstruction, critical illness and end-of-life care.

Choosing Wisely recommendation from the Canadian Society of Hospital Medicine (CSHM #1) and Canadian Society of Internists Medicine (CSIM #2)

How Sunnybrook is Choosing Wisely

At Sunnybrook Health Sciences Centre in Toronto, 18% of hospitalized patients were catheterized even though 89% lacked an appropriate guideline-based reason. Urinary catheter removal was frequent, haphazard and many urinary catheters were re-inserted at the first sign of urinary retention. A medical directive was developed to standardize removal of urinary catheters on transfer to the medicine ward. Staff were then trained to follow the medical directive to remove urinary catheters lacking pre-specified reasons and to follow a post-catheter care algorithm to detect and manage any urinary retention in a standard way. This medical directive has resulted in 85% fewer urinary catheters on the medical wards sustained beyond 1 year, and the team has not encountered any inappropriate urinary catheter removals.

Appropriate use of urinary catheters is one of 150 recommendations from Choosing Wisely Canada. Make Choosing Wisely your next improvement project.

Join the campaign to prevent 10 million unnecessary tests and treatments by 2020.

ChoosingWiselyCanada.org
Don't transfuse more than one red blood cell unit at a time when transfusion is required in stable, non-bleeding patients. Transfusions are associated with increased morbidity and mortality in high-risk hospitalized inpatients. Single unit transfusions should be the standard for non-bleeding, hospitalized patients. Additional units should only be prescribed after re-assessment of the patient and their hemoglobin value.

Choosing Wisely recommendation from the Canadian Society of Transfusion Medicine (CSTM #2).

How Halifax Is Choosing Wisely

At Capital Health in Halifax, Nova Scotia, a new policy to “transfuse one red cell unit and then reassess based on hemoglobin level/clinical symptoms” was developed, discussed and approved at the District Medical Advisory Committee which included representation from all clinical departments. Following this, an education memorandum was distributed to physicians and nurses. The new policy was implemented gradually over a period of 11 months for all patient care areas, excluding outpatient clinics and emergency departments. The change included the blood transfusion technologist reviewing every red cell request to ensure it follows the policy based on an issuing algorithm. The overall number of red cell transfused decreased from 15,495 in 2012 to 12,861 in 2014 (16.4% decrease).

Appropriate blood transfusion is one of 150 recommendations from Choosing Wisely Canada. Make Choosing Wisely your next improvement project.

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MORE IS NOT ALWAYS BETTER

The same is true for medical tests and treatments. Talk to your doctor about what you need, and what you don’t. To learn more, visit www.choosingwisely.ca
Results and further approaches

• Further approaches:
  – Benchmarking
  – Patient Order Sets

Impact of Blind Spot Monitor Prescriptions of Benzodiazepines to Elderly Patients

*Comparison periods 7/13/13 to 8/6/13 and 8/7/13 to 8/31/13

<table>
<thead>
<tr>
<th>Age group</th>
<th>Pilot MD offices</th>
<th>Control MD offices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age &gt;=65 years</td>
<td>20.9%</td>
<td>10.6%</td>
</tr>
<tr>
<td>Age &lt;65 years</td>
<td>3.6%</td>
<td>3.5%</td>
</tr>
</tbody>
</table>

Difference

<table>
<thead>
<tr>
<th>Pilot MD offices</th>
<th>Control MD offices</th>
</tr>
</thead>
<tbody>
<tr>
<td>31.5%</td>
<td>+0.01%</td>
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</table>

Don't use benzodiazepines or other sedative-hypnotics in older adults as first choice for insomnia, agitation or delirium. (American Geriatrics Society)\textsuperscript{1,2,3}

Acknowledged reason: [Dropdown options]

- Failed non-drug options and first-line d...
- Withdrawal / delirium tremens
- Seizure disorder
- Severe / refractory GAD
- Periprocedural anesthesia
- End-of-life care
- Rapid eye movement sleep disorders
- Other (please specify)
Other examples of nudging in healthcare

• Pricing of hospital supplies
• Organ Donation (Opt-in vs Opt out)
• The Fake Bus Stop and Dementia Patients
• Nudging also has potential for wellness
  – Proliferation of Fitness Trackers
  – Grocery Cart Modifications
  – Architecture to promote wellness at work (parking, staircases, etc.)
Some concerns

• Ethics
  – What do you want your physician thinking about?
  – Who, by default, has rights to your organs?
  – Are we manipulating people?

• Unintended consequences
  – How hard are we being nudged?