Antibiotic Stewardship in Community Practice

Humber River Hospital’s 21st Annual Clinical Day
Saturday, December 8, 2018; 08:15-09:00

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Assistant Professor, Dept. of Family & Community Medicine, UofT
Objectives

• Overview of the Choosing Wisely Canada (CWC) *Using Antibiotics Wisely* campaign
  • Background (antibiotic overuse; barriers to practice change)
  • Clinical Practice statements re: respiratory infections

• Tips on antimicrobial stewardship
  • Evidence-based tools for Practitioners & Patients
Choosing Wisely Canada is the national voice for reducing unnecessary tests and treatments in health care.
History

• Choosing Wisely® 2012 in US; 80 medical societies; 500+ recommendations

• Choosing Wisely Canada 2014; 70 societies; 300+ recommendations

• Now over 25 countries
Don't use antibiotics for upper respiratory infections that are likely viral in origin, such as influenza-like illness, or self-limiting, such as sinus infections of less than seven days of duration.

Bacterial infections of the respiratory tract, when they do occur, are generally a secondary problem caused by complications from viral infections such as influenza. While it is often difficult to distinguish bacterial from viral sinusitis, nearly all cases are viral. Though cases of bacterial sinusitis can benefit from antibiotics, evidence of such cases does not typically surface until after at least seven days of illness. Not only are antibiotics rarely indicated for upper respiratory illnesses, but some patients experience adverse effects from such medications.

- Don't do Pap smears in women who have had a hysterectomy for non-malignant disease. The potential harm from screening women younger than 21 years of age outweighs the benefits and there is little evidence to suggest the necessity of conducting this test annually when previous test results were normal. Women who have had a full hysterectomy for benign disorders no longer require this screening. Screening should stop at age 70 if three previous test results were normal.

- Don't do annual screening blood tests unless directly indicated by the risk profile of the patient. There is little evidence to indicate there is value in routine blood tests in asymptomatic patients. Instead, this practice is more likely to produce false positive results that may lead to additional unnecessary testing. The decision to perform screening tests, and the selection of which tests to perform, should be done with careful consideration of the patient's age, sex and any possible risk factors.

- Don't routinely measure Vitamin D in low risk adults. Because Canada is located above the 35° North latitude, the average Canadian's exposure to sunlight is insufficient to maintain adequate Vitamin D levels, especially during the winter. Therefore, measuring serum 25-hydroxyvitamin D levels is not necessary because routine supplementation with Vitamin D is appropriate for the general population. An exception is made for measuring Vitamin D levels in patients with significant renal or metabolic disease.
The report found that up to 30% of the tests, treatments and procedures associated with the 8 selected CWC recommendations are potentially unnecessary.
What are the barriers to not prescribing **Antibiotics** for viral URTIs in your practice?
Better to do something than do nothing

I’ve always done this

The patient wants it

Time constraints

Better to do something than do nothing
Should we care about Antibiotic Overuse?
Should we care about Antibiotic Overuse?

• Drug resistant infections
  • MRSA
  • VRE
  • Gonorrhea
  • C. diff

• Cost

• Adverse Drug Reactions – diarrhea, vomiting, candida infection, AKI, allergic reaction

• Continued loss of effectiveness → new drug development cannot keep up → less effective/more toxic alternatives being used → worse patient outcomes
ROLES AND RESPONSIBILITIES FOR AMR IN CANADA

- Health Professionals
- Federal Government
- Provincial/Territorial Governments
- Academia
- Human/Animal Stakeholders
- Industry
- Public
Who are the prescribers of antibiotics in Canada?

• Physicians prescribe 90% of the antibiotics among health care providers.

• 92% of antibiotics are prescribed/dispensed in the community (2016)

• Family physicians account for 65% of all antibiotic prescriptions dispensed by community pharmacies in Canada (2016)
  • Respiratory infections > genito-urinary infections > skin & soft tissue infections

Courtesy of Public Health Agency of Canada
Can we do something to improve this?
Family doctor ABX Rx ordering/year

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Number of Prescriptions</th>
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<tbody>
<tr>
<td>2013</td>
<td>44,712</td>
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<tr>
<td>2014</td>
<td>49,427</td>
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<tr>
<td>2015</td>
<td>49,985</td>
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<tr>
<td>2016</td>
<td>50,054</td>
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<tr>
<td>2017</td>
<td>45,415</td>
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Choosing Wisely Canada - Using Antibiotics Wisely Campaign

USING ANTIBIOTICS WISELY.

UTILISATION JUDICIEUSE DES ANTIBIOTIQUES.
Using Antibiotics Wisely: a ‘mini’ campaign

Duration January 31, 2018 – March 31, 2019
Priorities:
1. Acute respiratory infection in primary care
2. Urinary tract infection in long-term care
The work done to date...

✓ Input from broad group of stakeholders in primary care across Canada

✓ Review by professional societies including Canadian Thoracic Society and Canadian Society of Otolaryngology - Head and Neck Surgery

✓ Review and endorsement by the College of Family Physicians of Canada
Framework for *Using Antibiotics Wisely*

- Describe drivers of overuse and barriers to change
- Articulate prescribing practices we hope to change
  - Develop practice statements
- Select nationally useful AMS tools
  - Assess how tools need to be adapted to ensure uptake
- Determine how tools are best disseminated to front-line prescribers
Don’t routinely prescribe antibiotics for acute respiratory infection in primary care settings

• Otitis Media – vaccinated patients older than 6 months
• Pharyngitis – modified Centor score
• Sinusitis – PODS symptoms
• Pneumonia – objective evidence
• AECOPD – inhalers
• Bronchitis/Asthma - inhalers
• URTI - “common cold”
• ILI – Influenza-Like Illness
Don’t routinely prescribe antibiotics for acute respiratory infection in primary care settings

- Otitis Media – vaccinated patients older than 6 months

MYTH: All patients coming to clinic with an URTI want antibiotics

FACT: Most patients want a diagnosis and a way to relieve their symptoms

- URTI – common cold
- ILI – Influenza-Like Illness
Uncomplicated Otitis Media

• Vaccinated individuals 6 months and older

• Do not prescribe unless:
  • Perforated TM with purulent d/c; or
  • Bulging TM with 1 of fever ≥39°C, moderately/severly ill, symptoms lasting > 48 hrs.

• Think symptom control & access to f/u
Uncomplicated Otitis Media

• Vaccinated individuals 6 months and older

• Do not prescribe unless:
  • Perforated TM with purulent d/c; or
  • Bulging TM with 1 of fever $\geq 39^\circ C$, moderately/severly ill, symptoms lasting $> 48$ hrs.

• Think symptom control & access to f/u
Uncomplicated Pharyngitis

• Do not prescribe unless:
  • Centor score > 2 AND
  • Throat swab culture (or rapid antigen test) confirms GAS

• Don’t even perform a throat swab if:
  • Centor score ≤ 1 or
  • Symptoms of a viral infection are present (rhinorrhea, oral ulcers, hoarseness)

• Think symptom control & access to f/u
Uncomplicated Sinusitis

• Do not prescribe unless:
  • Symptoms persist 7-10 days
  • No improvement

• At least 2 PODS symptoms:
  • Facial Pain/Pressure
  • Nasal Obstruction
  • Purulent nasal Discharge
  • Hyposmia/anosmia (Smell)

• Severe; or

• Mild to moderate w/ no response to 72 hr. trial of nasal steroids
Pneumonia – need objective evidence

• Do not prescribe unless:
  • CXR confirms presence of new consolidation

• Physical exam alone not sufficient
  • Presence of respiratory crackles

• Normal vital signs & no findings on physical exam
  • Unlikely to be pneumonia
  • No CXR needed
Pneumonia – Long-Term Care

Do not prescribe unless:
• Temperature >38.9°C AND
• RR > 25 breaths/min. or productive cough

OR
• Temperature > 37.9°C (or 1.5°C above baseline) AND cough
• 1 of the following symptoms:
  • HR > 100
  • Delirium – acute fluctuating LOC
  • Rigors/shaking chills
  • RR > 25 breaths/minute

Loeb M et al. Infection Control & Hospital Epidemiology. Feb. 2001
Pneumococcal Vaccination – Long-Term Care

PCV13 (at ≥ 65 years) – At least 1 year apart for most immunocompetent adults

PPSV23 (at ≥ 65 years) – At least 8 weeks apart for adults with certain medical conditions

PCV13 (at ≥ 65 years) – At least 1 year apart for all adults

PPSV23 (at ≥ 65 years) – At least 1 year apart

PPSV23 (at 19–64 years) – At least 1 year apart

PCV13 (at ≥ 65 years) – At least 1 year apart

PPSV23 (at ≥ 65 years) – At least 5 years apart

www.cdc.gov/pneumococcal/vaccination.html
AECOPD

• Do not prescribe unless:

• Clear increase in sputum purulence AND

• Increase in sputum volume AND/OR increased dyspnea

• Consider steroids and SABD

“T’m prescribing a patch to help you quit smoking. Wear it over your mouth.”
Asthma/Bronchitis/Bronchiolitis

• Do not prescribe antibiotics for exacerbations

• Consider steroids and SABD for asthma; SABD for bronchitis
URTI – The Common Cold

• Do not prescribe antibiotics unless clear evidence of secondary bacterial infection

• Complicated cases of OM/Pharyngitis/Sinusitis/Pneumonia
Influenza-Like Illness

• Symptoms can include:
  • Fever
  • Cough
  • Sore throat
  • Runny nose
  • Myalgia
  • Headache
  • Chills
  • Malaise

• Do not prescribe antibiotics unless clear evidence of secondary bacterial infection
Influenza-Like Illness

- Use of anti-virals beyond scope of this campaign
- Factors to consider:
  - Severity - ? Need admission
  - Risk factors/co-morbid conditions
  - Duration of symptoms (< 48 hrs.)
- AMMI Canada: https://immunize.ca/sites/default/files/resources/1860e.pdf
Cough – dispelling the myths

• Can last up to 3 weeks in 50% of patients with a viral URTI
• Can last up to 1 month in 25% of patients

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<th>Resources</th>
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<tr>
<td>Information posters (CWC-CFPC)</td>
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<td>Viral prescription (Rx files-CWC-CFPC)</td>
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<tr>
<td>Delayed prescription pad (CWC-CFPC)</td>
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<td>Patient resources (CWC)</td>
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<td>Tip sheet for prescribers (CWC)</td>
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<td>Practice statements (CWC-CFPC)</td>
</tr>
<tr>
<td>Calculators (sore throat and sinusitis)</td>
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FOUR QUESTIONS TO ASK YOUR DOCTOR

1) Do I really need this test, treatment or procedure?
2) What are the downsides?
3) Are there simpler, safer options?
4) What happens if I do nothing?
1) Do I really need antibiotics?
Antibiotics fight bacterial infections, like strep throat, whooping cough and bladder infections. But they don’t fight viruses – like common colds, flu, or most sore throats and sinus infections. Ask if you have a bacterial infection.

2) What are the risks?
Antibiotics can cause unwanted side effects such as diarrhea and vomiting. They can also lead to “antibiotic resistance”— if you use antibiotics when you don’t need them, they may not work when you do need them in the future.

3) Are there simpler, safer options?
The best way to treat most colds, coughs or sore throats is with plenty of fluids and rest. Talk to your health care provider about the options.

Talk about what you need, and what you don’t. To learn more, visit www.choosingwiselycanada.org/antibiotics
Myth: patients want antibiotics

Satisfaction linked to reassurance, info, and symptom relief
• Decreases antibiotic use

• No difference in satisfaction
ABX Use & Patient Satisfaction

- No Prescription Use: 83
- Delayed Prescription: 35
- Immediate Prescription: 90

% ABX Use & % Pt. Satisfaction

Cochrane Database of Systematic Reviews 2013
**PATIENT RESOURCES**

**Treating Sinus Infections: Don’t rush to antibiotics**

Millions of people are prescribed antibiotics each year for sinus infections, a frequent complication of the common cold, hay fever, and other respiratory allergies. In fact, 15 to 21 percent of all antibiotic prescriptions for adults in outpatient care are for treating sinus infections. Unfortunately, most of those people don’t need the drugs. Here’s why.

**The drugs usually don’t help**

Sinus infections can be painful. People with the condition usually have a stuffy nose combined with yellow, green, or gray nasal discharge plus pain or pressure around the eyes, cheeks, forehead, or teeth that worsens when they bend over. But sinus infections almost always stem from a viral infection, not a bacterial one — and antibiotics don’t work against viruses. Even when bacteria are the cause, the infections often clear up on their own in a week or so. And antibiotics don’t help ease allergies, either.

**They can pose risks.**

About one in four people who take antibiotics have side effects, such as stomach problems, diarrhea, or rashes. Those problems clear up soon after stopping the drugs, but in rare cases antibiotics can cause severe allergic reactions.

Overuse of antibiotics also promotes the growth of bacteria that can’t be controlled easily with drugs. That makes you more vulnerable to antibiotic-resistant infections and undermine the good that antibiotics can do for others.

**So when are antibiotics necessary?**

They’re usually required only when symptoms last longer than a week, start to improve but then worsen again, or are very severe. Worsening symptoms that can warrant immediate antibiotic treatment include a fever over 38.6°C, extreme pain and tenderness over your sinuses, or signs of a skin infection, such as a hot, red rash that spreads quickly.

When you do need antibiotics, the best choice in many cases is amoxicillin, which typically costs about $4 and is just as effective as more expensive brand-name antibiotics. Note that some health care providers recommend CT scans when they suspect sinus infections. But those tests are usually necessary only if you have frequent or chronic sinus infections or you’re going to have sinus surgery.

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**Colds, Flu, and Other Respiratory Illnesses: Don’t rush to antibiotics**

If you have a sore throat, cough, or sinus pain, you might expect to take antibiotics. After all, you feel bad, and you want to get better fast. But antibiotics don’t help most respiratory infections, and they can even be harmful.

**Antibiotics kill bacteria, not viruses.**

Antibiotics fight infections caused by bacteria. But most respiratory infections are caused by viruses. Antibiotics can’t cure a virus.

**Viruses cause:**
- All colds and flu.
- Almost all sinus infections.
- Most bronchitis (chest colds).
- Most sore throats, especially with a cough, runny nose, hoarse voice, or mouth sores.

**Antibiotics have risks.**

Antibiotics can upset the body’s natural balance of good and bad bacteria. Antibiotics can cause:
- Nausea, vomiting, and severe diarrhea.
- Vaginal infections.
- Nerve damage.
- Torn tendons.
- Life-threatening allergic reactions.

Many adults go to emergency rooms because of antibiotic side effects.

**Overuse of antibiotics is a serious problem.**

Wide use of antibiotics breeds “superbugs.” These are bacteria that become resistant to antibiotics.

They can cause drug-resistant infections, even disability or death. The resistant bacteria—the superbug—can also spread to family members and others.

You may need an antibiotic if you have a respiratory infection. Some examples are:
- You have a sinus infection that doesn’t get better in 7 days. Or it gets better and then suddenly gets worse.
- You have a fever of 39°C, or fever over 38°C for 3 days or more, green or yellow mucus, or face pain for three or more days in a row.

**Bacterial pneumonia.**
- Symptoms include cough with coloured mucus, fever of at least 38°C, chills, shortness of breath, and chest pain when you take a deep breath.
- The diagnosis is made with a physical exam and a chest x-ray.
### Campaign approach

<table>
<thead>
<tr>
<th><strong>Clinicians</strong></th>
<th>• Societies develop and disseminate lists</th>
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<tbody>
<tr>
<td><strong>Patients</strong></td>
<td>• Develop and disseminate patient materials</td>
</tr>
<tr>
<td><strong>Medical education</strong></td>
<td>• Mobilize students and trainees</td>
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<tr>
<td></td>
<td>• Integrate resource stewardship as a core competency</td>
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<tr>
<td><strong>Implementation</strong></td>
<td>• Support adoption of recommendations in care settings</td>
</tr>
<tr>
<td><strong>Measurement</strong></td>
<td>• Measure rates of overuse and build research capacity</td>
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A Strategy to Think About

Effect of Behavioral Interventions on Inappropriate Antibiotic Prescribing Among Primary Care Practices
A Randomized Clinical Trial

Why not make one of these CW practice statements the focus of a QI project?
Antimicrobial Stewardship CPD Opportunity: Prescribing Safely Canada

• https://www.cfpc.ca/prescribing-safely-canada/

• https://rcportal.royalcollege.ca/mssites/prescribingsafely/EN/index.html
2019
CHOOSING WISELY CANADA
NATIONAL MEETING

MAY 27, 2019 | MONTRÉAL QUEBEC
## Acknowledgements

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<th>Name</th>
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<td>Paediatric Lead, Choosing Wisely Canada</td>
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www.choosingwiselycanada.org/antibiotics (EN)
Take Home Points

• Antibiotics are being overused for viral URTIs
• Antimicrobial stewardship needs to be a pan-Canadian effort (MDs, patients, etc.)
• Most patients want a proper diagnosis & advice on symptom management – as opposed to antibiotics
Take Home Points

• CWC *Using Antibiotics Wisely* campaign tools can:
  – Help educate patients about AMS
  – Save time for MDs
  – Increase ease re: practice/culture change

• Never treat colds/influenza/bronchitis/asthma with antibiotics unless super-imposed bacterial infection is present
Questions?

agrill@cfpc.ca