How to use the slides and the speaking notes:

1. Make sure to talk about all of the points on each slide.
2. Many of the slides are self explanatory so not all slides will have speaking notes.
3. The speaking notes include additional information to assist with your presentation such as:
   • How to interpret the data on the slide
   • Sources of data or results
   • Background information
4. Continuing care and long term care are used interchangeably in this presentation.
What is Antimicrobial Stewardship?

Using the:
- right antimicrobial agent for a given diagnosis
- at the right dose, frequency and duration

In order to:
- cure the infection,
- minimize risks to the patient and
- limit the development of antimicrobial resistance
Interpretation of the data in the table:
This table compares resistance to ciprofloxacin in E. coli from urine specimens collected in the community, in acute care and in long term care in Calgary and in Edmonton in 2013.

Resistance to cipro in Calgary:
- 12% in the community
- 22 to 33% in acute care (depending on the hospital)
- 54% in long term care.

Resistance to cipro in Edmonton:
- 20% in the community
- 24% in acute care
- 60% in long term care.

In practical terms this means that cipro would be expected to fail more than half the time for UTIs in long term care in Calgary and 6 out of 10 times in Edmonton.
### Top reasons why antibiotics not according to guidelines

<table>
<thead>
<tr>
<th>Reason</th>
<th>RTI</th>
<th>UTI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Documentation of clinical findings incomplete or not aligned with best practice</td>
<td>75</td>
<td>80</td>
</tr>
<tr>
<td>Lack of appropriate clinical test results</td>
<td>71</td>
<td>50</td>
</tr>
<tr>
<td>Antibiotic not administered as ordered (over or under dose)</td>
<td>40</td>
<td>42</td>
</tr>
</tbody>
</table>

**Source of information:**

Chart reviews in two continuing care centres in Edmonton between 2006 and 2010. Use of antibiotics compared with published clinical practice guidelines for respiratory tract infections and urinary tract infections.

**Top three reasons why antibiotics were not used appropriately:**

1. Incomplete clinical examination or incomplete documentation of clinical findings
2. Lack of appropriate clinical test results
3. Antibiotic not administered as ordered
Who influences antimicrobial use in LTC?

- Pharmacists
- Physicians
- Resident, Family, Friends
- Licensed Practical Nurses
- Registered Nurses
- Health Care Aides
- Nurse Practitioners
Background information:
The situation today is different from practice 10 - 12 years ago when most residents were examined by a physician prior to ordering an antibiotic.

Over the last decade nursing scope of practice has expanded, particularly for Licensed Practical Nurses. LPNs may not have received training about current best practice for assessment and management of respiratory and urinary tract infections for residents in long term care.

The Antimicrobial Stewardship checklists were developed to help to bridge this gap.
Instructions for the audience:

Ask the audience to get out their Nursing Home Acquired Pneumonia Checklist and follow along.
When to use the NHAP clinical checklist

Changes in resident status that may signal NHAP

✓ Fever
✓ New or worsening cough
✓ New or worsening sputum production
✓ Shortness of breath
✓ Chest pain
✓ Decreased level of consciousness
### Measure and record vital signs

*Record all values, even if normal.*

*Record additional information in chart.*

- ______ Respiratory rate (*measure for 60 sec*)
- ______ Temperature
- ______ Blood pressure
- ______ Pulse
- ______ Oxygenation
- ______ Chest auscultation & exam
- ______ Level of consciousness

- [ ] Yes  [ ] No  Hemodynamically stable (*relative to baseline*)
- [ ] Yes  [ ] No  Hydration <1L/day

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**Information for the presenter:**

Slides with the black headers are the same as the boxes on the checklist.

Ask the audience to follow along as you review the information on this and the other slides with black headers.
**Take home message:**
If respiratory rate is less than 25 bpm, it is unlikely that the resident has NHAP.

**Information for the presenter:**
Alternate causes of respiratory symptoms are discussed in slide 15.
Fever

- Temperature ≥37.8°C or ≥1.1°C above baseline usually indicates fever
- Older persons may have lower baseline body temperatures
- Consider timing of administration of antipyretics when evaluating the resident for fever
Oxygenation

- $O_2 < 90\%$ indicates hypoxemia (if no other health issues and not on supplemental $O_2$)
- Hypoxemia is one of the most important indicators of severity of pneumonia
- Hypoxemia is associated with increased mortality in NHAP
Record findings

- Accurately record vital signs and symptoms
- Record all findings including those within normal ranges
- Documentation is essential for accurate diagnosis
- Facilitates assessment for transfer to acute care
- NHAP can progress rapidly
- Ensures good communication among care team
Assess for symptoms of NHAP

Indications (check all that apply)

☐ Tachypnea (RR ≥25 bpm or increased over baseline)

AND 1 or more of the following:

☐ New or increased cough
☐ New or increased sputum production
☐ Temp >37.8°C or increase of 1.5°C over baseline
☐ Pleuritic chest pain
☐ New or increased abnormal findings on chest examination
☐ New delirium or decreased level of consciousness
☐ Dyspnea
☐ Tachycardia
☐ New or worsening hypoxemia
If symptoms do not indicate NHAP

- If RR <25 and if cough and fever are present consider viral RTI:
  - Influenza, especially Nov to April
  - Parainfluenza
  - RSV

- If RR <25 and chest pain and elevated temperature are absent, consider another diagnosis such as congestive heart failure

- If resident has problems swallowing, consider aspiration pneumonia
If symptoms indicate NHAP

Review the Goals of Care

- Determine the level of medical treatment desired by the resident or alternate decision maker
- Be prepared to discuss treatment options for NHAP and anticipated outcomes with the resident, family and/or alternate decision maker
Chest X-Ray

- If further treatment is consistent with goals of care, obtain a chest x-ray if possible.
- Transfer to acute care for chest x-ray alone is not required.
- **DO NOT DELAY TREATMENT OR CONTACTING THE PRESCRIBER pending an x-ray.**
To avoid delays in treatment

- Before contacting the prescriber, gather additional information:
  - Drug allergies
  - Underlying pulmonary disease
- Provide this information to the prescriber
Communication with the prescriber

- **Fax** the checklist to the prescriber
- **Indicate urgent** on the fax cover sheet
- **Call** the prescriber to discuss findings
Antimicrobial therapy

- Start antimicrobial treatment within 4–8 hours
- Do not delay antimicrobial treatment pending results of diagnostic tests or transfer to acute care
- Consult pharmacist or refer to Bugs & Drugs for recommended antimicrobial therapy
- Ensure antibiotic is administered as ordered
NHAP follow up

Continue to monitor

Assess for transfer to acute care

☐ Goals of Care are consistent with transfer to acute care

AND resident meets 1 or more of the following criteria
(check all that apply)

☐ Hydration <1L/day
☐ O$_2$ Sat <92% with available supplemental oxygen
☐ O$_2$ Sat <90% with available supplemental oxygen & COPD
☐ RR >40 bpm or significantly increased over baseline
☐ Systolic blood pressure <90mmHg or decreased 20mmHg under baseline
☐ Hemodynamically unstable or deteriorating rapidly
Prevention is the best medicine

Most cases of NHAP follow a viral respiratory tract infection. To prevent the spread of infections:

- Promote handwashing with plain soap
- Use alcohol based hand sanitizers when soap and water are not available
- Provide pneumococcal and influenza vaccine for residents
- Promote influenza vaccination for staff and families
- Practice respiratory etiquette
- Encourage smoking cessation
- Ask staff and visitors stay home when sick
- Educate staff and visitors about preventing NHAP
For more information

- info@dobugsneeddrugs.org
- www.dobugsneeddrugs.org
- 1-800-931-9111

Thank you