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.
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.
About this slide:

Continuing care nurses may be familiar with the UTI in LTC Clinical Care Pathway published by TOP in 2010 (shown upper left). TOP (Towards Optimized Practice) is the arm of the Alberta Medical Association that develops Clinical Practice Guidelines.

This checklist was the starting point for the new UTI checklist.

New checklist allows for more complete documentation of clinical findings and is intended to guide a consistent approach to clinical assessment and to facilitate communication between continuing care centre nurses and the prescriber.

New checklist is aligned with the revised TOP CPG for UTI in LTCF, published January 2015.
Instructions for the audience:

Ask the audience to get out their Urinary Tract Infections in LTC Checklist and follow along.
UTI Diagnosis

- UTIs are one of the most common infections in LTC
- The diagnosis of UTI is based on clinical signs and symptoms
- **Laboratory testing and antibiotics are not appropriate unless signs and symptoms of UTI are present**
Asymptomatic bacteriuria

- **Definition:** presence of bacteria in the urine in the absence of clinical signs and symptoms of infection
- Incidence increases with age, higher for women
- At age 80 >50% of women and >30% men have asymptomatic bacteriuria
- Asymptomatic bacteriuria should not be treated with antibiotics
- **For older adults, urine C&S, in the absence of typical signs of infection, leads to false positives**

**Additional information:**
Prescribing antibiotics for asymptomatic bacteriuria is the most common reason why antibiotics are inappropriately used in long term care.

Significant cause of antibiotic resistance in long term care centres in North America.

(Pronunciation guide: bak teer ee YEUR ee ah)
When to use the UTI clinical checklist

• Initiate the UTI checklist when signs and symptoms suggestive of a UTI are noted

• Non-catheterized:
  - Fever
  - Dysuria

• Catheterized:
  - Fever
  - New flank/suprapubic pain
  - Rigors
  - New onset delirium
Typical symptoms in NON-CATHETERIZED residents

**Indications (check all that apply):**

- Acute dysuria

**OR**

- Temp >38°C or 1.1° above baseline on 2 consecutive occasions (4-6 hr apart)
  
    Temp 1 _________  Temp 2 _________

**PLUS one or more of the following:**

- New or increased urinary frequency, urgency, incontinence
- New flank or suprapubic pain or tenderness
- Hematuria

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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 next slide.
**Additional information:**

Diagnosis of UTI in catheterized residents in LTC is a diagnosis of exclusion. If the resident has non-specific symptoms, such as increased confusion, agitation or falls, look for other causes for the change in behavior and discuss with the physician.

The UTI checklist should not be initiated for catheterized residents unless 1) there is no other identifiable cause of infection and 2) at least one typical symptom is present.
In the past, non-specific symptoms alone were often thought to signal a UTI and the need for antibiotics. Using antibiotics to treat non-specific symptoms contributes significantly to antibiotic resistance and unnecessarily exposes residents to the short and long term risks associated with antibiotic use. More about risks associated with antibiotic use on slide 34.

What is **not** in the criteria for UTI in LTCF

*In non-catheterized or catheterized residents*

- New or increased falls
- Decreased appetite
- New or increased verbal or physical aggression
- New or increased wandering
- Confusion
- Disorientation
- Disorganized thinking

Alberta Health Services

bugs? drugs?
Clinical management of typical symptoms

*Medical status deteriorating rapidly*

- Ensure clinical findings are documented
- Review the Goals of Care Designation
- **Fax or communicate** all information on the form to the prescriber
- **Indicate urgent** on the fax
- **Call** the prescriber
Clinical management of typical symptoms

Medical status not deteriorating rapidly (slide 1 of 2)

- Ensure clinical findings are documented
- PUSH FLUIDS for 24 hours and reassess
  - If resident is medically stable, there is no evidence of increased morbidity or mortality associated with waiting 24 hours
  - Residents on fluid restriction need to be assessed and monitored individually
Clinical management of typical symptoms

Medical status not deteriorating rapidly (slide 2 of 2)

- If symptoms resolve, no further intervention is required
- If typical symptoms continue:
  - Review Goals of Care
  - Fax or communicate all information on the form to the prescriber
  - Indicate urgent on the fax
  - Call the prescriber
Challenges

- Residents may not be able to verbalize how they are feeling
- Residents may show a decline in functional or mental status making assessment more difficult
- Non specific symptoms are often misinterpreted as indicating a UTI
- Typical signs and symptoms are required for a correct diagnosis of UTI
Residents with non-specific symptoms

- Non-specific symptoms often resolve with good hydration
- Push fluids for 24 hours and reassess
- No evidence of increased morbidity or mortality* associated with waiting 24 hrs to see if typical symptoms develop

*Unless medical status is rapidly declining

Additional information:
Non-specific symptoms in the absence of clinical signs of infection should be discussed with the physician.
If clinical assessment indicates UTI

- Urine culture and sensitivity (C&S) should be ordered
- Continue to push fluids unless the resident is on fluid restriction
- Empiric antibiotic therapy should not be initiated until laboratory results are available unless medical status is declining rapidly
Specimen collection and handling

- Collect urine samples before initiation of antibiotic therapy
- Avoid contamination: midstream urine; in/out catheter
- Collect samples in laboratory supplied containers
- Follow laboratory instructions for specimen collection and handling
  - Ensure all fields on label are complete
  - Specimens should be picked up within 24 hrs
Laboratory requisitions

To assist laboratory staff with interpreting C&S results, ensure all fields on the requisition are complete, including:

- Method of specimen collection
- Signs and symptoms including onset
- Whether fluids have been pushed for 24 hours
- Catheterization status
- Drug allergies
- Recent or current antibiotic use

Additional information:

Indicating the method of specimen collection will allow laboratory staff to exclude contamination if the specimen has three or more organisms.

Drug allergies and recent or current antibiotic use will guide sensitivity testing.
Background / optional information:
Most laboratories in Alberta are currently (or will be) reporting culture and sensitivity results for urine specimens with bacterial counts $\geq 10^6$ cfu/L (greater than or equal to $10^6$ colony forming units per liter). This is a change in laboratory testing policy. In the past only specimens with bacterial counts $\geq 10^8$ cfu/L were tested for sensitivity.

This change was initiated because residents with UTI may have bacterial counts as low as $10^6$ cfu/L due to increased fluid intake (dilutes the urine) or frequent voiding (doesn’t allow enough time for bacterial counts to build up).

Take home message:
The role of C&S is to guide selection of antibiotic therapy, not to confirm a diagnosis of UTI.
Interpreting C & S results

- Urine C&S will indicate which antibiotics are effective against the bacteria causing the infection
- Urine C&S should not be used to diagnose a UTI; diagnosis of UTI is based on clinical assessment
- Role of urine C&S is to guide selection of antibiotic therapy

Take home message:
The role of C&S is to guide selection of antibiotic therapy, not to confirm a diagnosis of UTI.
Multiple organisms

- 20% of UTIs are associated with more than one organism
- More than 3 organisms usually indicates contamination and a new specimen is required
- Include information on lab requisition about specimen collection to help lab rule out contamination
If antibiotics were started before C&S results are available, check to ensure that the organism(s) identified is (are) susceptible to the antibiotic being administered.

<table>
<thead>
<tr>
<th>If organism(s) is (are) not susceptible to antibiotic prescribed</th>
<th>OR</th>
</tr>
</thead>
<tbody>
<tr>
<td>If C&amp;S results are &lt;10⁰</td>
<td></td>
</tr>
<tr>
<td>- Contact the prescriber</td>
<td></td>
</tr>
<tr>
<td>- <strong>STOP</strong> the antibiotic</td>
<td></td>
</tr>
</tbody>
</table>

If antibiotics were started before C&S results are available, check to ensure that the organism(s) identified is (are) susceptible to the antibiotic being administered.

If organism(s) is (are) not susceptible or if the C&S results indicate no infection, **STOP** the antibiotic. This can be a point of confusion as patients receiving antibiotics are always instructed to take all of their antibiotic prescription even if they are feeling better. However, those instructions apply to instances when the antibiotic has been prescribed appropriately. If the antibiotic is not appropriate or not needed, then it should be stopped. Continuing with inappropriate or unneeded antibiotics contributes to avoidable increases in rates of antibiotic resistance and unnecessarily exposes the resident to the short and long term risks associated with antibiotic use.
Communication with the prescriber

- **Fax or communicate** information on the checklist and the C & S report to the prescriber

- **Indicate urgent** on the fax cover sheet

- **Call** the prescriber to discuss findings
Renal function and dose adjustment

*Calculated Creatinine Clearance (CrCl)*

- A calculated CrCl of <60 mL/min indicates a significant loss of renal function and the need for dose adjustment
- Consult with pharmacist to ensure dose is appropriate
UTI follow up

• Continue to monitor
• Document clinical findings
• If no improvement after 24 hours, consider transfer to acute care
Is repeat C&S needed?

- Repeat C&S after antibiotic therapy is NOT necessary unless symptoms persist
- No need to check for a cure
Avoiding UTI Pitfalls

Diagnosis of UTI using dipstick or Chem-9

- A negative dipstick rules out a UTI
- A positive dipstick is not diagnostic for a UTI
- Pyuria or white blood cells in urine is common in the elderly and is not diagnostic for UTI
- Routine dipsticks are not recommended
- Best practice: resident monitoring and assessment, pushing fluids and C&S testing if typical symptoms continue
Avoiding UTI Pitfalls

Use of antibiotics to treat abnormal urine characteristics

- Foul smell is not an indicator of UTI
- Abnormal color is not suggestive of UTI
- Gross hematuria is usually not caused by a UTI
Avoiding UTI Pitfalls

Diagnosis of UTI based on urine C&S

- A large proportion of LTC residents will have bacteria in their urine and not have a UTI (asymptomatic bacteriuria)
- Diagnosis of UTI depends on clinical signs and symptoms of infection
- Diagnosis of UTI based on C&S results leads to false positives and unneeded use of antibiotics
- Treatment of asymptomatic bacteriuria is the most common reason for inappropriate use of antibiotics in the elderly
Avoiding UTI Pitfalls

Use of antibiotics in the absence of UTI symptoms

- Antibiotics for the right or wrong reasons are not without risk

- Short term risks include alteration of intestinal flora
  - increased risk of *C. difficile* infection

- Long term risks include
  - increased carriage of resistance genes in normal bacterial flora
  - increased chance that subsequent infections will be difficult or impossible to treat
Antibiotic resistance

- Antibiotic resistance is an unavoidable, unwanted side effect of antibiotic use
- Occurs whether antibiotics are used for the right or wrong reasons
- Need to minimize inappropriate antibiotic use to limit the development of antibiotic resistance
- Inappropriate use of antibiotics has negative consequences at the population level and also for individual patients who consume antibiotics
For more information

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

Thank you