In the Know

Nursing Home Edition

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It's Not Too Late to Vaccinate!

Influenza can be a serious health threat, especially for people who are vulnerable to serious flu illness, like older adults and people living with certain long-term medical conditions. People older than 65 years of age are at high risk for hospitalization and complications from the flu and account for the majority of flu hospitalizations and deaths in the United States each year.

Health care personnel in long-term care facilities may have direct or indirect contact with older adults, persons with disabilities, and persons with chronic medical conditions receiving care. Preventing influenza among health care personnel can help reduce the spread of flu in resident populations.

CDC recommends influenza vaccination in all health care personnel to reduce the spread of flu. Health care personnel should get their flu vaccine early in the fall, by the end of October, if possible. However, **influenza activity is still high in Louisiana. It is not too late to encourage staff vaccination in an effort to not only protect themselves, but your residents as well.**

Wrapping-Up CDC's 7 Core Elements of Antibiotic Stewardship Programs for Long-term Care

In the last issue of our series covering each of CDC's 7 Core Elements of Antibiotic Stewardship for Long-term Care (https://www.cdc.gov/longtermcare/prevention/antibiotic-stewardship.html), we tackle the final three Core Elements: tracking antibiotic use and outcomes, reporting, and education.

Do you already have an Antibiotic Stewardship Program that meets CDC's 7 Core Elements? Do you have educational materials that have been effective in creating antibiotic awareness for your staff, residents, and their family? Or have you created templates for tracking and reporting measures that you'd be willing to share with other nursing homes? We'd love to share your successes in this newsletter! Please contact Andrea Salinas at Andrea.Salinas@la.gov to share your tools, best practices, and success stories with other nursing homes.

Process, Antibiotic Use, and Antibiotic Outcome Measures

Core element 5 is the tracking of processes, antibiotic use, and outcomes associated with antibiotic use. Facilities should be using these measures to track the impact of antibiotic stewardship activities performed to comply with core element 4: policy and practice changes. Relatedly, core element 6 requires facilities to report their findings back to prescribing clinicians and nurses to maintain awareness about progress being made in antibiotic stewardship. Please note: specific tracking and reporting should be tailored to policy and practice changes implemented in your facility. Examples offered below may not be applicable to your specific antibiotic stewardship programs. For a list of measures, please reference *The Core Elements of Antibiotic Stewardship for Nursing Homes* Appendix B: https://www.cdc.gov/longtermcare/pdfs/core-elements-antibiotic-stewardship-appendix-b.pdf

Process Measures for Tracking Antibiotic Stewardship Activities

Tracking process measures is an important component to evaluating antibiotic stewardship programs. This allows you to address problems and improve processes. One method to accomplish this is through audits. Auditing is a quality improvement process that should be used to ensure compliance with antibiotic stewardship policies and procedures. This requires both monitoring processes and documenting your findings so that compliance can be assessed over time.

- *Audits of Clinical Assessment Documentation*
  Incomplete assessment and documentation of a resident's clinical status, physical exam or laboratory findings at the time a resident is evaluated for infection can lead to uncertainty about the rationale and/or appropriateness of an antibiotic. If your facility has developed algorithms or protocols for evaluating a resident suspected of having an infection, then perform audits of the quality of the assessment to ensure the algorithm was followed.

- *Audits of Completeness of Antibiotic Prescribing Documentation*
  Documentation of dose, duration, and indication should be provided for every course of antibiotics prescribed. Audits should be performed, regardless of whether the antibiotic was initiated at the nursing home or at a transferring facility, to ensure the antibiotic prescribing elements have been addressed and recorded.

- *Review of Antibiotic Selection*
  If a facility has developed and implemented facility-specific treatment guidelines for one or more infections, then an intermittent review of antibiotic selection is warranted to ensure practices are consistent with facility policies.

Measures of Antibiotic Use

- **Antibiotic Starts**
  Tracking and reporting antibiotic start data could assess the impact of antibiotic stewardship initiatives designed to educate and guide providers on situations when antibiotics are not appropriate. However, interventions focused on shortening the number of days of therapy may not demonstrate significant changes in antibiotic starts.

  *Note: As an example, the following formulas include *"# of New Antibiotic Starts for Urinary Tract Infections"*. However, these calculations can be completed using antibiotic starts for any infection type or generally for all antibiotics used in your facility.

  $$Rate\ of\ new\ antibiotic\ starts\ (per\ 1,000\ patient\text{-}days) = \frac{\#\ of\ New\ Antibiotic\ Starts\ for\ Urinary\ Tract\ Infections}{Total\ Number\ of\ Resident-Days} * 1,000$$

  Rates of antibiotic starts can also be calculated for individual prescribers in the nursing home to compare prescribing patterns among different providers practicing in the facility. However, prescriber-specific rates must take into account differences in the total number of residents cared for by each provider.

- **Antibiotic Days of Therapy (DOT)**
  Tracking antibiotic days of therapy (DOT) allows facilities to monitor changes in antibiotic use over time. The ratio of antibiotic DOT to total resident-days has been referred to as the antibiotic utilization ratio (AUR). An *antibiotic day* is each day that a resident receives a single antibiotic. For example, if a resident is prescribed a 7-day course of amoxicillin, that course equals 7 antibiotic days.

  $$Antibiotic\ Day = \frac{\#\ of\ New\ Antibiotic\ Starts\ for\ Urinary\ Tract\ Infections}{Total\ Number\ of\ Resident-Days} * 1,000$$

  Antibiotic DOT is the sum of all antibiotic days for all residents in the facility during a given time frame.

  $$Rate\ of\ Antibiotic\ DOT\ (per\ 1,000\ resident\text{-}days) = \frac{Total\ monthly\ DOT}{Total\ Monthly\ Resident-Days} * 1,000$$

  $$Antibiotic\ utilization\ ratio\ (AUR) = \frac{Total\ monthly\ DOT}{Total\ Monthly\ Resident-Days}$$

- The following presentation from Quality Insights – Quality Improvement Network (QI-QIN) defines common measures of antimicrobial use and explains how to calculate such measures such as Days of Therapy (DOT), Length of Therapy (LOT), and Defined Daily Dose (DDD). It also explains how to create simple graphs of trends in antimicrobial use:
  https://www.qualityinsights-qin.org/Files/C1/201509_PDPH_Webinar.aspx.

Antibiotic Outcome Measures

- ***Track C. difficile and Antibiotic Resistance***
  Overprescribing and misprescribing is contributing to the growing challenges posed by *Clostridium difficile* and antibiotic-resistant bacteria. Improving prescribing practices may help reduce rates of *C. difficile* infection and antibiotic resistance, but can also improve individual patient outcomes, all while reducing healthcare costs.

  C. difficile infections and antibiotic resistant infections such as Methicillin Resistant *Staphylococcus aureus* (MRSA) and Carbapenem-Resistant *Enterobacteriaceae* (CRE), can be tracked using a simple spreadsheet. The National Nursing Home Quality Improvement Campaign has tracking tools, with instructions for use, which can be found here: https://www.nhqualitycampaign.org/goalDetail.aspx?g=inf#tab2.

  C. difficile and MRSA can also be tracked using the National Healthcare Safety Network (NHSN): a CDC-operated web-based system for tracking and reporting targeted infections and antibiotic-resistant organisms from healthcare facilities. For more information about NHSN and the requirements for reporting, please reference: http://www.cdc.gov/nhsn/ltc/cdiffmrsa/index.html

- ***Track Adverse Drug Events***
  Antibiotics are frequently prescribed at nursing homes and can cause many adverse events. Adverse events can be tracked and appropriateness of antibiotic prescribing can be assessed and documented. CMS has an "Adverse Drug Event Trigger Tool" available at the following site and antibiotic specific adverse drug events can be referenced on pages 13-14: https://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/QAPI/Downloads/Adverse-Drug-Event-Trigger-Tool.pdf.

Education

Nursing homes should provide antibiotic stewardship education to clinicians, nursing staff, residents and families. Effective educational programs address both nursing staff and clinical providers on the goal of an antibiotic stewardship intervention, and the responsibility of each group for ensuring its implementation. Education can be provided in many formats: flyers, pocket-guides, newsletters or electronic communications. However, face-to-face-interactive workshops have the strongest evidence for improving medication prescribing practices.

Nursing homes should also engage residents and their family members in antibiotic use and stewardship educational efforts to ensure clinicians have their support to make appropriate antibiotic use decisions. The following toolkit from the Agency for Healthcare Research and Quality provides resources for providing education to residents and their families: https://www.ahrq.gov/nhguide/toolkits/educate-and-engage/index.html.