



MICHIGAN DEPARTMENT OF COMMUNITY HEALTH

Considerations for *Streptococcus pneumoniae* Outbreaks in Long-Term Care and Nursing Home Facilities

Background: Pneumonia is the second most common cause of infection and leading cause of death from infections in long-term care facilities (LTCF) and nursing homes. LTCF and nursing home residents develop pneumonia more frequently than their peers in the community and have higher rates of hospitalization. LTCF/nursing home residents are predisposed to infections due to population characteristics of the facility, such as age of the residents, chronic health conditions, increased use of antibiotics and other medications, frequent hospitalizations, living in a crowded environment, etc. Up to 48% of pneumonia in nursing homes and LTCFs is caused by *Streptococcus pneumoniae*, the most common cause of nursing home/LTCF-acquired pneumonia. *Streptococcus pneumoniae* is a Gram positive, aerobic bacteria. Mode of transmission is person-to-person via respiratory droplets or from autoinoculation in persons carrying the organism asymptotically in their upper respiratory tract. Peak season for infection is in the winter and early spring.

Pneumococcal polysaccharide vaccine (PPSV) administration recommendations:

- All adults 65 years of age and older
- Anyone 2 through 64 years of age who:
 - has a long-term health problem, such as heart disease, lung disease, sickle cell disease, diabetes, alcoholism, cirrhosis, cochlear implant, or leaks of CSF
 - has a disease or condition that lowers the body's resistance to infection, such as Hodgkin's disease, lymphoma or leukemia, kidney failure, multiple myeloma, nephrotic syndrome, HIV infection or AIDS, damaged spleen or no spleen, or organ transplant
 - is taking a drug or treatment that lowers the body's resistance to infection, such as long-term steroids, certain cancer or immunosuppressive drugs, or radiation therapy
- Any adult 19 through 64 years of age who is a smoker or has asthma
- All residents of nursing homes or long-term care facilities

Things for LTCF and nursing home staff to consider prior to an outbreak:

- Infection prevention staff should have an awareness of the baseline rates of pneumonia in their facility
- Have tools on-hand, such as line list templates that can be used during a suspected outbreak
- Keep up-to-date vaccination records on staff and residents and have knowledge of vaccination rates for residents and staff (e.g., pneumococcal, influenza)
- Employees and residents should always be up to date on all recommended vaccinations (i.e., pneumococcal, influenza) to help prevent illness and co-infections, which may increase the severity of illnesses
- Ensure appropriate and judicious use of antibiotics in the facility to prevent the proliferation of drug-resistant strains of bacteria

If an outbreak is suspected or confirmed:

- Increase surveillance and institute enhanced prevention measures if two or more cases of pneumonia due to *Strep pneumoniae* are diagnosed in a short amount of time, or if the rates of pneumonia are above baseline for the time of year
- Report suspected outbreak to the local health department
- Conduct chart review of all ill cases
- Develop a provisional case definition with assistance from the local health department
- Review immunization records of residents and staff
- Review staff attendance and illness history- direct ill staff to stay home until symptoms resolve or appropriate treatment has been completed
- Create a line list of ill cases with onset dates, symptoms, vaccination status, etc.
- Conduct active case finding- obtain clinical evaluation, CXR, CBC, blood & sputum cultures, NP swabs for viral studies, as appropriate
- Assure appropriate lab testing to determine organism identification, susceptibility, and effective antibiotic treatment regimen
- Administer pneumococcal vaccination to any unvaccinated residents and encourage unvaccinated staff to be vaccinated, as appropriate. See vaccine recommendations above.
- During a large outbreak, prophylactic antibiotics may be considered for all well residents in the facility (or unit, if illness is confined to one area)
- Implement and reinforce infection control & prevention measures including:
 - Standard precautions: hand hygiene; personal protective equipment (PPE) cough etiquette; environmental cleaning and control; and correct handling of used patient-care equipment.
 - Droplet precautions (in addition to standard precautions): appropriate use and sanitation of patient-used respiratory equipment; single patient rooms for ill, if possible; cohorting of patients and staff; staff should maintain a >3 foot distance from patient or use mask and eye protection; and drawing curtains between beds.
 - Patients to wear a mask if they leave their rooms
 - Limit social gatherings and group activities for patients
 - Restrict new admissions and transfers to other facilities until outbreak is over
 - Implement visitor policy requesting anyone with illness refrain from visiting until recovered