

Managing Respiratory Outbreaks in Long Term Care Facilities

Lindsay Nicolle

General Measures

Administrative Leadership

- policies
- resources
- expertise

General Measures

Early identification

- community illness
- surveillance
- clinical criteria: cough, fever, coryza
- cases: number
temporal, spatial
staff

Early Identification

Laboratory Diagnosis

- plan developed with laboratory
- when outbreak suspected
- who to culture: symptoms
- culture sites:
 - nasopharyngeal
 - sputum
- other tests
 - rapid tests
 - serology

Outbreak Response

- authority: individual, team
- resources
- interventions
 - heightened infection control practice
 - separation/cohorting
 - restriction
 - disease specific
- case finding/monitoring

Outbreak Response

Heightened Infection Control

- hand hygiene
- personal protective equipment
 - gloves
 - masks (surgical)
- environmental cleaning

Outbreak Response

Separation/Restriction

- single room/cohorting
- dining/group activities
- visitors

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Outbreak Response

Case Finding/Monitoring

- identify extent and progress
- efficacy of interventions
- end of outbreak

Specific Infections

- influenza
- S. pneumoniae
- Mycobacterium tuberculosis
- Legionella spp

Influenza Outbreaks/Policies

Bradley, SHEA

- yearly vaccination residents/staff
- clinical/epidemiologic definitions
- surveillance for outbreaks
- criteria for diagnostic specimens
- patient separation & visitor restriction
- notification of public health
- prophylaxis

Influenza Outbreaks LTC

Associations

- low vaccination rates
- ↑ size of facility
- residence on closed ward
- meals in common dining area

Prevention of Infection Community Elderly

APIC, 2002

Influenza vaccination >60 years

efficacy

- preventing laboratory proven illness 58%
- preventing respiratory illness 56%
- preventing pneumonia hospitalization 50%
- preventing death 68%

Influenza: Surveillance Definition

Proposed

- attack rate ILI of 10%
- ≥ 3 episodes 48 to 72 hr, one unit with one known case
- single confirmed case influenza A

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Influenza: Specific Interventions

- vaccination: patients
staff
- work exclusion: unvaccinated staff
- prophylaxis: who
how long
- ? treatment

Influenza: Prophylaxis

- amantidine: less costly
neurologic side effects
dose adjustment/renal
resistant viral strains
only influenza A
- oseltamavir: more costly
influenza A and B

Influenza Outbreak in LTC Use of Prophylaxis

- all residents
– vaccinated/unvaccinated
- unvaccinated staff
- duration of outbreak (usually 2 weeks)

Streptococcus pneumoniae outbreak

- pneumonia or bacteremia
- S. pneumoniae isolated
(sputum or blood)
- similar strain (typing)

Streptococcus pneumoniae Outbreak

Specific Issues

- vaccination
- drug susceptibility
- mass treatment

Pneumococcal Vaccine

- recommended all LTC residents
- ? efficacy
- ? protection in outbreaks

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Pneumococcal Pneumonia Outbreak

Tan et al, ICHE, 2003

S. Pneumoniae Outbreak

Treatment

- susceptibility
 - penicillin
 - macrolides
- mass treatment (?)

Tuberculosis

- variable risk in LTCF
- pulmonary infectious
- delayed diagnosis

Tuberculosis program

- admission skin test (two step)
- staff skin test (two step)
- early recognition: chronic pneumonia
- laboratory support: culture

Potential Tuberculosis Outbreak

- isolate patient
- confirm diagnosis
- follow-up contacts
 - patients
 - staff

Potential Respiratory Outbreak

- one wing
 - two patients, one staff
- cough, low grade fever
- one pneumonia

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Potential Respiratory Outbreak

Consider

- time of year
- what is happening in community

Response (1)

- segregate patients
- ? staff mask
- staff off work/mask
- reinforce hand hygiene

Response (2)

- laboratory confirmation
 - nasopharyngeal
 - sputum
 - sputum: bacterial culture
 - serology
- additional case-finding
 - definition
 - same wing; other wings

Potential Respiratory Outbreak

- 4 more patients, same wing
- 2 patients another wing

Response (3)

- laboratory specimens
- notify public health
- outbreak team

Response (4)

- communication
 - staff, residents, community
- reinforce hand hygiene/gloves/masks for ill care
- ? organism specific interventions
- ? patient restrictions
- appropriate to risk, clinical status
- ? visitor restrictions
- continued case finding
- review laboratory results

} Daily

Outbreak Conclusion

- definition: no new cases, defined time
- summary: cause
 - morbidity
 - mortality
- any opportunities for improvement