Antibiotic Stewardship during Transitions

Minnesota Dept of Health Antibiotic Stewardship Webinar Series

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Objectives

- Brief review of Antibiotic Stewardship.
- Motivation to act: We've done this before
- Explore practical ways to institute ASP during transitions
- Explain the dynamic tension between:
  - Expertise and Checklists
  - The benefits of an "Antibiotic Timeout"

Audience Quiz: Focus on Ireland

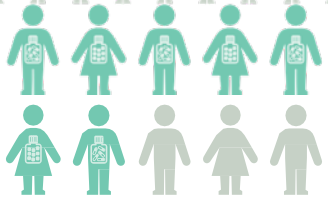
Antibiotic Stewardship

- Stewardship:
  - “the careful and responsible management of something entrusted to one’s care”
- Antibiotic Stewardship
  - “A Mindset to use antibiotics appropriately”
- Three Critical Complications from inappropriate use
  - Clostridium Difficile
  - Resistant Organisms
  - Cost and Side Effects

Antibiotic Stewardship in Nursing Homes

4.1 MILLION

Americans are **admitted to** or **reside in nursing homes** during a year[1]



UPTO **70%**

of nursing home residents **received antibiotics** during a year[2,3]

UPTO **75%**

of antibiotics are **prescribed incorrectly***[2,3]

CDC recommends

7 CORE ELEMENTS

for antibiotic stewardship in nursing homes

Leadership Commitment • Accountability
Drug Expertise • Action • Tracking
Reporting • Education

*incorrectly = prescribing the wrong drug, dose, duration or reason

[1] AHCA Quality Report 2013.
[2] Lim CJ, Kong DCM, Stuart RL. Reducing inappropriate antibiotic prescribing in the residential care setting: current perspectives. Clin Interven Aging. 2014; 9: 165-177.
[3] Nicolle LE, Bentley D, Garibaldi R, et al. Antimicrobial use in long-term care facilities. Infect Control Hosp Epidemiol 2000; 21:537–45.

Centers for Disease Control and Prevention
National Center for Emerging and Zoonotic Infectious Diseases

CS256096

Case Study 1: Fear of “Sepsis”

- 85 year old chronic nursing home resident
  - Friday evening
    - Fever of 100.5, poor po intake
    - Tylenol brought the fever down, and patient slept well
  - Saturday
    - Fever 101.8, “pushed fluids”
    - Tylenol suppressed fever, pt. somewhat agitated/lethargic
  - Sunday
    - Fever 103, P – 120, BP 90/45
    - Unresponsive
    - To ER with 8 day hospitalization for sepsis, presumably urinary source

Case Study: Failure to Diagnose

- We are all reasonably fearful of missing the diagnosis of infection
- The elderly present in different ways with infection
- Early detection prevents complications
- We, therefore, tend to overtreat potential infections

Case Study 2:
Lack of Evidence Based Treatment

- Multiple Sclerosis patient, mid fifties, suprapubic catheter
- Transferred to the hospital in sepsis
  - Died from a “new” organism: Vancomycin Resistant Enterococcus
- Reviewed at the QA meeting
  - “Oh Dr. Mielke, didn’t you know. . .”
  - Q 2 month catheter change by urology, with UC done
  - 10 days of antibiotics, with “followup” culture by PMD
  - Usually another course of antibiotics

Case Study: Death from VRE

- We all know that this was inappropriate care.
- IF YOU SEE SOMETHING, SAY SOMETHING!
- We need to overcome the “Doctor knows best syndrome”

“Doctor knows best”

- When Failure Is Not an Option
  - Robert Pool
  - From Beyond Engineering, A New Way of Thinking About Technology
  - 1997, Oxford University Press
  - Discusses how aircraft carriers deal with safety
- How is an aircraft carrier and a nursing home alike and different?

“Doctor knows best”
Aircraft Carriers and Nursing Homes

Similarities

- “20 somethings”
- High staff turnover
- Complex issues
- Safety
- Regulations
- Routine activity mixed with random chaos

Differences

- The Navy has more resources
- Failure is more obvious
- Only 1 captain on an aircraft carrier;
  - multiple captains in LTC.

“Doctor knows best” but . . . in complex situations

- In complex situations
  - Hierarchical structures give way to collegial patterns
  - Centralized to decentralized
  - Rule-bound to learning-centered
- “The purpose is simple: to avoid mistakes.”
- Interactions need to change to fit the circumstances.

“Doctor knows best”
Aircraft Carriers and Nursing Homes

- The main points are:
  - Everyone is responsible for the safety of the resident
  - Everyone should be heard when someone is at risk
  - Antibiotic Stewardship is about establishing a system
  - The system will be ineffective if we allow hierarchical structures to subvert the safety of the resident.
  - “The doctor knows best” is a dangerous response.

Ireland Quiz:
What antibacterial has preserved this fish?
Is that agent still effective today?

We have done this before. . .

- Restraints
- Foley catheter
- Antipsychotic reduction
- “Unnecessary medications”
- Minimum Effective Dose for antidepressants

We have done this before. . .

- The Government is holding us (SNFs) responsible
  - For oversight of medical provider orders
  - For establishing a system of feedback
  - For providing optimal care
- We can no longer be passive partners in providing medical care
- We are expected to have expertise
- We are expected to act on our expertise

We have done this before. . .

- We must be able to say:
  - (We have been saying this for quite some time)

- “Doctor Mielke, there may be a better way to do this.”

- “Doctor Mielke, you seem to have made a mistake here.”

- “Doctor Mielke, we just can’t do it that way anymore.”

Influencing Hospital Practice:
A Case Study

- “If you see something, say something”
- Example:
  - Heel pressure ulcers
    - Local Nursing home notices:
      - Recurrent heel ulcers
    - Ortho unit at a local hospital
    - 3 months later. . .
      - Two identical cases
    - Neurology unit at the same hospital
- Do you know the name of the hospital infection preventionist?

What pathogen was responsible for the death of one million people in Ireland?

Practical Matters: Antibiotic utilization review

- Pharmacy Printout of Antibiotics
  - Medical Director review monthly
  - Types of antibiotics
  - Length of treatment
  - Provider preferences
- Laboratory “Antibiogram”
  - Majority of Cultures are urine
  - Help inform the use of empiric treatment
  - Educational feedback to providers

Practical Matters: @ rehospitalization

Quality Improvement Tool

For Review of Acute Care Transfers

INTERACT®

Version 4.0 Tool

The INTERACT QI Tool is designed to help your team analyze hospital transfers *(including ER visits, observation stay and admissions)* and identify opportunities to reduce transfers that might be preventable. Complete this tool for each or a representative sample of hospital transfers in order to conduct a root cause analysis and identify common reasons for transfers. Examining trends in these data with the INTERACT QI Summary Tool can help you focus educational and care process improvement activities.

Practical Matters: @ rehospitalization, Interact II usefulness

- Retrospective analysis of antibiotic use/infection management
  - Early detection of change of condition
  - Knowledge of culture and sensitivity results from hospital
  - Timely lab and xray tests at the SNF
  - Communication with medical providers
  - Family or medical preferences for DC to ER/Hospital
  - Overuse/side effects of antibiotics: resistant organisms, diarrhea, allergic rx

Practical Matters:
Medication Management on Transition

- Medication Reconciliation
- Exerting our expertise (or responding to regulatory pressure)
  - Antipsychotic Use
  - Hypnotics
  - Beer's list medications
    - Digoxin
    - Iron
  - Anticholinergic medications
  - Prolonged proton pump inhibitors
  - Prolonged antidepressants without justification
  - Medications without diagnosis

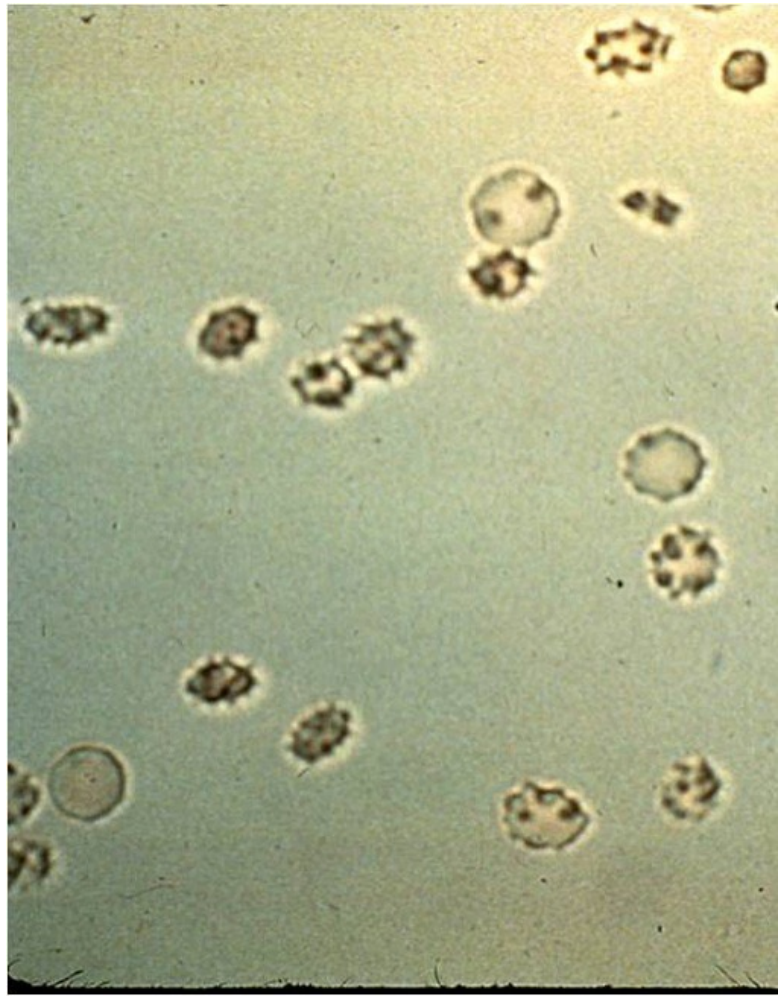
Practical Matters:
Med management -- antibiotics

- RE: Antibiotics on admission
  - Is there a mistake here that could harm the resident?
  - Unnecessary medication: no infection
  - Wrong medication: Does not match the sensitivity profile
    - Bug drug mismatch
  - Wrong dose: renal function
  - Wrong duration: Assess resident clinical status, labs, microbiology reports

  - This will require teamwork and communication.
    - Do you know the name and number of the hospital infection preventionist?

Practical Matters: @ admission

- Diagnosis for antibiotics
- Culture and Sensitivities for infections
  - Is this an effective treatment? “
    - “Bug drug mismatch”
  - Guide future empiric treatment
- Actual symptomatic reason for treatment
  - Emergency Department - UTI
  - Treatment of viral respiratory symptoms

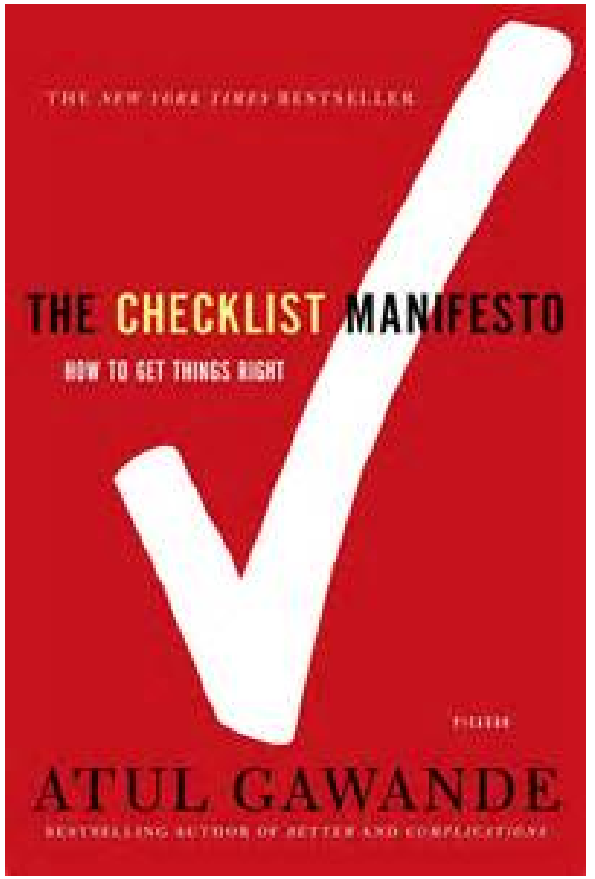


Practical Matters: @ Admission to LTC/TCU

- Pre admission work: The admissions nurse
  - High cost/unusual antibiotics
  - Stop dates
  - Prolonged use/prophylactic antibiotics
  - Resistant organism
  - C Diff infection/history
- Complexity:
  - The admission task is highly complex
  - It is very time sensitive
  - It is risky

Tension: Expertise and Complexity
A desire for simplicity

The Checklist Manifesto: Atul Gawande



Why Checklists? Complexity

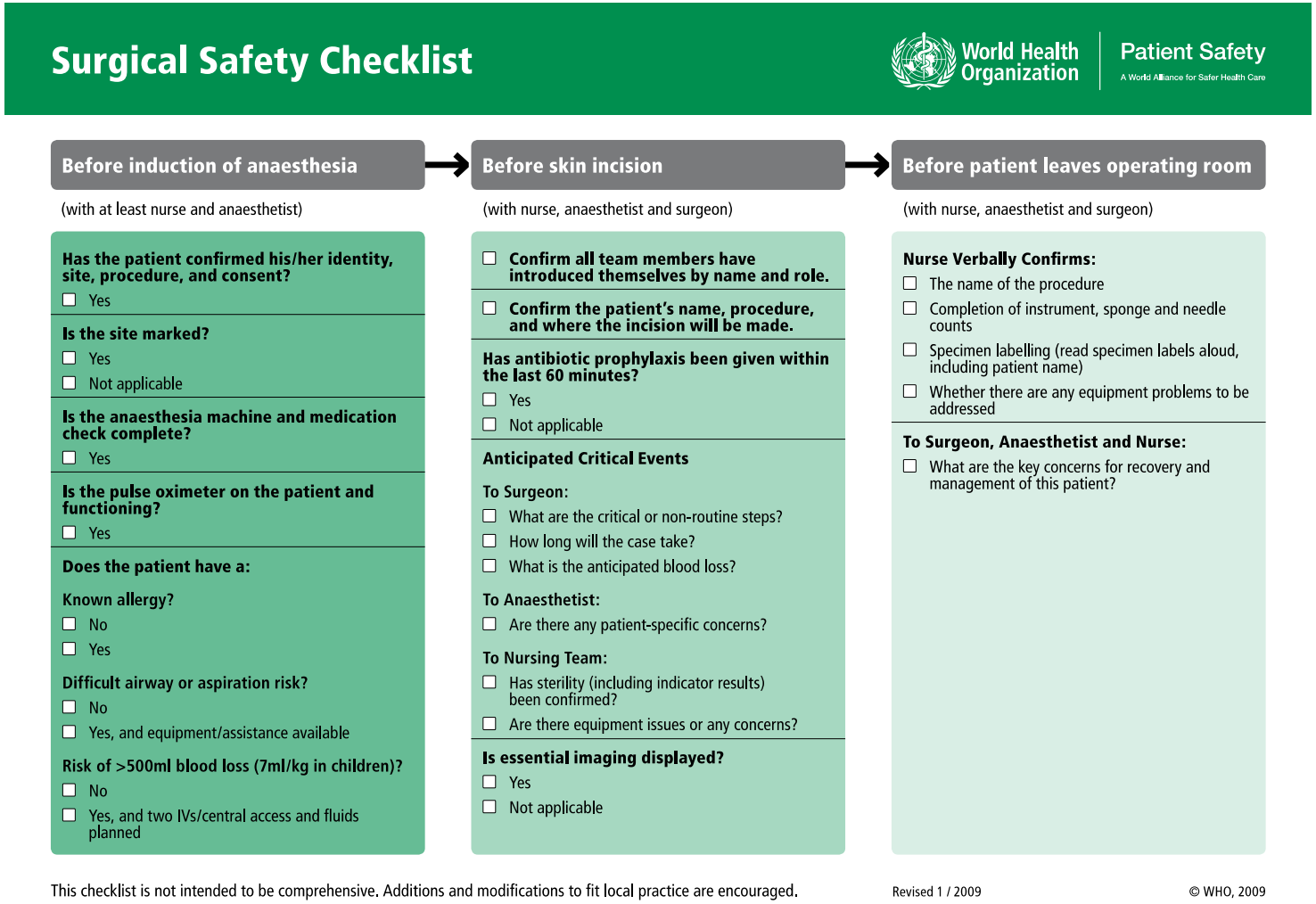
- Increasing Complexity
  - Errors of attention, not expertise
  - Example: B17 test flight
  - “Too complex to fly”
  - Result: aviation checklists

Why Checklists? Resident Safety

- Rapid decision-making
  - Errors of oversight, not expertise

  - Example:
  - Flight 1549 on the Hudson
  - Elements on checklist:
  - “Introduce self to crew”
  - “Fly the plane”

Gawande's contribution to surgical safety: Surgical "timeout" checklist



Surgical Safety Checklist

World Health Organization | Patient Safety
A World Alliance for Safer Health Care

Before induction of anaesthesia

(with at least nurse and anaesthetist)

Has the patient confirmed his/her identity, site, procedure, and consent?
- ☐ Yes

Is the site marked?
- ☐ Yes
- ☐ Not applicable

Is the anaesthesia machine and medication check complete?
- ☐ Yes

Is the pulse oximeter on the patient and functioning?
- ☐ Yes

Does the patient have a:

Known allergy?
- ☐ No
- ☐ Yes

Difficult airway or aspiration risk?
- ☐ No
- ☐ Yes, and equipment/assistance available

Risk of >500ml blood loss (7ml/kg in children)?
- ☐ No
- ☐ Yes, and two IVs/central access and fluids planned

Before skin incision

(with nurse, anaesthetist and surgeon)

- ☐ **Confirm all team members have introduced themselves by name and role.**
- ☐ **Confirm the patient's name, procedure, and where the incision will be made.**

Has antibiotic prophylaxis been given within the last 60 minutes?
- ☐ Yes
- ☐ Not applicable

Anticipated Critical Events

To Surgeon:
- ☐ What are the critical or non-routine steps?
- ☐ How long will the case take?
- ☐ What is the anticipated blood loss?

To Anaesthetist:
- ☐ Are there any patient-specific concerns?

To Nursing Team:
- ☐ Has sterility (including indicator results) been confirmed?
- ☐ Are there equipment issues or any concerns?

Is essential imaging displayed?
- ☐ Yes
- ☐ Not applicable

Before patient leaves operating room

(with nurse, anaesthetist and surgeon)

Nurse Verbally Confirms:
- ☐ The name of the procedure
- ☐ Completion of instrument, sponge and needle counts
- ☐ Specimen labelling (read specimen labels aloud, including patient name)
- ☐ Whether there are any equipment problems to be addressed

To Surgeon, Anaesthetist and Nurse:
- ☐ What are the key concerns for recovery and management of this patient?

This checklist is not intended to be comprehensive. Additions and modifications to fit local practice are encouraged.

Revised 1 / 2009

© WHO, 2009

Why Checklists?
Focus on detail in complex situations

- Antibiotic “Timeout” Checklist
  - Use at admission/transitions/New antibiotic orders
  - Clarifies the issues
  - Codifies our expertise
  - Keeps the critical variables forefront
    - Especially during busy times (ie admission/discharge)
  - Doesn’t rely on individual expertise or personality

Sample Checklist

Antibiotic "Timeout" Checklist (admit)

Data:

Antibiotic ordered

Drug and Dose: _____

Duration Start Date_____

End Date _____

Total Days _____

Diagnosis: _____

Documentation:

Culture report	Y or N
Sensitivities (Do they match?)	Y or N
Justification for ongoing use?	Y or N

Red Flags:

- ☐ > 7days or No stop date
- ☐ High cost/unusual medication
- ☐ IV Route
- ☐ Lack of Justification
- ☐ Failure to include C and S reports (if done)

Action:

- ☐ Notify DON or Medical Director to assess admission record and medications prior to transfer (or within 48 hours of admission)

Where did the phrase, “Saved by the bell” originate?

Case Study: Failure of Antibiotic Stewardship

- 83 year old female with frequent UTIs
- Frail, multiple hospitalizations
- Bona fide UTI: fever, dysuria, frequency
  - UA, UC ordered
  - Ceftriaxone 1 gm IM x 3 days
  - Fever resolved by day 2
  - Day three: UC reported to “On Call” provider
  - Order for 3 days of “Bactrim”
    - Bacteria was resistant to “trimethoprim-sulfamethoxazole”
  - Patient hospitalized 5 days later in acute renal failure.

Antibiotic Stewardship: Big Picture

- Leadership commitment
- Accountability
- Drug Expertise
- Action
- Tracking
- Reporting
- Education

Drug Expertise: Length of Treatment

- Community Acquired Pneumonia – 5 days
- Ventilator Associated Pneumonia – 7 days
- UTI (Cystitis) – 3 days
- Cellulitis – 5 days
- General principle: Treatment over 7 days should be the exception

- Use an antibiotic ”timeout” at 48 hours to reconsider the necessity of the current treatment.

Summary

- Antibiotic overuse injures patients
- LTC is part of a continuum of care
- We have a responsibility to limit unnecessary antibiotics
- We have a developing expertise in antibiotic utilization
- Retrospective tools:
  - Antibiotic prescribing patterns
  - Infection reports
  - Rehospitalization reviews
- Antibiotic “timeout” reviews are a very helpful addition:
  - At admission, discharge, change of condition and new antibiotic orders