Exploring the Key Role Nurses Play in Antimicrobial Stewardship

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Disclosures

None
Overview

Antimicrobial Resistance (AMR)

Antimicrobial Stewardship (AMS)

Nursing Role in Antimicrobial Stewardship

ICU Quick Reference Guide

Fear to Undertreat or Overtreat

Choosing Wisely
Antimicrobial Resistance
3 Methods

Bacteria
Use to
Resist
Antibiotics

1. Efflux Pump
2. Neutralization
3. Modification

(Longitude Prize, 2015)
Top Ten Most Dangerous and Antibiotic Resistant Bacteria

(Longitude Prize, 2014)
1. Staphylococcus aureus (MRSA)
2. Burkholderia cepacia
3. Pseudomonas aeruginosa
4. Clostridium difficile
5. Klebsiella pneumoniae
6. Escherichia coli (E.Coli)
7. Acinetobacter baumannii
8. Mycobacterium tuberculosis
9. Neisseria gonorrhoeae
10. Streptococcus pyogenes

(Longitude Prize, 2014)
here man, just take these antibiotics

why? it's just a viral illness?

antibiotics have no side effects

oh well in that case, thanks man

no worries, my dude

c. difficile
1 in 5 inpatients treated with antibiotics is harmed

Retrospective cohort study of 5,579 adult internal medicine inpatients at Johns Hopkins Hospital
- 27% received antibiotics
- 20% developed at least 1 adverse antibiotic event
- 19% of antibiotic regimens not clinically indicated

324 antibiotic adverse events:

- GI 41%
- MDRO infection 26%
- Renal 14%
- Heme 9%
- Hepatobiliary 4%
- Neuro 4%

(Edmond, 2017a)

Tamma PD et al. JAMA Int Med 2017; epub ahead of print.
Importance of Antimicrobial Stewardship

Successful stewardship depends on nurses’ ongoing vigilance.

- Olans, Olans & Witt (2017)
Antimicrobial Stewardship

How Antimicrobial Stewardship Models Align with Nursing Activities?
The critical role of the staff nurse in antimicrobial stewardship—unrecognized, but already there.
Olans et al., 2016

1. Patient Admission
2. Daily Clinical Progress Monitoring
3. Patient Safety & Quality Monitoring
4. Clinical Progress/ Patient Education/ Patient Discharge
Hand hygiene compliance & barriers in ICU nurses

Quantitative, cross-sectional, overt, direct observational study of 64 ICU nurses in 4 hospitals

Observed barriers to hand hygiene compliance

- Carrying something: 9%
- Donning gloves or PPE: 6%
- Pushing/pulling work stations: 2%
- Using a mobile device: 1%

Reasons for compliance in high performers

- Internalization of standard precautions
- Previous exposure & desire to avoid repeat risk
- Prior preceptor advocated compliance
- Incentives (bonuses, pay raises)
- Pregnancy & concern for unborn baby

(Edmond, 2017b)
Nursing Role in Antimicrobial Stewardship

5 Key Strategies to Influence AMS In Your Practice
5 Key Strategies

1. Correct ABx information
2. Correct ABx route
3. Reassess ABx therapy
4. Review ABx therapy
5. Reconcile ABx
# ICU Quick Reference Guide

**Antibiotic Cheat Sheet 2016**

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### Medication Reconstitution

<table>
<thead>
<tr>
<th>Medication</th>
<th>DIRECT IV push/Gravity Buretrol</th>
<th>Intermittent IV/IV Pump</th>
</tr>
</thead>
</table>
| **Ayclovir** | NO | **MAX** [10 mg/mL]  
500 mg in 50 mL  
1 g in 100 mL  
*NS, D5W, RL*  
over a: least 60 min |
| **Ampicillin** | MAX [100 mg/mL]  
1 g in 10 mL over 10 min  
2 g in 20 mL over 20 min  
**max 100 mg/min, may cause seizures** | 1 g in 50 mL  
2 g in 100 mL  
*NS, D5W*  
*Incompatible with RL*  
both over 15-20 min |
| **Azithromycin** | NO | **MAX** [1-2mg/mL]  
250-500 mg in 250-500 mL  
*NS, D5W, RL*  
over 60 min |
| **Caspofungin** | NO | 35-70 mg in 250 mL  
35-50 mg in 100 mL if fluid restricted  
*NS, RL*  
over 60 min |
| **Cefazolin** | MAX [100 mg/mL]  
1 g in 10 mL over 3 min  
2 g in 20 mL over 5 min | 1 g in 50 mL  
2 g in 100 mL  
*NS, D5W, RL*  
both over 10-60 min |

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The antibiotic course has had its day

Fear to Undertreat or Overtreat

Llewelyn et al. (2017)

- Limited evidence to suggest stopping treatment early contributes to antibiotic resistance

- Replace “Complete Course” with “Exactly as Prescribed”

- More evidence is needed to support limited duration antibiotic trials
You have been diagnosed with a **viral infection**.

Viruses cause colds, coughs, sore throats, and other flu-like illnesses. **Antibiotics will not cure or help a viral infection.** It is best to avoid antibiotics if you have a viral infection as they may cause harm.

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**Suggestions for symptom relief:**

- Rest and drink plenty of fluids. Reduce or eliminate caffeinated coffee, tea or soda.
- For a sore throat, suck on lozenges or ice chips, or gargle salt water (1/2 tsp table salt in 8 oz. of warm water).
- For a stuffy nose, use saline nasal spray or drops.
- For fever and pain relief, use over the counter acetaminophen or ibuprofen.

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**Please talk to your healthcare provider if you have:**

- No improvement in _____ days.
- New or worsening symptoms.
- A new or higher fever.

It is important to mention serious or chronic medical conditions such as diabetes, asthma, or heart disease to your healthcare provider. **To prevent spreading infections wash your hands frequently.**

Signature: ____________________________
Final Thoughts

What does AMS look like in your area of practice?

Questions?

Thank You