

A graphic of a spiral-bound notebook with a brown cover and a light beige page. The spiral binding is on the left side. A thin horizontal line is drawn across the page, positioned above the title text.

MRSA *in Perspective*

C.G. Wlodaver, M.D.

A graphic of a spiral-bound notebook with a brown cover and a white page. The spiral binding is on the left side. The text is centered on the page.

Reference: SHEA/IDSA

Practice Recommendation

Calfee DP, et al. Strategies to Prevent Transmission of Methicillin-Resistant *Staphylococcus aureus* in Acute Care Hospitals. *Infect Control Hosp Epidemiol* 2008;29:S62-80

Pyramid of Concerns

AS

Standard IC

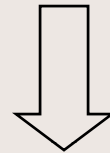
MDRO/*C.diff*

MRSA

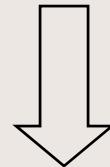
IOM: 98K deaths/y, esp. HAIs

Goals

Formulate an **IC Consensus** on MRSA



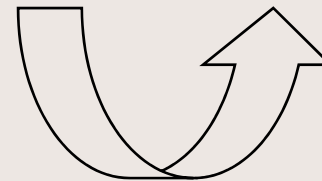
Recommendations



Implementation

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Measurements



I. What's Special about MRSA?

Prevalence

Hospital *and* community

Virulence

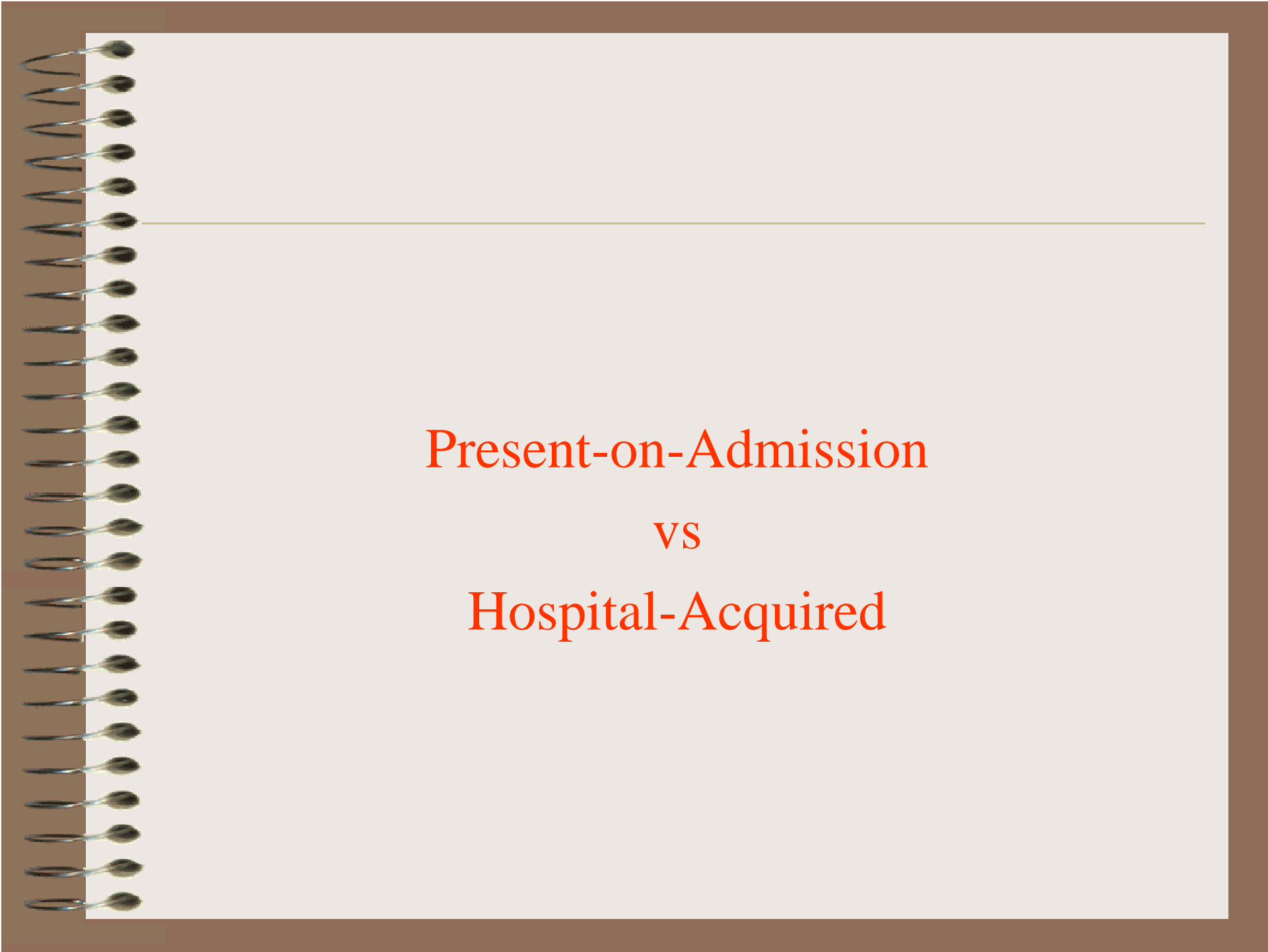
Transmissibility

Targeted by CMS

Perspective

- **Nasty strains**

 - CA-MRSA
 - Molecular biology
 - USA-300
 - SCC*mecIV*
 - Toxins
 - » PVL
 - » Other
 - More virulent
 - More transmissible
 - Increased fitness
 - HA- vs CA- MRSA
 - Commingling
 - View them as one in the same

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Present-on-Admission
VS
Hospital-Acquired



- **Why is MRSA flourishing?**

- Antibiotics: judicious and injudicious use –
(Antibiotic stewardship)

- Nature hates a void
 - *C. difficile*
 - Darwinism...
 - Flemming
 - Weinstein, L
 - Native American wisdom

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Alexander Flemming
1945 Nobel Lecture

Bacteria can easily be educated
to become resistant

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Louis Weinstein

By the end of the 1940s he was warning of the overuse of and impending resistance to these [antibiotic] agents

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Native American Wisdom

Hold fast to the words of your ancestors
(Hopi)

Be kind to everything that lives (Omaha)



■ **Several antibiotic Rx options vs MRSA**

- Vancomycin IV
- Daptomycin
- Linezolid
- TXS
- Clindamycin
- TCN/tigecycline
- Quinupristin/dalfopristin
- (Rifampin/gentamicin)
- Future agents



II. Is the MRSA Epidemic an Isolated Phenomenon?

No.

It's part of a much larger
MDRO epidemic.

Perspective

- MDRO nosocomials
 - GPC
 - VISA, VRSA
 - MSSA
 - VRE
 - CoNS
 - GNR: *no Rx exists for some*
 - ESBL
 - CRE (carbapenem-resistant enterobacteriaceae)
 - Pseudomonas aeruginosa
 - Acinetobacter
 - Yeast
 - Non-albicans Candida sp

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- Device-related infections

- IV

- Foley

- Other

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- Other antibiotic-resistant organisms
 - Viruses
 - Etc.

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- *C. difficile*

- Epidemic

- Morbidity

- Relapses

- Mortality

- NAP-1

III. What's the Role of Standard IC in Regards to MRSA?

Conventional infection control interventions, viz.
hand-washing,*
are effective, *if enforced*

* And contact isolation, prn


Perspective

- How is MRSA routinely transmitted?
 - Patient-to-patient: No...
 - Patient-to-**HCW hands**-to-patient: Yes
- How does infection control intervention break the chain-of-transmission?
 - **Health-care worker hand-washing**
 - (Patient isolation)

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The power to prevent resistance
is in your hands

CDC. Get Smart about Antibiotics Week—October 6-10, 2008.
MMWR 2008;57 (<http://www.cdc.gov/getsmart>)



Antibiotics
the epitome of IC...
will eliminate the clinical impact of
infectious diseases

As stated by an ID Giant and by
the Surgeon General

Logical?

Absurd!

Irony



IV. Must We Resort to AS to Control MRSA?

Controversial

Controversial

Controversial

Perspective

- Efficacy?
 - Data...
 - Quasi-experimental
 - “Search and destroy” has its logic and appeal
 - Iceberg-reservoir analogy
 - Practical application
 - Arduous
 - Unappealing
 - Biologically infeasible
 - Illogical

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- **Implementation issues**

- Who to culture?

- Targeted vs universal?

- How often to culture?

- Intermittent shedding

- Site(s) to culture?

- Nares vs nares + pharynx

- “Z,” i.e. axilla, naval, groin, etc.

- Method of detection/rapidity of results?

- Routine culture

- Chromogenic agar media

- PCR



- More implementation issues, and side effects

- Isolation

- When: Before or after microbiology results?
- Duration?
- Unintended consequences
 - Negative impact on patient!
 - Negative impact on family and friends!
 - If patient *not* in MRSA isolation, what about other MDROs?

- Treatment

- Therapeutic
- Decolonization
- *C. difficile*

- Cost

- Time
- \$

- Personnel

- Fatigue/continuance

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- Recommendation

- Use AS as a last resort, if conventional IC ineffective

- Posit: Hand-washing will be effective, *if used diligently*. Therefore, AS will not be necessary.
- “One size does not fit all.”

A graphic of a spiral-bound notebook with a brown cover and a silver spiral binding on the left side. The notebook is open to a light gray page. A horizontal line is drawn across the page, and a list of bullet points is written on it. The main bullet point is in red, and the sub-bullets are in black. A quote is also in red and italicized.

- **Consequences of shunning AS**

- Those hospitals already invested

- Time, energy, personnel, \$
- Consternation

*The greatest care must be given to nuance,
if we are not to do more harm than good*

- Those hospitals not yet invested

- Reprieve

Conclusions

- **Focusing on MRSA**
 - Not unreasonable, as a surrogate for all HAIs
 - Yet narrow-minded, scapegoat-ish, dangerous in that it draws attention away from other MDROs
 - May not be in the patients' best interest
 - **Mandated**

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- We should be able to satisfy *both* the patients' best interests *and* the government mandates

They aren't mutually exclusive nor contradictory



Enforce hand-washing

- Ref. SCIP...
- Process
 - Sinks & Soap
 - Dispensers: Antiseptic-impregnated soap
 - **Pocket-portable antiseptics**
 - Use before and after all patient contacts

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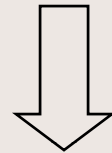
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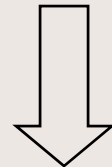
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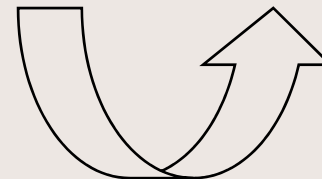
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Should we make a statement regarding
Active Surveillance?