

# Antibiotic-Resistance Research and Implementation

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PACCARB

Presidential Advisory Council on Combating Antibiotic-Resistant Bacteria



U.S. Department of Health and Human Services



Agency for Healthcare Research and Quality

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Improvement and Patient Safety

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# CARB Activities: Research & Implementation

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- Support **research** to develop improved methods and strategies for combating antibiotic resistance (AR) and conducting antibiotic stewardship (AS)
- Translate research findings into tools for **implementing** AR prevention
- Promote **implementation** of AS in all settings with innovative methods and tools



# Innovating in All CARB Domains

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- Improving Antibiotic Use and Promoting Antibiotic Stewardship
- Preventing Transmission of Resistant Bacteria
- Preventing HAIs in the First Place



# Antibiotic Stewardship: Research

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- Personalizing antibiotic stewardship to the patient and integrating it into the EHR
- Examining influences on physician & nurse decisions about antibiotics in nursing homes
- Comparing implementation strategies for antibiotic stewardship in nursing homes



# Antibiotic Stewardship: Implementation

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- CUSP for AS: Re-engineering an effective method of preventing HAIs to improve antibiotic use in all settings
- Implementation guide for AS in nursing homes: translating research into practical tools
  - ▶ Create an antibiotic stewardship program
  - ▶ Determine whether to treat with antibiotics
  - ▶ Choose the right antibiotic
  - ▶ Engage residents and families
- Toolkit for reducing C. diff infections through AS



# Preventing Transmission: Research

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- Reducing transmission of MRSA in households with children
- Decreasing transmission of carbapenem-resistant gram-negative bacteria with universal glove and gown



# Preventing Transmission: Implementation

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- **Enhanced Protocol for Universal Decolonization**
  - ▶ Based on REDUCE-MRSA trial
  - ▶ Combining study protocol and QI elements into clinician-friendly tools
- **CRE Control and Prevention Toolkit**
  - ▶ Combining CDC guidelines with QI approaches





# Preventing HAIs: Research

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- Universal decolonization to reduce resistant infections in nursing homes
- Novel approach to improving hand hygiene and reducing HAIs in pediatric long-term care facilities



# Preventing HAIs: Implementation

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## CUSP Elements

- Improvement in:
  - ▶ Safety culture
  - ▶ Teamwork
  - ▶ Communication
- Checklist of proven practices



# CUSP Implementation Impact

## Innovative Adaptation:

- CUSP for CLABSI: 41% ↓ in CLABSI rate
- CUSP for CAUTI in hospitals:
  - ▶ 701 non-ICUs: 30% ↓ in CAUTI rate
  - ▶ 509 ICUs: no significant ↓
  - ▶ Follow-up project: CUSP for ICUs with persistently elevated rates
- CUSP for CAUTI in LTC
  - ▶ Significant ↓ in CAUTI rate
- Toolkits





# Looking Ahead

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## Funding CARB Research: 2 FOAs (R01 and R18)

- Antibiotic Stewardship
  - ▶ Improved methods for conducting AS, esp. in LTC & amb.
  - ▶ Promoting implementation of AS in all settings
  - ▶ Role of rapid diagnostics in improving antibiotic use
- Preventing Transmission
  - ▶ Regional approaches that span hospital, LTC, & ambulatory
  - ▶ Reducing transmission of C. diff and MDROs
- Preventing HAIs
  - ▶ Connection to HAI Prevention FOAs (R01 and R18)