

When Sharing ISN'T Caring: Preventing HAI / MDRO Transmission

Infection Prevention: A Community Effort Symposium
September 9, 2011

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Surveillance & Infectious Disease Epidemiology (SIDE) Section

Michigan Department of Community Health



Outline

- **Definitions and organisms**
- **Prevention & control strategies**
- **MDCH SHARP HAI & MDRO surveillance and prevention activities**
- **Questions and answers**

Transmission Locations: More than just Hospitals!

- Acute care hospitals
- Long term care
- Long term acute care
- Ambulatory surgical centers
- Home care
- Wound care clinics
- Dialysis facilities
- Outpatient facilities and offices
- Schools and daycares
- Gyms and pools
- Correctional facilities

The list goes on and on.....



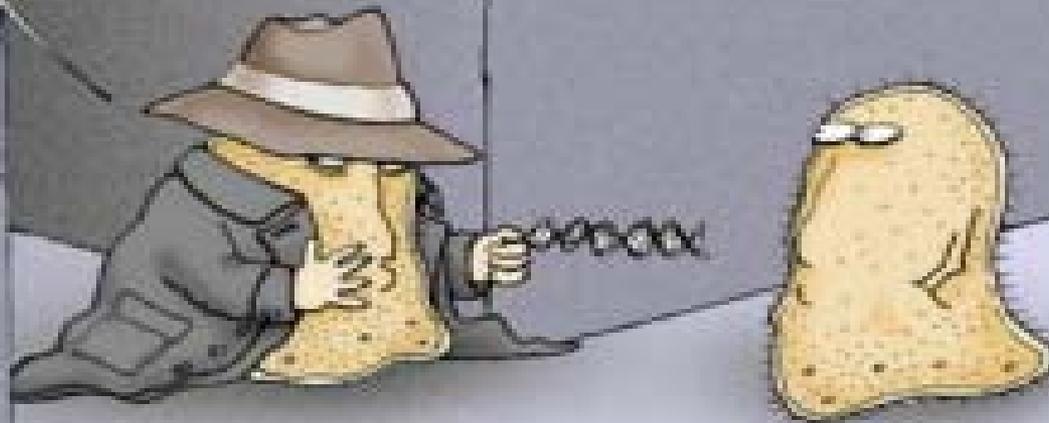
What are Healthcare-Associated Infections (HAIs)?

- Infections acquired within a healthcare facility — i.e. hospital, long term care facility, & other
- Not present on admission
- Not incubating at time of admission to facility
- Previously called “nosocomial infections”

What are Multidrug-Resistant Organisms (MDROs)?

- Organisms with decreased susceptibility to multiple classes of antimicrobial agents
- Most often bacteria
- Commonly are healthcare-associated infections (HAIs)
- Increasing prevalence in community

Pssst! Hey kid! Wanna be a Superbug...?
Stick some of this into your genome...
Even penicillin won't be able to harm you...!



It was on a short-cut through the hospital kitchens that Albert was first approached by a member of the Antibiotic Resistance.

The Organisms

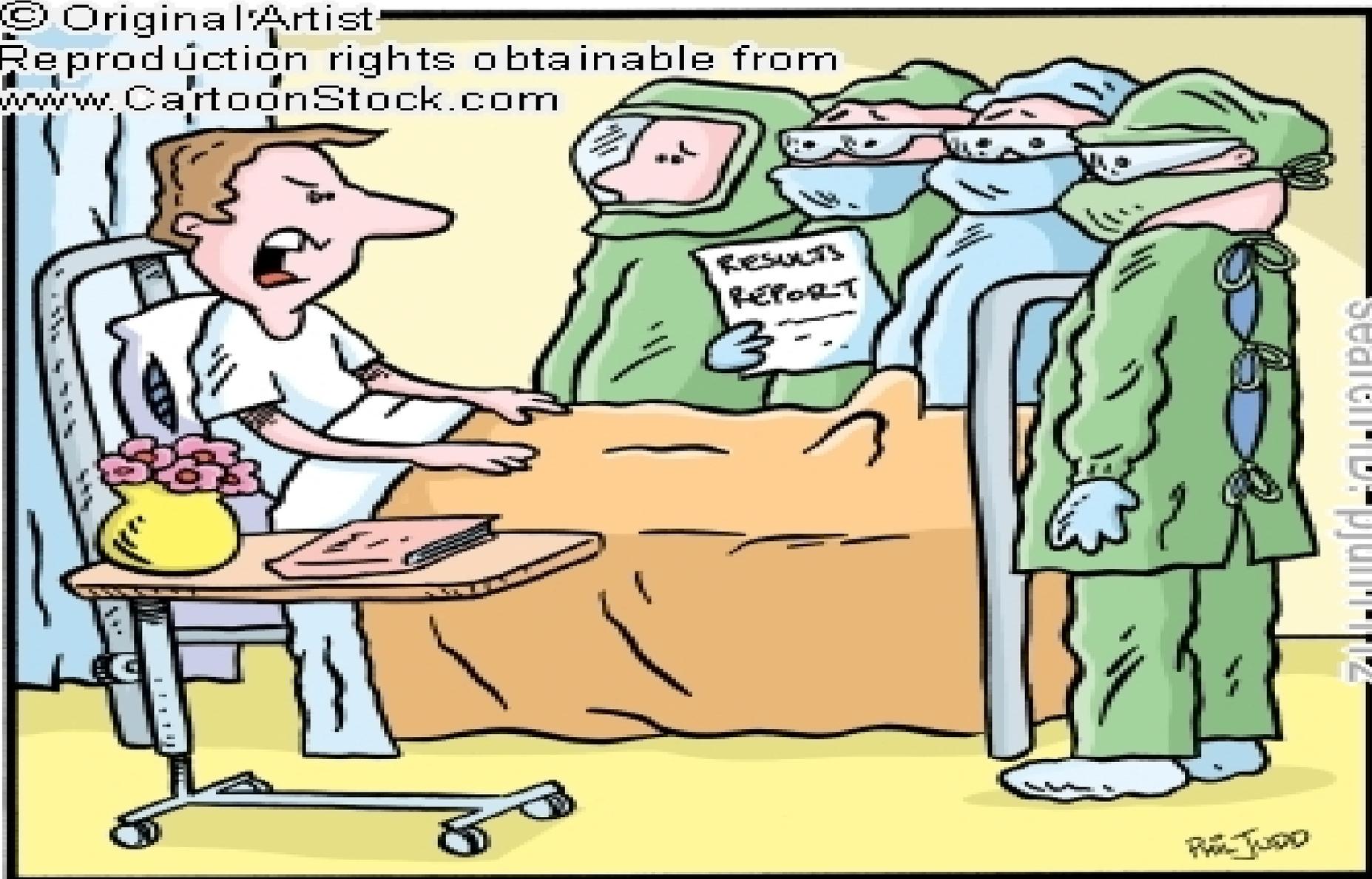
Alphabet soup!!!

- MRSA (CA-MRSA and HA-MRSA)
- VRE
- VISA
- VRSA
- MDR GNB: ESBLs, KPCs, and CREs

And lets not forget....

- Clostridium difficile
- Influenza
- Rotavirus
- Rhinovirus
- Norovirus
- TB
- HBV / HCV and HIV / AIDS
- Et cetera...

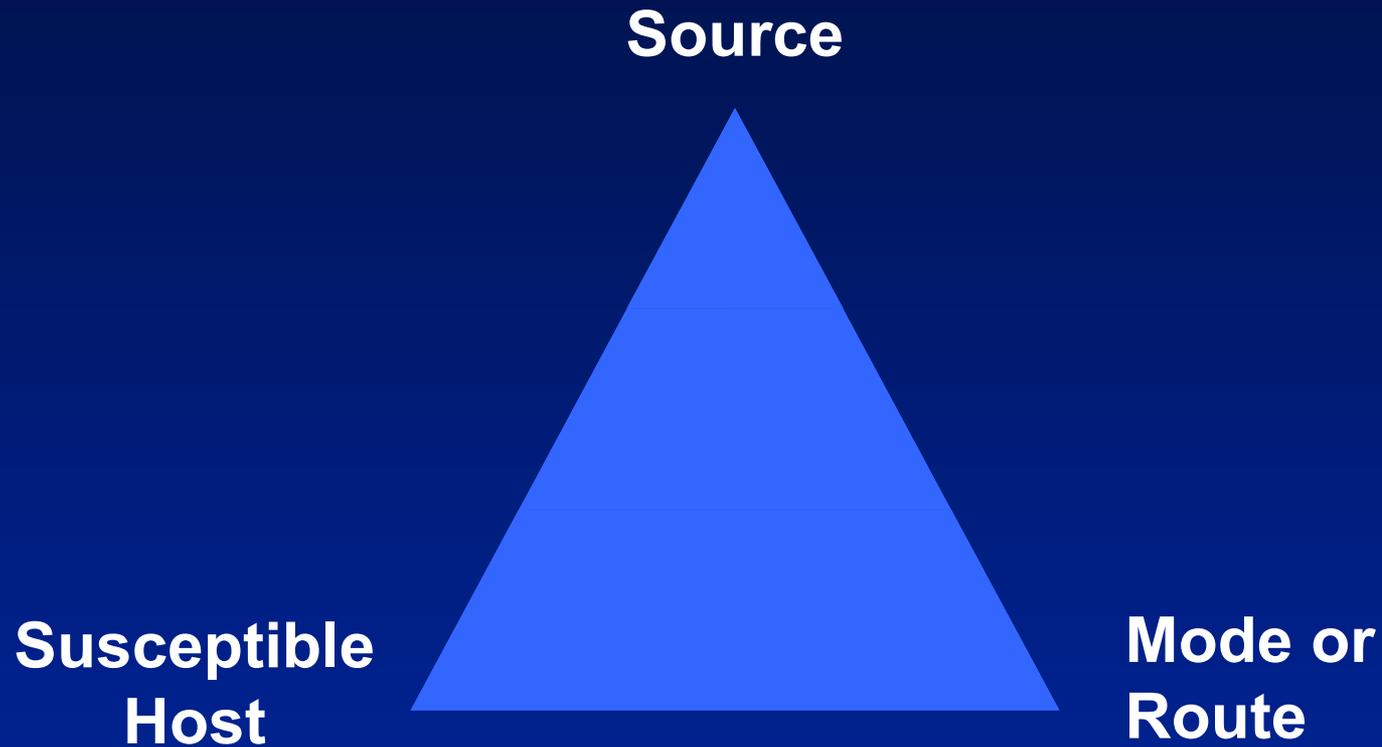
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"Let me guess...it's contagious!"

Requirements for Transmission



Risk Factors for HAI / MDRO Acquisition

- Existing severe illness
- Underlying disease or condition
- Invasive medical procedures
- Repeated contact with healthcare system
- Prolonged hospitalization
- Previous colonization with a MDRO
- Elderly and immune-compromised

Routes of Transmission

- **Contact**
 - Person to person, direct or indirect
 - Most MDROs
- **Droplet**
 - Respiratory droplets ($>5 \mu\text{m}$) to host mucosa over short distance (e.g. ≤ 3 feet)
- **Airborne**
 - Small particles ($\leq 5 \mu\text{m}$) infective over time and distance
- **Bloodborne**
 - Poor injection technique most frequent exposure

Infection Control Precautions

- Standard
- Transmission-based = ISOLATION
 - Contact
 - Droplet
 - Airborne

Standard Precautions

- All blood, body fluids, secretions (except sweat), nonintact skin, and mucus membranes assumed infectious
- Apply to all patients, regardless of suspected or confirmed infection status, in any setting in which healthcare is delivered
- Application determined by
 - Nature of interaction
 - Extent of anticipated blood, body fluid, or pathogen exposure
- Have an **ESSENTIAL** role in preventing transmission in **ALL** healthcare settings

Standard Precaution Measures

- Hand hygiene
- Respiratory hygiene / cough etiquette
- Safe injection practices
- Use of personal protective equipment (PPE)
 - PPE = gloves, gown, mask, eye protection, and/or face shield
- Handling of contaminated equipment / environment
 - Wear gloves for direct contact
 - Contain heavily soiled equipment
 - Properly clean and disinfect or sterilize reusable equipment

Contact Precautions

- For infections spread by contact and patients with excessive wound drainage, fecal incontinence, or other bodily discharges
 - *Herpes simplex virus (HSV)*, respiratory syncytial virus (RSV), *Staphylococcus aureus*, most MDROs
- Gown and gloves for every interaction with the patient or potentially contaminated environment

Droplet Precautions

- For pathogens spread through close respiratory or mucous membrane contact with respiratory secretions
 - *Bordetella pertussis*, influenza virus, adenovirus, rhinovirus, *Mycoplasma pneumoniae*, SARS-associated coronavirus (SARS-CoV), group A streptococcus, and *Neisseria meningitidis*
- Personnel don mask for patient contact
- Single patient rooms or separation of ≥ 3 feet with curtain
- Mask patient (if tolerated) when transporting outside room and adhere to respiratory hygiene / cough etiquette

Airborne Isolation

- For agents that remain infectious over long distances when suspended in the air
 - *Mycobacterium tuberculosis*, rubeola virus (measles), and varicella-zoster virus (chickenpox)
- Airborne infection isolation room (AIIR)
 - Alternative: private room with door closed, patient mask, and N95 for personnel
- Providers wear mask or respirator

Patient Placement

- **Single-patient rooms**
 - **Airborne Precautions**
 - **Preferred for Contact and Droplet Precautions**
- **Cohort patients**
 - **By HAI / MDRO**
 - **With patients at low-risk for acquisition and adverse outcomes, and short stays**

Inter-facility Infection Control Transfer Form

Available under Long Term Care Toolkits at:

<http://www.cdc.gov/HAI/recoveryact/stateResources/toolkits.html>

Inter-facility Infection Control Transfer Form

This form must be filled out for transfer to accepting facility with information communicated prior to or with transfer
Please attach copies of latest culture reports with susceptibilities if available

Sending Healthcare Facility:

Patient/Resident Last Name	First Name	Date of Birth	Medical Record Number
		/ /	

Name/Address of Sending Facility	Sending Unit	Sending Facility phone

Sending Facility Contacts	NAME	PHONE	E-mail
Case Manager/Admin/SW			
Infection Prevention			

Is the patient currently in isolation? NO YES

Type of Isolation (check all that apply) Contact Droplet Airborne Other:

Does patient currently have an infection, colonization OR a history of positive culture of a multidrug-resistant organism (MDRO) or other organism of epidemiological significance?	Colonization or history <i>Check if YES</i>	Active infection on Treatment <i>Check if YES</i>
Methicillin-resistant Staphylococcus aureus (MRSA)		
Vancomycin-resistant Enterococcus (VRE)		
Clostridium difficile		
Acinetobacter, multidrug-resistant*		
E coli, Klebsiella, Proteus etc. w/Extended Spectrum B-Lactamase (ESBL)*		
Carbapenemase resistant Enterobacteriaceae (CRE)*		
Other:		

Does the patient/resident currently have any of the following?

Cough or requires suctioning Central line/PICC (Approx. date inserted ___/___/___)

Inter-facility Infection Control Transfer Form

(continued)

mer:

Does the patient/resident currently have any of the following?

- | | |
|--|--|
| <input type="checkbox"/> Cough or requires suctioning | <input type="checkbox"/> Central line/PICC (Approx. date inserted ___/___/___) |
| <input type="checkbox"/> Diarrhea | <input type="checkbox"/> Hemodialysis catheter |
| <input type="checkbox"/> Vomiting | <input type="checkbox"/> Urinary catheter (Approx. date inserted ___/___/___) |
| <input type="checkbox"/> Incontinent of urine or stool | <input type="checkbox"/> Suprapubic catheter |
| <input type="checkbox"/> Open wounds or wounds requiring dressing change | <input type="checkbox"/> Percutaneous gastrostomy tube |
| <input type="checkbox"/> Drainage (source) _____ | <input type="checkbox"/> Tracheostomy |

Is the patient/resident currently on antibiotics? NO YES:

Antibiotic and dose	Treatment for:	Start date	Anticipated stop date

Vaccine	Date administered (If known)	Lot and Brand (If known)	Year administered (If exact date not known)	Does Patient self report receiving vaccine?	
Influenza (seasonal)				<input type="radio"/> yes	<input type="radio"/> no
Pneumococcal				<input type="radio"/> yes	<input type="radio"/> no
Other: _____				<input type="radio"/> yes	<input type="radio"/> no

Printed Name of Person completing form	Signature	Date	If information communicated prior to transfer: Name and phone of individual at receiving facility

GUIDE TO INFECTION PREVENTION IN OUTPATIENT SETTINGS: Minimum Expectations for Safe Care



- Released April 2011
- Summary guide of infection prevention recommendations for outpatient (ambulatory care) settings
- Available at:
<http://www.cdc.gov/HAI/pdfs/guidelines/Ambulatory-Care-04-2011.pdf>

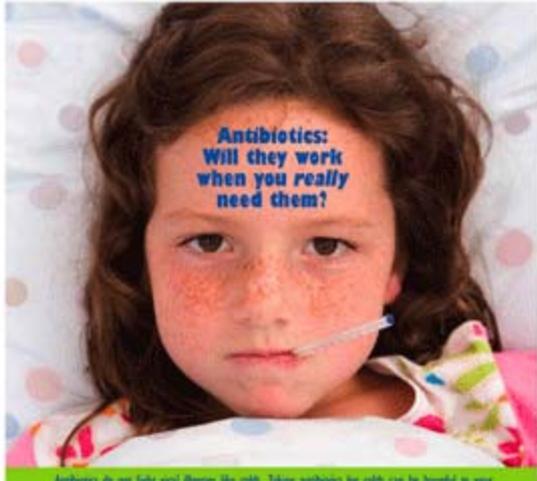
National Center for Emerging and Zoonotic Infectious Diseases
Division of Healthcare Quality Promotion



03217702



Antimicrobial Stewardship



- Promote adherence to appropriate prescribing guidelines among providers
- Decrease demand for antibiotics for viral upper respiratory infections among healthy adults and parents of young children
- Increase adherence to prescribed antibiotics for upper respiratory infections

<http://www.cdc.gov/getsmart/index.html>

<http://www.mi-marr.org/index.html>



Healthcare-associated Infections



HAI Elimination

www.michigan.gov/hai

Michigan Reporting Requirements

- Influenza
 - Weekly aggregate reports
 - Novel strain cases
 - Pediatric deaths
- HBV, HCV, HIV / AIDS, TB
- Methicillin resistant *Staphylococcus aureus* (MRSA) outbreaks
- Vancomycin-intermediate and -resistant *Staphylococcus aureus* (VISA/VRSA)
- Invasive *Streptococcus pneumoniae*, susceptible and drug-resistant
- Unusual occurrence, outbreak or epidemic of any disease or condition
 - Includes healthcare-associated infections (HAIs)
 - Includes epidemiologically significant organisms
 - Carbapenemase-resistant *Enterobacteriaceae* (CRE)
 - Includes noro, rota, rhino and influenza



New Surveillance Initiative

- Formation of SHARP Unit in 2009
- Surveillance of healthcare-associated infections and MDROs through voluntary participation of Michigan hospitals
- Data collected from National Healthcare Safety Network (NHSN)
- Currently, 50 participating hospitals sharing data with SHARP Unit



Prevention Collaboratives

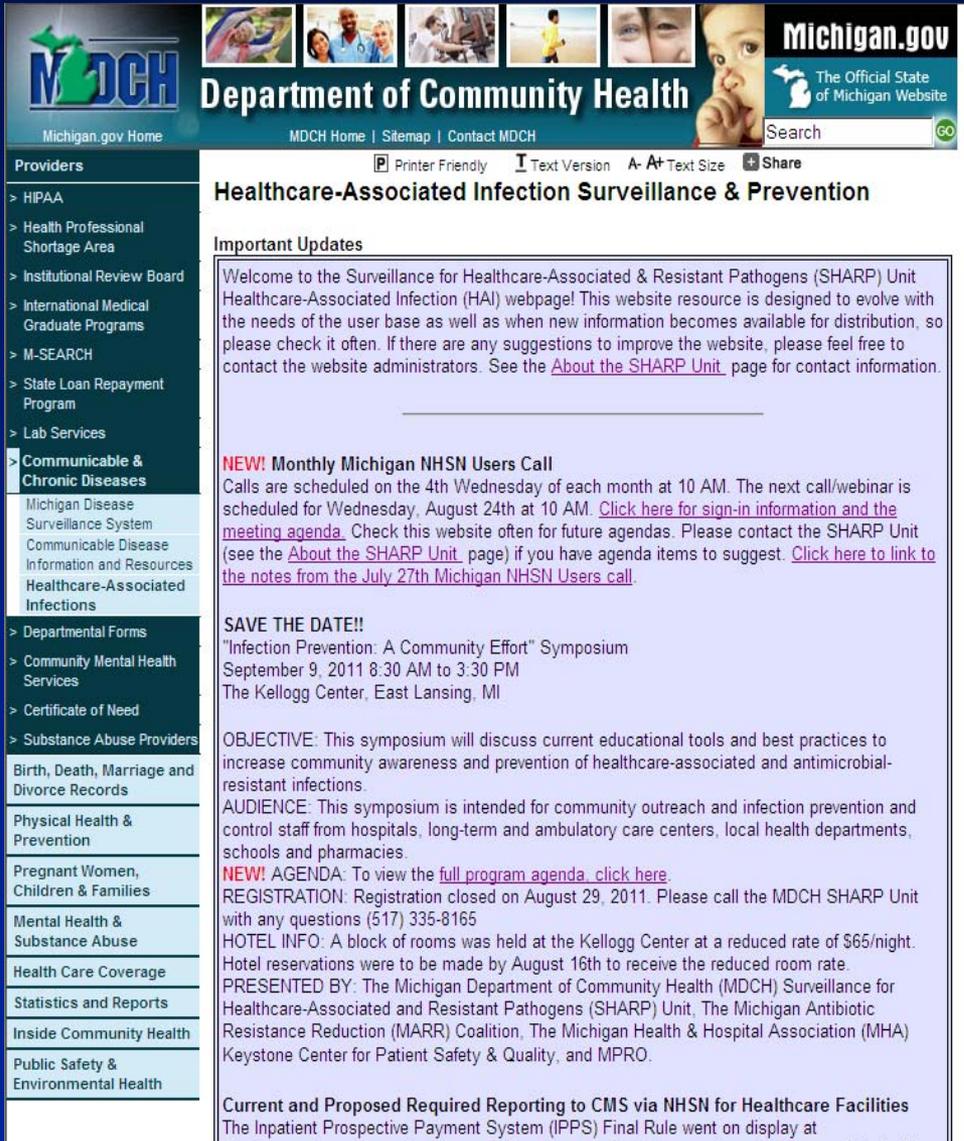
- **GOAL:** To implement evidence-based infection control measures for purpose of reducing infection rates in hospitals.
- **Partnering with existing collaboratives**
 - **MHA Keystone: HAI, Catheter-Associated Urinary Tract Infection (CAUTI) Initiative**
 - **MPRO: MDRO/MRSA Initiative**



NEW! Prevention Collaboratives

- **MRSA/CDI in acute, long term care, and long term acute care facilities**
- **CRE in acute, long term care, and long term acute care facilities (grant application pending)**
- **Future: SSI in acute and ambulatory surgical centers?**

MDCH HAI Website



The screenshot shows the MDCH HAI website interface. At the top, there is a navigation bar with the MDCH logo, the text 'Department of Community Health', and the Michigan.gov logo. Below this is a search bar and utility links like 'Printer Friendly', 'Text Version', and 'Text Size'. The main content area is titled 'Healthcare-Associated Infection Surveillance & Prevention' and features an 'Important Updates' section. The updates include a welcome message, a 'NEW! Monthly Michigan NHSN Users Call' announcement, a 'SAVE THE DATE!!' for a symposium, and an objective for the symposium. A sidebar on the left contains various menu items such as 'Providers', 'HIPAA', 'Communicable & Chronic Diseases', and 'Departmental Forms'.

Michigan.gov
The Official State of Michigan Website

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Healthcare-Associated Infection Surveillance & Prevention

Important Updates

Welcome to the Surveillance for Healthcare-Associated & Resistant Pathogens (SHARP) Unit Healthcare-Associated Infection (HAI) webpage! This website resource is designed to evolve with the needs of the user base as well as when new information becomes available for distribution, so please check it often. If there are any suggestions to improve the website, please feel free to contact the website administrators. See the [About the SHARP Unit](#) page for contact information.

NEW! Monthly Michigan NHSN Users Call
Calls are scheduled on the 4th Wednesday of each month at 10 AM. The next call/webinar is scheduled for Wednesday, August 24th at 10 AM. [Click here for sign-in information and the meeting agenda](#). Check this website often for future agendas. Please contact the SHARP Unit (see the [About the SHARP Unit](#) page) if you have agenda items to suggest. [Click here to link to the notes from the July 27th Michigan NHSN Users call](#).

SAVE THE DATE!!
"Infection Prevention: A Community Effort" Symposium
September 9, 2011 8:30 AM to 3:30 PM
The Kellogg Center, East Lansing, MI

OBJECTIVE: This symposium will discuss current educational tools and best practices to increase community awareness and prevention of healthcare-associated and antimicrobial-resistant infections.

AUDIENCE: This symposium is intended for community outreach and infection prevention and control staff from hospitals, long-term and ambulatory care centers, local health departments, schools and pharmacies.

NEW! AGENDA: To view the [full program agenda](#), [click here](#).

REGISTRATION: Registration closed on August 29, 2011. Please call the MDCH SHARP Unit with any questions (517) 335-8165

HOTEL INFO: A block of rooms was held at the Kellogg Center at a reduced rate of \$65/night. Hotel reservations were to be made by August 16th to receive the reduced room rate

PRESENTED BY: The Michigan Department of Community Health (MDCH) Surveillance for Healthcare-Associated and Resistant Pathogens (SHARP) Unit, The Michigan Antibiotic Resistance Reduction (MARR) Coalition, The Michigan Health & Hospital Association (MHA) Keystone Center for Patient Safety & Quality, and MPRO.

Current and Proposed Required Reporting to CMS via NHSN for Healthcare Facilities
The Inpatient Prospective Payment System (IPPS) Final Rule went on display at

Providers

- > HIPAA
- > Health Professional Shortage Area
- > Institutional Review Board
- > International Medical Graduate Programs
- > M-SEARCH
- > State Loan Repayment Program
- > Lab Services
- > **Communicable & Chronic Diseases**
 - Michigan Disease Surveillance System
 - Communicable Disease Information and Resources
 - Healthcare-Associated Infections
- > Departmental Forms
- > Community Mental Health Services
- > Certificate of Need
- > Substance Abuse Providers

Birth, Death, Marriage and Divorce Records

Physical Health & Prevention

Pregnant Women, Children & Families

Mental Health & Substance Abuse

Health Care Coverage

Statistics and Reports

Inside Community Health

Public Safety & Environmental Health

- www.michigan.gov/hai
- **Content:**
 - Annual and Quarterly Reports
 - Sample facility report
 - Frequent updates
 - **RESOURCES**
 - For IPs
 - For public



MDCH SHARP Unit

(517) 335-8165

www.michigan.gov/hai

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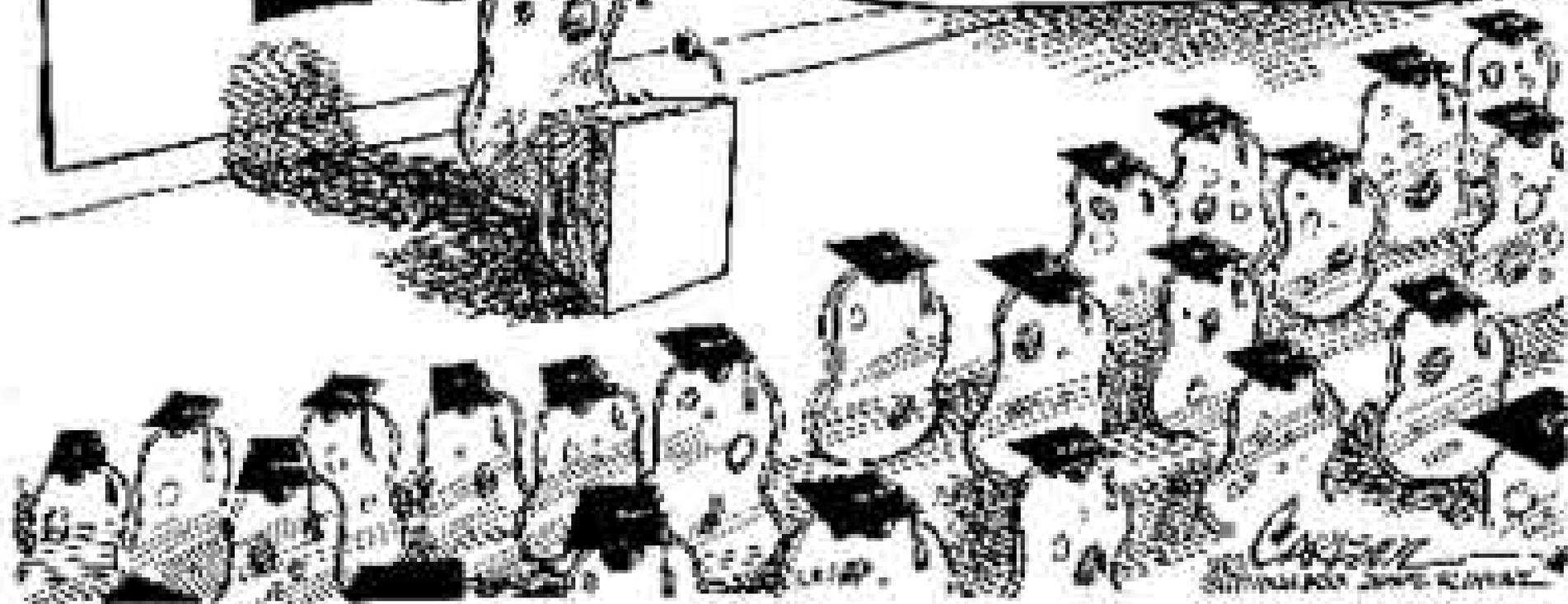
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STRAIN OF 2000

YOU ARE THE NEXT CLASS OF
DRUG-RESISTANT BACTERIA. AS
HUMANS CONTINUE TO ABUSE AND
OVERUSE ANTI-BIOTICS, YOUR RANKS
WILL SWELL. SO, GO OUT THERE
AND MUTATE! AND REMEMBER:
THAT WHICH DOES NOT KILL US
MAKES US STRONGER!!



Questions?



References

Siegel JD, Rhinehart E, Jackson M, Chiarello L, and the Healthcare Infection Control Practices Advisory Committee, 2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare

Settings <http://www.cdc.gov/ncidod/dhqp/pdf/isolation2007.pdf>

Siegel JD, Rhinehart E, Jackson M, et al. The Healthcare Infection Control Practices Advisory Committee (HICPAC). Management of Multidrug-Resistant Organisms in Healthcare Settings, 2006.

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Smith PW, Bennett G, Bradley S, Drinka P, Lautenbach E, Marx J, Mody L, Nicolle L, Stevenson K; SHEA/APIC Guideline: Infection Prevention and Control in the Long-Term Care Facility. *Infect Control Hosp Epidemiol* 2008;29:785–814

<http://www.jstor.org/stable/10.1086/592416>

