Proposed Changes to Contact Isolation for MRSA and VRE

UCLA Health System

CEIP performed comprehensive review of contact precautions

- Data supporting contact precautions above hand hygiene & gloves *for MRSA and VRE* is not compelling.
- Data has demonstrated that contact precautions poses potential risk to patients.
  - Decrease HCW contact
  - Depression & feelings of isolation
- Horizontal infection prevention measures (hand hygiene, CHG, etc.) more effective than vertical (screening & isolation) for MRSA and VRE.

Hands transmit infections to patients—what about clothing?

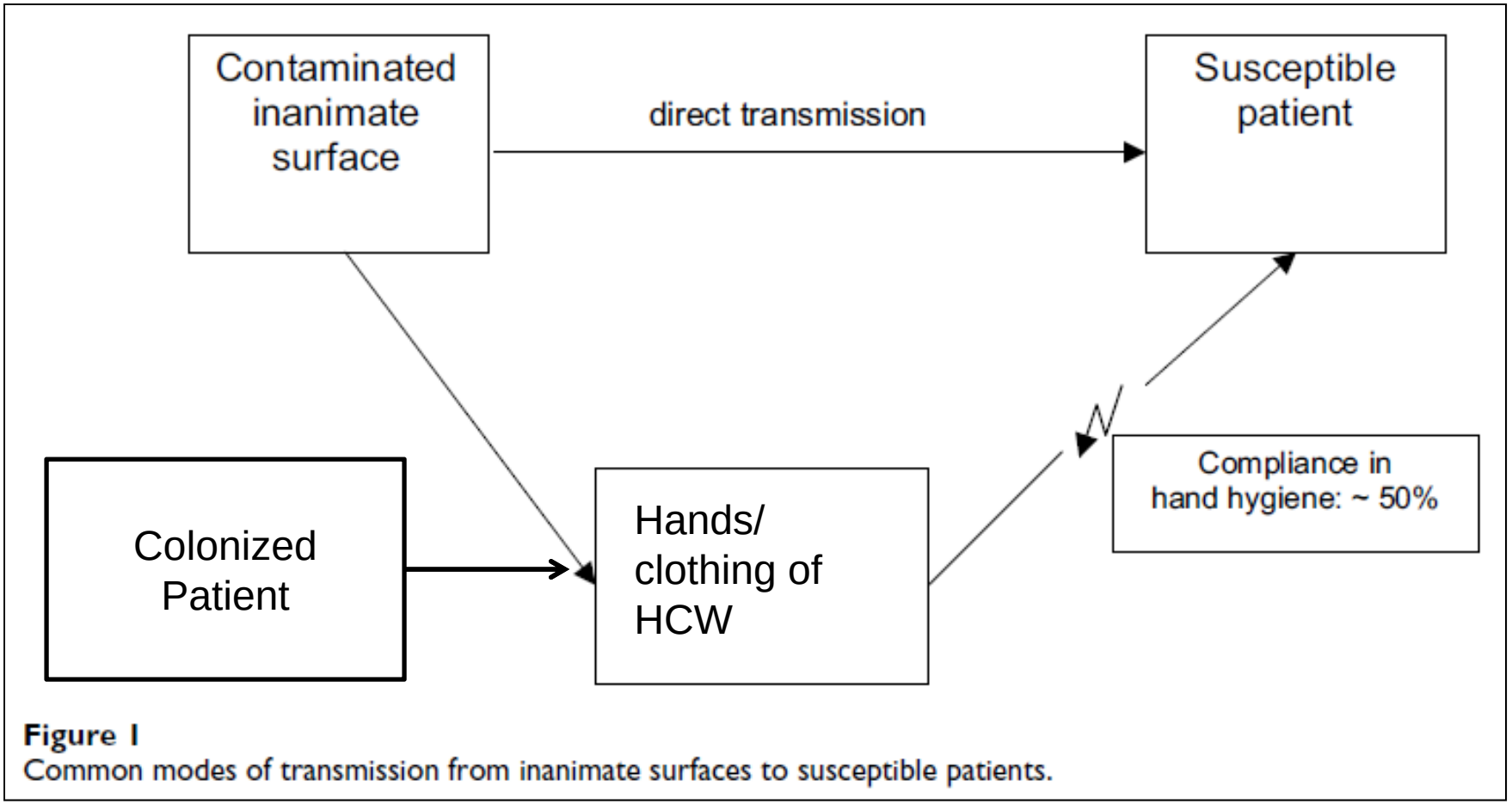


Figure 1
Common modes of transmission from inanimate surfaces to susceptible patients.

Adapted from: Kramer, et al. How long do nsocomial pathogens persist? BMC ID. 2006;6:130

Gloves & gowns contaminated after use

Organism	Glove or gown contamination	Gown contamination
VRE	11%	5%
MRSA	16%	5%
KPC	14%	3%
MDR Pseudomonas	14%	3%
MDR Acinetobacter	33%	13%

Snyder et al ICHE 2008; Morgan et al. ICHE 2010; Rock ICHE 2014

What is the data supporting Contact Precautions for MRSA & VRE?

- Numerous retrospective studies show benefit of contact precautions.
  - Australian review screened 358 papers, included 6 for review (additional 4 added)
  - Multiple scientific weaknesses:
    - Study sample sizes are too small to assess the effect size.
    - Many performed in a high prevalence settings where multiple interventions were implemented simultaneously.
    - Most studies had a quasi-experimental design and thus, did not contain comparison groups.
    - CP compliance monitoring was not performed in many studies.
    - Additional factors, such as the decrease in patient-healthcare worker interaction may result in decreased infection rates rather than CP isolation.

Australian Government, National Health and Medical Research Council. “The effectiveness of personal protective equipment at reducing MRSA and VRE.” 2009.

"BUGG study"

- 20 ICUs randomized to 2 groups
  - 10 wearing gloves & gowns for all patient contact when entering
  - 10 usual (contact precautions for pts with known MRSA & VRE)
- Collected >72,000 swabs on patients in both groups to assess for acquisition of VRE or MRSA
- Results:
  - No difference in VRE + MRSA isolation
  - No difference in patient outcome
  - Significant difference in MRSA rate (10→6 in treatment vs. 7→6 in control)

Harris et al. Benefits of Universal Gowns & Gloves JAMA 2013;310:1571-80.

Derde trial

- Randomized Controlled Trial (13 ICUs)
  - Phase 1 baseline
  - Phase 1 CHG + HH program
  - Phase 3: RCT: screening for MRSA carriage
- Results:
  - HH program increased HH rates from 55% to 77%, CHG was 100%
  - No difference in MRSA transmission w aggressive screening

Derde et al. Lancet 2013

Universal gloving vs. contact precautions

- RCT in 18 ICUs for 6 months
  - 10 Intervention ICUs: screening MRSA + contact precautions
  - 8 Control ICUs: routine contact precautions for known MRSA & VRE
- Results: no decrease in transmission of MRSA and VRE

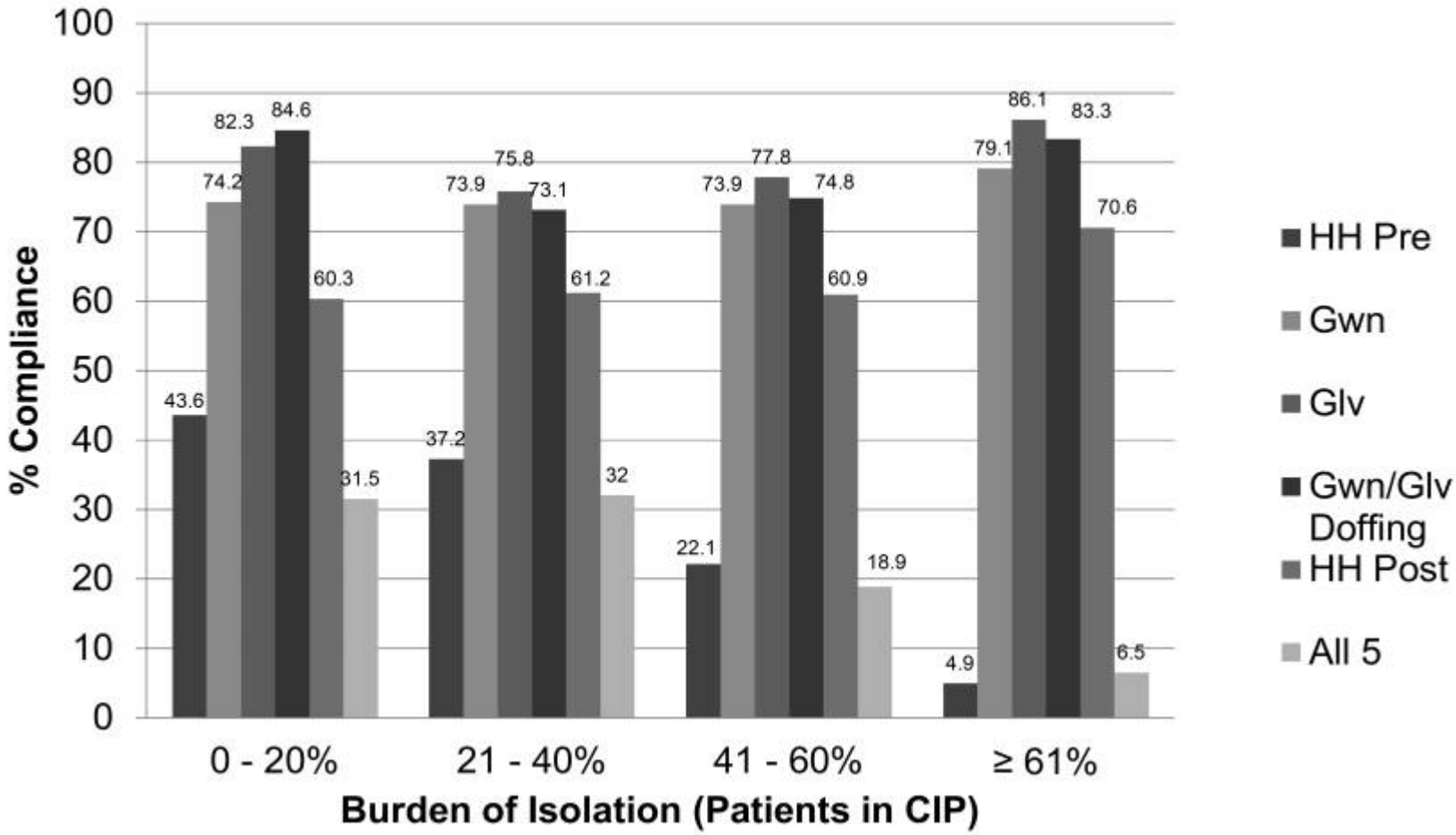
Huskins et al. NEJM 2011;364:1407-18.

Targeted vs. universal MRSA decolonization

- Randomized Controlled trial w 3 groups (74 ICUs):
  - Group 1: MRSA screening & isolation
  - Group 2: screening + isolation + targeted decolonization
  - Group 3: universal decolonization
- Results: Universal decolonization is more effective than screening & targeted decolonization

Huang et al. NEJM 2013;368:2255-65.

Hand hygiene compliance falls with greater proportion of Contact Precautions



Dhar et al. Contact Precautions: more is not necessarily better. ICHE. 2014;35:213-221.

How many HAIs are due to hospital acquisition?

- 5 ICUs at 2 institutions over 18 months
- PFGE all organisms.
- 278 infections, 41 associated w transmission
- 15% of infections due to transmission

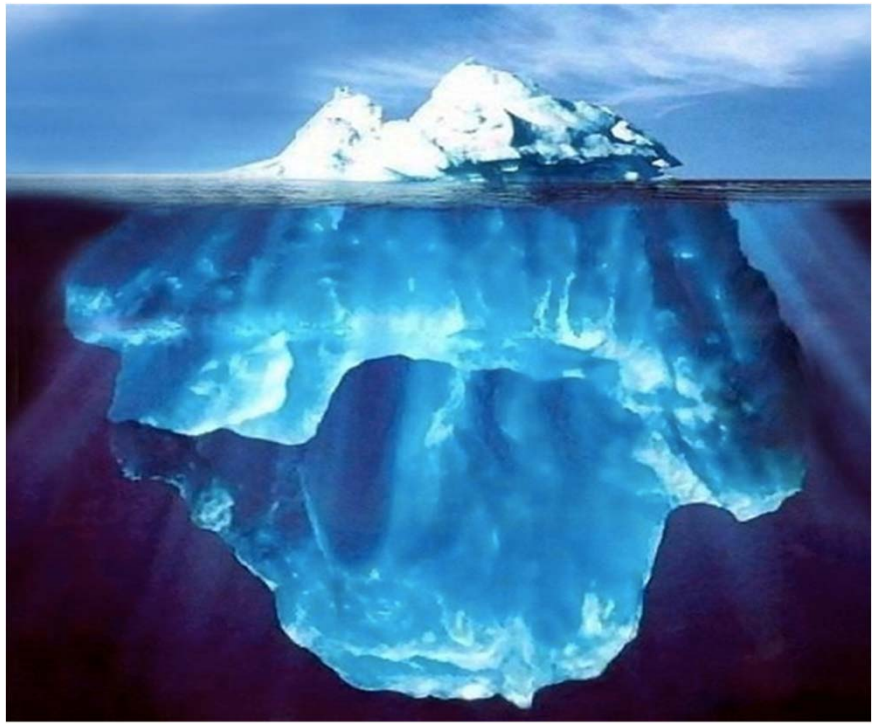
Grundman et al. Crit Care Med 2005

How many *S. aureus* HAIs are due to hospital acquisition?

- One ICU
- 37 apparent *S. aureus* transmissions
- 19% matched on sequencing
- Other acquisitions?
  - Visitors
  - Healthcare workers
  - Fomites
  - Undetected carriage

Price et al. CID 2014. David & Daum CID 2014.

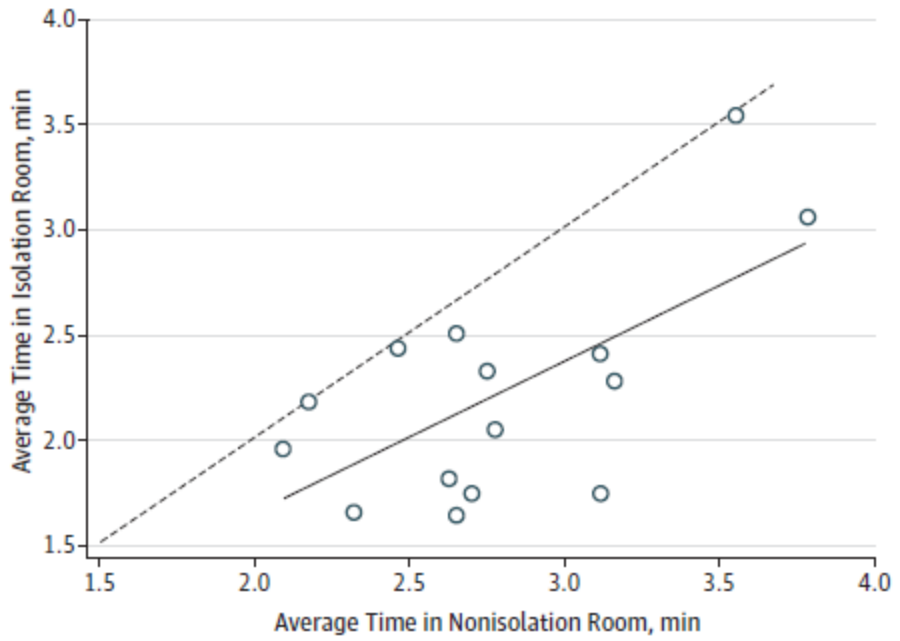
What do the studies show?



- No study compares Contact vs. Standard.
- Multiple studies show no benefit of “super” Contact.
- Passive screening.
- Lack of data supporting transmission by HCW.

Risks of contact precautions

Figure. Average Time per Visit Spent by Interns to Isolation vs Nonisolation Rooms



Each data point represents 1 intern. Dashed line shows where values would be if time in isolation and nonisolation rooms were equal. Solid line shows the least-squares regression for the relationship between isolation room and nonisolation room time among interns (Pearson r = 0.65). There were 15 total observations.

Dashiell-Earp et al. JAMA Internal Medicine march, 2014.

Risk of Contact Precautions

- Fewer MD & RN visits (36% less) [1]
- Shorter visits (17% less) [1]
- Fewer visitors (23.6%) [1]
- Social isolation[2]
- Psychological effects of isolation (depression & anxiety) [2]

UCLA Health System

[1]Morgan et al. ICHE 2013;34:69-73.
[2]Barratt et al. Contemp Nurse. 2011;39:180-93.

Contact Precautions: Bottom line

- No single study answers the exact question.
- Multiple poor quality retrospective studies .
- Prospective controlled data demonstrates no difference with aggressive MRSA screening vs routine screening & isolation.
- Data shows potential risk to patients:
  - Less HCW contact
  - Psychological effect
- Horizontal interventions (CHG bathing, hand hygiene) likely more effective than isolation (vertical intervention)

CEIP Recommendations

- Contact Precautions will no longer be required for MRSA or VRE (except in outbreak setting).
- Visitors will no longer be required to adhere to Contact Precautions. Visitors will be expected, however, to practice diligent hand hygiene and utilize standard precautions.
- Emphasis will be placed on Standard Precautions

CEIP Recommendations

- Bath treatment with chlorhexidine gluconate (CHG) will be done for *ALL* inpatients (excluding Resnick Neuropsychiatric Hospital patients & NICU) every 24 hours unless contraindicated.
- CEIP may decide to institute Contact Precautions if the risk of transmission of MRSA and/or VRE increases such as in an outbreak setting.
- Roll-out education will stress importance of effective hand hygiene.

Standard Precautions—Hand Hygiene

- Hand hygiene should be performed include:
  - Before touching a patient, even if gloves will be worn
  - Before exiting the patient's care area.
  - After contact with blood, body fluids or excretions, or wound dressings
  - Prior to performing an aseptic task (e.g., placing an IV, preparing an injection)
  - If hands will be moving from a contaminated-body site to a clean-body site during patient care
  - After glove removal
- Use soap and water when hands are visibly soiled (e.g., blood, body fluids), or w *C.difficile*.

Mathematical Model of Hand Hygiene & Glove Use

TABLE 2. Derived Hypothetical Rate of Multidrug-Resistant (MDR) *Acinetobacter baumannii* Contamination of the Hands of Healthcare Workers (HCWs) per Patient Visit, Adjusting for Adherence to Hand Hygiene and Use of Gloves as Part of Contact Precautions

Rate of adherence to hand hygiene, % of opportunities	Percentage chance of contamination per patient visit, by rate of adherence to use of gloves						
	0%	50%	60%	70%	80%	90%	100%
0%	36.2	20.4	17.2	14.0	10.9	7.6	4.5
50%	18.1	10.2	8.6	7.0	5.4	3.8	2.3
60%	14.5	8.1	6.9	5.6	4.3	3.1	1.8
70%	10.8	6.1	5.2	4.2	3.3	2.3	1.4
80%	7.2	4.1	3.4	2.8	2.2	1.5	0.9
90%	3.6	2.0	1.7	1.4	1.1	0.8	0.5
100%	0	0	0	0	0	0	0

NOTE. For example, an HCW who has a mean adherence to use of gloves as part of contact precautions of 80% and a mean adherence to hand hygiene of 70% has a mean chance of hand contamination of 3.3% per exit of a room occupied by a patient with MDR *A. baumannii* carriage.

Morgan, Liang, Smith, etal. Frequent MDR Acinetobacter contamination of gloves, gons and hands of healthcare workers. ICHE 2010;31:716-21.

Standard Precautions—Personal Protective Equipment (PPE)

- Remove and discard PPE before leaving the patient's room.
- Wear **gloves** for potential contact with blood, body fluids, mucous membranes, non-intact skin or contaminated equipment
  - Perform hand hygiene immediately after removing gloves
- Wear a **gown** to protect skin/clothing during activities where contact with blood/body fluids is possible.
  - Do not reuse gowns.
- Wear **mouth, nose and eye protection** during procedures that are likely to generate splashes or sprays of body fluids.
- Wear a **surgical mask** when placing a catheter or injecting material into the spinal canal or subdural space

Infection Prevention Policy IC 002 & Hand Hygiene Group

- Marketing & communication
  - Hand hygiene
  - Communicating Standard Precautions
- Documentation group
  - Care Connect changes
- Surveillance group