

Preventing *C. difficile* in the Long Term Care Setting

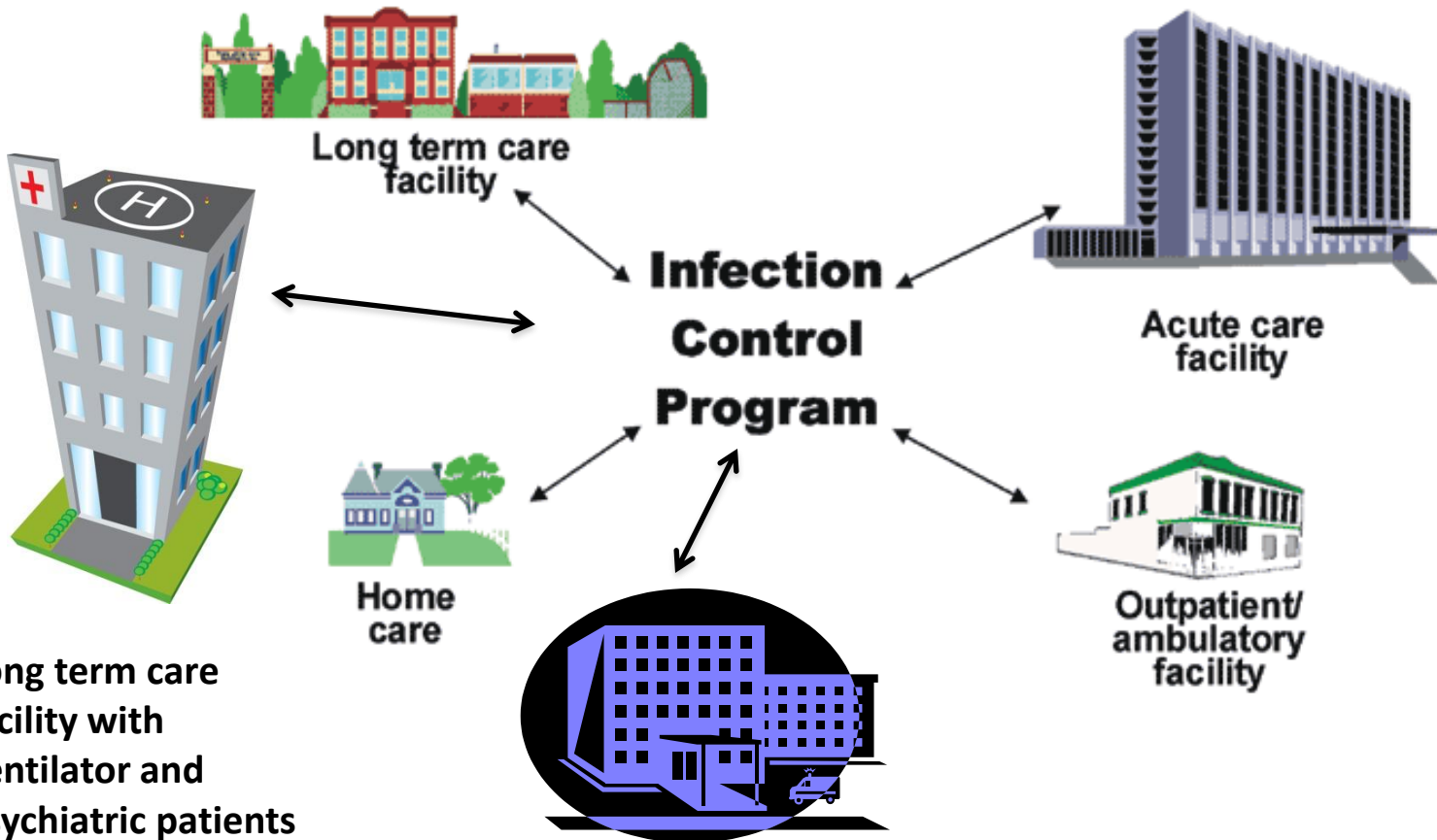
**Illinois Campaign to Eliminate
*Clostridium difficile***

**Teaming Up to ICE *C. diff*
Regional Workshop
July 2012**

Disclosure and Disclaimer

- Speakers have no financial disclosures or conflict of interest related to this presentation
- The opinions, viewpoints and content presented may not represent the position of the Illinois Department of Public Health or any of its programs or Telligen

Healthcare Surveillance Needed in 2012



Long term care facility with ventilator and psychiatric patients

S. Gerber 2011

Long term acute care hospital

Session Overview

- IDPH survey of CDI prevention practices
- Key prevention measures*
 - Hand hygiene
 - Contact Precautions
 - Environmental cleaning
 - Accurate diagnostic testing and rapid reporting of results
 - Antimicrobial stewardship
 - Inter-facility communication of CDI risk factors at transfers of care
- Case scenario



*L. Clifford McDonald et al. Vital Signs: Preventing *Clostridium difficile* Infections. *Morbidity and Mortality Weekly Reports*, March 6, 2012, volume 61

IDPH CDI Prevention Practices Surveys, May 2012

- Separate surveys administered to LTCFs and hospitals enrolled in ICE *C. diff* campaign by May 2012
- Number of respondents:
 - 66 LTCFs
 - 81 Hospitals

IDPH CDI Prevention Practices LTCF Survey, May 2012: *Surveillance*

SURVEY QUESTION	YES N (%)	NO N (%)	DO NOT KNOW N (%)
Facility has a mechanism to identify, at admission, residents previously infected or colonized with <i>C. diff</i> [N=63]	46 (73)	16 (25)	1 (2)
Our facility performed housewide surveillance for <i>C. diff</i> infections among residents [N=62]	49 (78)	13 (21)	1 (2)
Our facility performed targeted surveillance (e.g., on specific units) for <i>C. diff</i> infections among residents [N=62]	38 (61)	22(36)	2 (3)
CDI rates tracked over time to identify trends (e.g., monthly rates, quarterly rates, annual rate) [N=63]	48 (76)	14 (22)	1 (2)
Created CDI summary reports (e.g., trends, policy adherence rates) [N=63]	36 (57)	26 (41)	1 (2)

Why do surveillance?

- Monitor what is happening so you know when something is not 'normal'
- Identify areas to target for improvement
- Timely response to protect the health of residents
- Save money by reducing infections

Recommended Practice (APIC)

- Assess population
- Select measures
- Use definitions
- Collect data
- Calculate rates
- Risk stratification
- Report and use information

Developing a surveillance plan

- ❑ How will I define *C. difficile* events in my facility?
- ❑ Potential criteria include:
 - ❑ Clinical symptoms of **gastroenteritis** including new or acutely worsening diarrhea associated with abdominal upset, nausea, loss of appetite
 - ❑ **Fever** and **elevated WBC counts** may also be present
 - ❑ **New antibiotic starts** for suspected CDI
 - ❑ **Positive lab** identifying *C. difficile* toxin in stool specimen
- ❑ Focus only on positive laboratory events may increase consistency and ease of surveillance



Developing a surveillance plan

- ❑ Proposed definition of LCF-onset, incident *C. difficile* HAI event:
 - ❑ Positive lab specimen obtained from residents in the LTCF
 - ❑ Specimen obtained **on or after Day 4** from date of admission
 - ❑ Resident will not have had a prior positive lab for *C. difficile* in the prior 8 weeks from the time of the current lab event

- ❑ In order to capture these events, there must be a way for the facility to obtain all results of stool specimens tested for *C. difficile* from their residents

Developing a surveillance plan

- ❑ How will I report my *C. difficile* incident case rates?
 - ❑ Numerator (x): # incident infections
 - ❑ Denominator (y): Number of resident days in the facility
 - ❑ Standardized by a constant (k) so the rates are comparable

$$\text{Rate} = \frac{x \text{ (number of infxs)}}{y \text{ (residents at risk or "resident days")}} \times k \text{ (constant)}$$

- ❑ Calculate your rates using the same time period for the numerator and denominator (e.g., each month, or each quarter)
- ❑ For *C. difficile*, the reporting constant (k) = 10,000

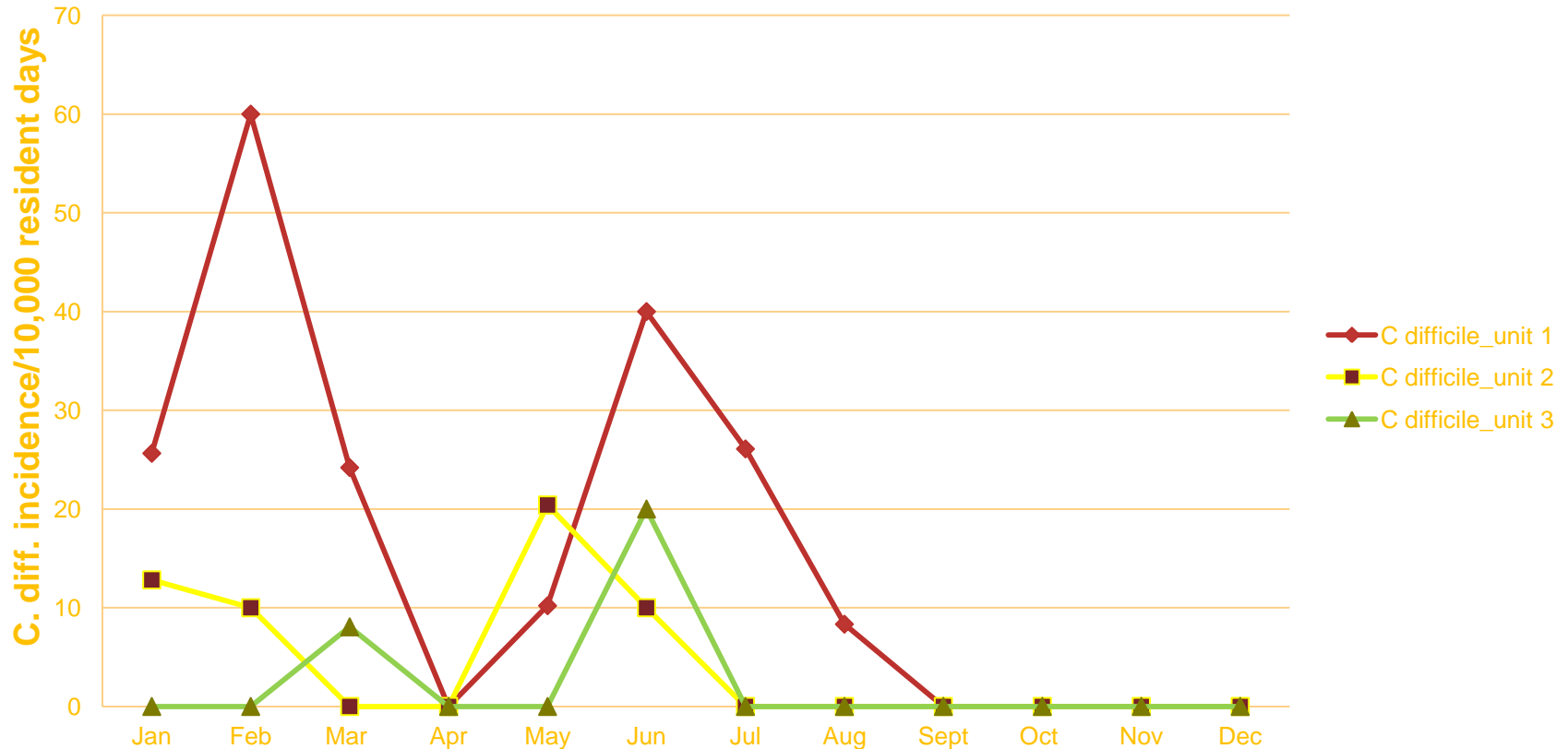
Developing a surveillance plan

- ❑ What additional information might be informative in understanding your CDI incident rates?
 - ❑ Are the cases clustering in one unit or location?
 - ❑ Are the rates of *C diff.* infections higher in recent admits from the hospital (post-acute care) vs. long-stay residents?

- ❑ Stratifying your rates by location or by resident services to help understand the way CDI presents in your facility

Reporting HAI rates over time

LTCF-onset *C. difficile* incidence rates by month

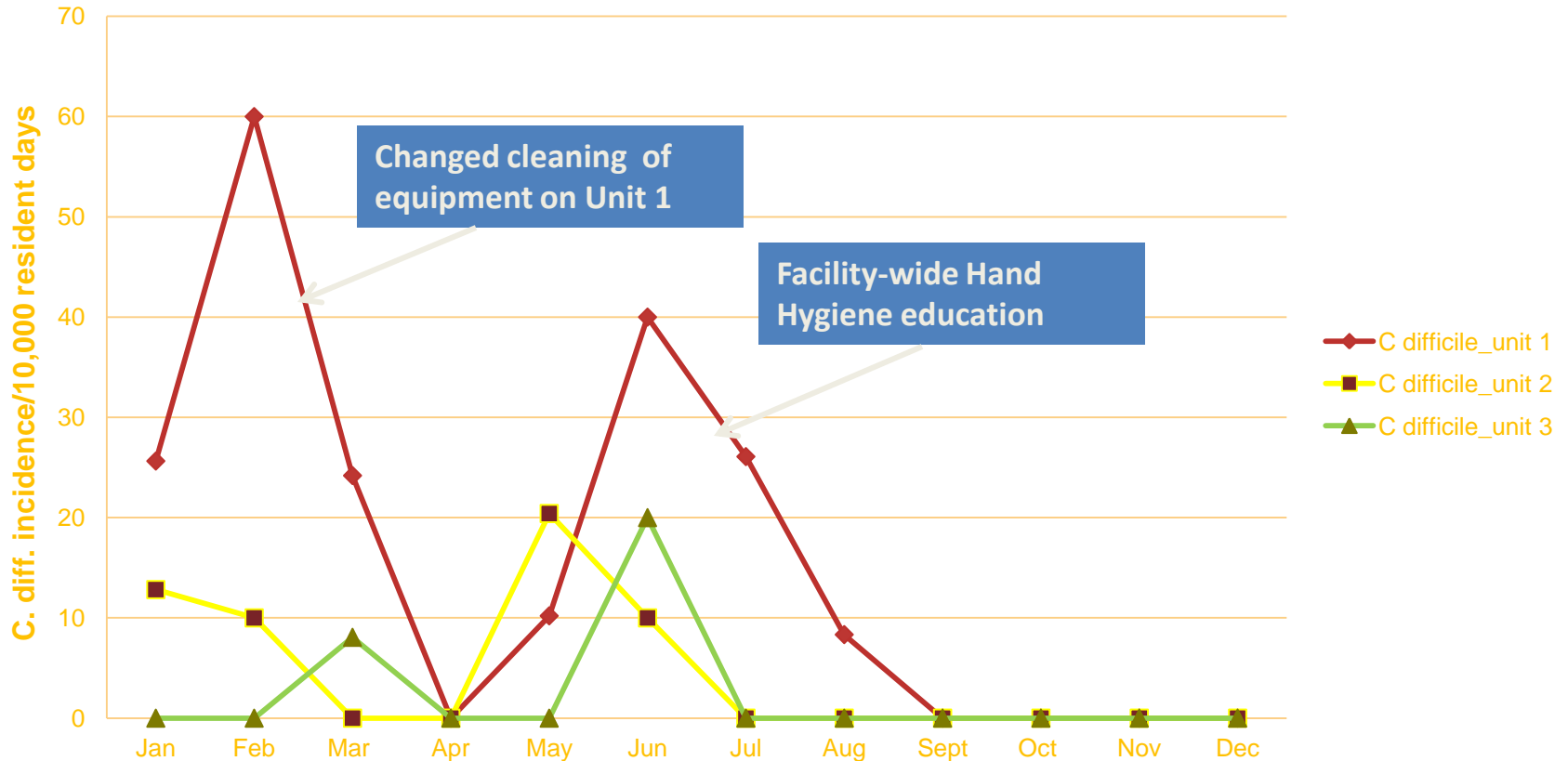


Linking prevention efforts to surveillance data

- ❑ What are the **process measures** that can impact *C. difficile* transmission and infection in my facility?
 - ❑ Hand hygiene
 - ❑ Rapid identification and isolation of symptomatic individuals
 - ❑ Adherence to contact precautions when residents have active infection with *C. difficile*
 - ❑ Good environmental and equipment cleaning practices
 - ❑ Antibiotic stewardship

Linking prevention efforts to surveillance data

LTCF-onset *C. difficile* incidence rates by month



Nimalie D. Stone, MD,MS, Ambulatory and Long-term Care Team
Division of Healthcare Quality Promotion, Center for Disease Control and Prevention

IDPH CDI Prevention Practices LTCF Survey, May 2012: *IC Culture*

SURVEY QUESTION	ALWAYS N (%)	OFTEN N (%)	SOMETIMES N (%)	RARELY; NEVER N (%)
Private room used for patients with CDI [N=63]	YES 36 (57)			NO 27(43)
Hand hygiene policy adherence measured in at least 1 unit [N=62]	16 (26)	26 (42)	17 (27)	3 (5) 0 (0)
Compliance w/ appropriate environmental cleaning practices monitored by IP staff [N=62]	11 (18)	18 (29)	21 (34)	8 (13) 4 (7)
Contact Precautions adherence measured (wearing gloves or gowns) [N=62]	15 (24)	35 (57)	9 (15)	3 (5) 0 (0)

IDPH CDI Prevention Practices Hospital Survey, May 2012: *IC Culture*

SURVEY QUESTION	ALWAYS N (%)	OFTEN N (%)	SOMETIMES N (%)	RARELY; NEVER N (%)
Private room used for patients with CDI [N=79]	68 (86)	10 (13)	0 (0)	0 (0) 1 (1)
Hand hygiene policy adherence measured in at least 1 unit [N=78]	42 (54)	31 (40)	4 (5)	1 (1) 0 (0)
Compliance w/ appropriate environmental cleaning practices monitored by IP staff [N=76]	7 (9)	29 (38)	17 (22)	16 (21) 7 (9)
Contact Precautions adherence measured (wearing gloves or gowns) [N=78]	19 (24)	38 (49)	13 (17)	6 (8) 2 (3)

C diff. prevention challenges

- Spores are not killed by alcohol hand rubs
 - the **action** of rubbing hands with soap under water removes the spores
- Spores are resistant to common cleaners
 - **require bleach or a disinfectant with sporicidal activity** to be effectively killed



Hand Hygiene

- ❑ Hand hygiene should be a cornerstone of prevention efforts
- ❑ As part of a hand hygiene intervention, consider:
 - Ensuring easy access to soap and water/alcohol-based hand gels
 - HCP knowledge about appropriate HH practices
 - **Observation/feedback of compliance** - particularly around high-risk situations
 - Feedback – “Just in time” feedback if failure to perform hand hygiene observed
- ❑ Although not a primary recommendation, there is evidence that hand washing with soap and water may be preferred over alcohol-based hand rubs following care of a resident with CDI

Lack of Efficacy of Alcohol-Based Handrub Against *C. difficile*

Interventions compared		Mean log reduction (95% CI), log ₁₀ CFU/mL
Intervention 1	Intervention 2	
Warm water and plain soap	No hand hygiene	2.14 (1.74–2.54)
Warm water and plain soap	Alcohol-based handrub	2.08 (1.69–2.47)
Cold water and plain soap	No hand hygiene	1.88 (1.48–2.28)
Cold water and plain soap	Alcohol-based handrub	1.82 (1.43–2.22)
Warm water and plain soap	Antiseptic hand wipe	1.57 (1.18–1.96)
Warm water and antibacterial soap	No hand hygiene	1.51 (1.12–1.91)
Warm water and antibacterial soap	Alcohol-based handrub	1.46 (1.06–1.85)
Cold water and plain soap	Antiseptic hand wipe	1.31 (0.92–1.71)
Warm water and antibacterial soap	Antiseptic hand wipe	0.94 (0.55–1.34)
Warm water and plain soap	Warm water and antibacterial soap	0.63 (0.23–1.02)
Antiseptic hand wipe	No hand hygiene	0.57 (0.17–0.96)
Antiseptic hand wipe	Alcohol-based handrub	0.51 (0.12–0.91)
Cold water and plain soap	Warm water and antibacterial soap	0.37 (–0.03 to 0.76)
Warm water and plain soap	Cold water and plain soap	0.26 (–0.14 to 0.66)
Alcohol-based handrub	No hand hygiene	0.06 (–0.34 to 0.45)

Oughton et al. *Infect Control Hosp Epidemiol* 2009;30:939-44.

When should hand hygiene be performed?

- ❑ Before and after physical contact with a resident
- ❑ Before donning gloves and after removing gloves
- ❑ After handling soiled or contaminated items and equipment, including linens
- ❑ Before performing an invasive procedures
- ❑ Before handling sterile or clean supplies
- ❑ When hands are visibly dirty or soiled with blood and/or bodily fluids*
- ❑ **After care of a resident with known or suspected infectious diarrhea***
- ❑ Before and after eating or handling food*
- ❑ After personal use of bathroom*

***Situations where soap and water preferred over alcohol-based hand rub**

Hand Hygiene and *C. difficile*

- Hand hygiene is the primary means of preventing transmission of infections...
- What is your facility's current message?



VS.



WHO Paper Observation Form

Observation_Form-4 (Read-Only) [Compatibility Mode] - Microsoft Word

Home Insert Page Layout References Mailings Review View

Clipboard Font Paragraph Styles Editing WebEx

World Health Organization Patient Safety SAVE LIVES Clean Your Hands

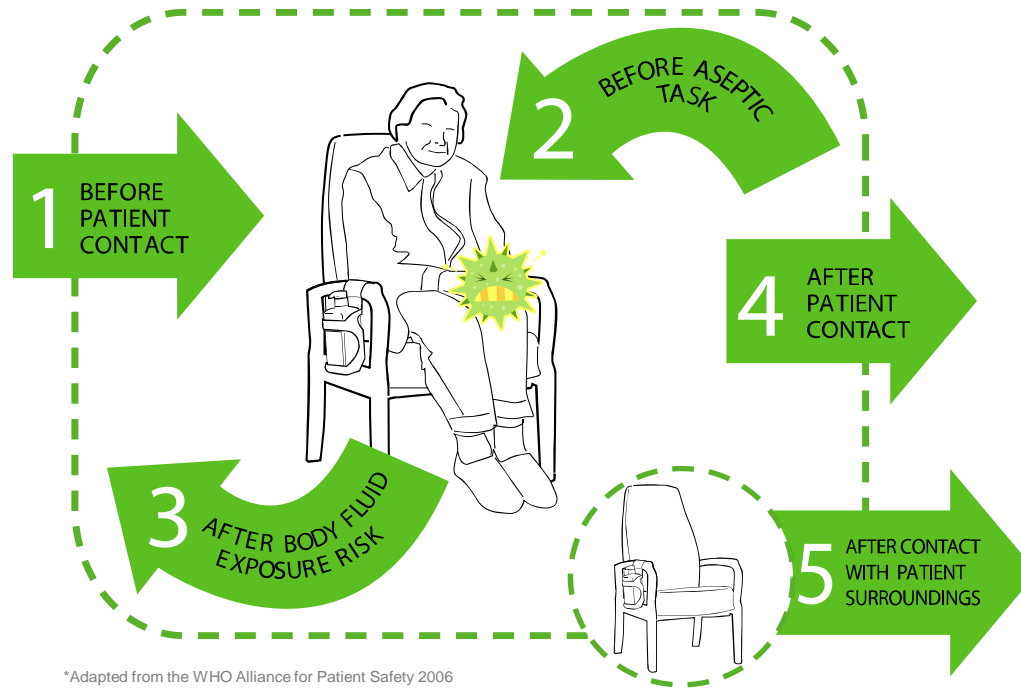
Observation Form

Facility: **Period Number*:** **Session Number*:**
Service: **Date:** / / **Observer:**
Ward: **Start/End time:** : : **Page N°:**
Department: **Session duration:** (mm) **City**:**
Country:**

Prof.cat Code	Prof.cat Code	Prof.cat Code	Prof.cat Code
N°	N°	N°	N°
Opp.	Indication	HH Action	Opp.
1	<input type="checkbox"/> bef-pat. <input type="checkbox"/> bef-asept. <input type="checkbox"/> aft-b.f. <input type="checkbox"/> aft-pat. <input type="checkbox"/> aft.p.surr.	<input type="checkbox"/> HR <input type="checkbox"/> HW <input type="checkbox"/> missed <input type="checkbox"/> gloves	1
2	<input type="checkbox"/> bef-pat. <input type="checkbox"/> bef-asept. <input type="checkbox"/> aft-b.f. <input type="checkbox"/> aft-pat. <input type="checkbox"/> aft.p.surr.	<input type="checkbox"/> HR <input type="checkbox"/> HW <input type="checkbox"/> missed <input type="checkbox"/> gloves	2
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4	<input type="checkbox"/> bef-pat. <input type="checkbox"/> bef-asept. <input type="checkbox"/> aft-b.f. <input type="checkbox"/> aft-pat. <input type="checkbox"/> aft.p.surr.	<input type="checkbox"/> HR <input type="checkbox"/> HW <input type="checkbox"/> missed <input type="checkbox"/> gloves	4

World Health Organization

Your 5 moments for hand hygiene at the point of care*



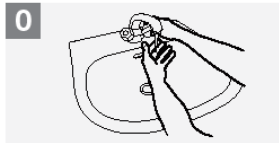
*Adapted from the WHO Alliance for Patient Safety 2006

Based on the 'My 5 moments for Hand Hygiene', URL:
<http://www.who.int/gpsc/5may/background/5moments/en/index.html> © World Health Organization 2009. All rights reserved.

How to Handwash?

WASH HANDS WHEN VISIBLY SOILED! OTHERWISE, USE HANDRUB

 Duration of the entire procedure: 40-60 seconds



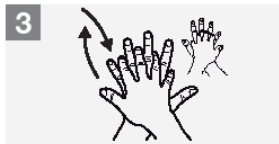
Wet hands with water;



Apply enough soap to cover all hand surfaces;



Rub hands palm to palm;



Right palm over left dorsum with interlaced fingers and vice versa;



Palm to palm with fingers interlaced;



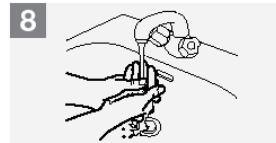
Backs of fingers to opposing palms with fingers interlocked;



Rotational rubbing of left thumb clasped in right palm and vice versa;



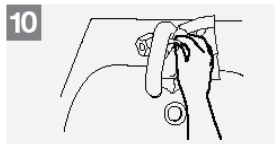
Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;



Rinse hands with water;



Dry hands thoroughly with a single use towel;



Use towel to turn off faucet;



Your hands are now safe.



Hand Washing



World Health Organization

Patient Safety
A World Alliance for Safer Health Care

SAVE LIVES
Clean Your Hands

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WHO acknowledges the Hôpitaux Universitaires de Genève (HUG), in particular the members of the Infection Control Programme, for their active participation in developing this material.

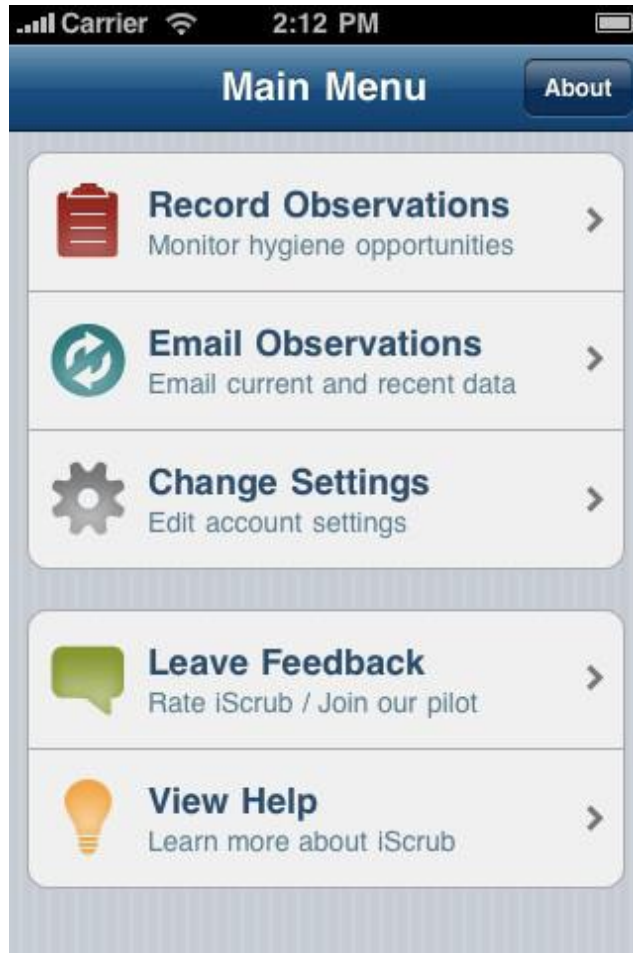
May 2009

iScrub

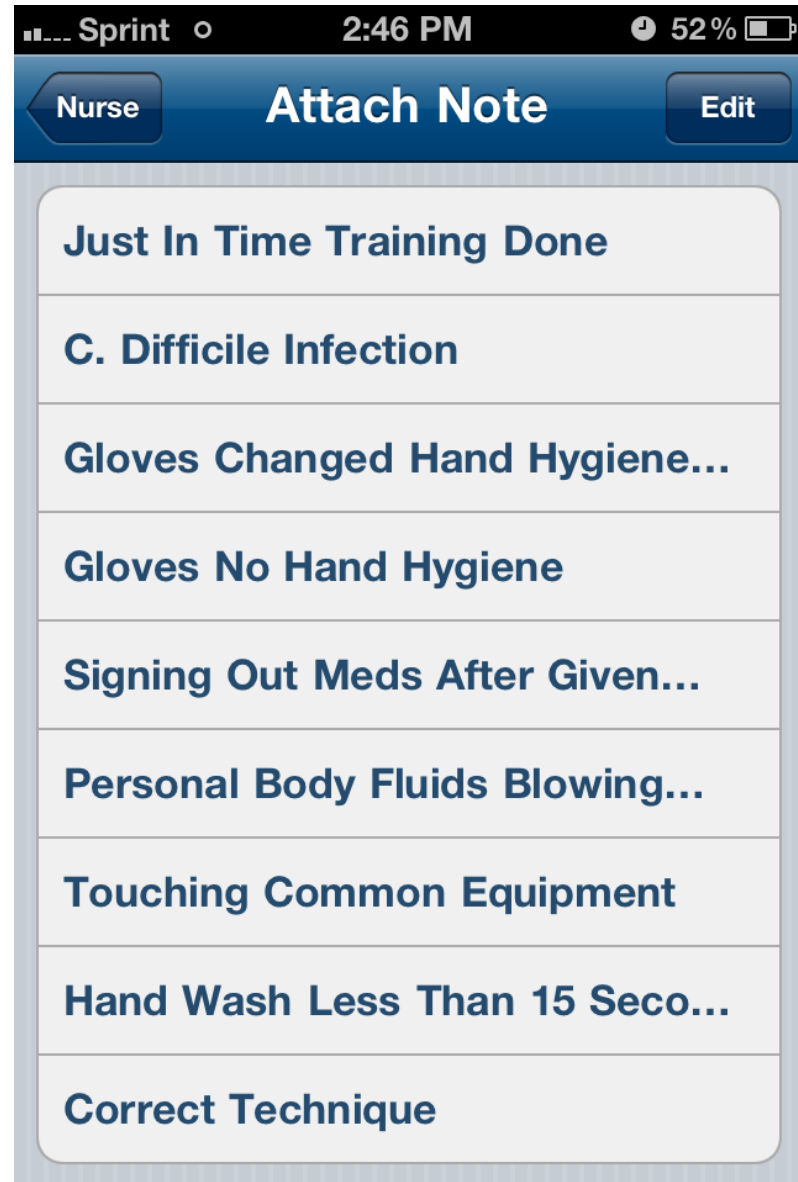
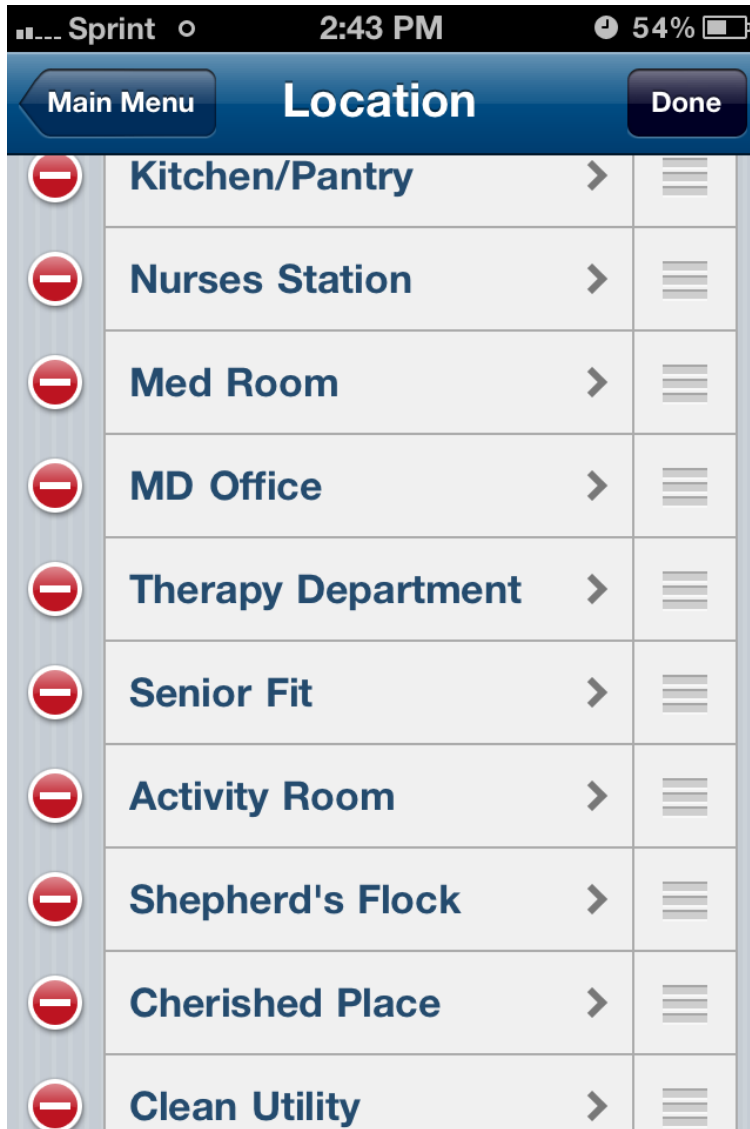


Another free hand hygiene observation tool. Developed at University of Iowa. Can be customized to adapt to specific units and tasks

Hand Hygiene Observations iScrub



Edited locations and notes

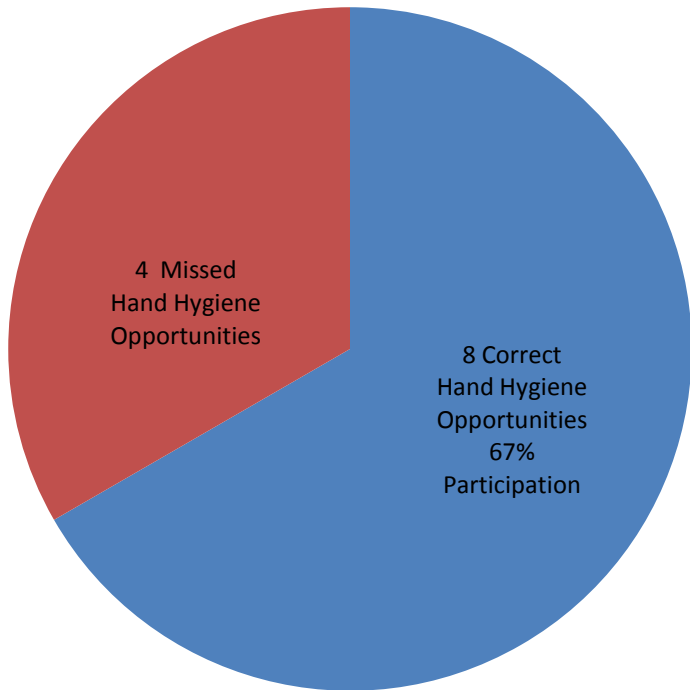


Exports to Excel via e-mail

timestamp	location	HCW	opportunity	deviceName	note
6/21/12	Dining Room 2nd floor	Nurse's Aide	Before Touching a Pati	Mommarazzi2	No Hand Washing
6/21/12	Dining Room 2nd floor	Nurse's Aide	After Touching a Patie	Mommarazzi2	No Hand Washing
6/22/12	Med Pass	Nurse	Before Touching a Pati	Mommarazzi2	Correct Technique

9:29	Shower Ro	CNA	Before Touching a Patient	iPhone	Gloves No Hand Hygiene
9:30	Shower Ro	CNA	Before Clean/Aseptic Procedures	iPhone	
9:30	Shower Ro	CNA	Before Clean/Aseptic Procedures	iPhone	
9:30	Shower Ro	CNA	After Touching a Patient	iPhone	
9:31	Shower Ro	CNA	Before Clean/Aseptic Procedures	iPhone	Gloves No Hand Hygiene
9:32	Shower Ro	CNA	After Touching a Patient	iPhone	Hand Wash Less Than 15 Seconds

Examples of iScrub Feedback opportunities



HCW opportunity

- Hand Hygiene Nurse Before Touching a Patient No
- Nurse After Touching Patient Surroundings Rub
- Nurse Before Touching a Patient No
- Nurse After Touching a Patient No
- Nurse Before Touching a Patient Wash
- Nurse After Touching a Patient Rub
- Nurse Before Touching a Patient Rub
- Nurse Med Pass After Touching a Patient Rub
- Nurse Med Pass Before Touching a Patient Rub
- Nurse Med Pass After Touching a Patient Rub
- Nurse Med Pass After Touching Patient Surroundings Rub
- Nurse Med Pass Before Touching a Patient Rub
- Nurse Med Pass After Touching a Patient No
- Nurse Med Pass After Touching a Patient Wash

IDPH CDI Prevention Practices LTCF Survey, May 2012: *Infection Management*

SURVEY QUESTION	YES N (%)	NO N (%)
Contact Precautions used for suspect CDI [N=63]	55 (87)	8 (13)
Contact Precautions used for active CDI [N=63]	63 (100)	0 (0)

IDPH CDI Prevention Practices Hospital Survey, May 2012: *Infection Management*

SURVEY QUESTION	YES N (%)	NO N (%)
Routine placement of suspect CDI patients on Contact Precautions prior to lab confirmation [N=79]	71 (90)	8 (10)
Dedicated noncritical medical items (e.g., B/P cuff, stethoscope) used for CDI patients [N=79]	71 (90)	8 (10)

Methods to Prevent Transmission of *C. difficile* in HCF

Barrier Precautions:

-Personnel wear gloves

-handwashing

-gowns

-patient cohorting

Clinical Efficacy

proven

probable

untested

probable

Cleaning, Disinfection, Disposables:

-patient room disinfection

-disposable rectal thermometers

-endoscope disinfection

proven

proven

proven

Glove use vs. hand hygiene for preventing CDI transmission

“Healthcare personnel who care for patients with known *C. difficile* colonization or infection **wear gloves**, which means that *C. difficile* contamination on hands, if present at all, may be so low that transfer to another hand or surface would not be clinically meaningful”

Ellingson & McDonald *Infect ContrHospEpi* 2010;36:571-573.

“Since spores may be difficult to remove from hands even with hand washing, **adherence to glove use**, and **Contact Precautions in general**, should be emphasized for preventing *C. difficile* transmission via the hands of healthcare personnel

Johnson et al. *Am J Med* 1990;88:137-40

Contact Precautions

- Involves use of gown and gloves for direct resident care
 - Don equipment prior to room entry
 - Remove prior to room exit
- Use of dedicated non-essential items may help decrease transmission due to contamination
 - Blood pressure cuffs; Stethoscopes; IV poles and pumps
- Private rooms or cohorting residents if possible
 - Separate toileting equipment for roommates who can't be cohorted
- Observe adherence to practices - particularly high-risk situations

Challenges with Contact Precautions

- Lack of private rooms / limited ability to move residents
 - Moving people is disrupting to residents and staff
 - Ability to identify carriers to cohort is limited (no active surveillance in most facilities)
- Determining duration of contact precautions
 - Unable to restrict resident mobility and participation in social events/therapy for prolonged periods
 - Unlikely to document clearance of carriage
- Large population of residents with unrecognized *C. difficile* carriage
 - Underestimating the sources of potential transmission

Barriers and Expectations

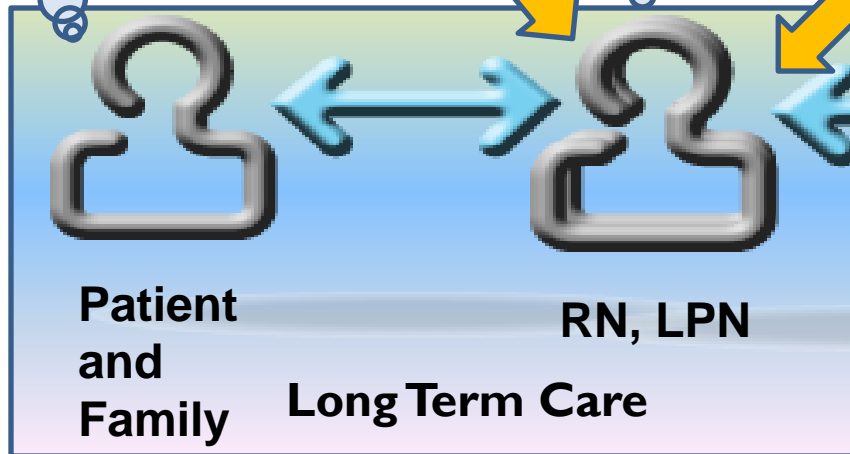


Nurse Interacts with patient, family, co-workers, lab, pharmacy and prescribing physician or APN



Participates in care decisions

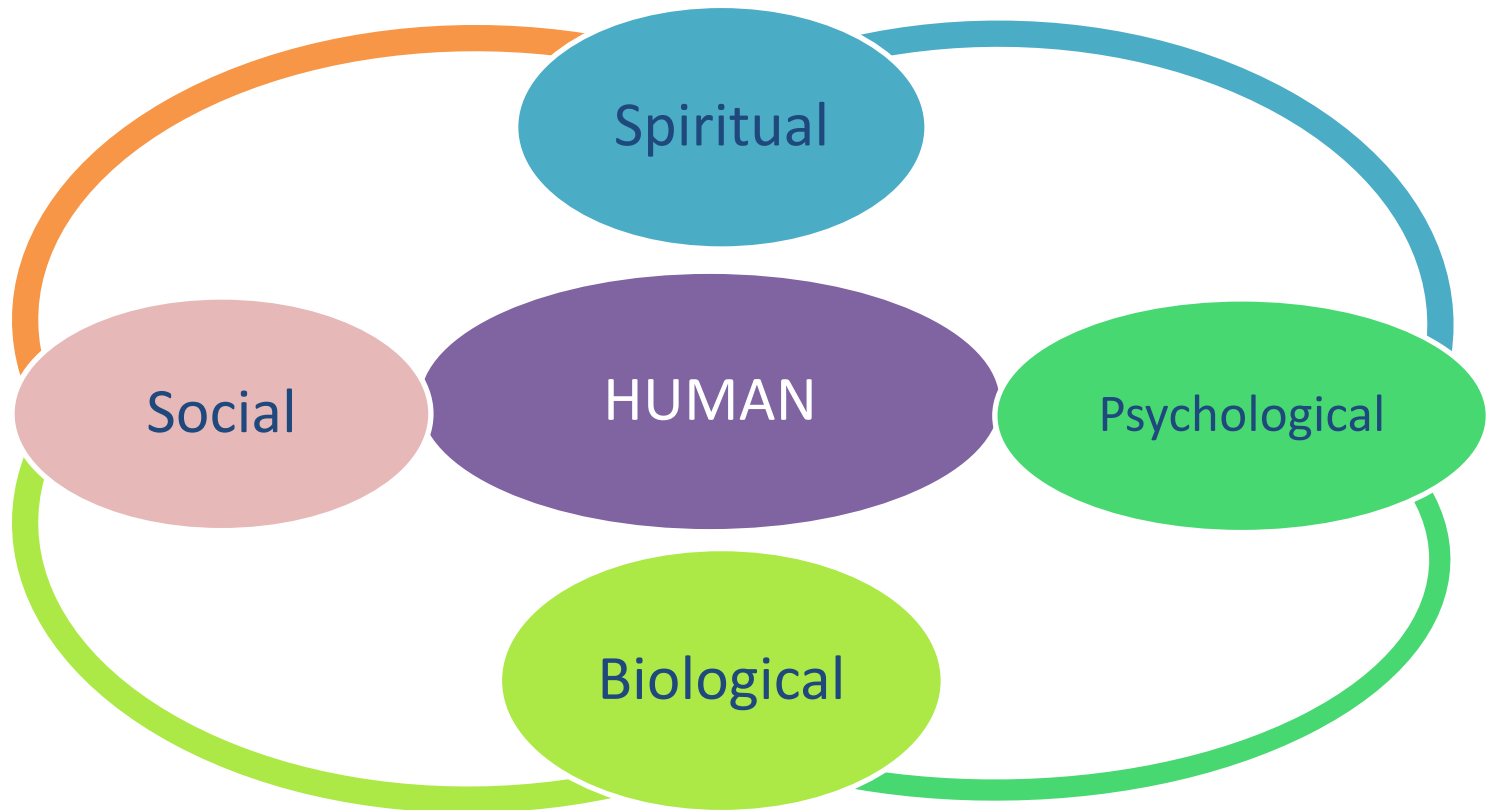
Orders based many times on info from nurses



Infection Prevention and Control in LTC

Infection Prevention and Control is not a
“Medical Model Issue”. It is not a
“Skilled Care” Issue or a “Hospital” Issue

Infection Prevention and Control in LTC is a **Human** issue,
and needs to be dealt with within a biopsychosocial and
spiritual framework



Revision to CMS F241

The restriction of posting signs:

“This restriction **does not include** the CDC isolation precaution transmission based signage for reasons of public health protection, as long as the sign does not reveal the type of infection”

Source: <http://www.cms.hhs.gov/transmittals/downloads/R48SOMA.pdf>

Consider contact precautions during direct care (STANDARD!)

High risk exposures for *C. difficile* transmission if known carrier (also high risk for acquisition if non-carrier)

- Incontinence
- Current antibiotic use
- Presence of wounds (fresh/new, multiple, increased stage/size, active drainage)
- Indwelling devices (IV lines, urinary catheters, tracheostomy, PEG tubes)

Discontinuing Contact Precautions

- There is no single ‘best’ strategy for discontinuation of contact precautions for *C. difficile* carriers (in any setting)
- Current recommendation is to discontinue precautions once diarrhea has resolved
- Communication to care-givers and clear documentation of rationale is key

Consider contact precautions and restricted movement within NH

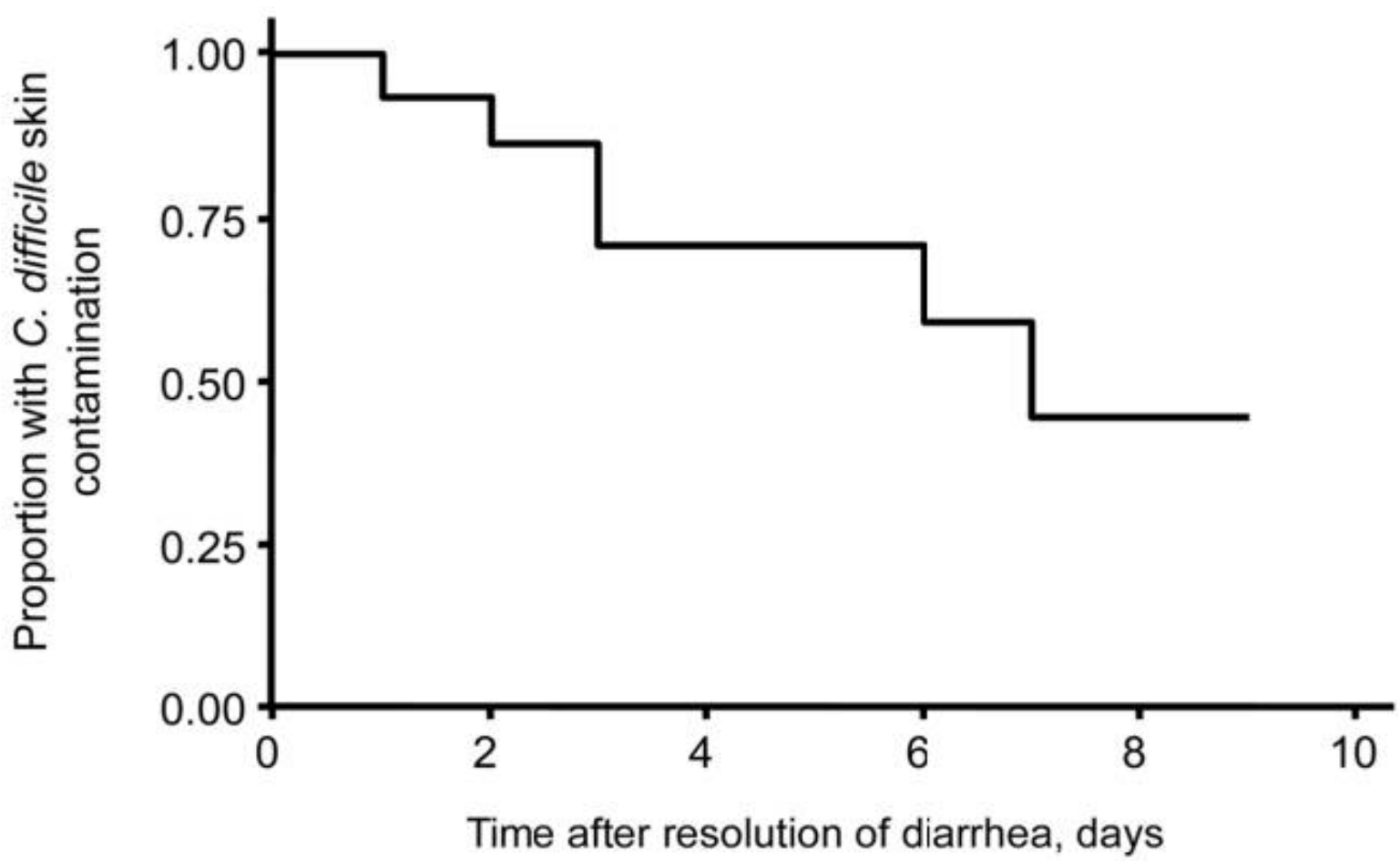
- Active symptoms of infection
 - Nausea/vomiting
 - **New or worsening diarrhea**
 - New, undiagnosed fever
- Precautions and restrictions time-limited
 - Only until diagnosis made (e.g. infection excluded) and/or symptoms resolve

Common Sense Contact Precaution C's



- Clean Hands
- Clean Clothes
- Clean Equipment
- Contained Drainage
- Covered Wounds

Rationale for Considering Extending Isolation Beyond Duration of Diarrhea



Current practices for discontinuing CDI precautions: Canada, 2005

Table 1. Practices for discontinuing *C difficile* infection precautions in Canadian health care facilities, by facility type (n = 852)

Precautions discontinued	Acute care (n = 132), n (%)	Long-term care (n = 530), n (%)	Mixed care (n = 190), n (%)	P value
After patient has been asymptomatic for				
48 hours	37 (28)	145 (27)	45 (24)	.571
72 hours	49 (37)	172 (33)	58 (31)	.451
Other	0 (0)	1 (0.2)	0 (0)	*
After treatment has been initiated	0 (0)	6 (1)	3 (2)	*
After treatment has ended and no relapse has been documented within 48 hours	23 (17)	132 (25)	47 (25)	.181
Precautions are continued until discharge	1 (1)	16 (3)	4 (2)	.368
Other policy for discontinuing	22 (17)	58 (11)	33 (17)	.037

*P value not calculated, zero-sum cells.

IDPH CDI Prevention Practices LTCF Survey, May 2012: *Environmental cleaning*

SURVEY QUESTION	ALWAYS N (%)	OFTEN N (%)	SOMETIMES N (%)	RARELY; NEVER N (%)
Compliance w/ appropriate environmental cleaning practices monitored by IP staff [N=62]	11 (18)	18 (29)	21 (34)	8 (13) 4 (7)

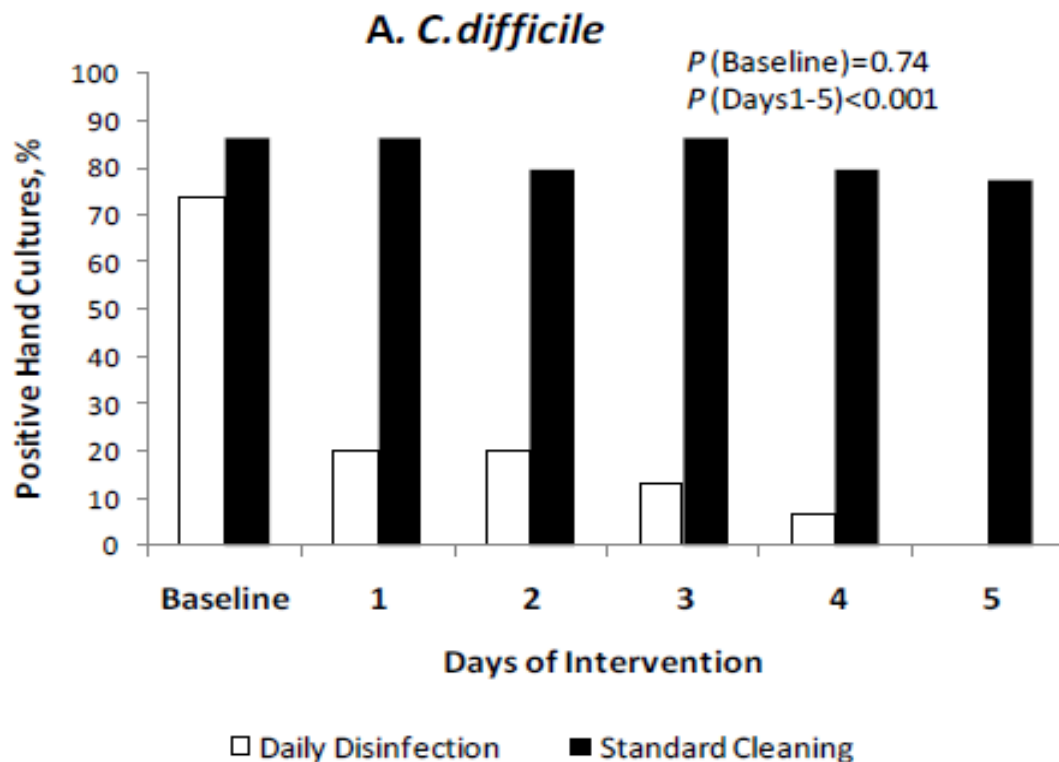
IDPH CDI Prevention Practices Hospital Survey, May 2012: *Environmental cleaning*

SURVEY QUESTION	YES N (%)	NO N (%)
Bleach product used for environmental disinfection in CDI rooms [N=79]	71 (90)	8 (10)
Bleach product used for daily cleaning [N=71]	49 (69)	22 (31)
Bleach product used for terminal cleaning [N=71]	56 (79)	15 (21)

Environmental Cleaning

- ❑ Bleach can kill spores, whereas other standard disinfectants cannot
- ❑ Limited data suggest cleaning with bleach (1:10 dilution prepared fresh daily) reduces *C. difficile* transmission
- ❑ Two before-after intervention studies demonstrated benefit of bleach cleaning in units with high endemic CDI rates
- ❑ Therefore, bleach may be most effective in reducing burden where CDI is highly endemic

Daily disinfection of high-touch surfaces – “Source Control”



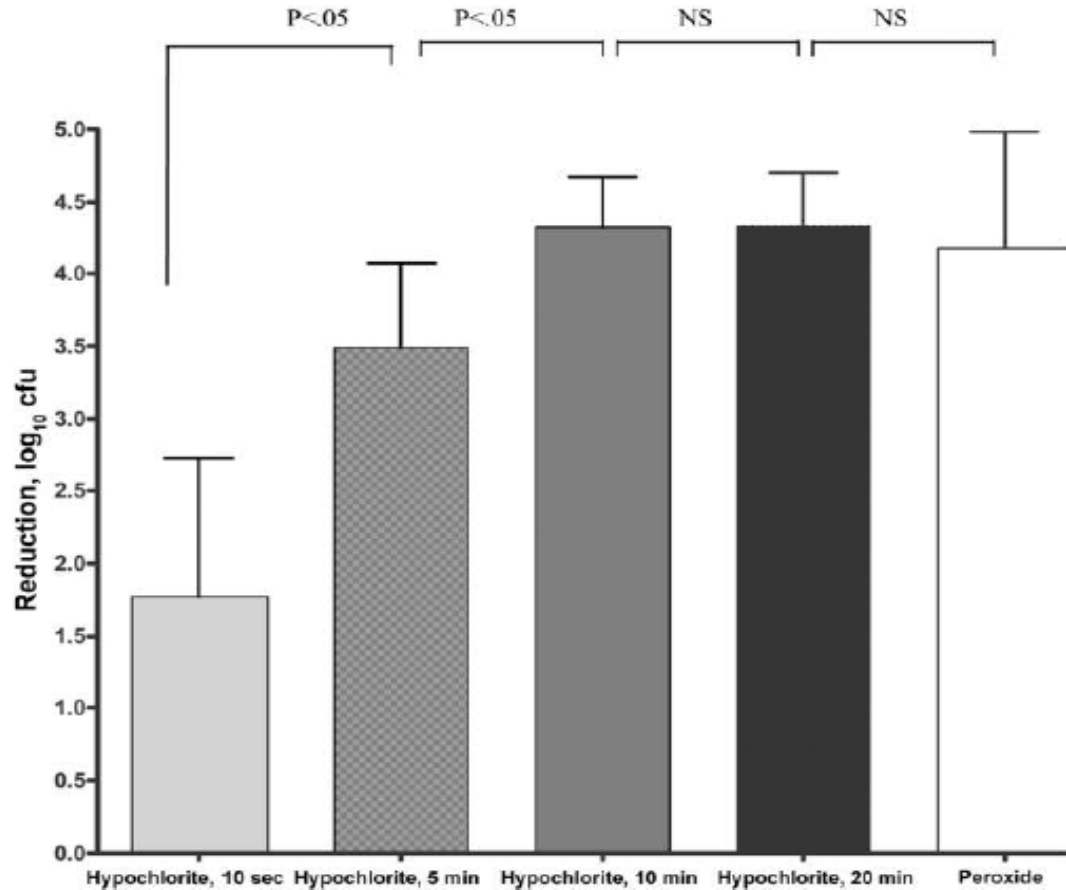
Kundrapu S, et al. Daily disinfection of high-touch surfaces in isolation rooms to reduce contamination of healthcare workers' hands. Infect Control Hosp Epidemiol 2012 in press

Environmental Cleaning Checklist: Surface Categories

Category	Items
High Touch I	Bed rails, tray tables, IV pole
High Touch II	Call box/button, telephone, bedside table handle
High Touch III	Chair, room sink, room light switch, room inner doorknob
Bathroom Surfaces	Inner doorknob, light switch, handrails, sinks, toilet seat, toilet flush handle, toilet bedpan cleaner
Equipment	IV pump control, monitor controls, monitor touch screen, monitor cables, ventilator panel

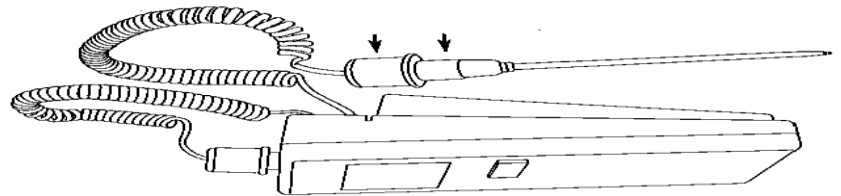
- Adapted from: CDC HAI Environmental Cleaning Excel worksheet.
- Available at: http://www.cdc.gov/HAI/prevent/prevention_tools.html

Technical Challenges: contact time, pre-cleaning, mechanical removal



Environmental cleaning

- Education alone doesn't work
- Essential to provide routine monitoring and feedback
- Removal of marker may not correlate with all high touch surfaces on one object (overbed table)
- Confusion about who cleans what
- Portable equipment



Sporicidal products

- “Clean room surfaces with bleach or another EPA-approved, spore-killing disinfectant after a patient with *C. difficile* has been treated there.” **CDC, 2012 Vital Signs report**
- Other options:
 - Virasept (Ecolab)
 - Accelerated H₂O₂

IDPH CDI Prevention Practices Hospital Survey, May 2012: *Diagnostic testing*

SURVEY QUESTION: Type of <i>C. diff</i> testing (check all that apply)	RESPONSE COUNT [N=77]	RESPONSE PERCENT
PCR	38	49
EIA for toxin	35	46
Cytotoxin assay	6	8
Stool antigen	5	7
<i>C. diff</i> culture	5	7
Other	5	7

IDPH CDI Prevention Practices Hospital Survey, May 2012: *Diagnostic testing*

SURVEY QUESTION	YES N (%)	NO N (%)
Does lab have a rejection policy for FORMED stools [N=79]	64 (81)	15 (19)
Does lab have a rejection policy for duplicate stool specimens [N=78]	38 (49)	40 (51)
Is there a system to rapidly (within 24 hours following lab identification) notify staff of new patients with CDI [N=79]	76 (96)	3 (4)

Case Study: Dr. P

Retrospective Chart Review

Resident and family interview

Lessons learned

Dr. P Case History

- Lived with his wife at home until current illness
- Health started to decline after surgery for spinal stenosis and hospitalization in 2 hospitals and with stay in 2 long term care facilities between 12/28/2008 and 1/14/2009.
- Had “Watery diarrhea” prior to discharge from Hospital B on 1/13/2009
- Admitted to LTCF B 1/14/2009
- Started to have loose stools/ “diarrhea”, on 1/18/2009

Current and Historical Meds

Ordered Medication 2009

Florastor,
Synthroid,
Tylenol,
Mylanta,
MOM,
Glucosamine,
fish oil,
Multivitamins,
Pepto Bismol,
Metamucil,
Immodium and Lomotil when
diarrhea started

Antibiotics

Amoxicillin January 2009
Cipro July, 2009
Levaquin July 2009
Flagyl July 2009
Z-Pac March 2010
Septra DS July and August 2010
Septra DS September
Macrobid 100 mg daily “for life”
Vanco January 2011**
Flagyl February 2011
Vanco February and
Hospitalized March 2011: Flagyl IV and PO
Vanco March 2011 with Taper

**** Confirmed C-diff DNA Feb 2011**

Other Interventions tried prior to positive *C-diff*

- Florastor
- BRAT Diet
- Lactose Free Diet
- Universal Gloving during care
- Care plan focused on recurring UTI with goals
 - “resident will not experience UTI”
 - “Obtain UA/C&S for any SS of UTI noted”
 - “Notify MD as soon as result of specimen comes in”
 - “Obtain antibiotics as warranted”
- Care Plan did not address chronic loose stools or antimicrobial stewardship

Diagnostics

- Know your lab provider
- Does your lab have rejection criteria (do you?)
- What is the turn around time for results?
- Do you place patients with diarrhea on contact isolation before you have a diagnosis?

Lessons Learned from our Case Study

- To detect *C-diff* toxin in stool, it must be collected, refrigerated and tested quickly.
- Toxin is not stable at room temperature- False negative testing if this is the only laboratory test done
- A sample collected in the evening, left at room temperature, and tested the following day -MAY NOT give accurate results- Dangers?
 - False Negative- False sense of security
 - Delay in implementing Transmission Based Precautions

Antimicrobial stewardship

- Does the patient really need another urinalysis?

Excess Use of Proton Pump Inhibitors (PPI) with Lack of Diagnostic Indications in 22 Midwestern Skilled Nursing Facilities

- Rates of PPI use were determined, and compared to diagnostic codes
- Of 1381 total admissions, 1101 (79.7%) were prescribed PPI
- Of these, 996 patients (90.5%) were prescribed PPI without a proven diagnosis
- Gastroesophageal reflux disease (GERD) tended to be the diagnosis used most frequently for PPIs, but there was usually no follow-up or proof of active GERD
- There was no appropriate diagnosis for PPI use in 716 (65%) of those admitted during the study period
- Concurrent therapy with non-steroidal anti-inflammatory drugs (NSAIDs) (including aspirin) and/or anticoagulant therapy (warfarin) was prescribed in 382 (34.6%) patients
- Total cost of PPIs prescribed from January 2010 to June 2011 was \$348,414.00

Does the patient need to continue on PPIs?

Conclusion

- There is significant over-use of PPIs in the study population
- Even when use of NSAIDs and anticoagulant therapy were taken into consideration as valid reasons for PPI use, 615 (55.9%) patients were prescribed PPI without appropriate diagnosis
- Considering older adults' underlying medical conditions and frailty, the unnecessary use of PPIs may lead to increased personal and economic cost

Click "Sign" to fill out and sign this form. When you are done, you can save a copy by clicking "Done Signing".

Highlight Existing Fields

Inter-facility Infection Prevention Transfer Form

When transferring patient/resident, please complete to the best of your ability to assist with care transitions.

Patient Information

Last Name

First Name

Date of Birth

Isolation Precautions

The patient currently requires the following type(s) of isolation precautions.

- Contact precautions. Reason:
- Droplet precautions. Reason:
- Airborne precautions. Reason:
- The patient DOES NOT require isolation.

Infection/Colonization History (check all that apply)

- MRSA (Methicillin-resistant *Staphylococcus aureus*)
- VRE (Vancomycin-resistant enterococci)
- Clostridium difficile*
- Any MDRO gram-negative bacteria (multidrug-resistant). If known, please also specify:
 - Carbapenem-resistant *Enterobacteriaceae* (examples: *Klebsiella* or *E. coli* with KPC, NDM-1)
 - Acinetobacter*, multidrug-resistant

Infection Control

“Wise and humane management of the patient is the best safeguard against infection.”

Florence Nightingale

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**IDPH CDI Prevention Practices LTCF Survey,
May 2012: Program Resources**

SURVEY QUESTION	STRONGLY AGREE N (%)	AGREE N (%)	NEUTRAL N (%)	DISAGREE; STRONGLY DISAGREE N (%)
Staff received <i>C. diff</i> training & education [N=63]	32 (51)	26 (41)	3 (5)	2 (3) 0 (0)
Hospital: Staff education/training provided about reducing CDI transmission (training may include other issues but must specifically review facility's CDI control program & include info on how CDI is transmitted & measures to prevent transmission) [N=78]	62 (80)			16 (20)
Staff have knowledge about <i>C. diff</i> [N=63]	26 (41)	27 (43)	8 (13)	2 (3) 0 (0)
Preventing CDI is a challenge [N=63]	5 (8)	8 (13)	16 (25)	23 (37) 11 (18)
Staff turnover had an impact on CDI prevention [N=63]	4 (6)	3 (5)	13 (21)	24 (38) 19 (30)

What concentration of bleach is most effective?

