

**Infections in Long-Term Care:
Roles and Resources for
Local Health Departments**

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Objectives

- 1. Describe the role of CD nurses in identification and response to infections and infection-control breaches in long-term care settings**
- 2. Identify resources for prevention and control of infections in long-term care settings**

**Hepatitis B Outbreak in a
North Carolina Adult Care Home**

Tuesday, October 12, 2010

- County health department notified by infection preventionist at local hospital**
- 4 cases of acute hepatitis**
- Residents of the same assisted living facility**



Investigation Methods

- **Evaluated infection control practices**
 - Observations
 - Interviews
- **Searched for additional cases**
 - Serologic testing of all residents
- **Epidemiologic study**
 - Potential healthcare exposures, risk factors

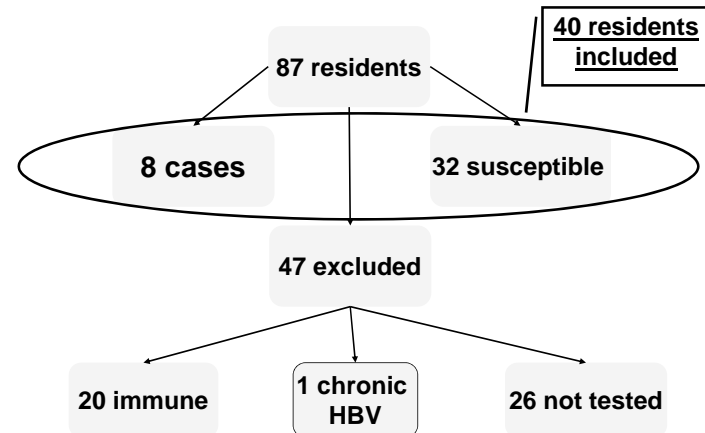
Acute HBV Cases

Cases identified	8
Mean age	70.6 years
Hospitalized	8 (100%)
Died	6 (75%)

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Cohort Study



Health Care Exposures

Exposure	Attack rate (%)	
	Exposed	Not exposed
Assisted BGM	8/15 (53)	0/25 (0)
Injected medication	4/16 (25)	4/22 (18)
Phlebotomy	4/25 (16)	4/15 (27)
Blood transfusion	0/1 (0)	8/38 (21)
Catheter device	0/3 (0)	8/37 (22)
Wound care	1/8 (13)	6/28 (21)

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Infection Control Observations

- Glucose meters used for more than one resident; no disinfection between uses
- Adjustable lancing devices used for more than one resident



Conclusions

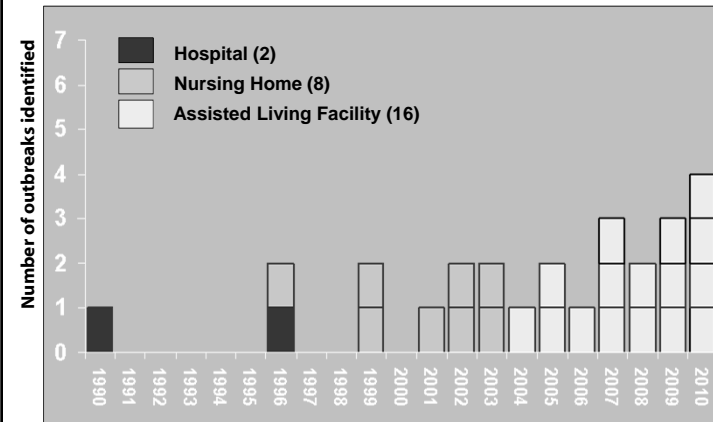
- 8 acute HBV infections and 6 deaths occurred due to infection control lapses during assisted monitoring of blood glucose
- Need to improve basic infection control knowledge in settings where assisted blood glucose monitoring occurs

Hepatitis B Outbreaks in Long-Term Care Facilities

- Increasing problem
- Associated with use of diabetes testing equipment for multiple patients
- 29 outbreaks reported to CDC during 1996–2011
 - 25 linked to blood glucose monitoring

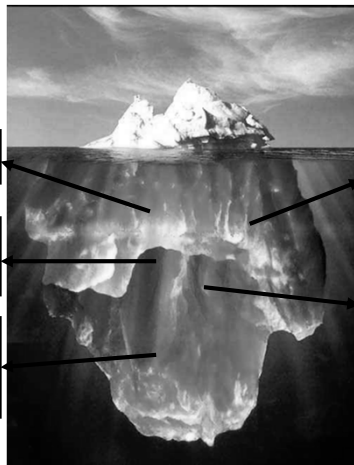


HBV Outbreaks associated with Assisted Monitoring of Blood Glucose, 1990–2010



J. Perz and N. Thompson, Update on Bloodborne Pathogen Transmission during Blood Glucose Monitoring, ACIP 2010

Most Outbreaks are Never Detected



Asymptomatic infection

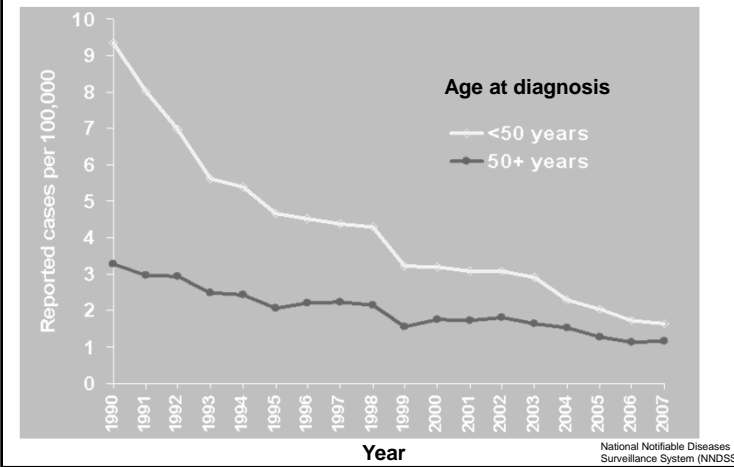
Under-reporting of cases

Under-recognition of healthcare as risk

Difficulty identifying single healthcare exposure

Barriers to investigation, resource constraints

Incidence of Reported Acute HBV Infection, United States, 1990–2007



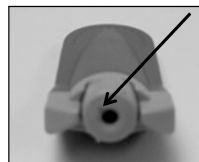
National Notifiable Diseases Surveillance System (NNSS)

HBV and Assisted Monitoring of Blood Glucose



Practices Associated with HBV Transmission During Assisted Monitoring of Blood Glucose

Use of fingerstick devices or insulin pens on multiple persons



Failure to clean and disinfect blood glucose testing meters between each use

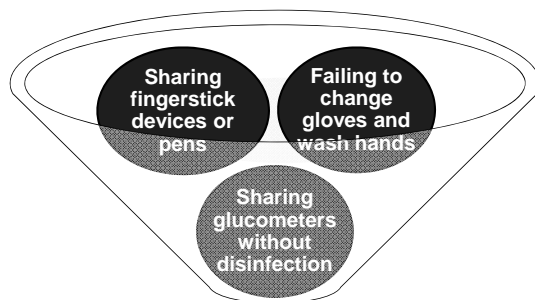


Failure to change or use gloves, or perform hand hygiene between procedures

Patel et al. ICHE 2009; 30:209-14
Thompson et al. JAGS 2010

MMWR 2005; 54:220-3 www.cdc.gov/injectionsafety

Unsafe Practices



Increased risk for Transmission of BBP

Best Practices: Fingerstick Devices

Reusable devices

Single-use, auto-disabling devices



Never
For more than one person

Preferred in LTC

Best Practice: Blood Glucose Meters

- Assigned to an individual person and not shared
- If shared, must be cleaned and disinfected after every use per manufacturer's instructions
- If the manufacturer does not specify how the device should be cleaned and disinfected, it should not be shared



Best Practice: Insulin Administration

- Injection equipment (e.g., insulin pens, needles, syringes) should never be used for more than one person
- Multi-dose vials of insulin should be dedicated to a single person
- If the vial must be used for more than one person, it should be stored and prepared in a dedicated medication preparation area



Infection Control Rules and Laws

10A NCAC 41A .0206

- Each health care organization in which invasive procedures are performed must
 - Implement a written infection control policy
 - Designate one on-site staff member to direct infection control activities
- Designated staff member must complete a state-approved course in infection control
 - Administered by NC Statewide Program for Infection Control and Epidemiology (NC SPICE)

10A NCAC 41A .0206: Infection Prevention in Health Care Settings

- (1) "**Health care organization**" means a hospital; clinic; physician, dentist, podiatrist, optometrist, or chiropractic office; home care agency; nursing home; local health department; community health center; mental health facility; hospice; ambulatory surgical facility; urgent care center; emergency room; Emergency Medical Service (EMS) agency; pharmacies where a health practitioner offers clinical services; **or any other organization that provides clinical care.**
- (2) "**Invasive procedure**" means entry into tissues, cavities, or organs or repair of traumatic injuries. The term **includes the use of needles to puncture skin**, vaginal and cesarean deliveries, surgery, and dental procedures during which bleeding occurs or the potential for bleeding exists.

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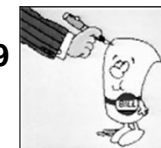
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**GENERAL ASSEMBLY OF NORTH CAROLINA
SESSION 2011**

**SESSION LAW 2011-99
HOUSE BILL 474**

H474-v-6



AN ACT TO PROTECT ADULT CARE HOME RESIDENTS BY INCREASING MINIMUM CONTINUING EDUCATION, TRAINING, AND COMPETENCY EVALUATION REQUIREMENTS FOR ADULT CARE HOME MEDICATION AIDES, STRENGTHENING ADULT CARE HOME INFECTION CONTROL REQUIREMENTS, AND REQUIRING THE DEPARTMENT OF HEALTH AND HUMAN SERVICES, DIVISION OF HEALTH SERVICE REGULATION, TO ANNUALLY INSPECT ADULT CARE HOMES FOR COMPLIANCE WITH SAFE INFECTION CONTROL STANDARDS.

HB 474: Implications for LHDs

- **Adult care homes required to report all suspected outbreaks**
 - 57 adult care home outbreaks reported to DPH since signed into law May 31, 2011
- **Public health working with DHSR on response to infection control breaches**

Public Health Role in Response to Infection Control Breach

- **Primary objective**: Determine whether transmission has occurred
- **Secondary objective**: Provide/reinforce education regarding safe practices

Other Long-Term Care Infections

1. Norovirus
2. Norovirus
3. Norovirus
4. Influenza
5. C. dif
6. Group A strep
7. Legionella
8. Rhinovirus, other respiratory viruses
9. Multidrug resistant organisms (CRE, etc)

Resources for Prevention and Control

DPH Communicable Disease Website

<http://epi.publichealth.nc.gov/cd/diseases.html>

Communicable Disease
A-Z Diseases & Topics

Find diseases by name, categories of disease (such as foodborne illnesses and vector-borne diseases), and selected disease topics (such as veterinary public health and tick bite prevention) in our A-Z list.

A

- AIDS (Acquired immune deficiency syndrome)
- Anaplasmosis
- Animal-borne (zoonotic) diseases
- Anthrax
- Antibiotic resistance & appropriate use of antibiotics
- Arboviral (mosquito-borne) illnesses

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Diseases & Topics
Healthcare-Associated Infections (HAIs)

Healthcare-associated infections (HAIs) are infections that develop during, or soon after, a person has been in a healthcare setting. These infections are widely recognized as a serious problem. Many are preventable.

HAIs can occur in all settings of care including hospitals, doctor's offices, same-day surgical centers, ambulatory outpatient care in healthcare clinics, and in long-term care facilities such as nursing homes and rehabilitation facilities, and can also result from home-care visits by a health professional.

HAIs happen when infectious agents, such as bacteria, enter a patient's body. The infections are often associated with the use of medical devices such as catheters and ventilators, surgical procedures, transmission between patients and healthcare workers, and overuse of antibiotics. Healthcare-associated infections are a significant cause of illness and deaths in hospitals.

Common types of HAIs include:

- Catheter-associated urinary tract infection (CAUTI)
- Central line-associated bloodstream infection (CLABSI)
- Clostridium difficile (C. diff.)
- Methicillin-resistant Staphylococcus aureus (MRSA)
- Surgical site infection (SSI)
- Vancomycin-resistant enterococci (VRE)
- Vancomycin-intermediate Staphylococcus aureus (VISA)
- Vancomycin-resistant Staphylococcus aureus (VRSA)
- Ventilator-associated pneumonia (VAP)

Centers for Disease Control and Prevention
CDC 24/7: Saving Lives. Protecting People.™

Seasonal Influenza (Flu)

Infection Control in Health Care Facilities

Summary Documents

- Prevention Strategies for Seasonal Influenza in Healthcare Settings
- Interim Guidance for Influenza Outbreak Management in Long-Term Care Facilities
- Control of Influenza Outbreaks in Institutions
- Settings Where High-Risk Persons & Their Contacts May Be Targeted For Vaccination
- Prevention & Control of Influenza in the Peri- and Postpartum Settings
- Interim Guidance for the Use of Masks to Control Influenza Transmission

Guidelines

- Standard Precautions Excerpt from the Isolation Guideline
- Droplet Precautions Excerpt from the Isolation Guideline
- Respiratory Hygiene/Cough Etiquette
- Influenza excerpt from the Pneumonia Guideline
- Influenza excerpt from the Infection Control in Healthcare Personnel Guideline
- Preventing Infections in HCST/Bone Marrow Transplant Recipients

www.cdc.gov/injectionsafety

Injection Safety

Injected medicines are commonly used in healthcare settings for the prevention, diagnosis, and treatment of various illnesses. Unsafe injection practices put patients and healthcare providers at risk of infectious and non-infectious adverse events and have been associated with a wide variety of procedures and settings. This harm is preventable. Safe injection practices are part of Standard Precautions and are aimed at maintaining basic levels of patient safety and provider protections. As defined by the World Health Organization, a safe injection does not harm the recipient, does not expose the provider to any avoidable risks and does not result in waste that is dangerous for the community. Visit the page on CDC's role in safe injection practices.

Public Health Education Resources

- Information for Providers: Slide presentations, FAQs.
- Information for Patients: Patient Resources, FAQs, Syringe Reuse...
- Free CME: Unsafe Injection Practices: Outbreaks, Incidents, and Root Causes.

One & Only Campaign

www.oneandonlycampaign.org

- Training video for providers
- Posters and brochures for healthcare facilities
- Medscape CME activity
- Social media
- Epocrates app

To Prevent Transmission of Infections in Healthcare

ONE NEEDLE, ONE SYRINGE, ONLY ONE TIME.

Safe Injection Practices Coalition
www.ONEandONLYcampaign.org

Injection Safety is Every Provider's Responsibility

BE AWARE DON'T SHARE

Insulin pens that contain more than one dose of insulin are only meant for one person.

They should never be used for more than one person, even when the needle is changed.

ONE INSULIN PEN,
ONLY ONE PERSON

The One & Only Campaign is a public health campaign aimed at raising awareness among the general public and healthcare providers about safe injection practices.

For more information, please visit:
www.ONEandONLYcampaign.org

Rx for Safe Injections
in Healthcare

1 Needle
1 Syringe
+ 1 Time
0 Infections

Injection safety, or safe injection practice, are practices intended to prevent transmission of Infectious Diseases. Patients and healthcare providers must both insist on getting just **One Needle, One Syringe, Only One Time** for each and every injection.

For more information, please visit:
www.ONEandONLYcampaign.org

1 needle
1 syringe
+ 1 time
0 infections

It's elementary!

Patients and healthcare providers must both insist on nothing less than **One Needle, One Syringe, Only One Time** for each and every injection.

For more information, please visit:
www.ONEandONLYcampaign.org


The One & Only Campaign is a public health campaign aimed at raising awareness among the general public and healthcare providers about safe injection practices.

Brochures

Safe injection practices are not optional.


They are a basic expectation anywhere injections are administered. It may be hard to believe, but over the last decade, syringe reuse and misuse of medication vials have resulted in dozens of outbreaks and the need to alert over 100,000 patients to seek testing for bloodborne pathogens such as Hepatitis B virus, Hepatitis C virus, and HIV.

Injection Safety is Every Provider's Responsibility




What Patients Need to Know About Safe Medical Injections

ONE NEEDLE. ONE SYRINGE. ONLY ONE TIME.



What Every Healthcare Provider Needs to Know

ONE NEEDLE. ONE SYRINGE. ONLY ONE TIME.



www.oneandonlycampaign.org

INJECTION SAFETY CHECKLIST

The following Injection Safety Checklist items are a subset of items that can be found in the CDC Injection Prevention Checklist for Injection Settings. Adherence to practices for each item:

The checklist, which is appropriate for both inpatient and outpatient settings, should be used to systematically assess adherence of all staff who perform or supervise injections. Documentation of adherence should be conducted for direct observation of healthcare personnel during the performance of that activity.

Injection Safety	Practice Performed?	If answer is No, document plus for remediation
Injections are prepared using aseptic technique in a clean area free from contamination or contact with blood, body fluids or contaminated equipment.	Yes No	
Needles and syringes are used for only one patient (this includes medication prefilled syringes and cartridge devices such as insulin pens).	Yes No	
The rubber septum on a medication vial is disinfected with alcohol prior to puncturing.	Yes No	
Medication vials are entered with a new needle and a new syringe, even when obtaining additional doses for the same patient.	Yes No	
Single-dose single-use medication vials, ampules, and bags or bottles of intravenous solutions are used for only one patient.	Yes No	
Medication administration tubing and connectors are used for only one patient.	Yes No	
Multi-dose vials are dated by HCP when they are first opened and discarded within 28 days unless the manufacturer provides a different duration or beyond date for that product use.	Yes No	
Flow-back effect after injection is minimized or avoided.	Yes No	
Multi-dose vials are dedicated to individual patients whenever possible.	Yes No	
Medication vials to be used for more than one patient are kept in a central medication area and do not enter the immediate patient treatment area (e.g., operating room, patient room/Lab/ICU).	Yes No	

RESOURCES

Checklist <http://www.cdc.gov/nisip/pdf/guidelines/mandatory-inject-checklist-07-2011.pdf>
 Guide to Injection Prevention for Injection Settings: Inpatient Operations (in full) <http://www.cdc.gov/nisip/pdf/publications/inpatient-injection-checklist-07-2011.pdf>

www.oneandonlycampaign.org

DANGEROUS MISPERCEPTIONS

Here are some examples of dangerous misperceptions about safe injection practices.

Myth	Truth
Changing the needle makes a syringe safe for reuse.	Once they are used, both the needle and syringe are contaminated and must be discarded. A new sterile needle and a new sterile syringe should always be used for each patient and to access medication vials.
Syringes can be reused as long as an injection is administered through an intervening length of IV tubing.	Everything from the medication bag to the patient's IV catheter is a single interconnected unit. Once removed from the patient, gently, or even infusion pressure do not assure that small amounts of blood won't contaminate the syringe once it has been connected to the unit. Syringes should never be reused for more than one patient or to access medication vials.
If you don't see blood in the IV tubing or syringe, it means that those supplies are safe for reuse.	Pathogens including hepatitis C virus, hepatitis B virus, and HIV can be present in sufficient quantities to produce infection without any visible blood.
Single-dose vials with large volumes that appear to contain multiple doses can be used for more than one patient.	Single-dose vials should not be used for more than one patient regardless of the vial size.


Injection Safety is Every Provider's Responsibility!

www.oneandonlycampaign.org

State/Local Health Department Toolkit

- **“It’s Real. It’s Recent. It Could Become Your Problem.”**
- **Guidance for other health departments and lessons learned**

State/Local Health Department Toolkit



It’s Real. It’s Recent.
It could become YOUR problem

Acknowledgments

Slides adapted from the following sources:

- Perz J, Patel PR, Srinivasan A. A “Never” Event: Unsafe Injection Practices. www.emergency.cdc.gov/coca/ppt/UnsafeInjectionPractices032708.ppt
- Shaefer M. Injection Safety. Presented at APIC North Carolina Fall Education Conference October 5, 2009, Durham, NC.
- Perz J and Thompson N. Viral hepatitis exposure & public health response. Presented at NACCHO Toolkit Development Workshop January 7, 2009 Las Vegas, NV
- Montana, B. Keeping the Infection out of Injection. NJ Department of Health and Senior Services