

# Infection Control and Prevention in the Outpatient Oncology Setting: Protecting Your Patients and Your Practice

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



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# Today's Webinar

- ❑ **Lisa C. Richardson, MD, MPH: Director of CDC's Division of Cancer Prevention and Control**
  - CDC's Basic Infection Control and Prevention Plan for Outpatient Settings and additional resources that will help prevent infections in cancer patients.
  
- ❑ **Ernest Clement, MSN, RN, CIC, Infection Preventionist, Healthcare Epidemiology and Infection Control (HEIC) Program, New York State Department of Health**
  - Safe injection practices for oncology facilities
  
- ❑ **Dr. Emily Lutterloh, MD, MPH, Director of Bureau of Healthcare Associated Infections (BHA I), New York State Department of Health**
  - The importance of case studies in illustrating the need for safe injection practices in oncology settings

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**THANK YOU**

# Infection Control and Prevention in the Outpatient Oncology Setting: Protecting Your Patients and Your Practice

**Lisa C. Richardson, M.D., M.P.H.**

Director, Division of Cancer Prevention and Control  
U.S. Centers for Disease Control and Prevention

Webinar: June 9, 2016



## **Setting the Stage ....Public Health Concern**

- ❑ 650,000 cancer patients receive outpatient chemotherapy**
- ❑ 60,000 cancer patients are hospitalized for chemotherapy-induced neutropenia and infections**
- ❑ One patient dies every two hours from this complication**
- ❑ Cancer patients may not be aware of this risk and actions they can take to help**

# Shift in Healthcare Delivery to Outpatient Settings

## Contributing Factors

Outpatient  
oncology  
facilities not  
routinely  
inspected

Some  
facilities lack  
written  
infection  
control  
policies and  
procedures

Infection  
prevention  
lapses  
identified

## Outbreaks Associated with Outpatient Oncology Settings

State	Year	Predominant Infection Type(s)	No. of Cases
NE	2002	Hepatitis C infection	99
CA	2002	<i>Alcaligenes xylosoxidans</i> bloodstream infection	12
IL	2004	<i>Klebsiella oxytoca</i> and/or <i>Enterobacter cloacae</i> bloodstream infection	27
GA	2004	<i>Burkholderia cepacia</i> bloodstream infection	10
GA*	2007	Polymicrobial bloodstream infection	13
NJ	2009	Hepatitis B infection	29
NJ	2011	<i>K. pneumoniae</i> bloodstream infection	11
MS	2011	<i>K. pneumoniae</i> and/or <i>Pseudomonas aeruginosa</i> bloodstream infection, skin/soft tissue infection	17
WV	2011	<i>Tsukamurella</i> spp. bloodstream infection	15

\*Outpatient Bone Marrow Transplant Facility

## **Objective & Strategies**

### **□ Objective:**

- **Raise awareness among patients, caregivers and healthcare providers about steps they can take to prevent infections during cancer chemotherapy treatment.**

### **□ Strategies:**

- **Develop improved and consistent infection control information for outpatient oncology providers.**
- **Create user-friendly resources to help patients better understand their risk of developing neutropenia and infections during chemotherapy.**

# **Preventing Infections In Cancer Patients: CDC Tool for Healthcare Providers**

## **Development of a Basic Infection Control and Prevention Plan for Outpatient Oncology Settings**

**Standardize  
and improve  
infection  
prevention  
practices**

**Essential  
elements to  
meet minimal  
expectations  
of patient  
safety**

**Based on  
guidelines  
from CDC and  
professional  
societies**

# Main Components of the Basic Infection Control and Prevention Plan

- ❑ Education and Training
- ❑ Surveillance and Reporting
- ❑ Standard Precautions
- ❑ Transmission-Based Precautions
- ❑ Central Venous Catheters



# Infection Prevention Plan Education and Training



- ❑ Education & training of all facility staff



- ❑ Competency evaluations

## **Infection Prevention Plan Surveillance and Reporting**

- ❑ Purposes: case-finding ,outbreak detection, and improving healthcare practices**
- ❑ Conduct facility surveillance for healthcare-associated infections and/or process measures**
- ❑ Adhere to local, state, and federal requirements for reportable diseases and outbreak reporting**



# Infection Prevention Plan

## Standard Precautions

### Hand Hygiene

- Alcohol-based hand rub
- Soap and water for infectious diarrhea

### Personal Protective Equipment

- Guided by risk assessment
- Contact anticipated with blood and body fluids, or pathogens

### Safe Handling of Contaminated Equipment

- Performed in patient environment on equipment and surfaces

### Respiratory Hygiene

- Identify patients with respiratory symptoms
- Spatial separation
- Facemask use

### Injection Safety

- Use new needle/syringe to access medication vial/bag
- Don't use saline bags for >1 patient

# Infection Prevention Plan

## Transmission-Based Precautions

### Contact Precautions

- Infectious diarrhea
- Draining wounds
- Skin lesions

### Droplet Precautions

- Respiratory virus

### Airborne Precautions

- Pathogen transmitted by airborne route



# Infection Prevention Plan Central Venous Catheters



Use of aseptic  
technique

Blood draws  
from catheters

**General  
Maintenance  
and Access  
Procedures**

Proper flushing  
technique

Changing site  
dressing &  
injection caps

# Appendix Section (I)

## □ List of Persons Designated to Specific Tasks

### Appendix A.

#### Example List of Contact Persons and Roles/Responsibilities

Contact Person(s) <sup>a</sup> (Names/Titles)	Contact Information	Roles/Responsibilities
	Phone: Pager: Email:	<ul style="list-style-type: none"> <li>• Infection prevention personnel/consultant</li> <li>• Assists with infection control plan development, update/revision, and implementation</li> <li>• Including a protocol for transferring patients who require Airborne Precautions (if applicable)</li> </ul>
	Phone: Pager: Email:	<ul style="list-style-type: none"> <li>• Educate and train facility staff (including Environmental Services/housekeeping)</li> <li>• Assess for competency of jobs/tasks (<i>examples provided</i>):               <ul style="list-style-type: none"> <li>• Hand hygiene performance/compliance</li> <li>• Proper use of PPE</li> <li>• Environmental cleaning/disinfection</li> </ul> </li> <li>• Triage/screening, taking vital signs               <ul style="list-style-type: none"> <li>• Phlebotomy service</li> </ul> </li> <li>• Determine when to implement enhanced respiratory screening measures</li> <li>• Ensure facility sick leave policies are in place and followed</li> </ul>
	Phone:	<ul style="list-style-type: none"> <li>• Collect, manage, and analyze HAI data for surveillance purposes</li> </ul>

## □ List of Reportable Diseases/Conditions

- Facility to obtain information from health department websites

## Appendix Section (II)

- **CDC Infection Prevention Checklist for Outpatient Settings**
  - Tailor to oncology settings to evaluate personnel competency and adherence to recommended practices

Section II: Personnel and Patient-care Observations		
Hand hygiene performed correctly	Practice Performed	If answer is No, document plan for remediation
A. Before contact with the patient or their immediate care environment (even if gloves are worn)	Yes No	
B. Before exiting the patient's care area after touching the patient or the patient's immediate environment (even if gloves are worn)	Yes No	
C. Before performing an aseptic task (e.g., insertion of IV or preparing an injection) (even if gloves are worn)	Yes No	
D. After contact with blood, body fluids or contaminated surfaces (even if gloves are worn)	Yes No	

# Additional Resources

- ❑ **Web links to national guidelines**
  - Occupational health requirements
  - Appropriate preparation and handling of antineoplastic agents
  - Infection prevention issues unique to blood and marrow transplant centers
  - Clinical recommendations and guidance for treatment of patients with cancer

## Additional Resources

Detailed information about each of the topics below can be found in the accompanying resources.

- **Infection prevention issues unique to blood and marrow transplant centers (a.k.a. bone marrow transplant or stem cell transplant centers)**
  - Guidelines for Preventing Opportunistic Infections Among Hematopoietic Stem Cell Transplant Recipients (available at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr4910a1.htm>)
  - Guidelines for Preventing Infectious Complications among Hematopoietic Cell Transplantation Recipients: A Global Perspective (available at: [http://www.idsociety.org/uploadedFiles/IDSA/Guidelines-Patient\\_Care/PDF\\_Library/OI.pdf](http://www.idsociety.org/uploadedFiles/IDSA/Guidelines-Patient_Care/PDF_Library/OI.pdf))
- **Occupational health requirements, including bloodborne pathogen training, healthcare personnel immunizations, and recommended personal protective equipment for**
- **Appropriate preparation and handling (e.g., reconstituting, mixing, diluting, compounding) of sterile medications, including antineoplastic agents**
  - United States Pharmacopeia Chapter <797> Guidebook to Pharmaceutical Compounding—Sterile Preparations
  - International Society of Oncology Pharmacy Practitioners Standards of Practice (available at: [http://opp.sagepub.com/content/13/3\\_suppl](http://opp.sagepub.com/content/13/3_suppl))
  - American Society of Health-System Pharmacists Guidelines for Handling Hazardous Drugs (available at: <http://www.ashp.org/DocLibrary/BestPractices/PrepGdl-HazDrugs.aspx>)
- **Clinical recommendations and guidance for treatment of patients with cancer, including appropriate antimicrobial prescribing prac-**

# Action Steps for Implementing the Basic Infection Control and Prevention Plan

Oncology facilities *without* a plan can start using this plan, and further supplement as needed.

Does not replace need for facilities to have regular access to an individual with training in infection control

Oncology facilities *with* an existing plan should ensure that essential elements are included.

# PreventCancerInfections.org

The screenshot shows the homepage of PreventCancerInfections.org. At the top left is the logo '3 STEPS TOWARD Preventing Infections During Cancer Treatment'. Below the logo is a navigation menu with links: 'About This Site', 'Know Your Risk', 'Discover the 3 Steps', 'Health Tip Sheets', 'Program Materials', 'FAQs', and 'Glossary'. A search bar is located in the top right. The main content area features a large banner for 'STEP 1: PREPARE' with the subtext 'KNOW YOUR RISK AND TAKE OUR RISK ASSESSMENT TEST'. Below the banner are three buttons: 'I am a Patient', 'I am a Caregiver', and 'I am a Healthcare Provider'. A red arrow points from the 'I am a Patient' button to the 'Do You Know Your Risk?' section below. The 'Do You Know Your Risk?' section includes a video player and a description: 'Complete our Risk Assessment and find out your risk for developing a low white blood cell count (a condition called neutropenia) and infections during your chemotherapy.' Other sections include 'Health Tip Sheets', 'FAQs', 'Program Materials', 'About the Program', and 'Recent News'.

- ❑ Helps cancer patients assess their risk for developing neutropenia and subsequent infections
- ❑ Provides action steps to help prevent infections
- ❑ Features a risk assessment tool
- ❑ User can choose one of three portals to enter
  1. Patient
  2. Caregiver
  3. Healthcare Provider



# Checklist to Assess Neutropenia Risk

## ❑ For patients:

- Currently undergoing chemotherapy and;
- Not undergoing stem cell/ bone marrow transplant

## ❑ Includes questions on:

- Age/Gender
- Comorbidities
- Cancer type and stage
- ECOG performance status
- History of cancer treatment and complications

▼ Do you have any of the following conditions?

- Auto-immune Disease
- Diabetes
- Kidney Disease
- Liver Disease
- None
- I don't know

Next

▶ What type of cancer do you have?

# Risk Assessment Levels and Message Topics

## Risk Assessment Results and Infection Prevention Tip Sheets

There are two possible risk categories-low or high. Based on the answers you provided, you have some factors that may put you at **HIGH** risk for getting a dangerously low white [blood cell count](#) during your [chemotherapy](#) treatment. This means you may also have an increased risk for getting an [infection](#). Talk to your doctor or nurse for more information about your [infection](#) risk.

Get started now by learning how to recognize the signs and symptoms of an [infection](#), what to do if you develop any of these signs and symptoms, and the steps you can take to prevent infections.

One of the most dangerous side effects of [chemotherapy](#) is developing a low white [blood cell count](#) that can increase your chance for getting an [infection](#). Below you can find helpful tips on how to recognize the signs and symptoms of an [infection](#) as well as how to help prevent [infection](#).

While we recommend completing the [RISK ASSESSMENT](#) first, you can also browse the Health Tip Sheets below or click on the PDF button to print.

[Review Answers to Questionnaire](#)

[Download Adobe Reader](#)

**Review and/or Print  
HIGH Risk Health  
Tip Sheets**



(This will allow you to see and/or print all HIGH Risk Tip Sheets at one time).

[View Now >](#)

# Risk Assessment Results – Health Tip Sheets

## Health Tip Sheet Topics:

- Basic Hygiene Practices
- Caring for Children w/Cancer
- Caring for your Catheter
- Caring for your Pet
- Friends, Family & Public Spaces
- Food & Kitchen Safety
- Gardening and Housekeeping
- Medication
- Signs & Symptoms of Infection
- Understanding Your Risk for Infection and a LWBC count
- Vaccinations

The image displays a grid of eight health tip sheet thumbnails. Each thumbnail consists of a header image, a title, a short paragraph of text, a green 'View Tip Sheet' button, and a 'Download PDF' link with a PDF icon.

- Basic Hygiene Practices:** Header image shows hands being washed with soap. Text: "Following basic hygiene practices can help prevent infection during treatment. This Health Tip Sheet provides information on hand washing, mouth care, skin care, bathing, preventing cuts and scrapes, and wound care." Button: "View Tip Sheet". Link: "Download PDF".
- Caring for Children With Cancer:** Header image shows a family sitting on a bench. Text: "If you are a family member or friend caring for a child with cancer, this Tip Sheet covers the risks for infection and the signs and symptoms of infections in children." Button: "View Tip Sheet". Link: "Download PDF".
- Caring for Your Catheter:** Header image shows a diagram of a person's torso with a catheter. Text: "This Health Tip Sheet describes the types of catheters used for chemotherapy treatment and provides instructions for caring for these devices." Button: "View Tip Sheet". Link: "Download PDF".
- Caring for Your Pet:** Header image shows a dog and a bird. Text: "Learn how to reduce your risk for infection while caring for your pet." Button: "View Tip Sheet". Link: "Download PDF".
- Food and Kitchen Safety:** Header image shows a woman in a kitchen. Text: "It is important to keep your body strong by eating the right foods. This Health Tip Sheet provides information on proper meal preparation and foods you should avoid in order to limit your risk for infection." Button: "View Tip Sheet". Link: "Download PDF".
- Friends, Family and Public Places:** Header image shows a group of people at a table. Text: "This Health Tip Sheet describes steps you can take to limit your risk for infection when visiting public places and spending time with friends and family." Button: "View Tip Sheet". Link: "Download PDF".
- Gardening and Housekeeping:** Header image shows a man gardening. Text: "This Tip Sheet offers gardening, housekeeping, and disinfecting advice for helping to prevent infections while in treatment." Button: "View Tip Sheet". Link: "Download PDF".
- Medication:** Header image shows a pill bottle. Text: "You should always take your medication as prescribed. This Health Tip Sheet provides tips to help you make sure you are following the medication treatment plan your doctor has set up for you." Button: "View Tip Sheet". Link: "Download PDF".

# More Than Just a Web Site-Educational Resources

**CANCER IS A FIGHT. DON'T LET THE FLU KNOCK YOU DOWN.**

**FIGHT BACK! GET YOUR FLU SHOT**

Take action to protect yourself against the flu, so you can focus on the fight that matters most.

The flu is serious for people who have cancer. Give the flu one-two punch this season:

1. Get the flu shot—the nasal spray vaccine.
2. Make sure the people you live with or who care for you get the flu shot too.

A flu shot is your best protection against the flu this season.

Learn more at: [www.cdc.gov/cancer/preventtheflu](http://www.cdc.gov/cancer/preventtheflu)

**WHAT YOU NEED TO KNOW**

**NEUTROPENIA AND RISK FOR INFECTION**

*In your fight against cancer, arm yourself with the facts about infection and sepsis.*

*Having cancer and certain treatments for cancer, such as chemotherapy, are just you at higher risk of developing an infection and sepsis.*

*Getting an infection or developing sepsis is a medical emergency. Better conditions can delay your treatment, put you in the hospital or be deadly.*

**CANCER, INFECTION AND SEPSIS FACT SHEET**

**A POTENTIALLY DEADLY COMBINATION EVERY CANCER PATIENT SHOULD KNOW ABOUT**

Why does cancer put me at risk for developing an infection and sepsis? Having cancer and undergoing certain treatments for cancer, such as chemotherapy, can make your body unable to fight off infections the way it normally would.

What is the difference between infection and sepsis? An **INFECTION** occurs when germs enter a person's body and multiply, causing tiredness, organ and tissue damage, organ failure, and death. For cancer patients, an infection can turn serious, or even deadly, very fast.

**SEPSIS** is the body's overwhelming and life-threatening response to infection which can lead to tissue damage, organ failure, and death. For a person with cancer, any infection that is anywhere in your body can lead to sepsis.

How does chemotherapy increase my risk for infection and sepsis? Chemotherapy works by killing the fastest-growing cells in your body—both good and bad. This means that along with killing cancer cells, chemo also kills your infection-fighting white blood cells.

Is there a specific time I may be more likely to get an infection? An infection or sepsis can happen at any time. However, when your body has very low levels of a certain type of white blood cell (neutrophils), your risk of getting an infection and sepsis increases. This condition is a common side effect of chemo called neutropenia.

How will I know if I have neutropenia? Your doctor will routinely test for neutropenia by checking the level of your white blood cells (neutrophils).

How can I prevent an infection? In addition to receiving treatment from your doctor, the following suggestions can help reduce your risk for getting an infection:

- Wash your hands often and ask others around you to do the same.
- Avoid crowded places and people who are sick.
- Talk to your doctor about getting a flu shot or other vaccinations.
- Take a bath or shower every day (unless told otherwise).
- Use an unscented lotion to try to keep your skin from getting dry or cracked.
- Clean your teeth and gums with a soft toothbrush.
- Use mouthwash to prevent mouth sores if your doctor recommends one.
- Do not share food, drink cups, utensils or other personal items, such as toothbrushes.

**EMERGENCY ROOM PERSONNEL**

**This is especially true for a cancer patient undergoing chemotherapy who develops a fever.**

Get the full picture about people with cancer who are receiving chemotherapy.

**If they have a fever, remember—**

1. A fever may be the only sign of infection and should be treated as an emergency.
2. Developing an infection is a life-threatening complication.
3. A fever infection can turn serious fast. Quick action can save a life.

Learn more at: [www.cdc.gov/cancer/preventinfections](http://www.cdc.gov/cancer/preventinfections)

**ONCOLOGY PROVIDERS:**

**YOUR PATIENTS MAY NOT UNDERSTAND THEIR RISK OF INFECTION**

**1.6 million** people in the United States diagnosed with cancer each year

**650,000** people receive chemotherapy

**60,000** of those receiving chemo are hospitalized for chemotherapy-related infections and sepsis

**1 of these patients** dies every 2 hours as a result of the complication: **neutropenic sepsis and infection** (CDC, 2010, 10/15/10)

**Do your patients know they're at risk?**

Or are they among the 184,000 that we are not aware of neutropenia?

Or, among the 52,000 that didn't know to call their doctor at the first sign of a fever?

**What if they knew more?**

A new survey conducted among people with cancer and their caregivers by Cancer.Net™, the CDC Foundation and Regen highlights:

- the need for education about neutropenia and infection risk
- the value of [PreventCancerInfections.org](http://PreventCancerInfections.org) as an evidence-based resource for people receiving chemotherapy and their caregivers

**There's help.** [PreventCancerInfections.org](http://PreventCancerInfections.org)

After visiting [PreventCancerInfections.org](http://PreventCancerInfections.org), 80% of respondents could correctly define neutropenia

9 in 10 respondents recognized the importance of calling their doctor at the first sign of a fever—the most important action a patient can take to prevent an infection from becoming deadly

**DON'T LET YOUR PATIENTS BECOME A STATISTIC... SHARE [PREVENTCANCERINFECTIONS.ORG](http://PREVENTCANCERINFECTIONS.ORG) WITH THEM TODAY.**

Prevention of Infections in Cancer Patients by a caregiver is available to read and be led by CDC and the CDC Foundation to reduce infection in cancer patients. For more information on this program and to learn more about this program, please visit [www.PreventCancerInfections.org](http://www.PreventCancerInfections.org)

Fact sheets/brochures  
Posters  
Post cards  
Infographics  
Health-e-cards

**OUT OF SIGHT, OUT OF MIND... NOT THIS TIME!**

**Did you know?**

**One of the most dangerous side effects of chemotherapy cannot be seen?**

That's right, a low white blood cell count, or neutropenia, puts cancer patients at a higher risk for getting an infection.

**An infection in people with cancer is an emergency. Be prepared, and remember the following three things during chemotherapy:**

1. Show up as an emergency, and call your doctor right away if you develop a fever.
2. Never use mouth-pain medicine when your white blood cell count will be low (the lowest level is 500) or when you may need all risk for infection.
3. If you have to go to the emergency room, it's important that you tell the person checking you so that you have cancer and are receiving chemotherapy. If you have an infection you might not see in the waiting room for a long time, infections can get very serious in a short amount of time.

Learn more at: [www.cdc.gov/cancer/preventinfections](http://www.cdc.gov/cancer/preventinfections)

# Please visit [www.PreventCancerInfections.org](http://www.PreventCancerInfections.org)



Basic Infection Control  
And Prevention Plan for  
**Outpatient  
Oncology  
Settings**





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



**3 STEPS TOWARD**  
Preventing Infections  
During Cancer Treatment  
PREPARE-PROTECT-RECOVER

Text size: A A A

Search this site

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**STEP 1:**  
**PREPARE**  
KNOW YOUR RISK AND TAKE OUR RISK  
ASSESSMENT TEST

Your answers to a few questions will help estimate your risk for developing a low white blood cell count (a condition called neutropenia) during your chemotherapy. Click on the appropriate button below to take the test:

[I am a Patient](#) | [I am a Caregiver](#) | [I am a Healthcare Provider](#)

**Health Tip Sheets**  
Browse these Tip Sheets to find helpful information on many topics like how to recognize the signs and symptoms of an infection and how to help prevent an infection. There's even a Tip Sheet on caring for your pet.  
[Learn More >](#)

**FAQs**  
Review some of the most often-asked questions about a cancer patient's risk for getting an infection during chemotherapy treatment. For example, do you know the #1 way to prevent an infection?  
[Learn More >](#)

**Do You Know Your Risk?**  
Complete our Risk Assessment and find out your risk for developing a low white blood cell count (a condition called neutropenia) and infections during your chemotherapy.  
[Learn More >](#)

**Program Materials**  
CDC created a variety of resources for patients as well as for use in healthcare provider offices and patient areas. These materials include fact sheets, posters, and more.  
[Learn More >](#)

**About the Program**  
Preventing Infections in Cancer Patients is a public health campaign led by the Centers for Disease Control and Prevention (CDC) and the CDC Foundation to raise awareness among patients, caregivers, and healthcare providers about steps they can take to prevent infections during cancer chemotherapy treatment. The campaign aims to reduce infections in cancer patients.  
PreventCancerInfections.org is an evidence-based, interactive online program designed to help assess a cancer patient's risk for developing both a low white blood cell count during chemotherapy and subsequent infections.

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**For Patients and Caregivers**  
CDC Video Podcast Featuring a New Tool for Preventing Infections During Chemotherapy by Lisa Richardson, MD, MPH

**For Patients, Caregivers & Providers**  
CDC Safe Healthcare Blog: Helping Cancer Patients Prevent Infections the Winner by Alex Guh, MD, MPH

# THANK YOU!

**Contact information:**  
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**For more information please contact Centers for Disease Control and Prevention**

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E-mail: [cdcinfo@cdc.gov](mailto:cdcinfo@cdc.gov) Web: [www.cdc.gov](http://www.cdc.gov)

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

National Center for Chronic Disease Prevention and Health Promotion

Division of Cancer Prevention and Control





**Department  
of Health**

# **Infection Control and Prevention in the Outpatient Oncology Setting: Protecting Your Patients and Your Practice**

**Emily Lutterloh, MD, MPH**

**Ernest J. Clement, MSN, RN, CIC**

**New York State Department of Health**

**Bureau of Healthcare Associated Infections**

# Outline

- Introduction and Background
- CDC Recommendations
- Case Studies
- Summary
- Resources
- References



# Applicability

- Safe injection recommendations apply to all healthcare settings
- Point-of-care testing recommendations apply to all settings where assisted monitoring of blood glucose is performed
- Pharmacies have a separate set of guidelines addressing safe practices in that setting
  - United States Pharmacopeia 797

# Infectious Risks of Unsafe Injections

- Hepatitis B virus
  - High viral load, can cause infection in the absence of visible blood
  - Stable in the environment for 1 week or longer
- Hepatitis C virus
  - Can cause infection in the absence of visible blood
  - Stable in the environment for up to 1 week dried and up to 3 weeks in suspension

# Infectious Risks of Unsafe Injections

- HIV
  - Does not generally survive well in the environment
  - Can survive in syringes for several days
  - Has been transmitted from patient to patient in the outpatient setting
    - In one case, mode of transmission was suspected to be contamination of multi-dose vials of saline

# Infectious Risks of Unsafe Injections

- Bacterial
  - Respiratory flora  
(e.g. spinal injections performed without a mask)
  - Miscellaneous from contaminated medication  
(e.g. *Serratia marcescens*, *Staphylococcus aureus*,  
*Klebsiella oxytoca*, *Enterobacter cloacae*)

# CDC Recommendations

# Needles and syringes should only be used for one patient

- Even if the needle is changed
- Even if the user doesn't draw back
- Even if the needle/syringe was only used to access an IV line separated from the patient by distance, gravity, or positive infusion pressure

# Survey of Clinicians Who Prepare or Administer Parenteral Medications

- 6% use single dose vials for >1 patient
- 1% use the same syringe with a new needle to administer medications to >1 patient
- 1% re-enter multi-dose vials with the same syringe then use the vial for another patient
- 9% use bags of IV solution as a common source for multiple patients

# Single Dose/Single Use Vials

- Use whenever possible rather than multi-dose vials
- Use for only one patient
- Do not combine left-over contents
- IV bags are to be used for only one patient, not as a common source of solution





# Multi-dose vials

- Multi-dose injectable medications should be used for only one patient whenever possible
- When multi-dose vials are used for more than one patient, the vial should be stored and accessed away from the immediate area where direct patient contact occurs
- Use a new, sterile needle and a new, sterile syringe for each vial entry

# Point-of-Care Testing Meters and Fingerstick Devices

- Meters
  - Glucometers
  - PT/INR anticoagulation meters
  - Cholesterol testing devices
  - Hemoglobin/hematocrit devices
  - Any similar device that involves blood testing
- Fingerstick devices
  - Available as
    - Re-usable pens
    - Single-use, auto-disabling “safety lancets”

# FDA Medical Device Safety Communication

<http://www.fda.gov/MedicalDevices/Safety/>

U.S. Department of Health & Human Services  
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 Home > Medical Devices > Medical Device Safety > Alerts and Notices (Medical Devices)

**Medical Device Safety**  
 Alerts and Notices (Medical Devices)  
 Information About Heparin  
 Luer Misconnections  
 Safety Communications  
 Public Health Notifications (Medical Devices)  
 Tips and Articles on Device Safety  
 Patient Alerts (Medical Devices)

**Use of Fingerstick Devices on More Than One Person Poses Risk for Transmitting Bloodborne Pathogens: Initial Communication: Update 11/29/2010**  
**Original Date Issued:** August 26, 2010  
**Date Updated:** November 29, 2010  
**Audience:**  
 All healthcare personnel who perform blood sampling, including point of care nurses, physicians, laboratory personnel and phlebotomists, as well as patients whose blood is routinely sampled.  
**Medical Specialties:** All medical specialties, particularly Internal Medicine, Emergency Medicine, Family Practice, Endocrinology, Pediatrics, Intensive Care, Obstetrics/gynecology and Geriatrics  
**Devices:** Reusable fingerstick (blood lancing) devices and point of care (POC) blood testing devices (e.g., blood glucose meters, PT/INR anticoagulation meters, cholesterol testing devices, etc.)  
**Purpose:** The FDA is updating its communication on the risks of using fingerstick devices on more than one person to include new FDA and other government agency activities.  
**Summary of Problem and Scope:**  
 Fingerstick devices are used to puncture the skin to obtain small blood specimens for testing blood glucose, hemoglobin, and other blood components. These instruments are equipped with lancets (small, double-edged blades or needles). Some fingerstick devices have replaceable lancets and are designed to be used more than once. Others are designed for single use only. Some fingerstick devices are packaged with POC blood testing devices, such as blood glucose meters and PT/INR anticoagulation meters. These devices are used in both home and professional healthcare settings.  
 Over the past 10 to 15 years, the CDC and the FDA have noted a progressive increase in reports of bloodborne infection transmission (primarily hepatitis B virus) resulting from the shared use of fingerstick and POC blood testing devices. Although the infections are occurring in a variety of health care settings, the Agencies note that these infections have increased significantly in long term care/assisted living settings. Unclear labeling and ineffective cleaning/disinfection instructions for fingerstick and POC blood testing devices may have contributed to these outbreaks.  
 Fingerstick and POC blood testing devices can be reused safely by a single patient in the home when the user follows device labeling for cleaning the blood testing device, for cleaning the reusable components of fingerstick devices, and for changing lancet blades.



# Study of Blood Contamination

- Glucometers and instrument storage areas in 12 hospitals tested for the presence of blood
  - 30% of glucometers were contaminated with blood
  - 50% of ICU glucometers were contaminated
  - 20% of areas where meters were stored were contaminated with blood

# Never use re-usable fingerstick devices for more than one person

- Even with a new lancet
- Even if it's labeled for use on multiple patients
- Even if it's cleaned and disinfected between uses according to the manufacturer's recommendations



# Use auto-disabling, single-use fingerstick devices ("safety" lancets)

Dispose of them at the point of use in an appropriate  
sharps container



Whenever possible,  
dedicate point-of-care blood  
testing meters for one patient only



# If dedicating point-of-care blood testing meters to a single patient is not feasible...

- Clean and disinfect after every use, between each patient, as described in the meter labeling
- If the manufacturer doesn't specify a cleaning and disinfection procedure, then that meter should not be shared



# Cleaning and Disinfection of Meters

- Per manufacturer's instructions
  - Compatible with device material
- Effective against hepatitis B, hepatitis C, HIV
- Applied for the specified contact time

# Perform hand hygiene and change gloves between patients

- Even when using point-of-care blood testing meters that are dedicated to a single patient
- Even when using single-use, auto-disabling fingerstick devices

Prepare injectable medications in a designated “clean” area

Always wear a face mask when performing spinal injections

# DRUG DIVERSION

## A GROWING RISK TO PATIENT SAFETY



**1** ONE NEEDLE,  
ONE SYRINGE,  
ONLY ONE TIME.



Safe Injection Practices Coalition  
[www.ONEandONLYcampaign.org](http://www.ONEandONLYcampaign.org)



Department  
of Health

# Provider Diversion: National Exposure

## When Drug Addicts Work in Hospitals, No One is Safe

BY KURT EICHENWALD / JUNE 18, 2015 6:07 AM EDT



# Case Study: Unsafe Injections in a Nebraska Oncology Clinic - 2002

- Gastroenterologist reported 4 patients with recently diagnosed HCV infection
- All received chemotherapy at the same hematology/oncology clinic
- Preliminary investigation identified 10 cases of recently identified HCV in clinic patients

# Case Study: Unsafe Injections in a Nebraska Oncology Clinic - 2002

- Site visit revealed that HCW routinely
  - Drew blood from ports
  - Used same syringe (with a new needle) to draw saline for port flushes, using a common IV bag

# Case Study: Unsafe Injections in a Nebraska Oncology Clinic - 2002

- 613 patients were treated at the clinic between March 2000-December 2001
  - Including one patient with a known history of HCV genotype 3a
- 486/613 patients underwent HCV testing
- 99/486 patients were positive for HCV infection
- 95/99 patients had HCV genotype 3a (rare)
- No HBV or HIV transmission identified
- Clinic closed in October 2002

<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5238a1.htm>



Department  
of Health



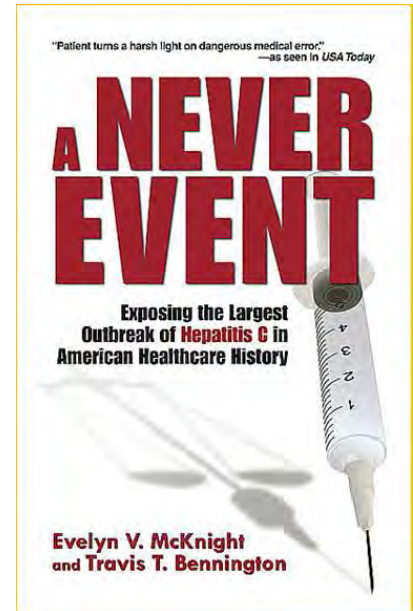
# Following the Nebraska HCV Outbreak: One Survivor's Response

HONOReform  
foundation

## Evelyn's Story

Dr. Evelyn McKnight is a nationally recognized patient safety advocate and survivor of one of the largest viral outbreaks in American health care history. Dr. McKnight turned her own personal tragedy into a crusade to save lives.

Evelyn is co-founder and president of HONOReform and HONOReform Foundation. She is co-author of *A Never Event: Exposing the Largest Outbreak of Hepatitis C in American Healthcare History*, in which she details the 2001 Nebraska outbreak. Evelyn presents at local, regional and national conferences; she recently presented at conferences led by AANA, APIC, the CDC and the CDC Foundation, and she presented at the World Vaccine Congress, among many others. All honoraria she receives help support the efforts of HONOReform.



Department  
of Health

# Case Study: Hepatitis Outbreak in New Jersey

- 2009 – Gastroenterologist reported to state health department 2 patients with acute HBV infection
  - No traditional risk factors
  - Both received care at same small, freestanding hematology/oncology clinic
- State and local health department initiated investigation

# Case Study: Hepatitis Outbreak in New Jersey

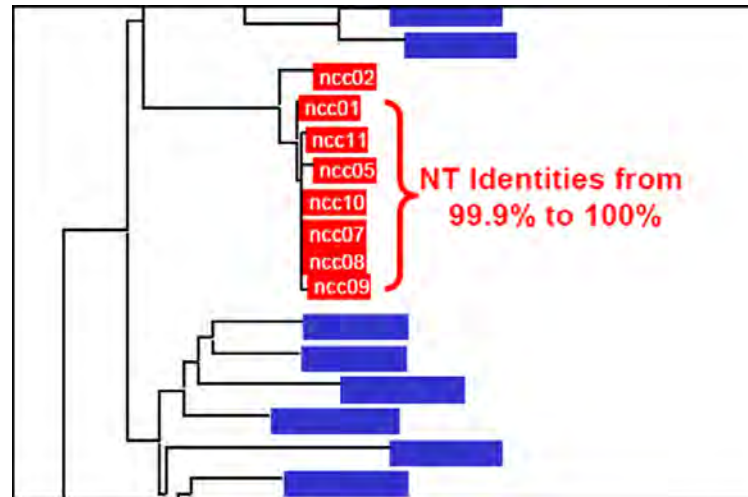
## Infection Control Assessment

- Suboptimal hand hygiene and glove use
- Use of saline bags as common-source supply
- Storing single-dose vials for future use
- Suboptimal chemotherapy preparation

# Case Study: Hepatitis Outbreak in New Jersey

- 4600 patients notified to be tested
- At least 29 outbreak-associated HBV cases

Molecular  
Testing:  
HBV  
sequence  
analysis



# Case Study: Hepatitis Outbreak in New Jersey

## Additional Actions

- Hematology/oncology practice was closed
- Board of Medical Examiners suspended physician's license

# Case Study: Bloodstream Infections at Cancer Center in Mississippi

- July 2011 – local hospital reported to state health department a cluster of bloodstream infections among 4 patients
  - P. aeruginosa* with identical antimicrobial resistance patterns
  - 2 also with *K. pneumoniae*
  - All had received infusions at same outpatient cancer facility
- Freestanding cancer center
  - Single-physician owned, small number of staff
  - Facility converted from a commercial building
- State and local health department investigated



# Case Study: Bloodstream Infections at Cancer Center in Mississippi

## Infection Control Assessment

- Unlicensed individual functioning in nurse role (infusing chemotherapy)
- Used common-source saline bag to flush ports
  - Reused syringes throughout the day for same patient



# Case Study: Bloodstream Infections at Cancer Center in Mississippi

- Recent decision to reuse heparin and saline syringes as cost saving measure
  - Directly reused syringes between patients; discarded only when blood visible in syringes
  - Prepared syringes containing non-chemotherapy medications, kept for multiple days





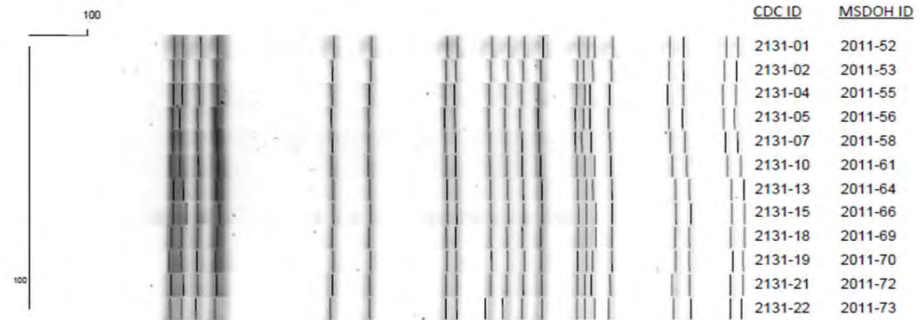
# Case Study: Bloodstream Infections at Cancer Center in Mississippi

16 patients with *P. aeruginosa*, *K. pneumoniae*, or both

*Pseudomonas aeruginosa*



*Klebsiella pneumoniae*



# Case Study: Bloodstream Infections at Cancer Center in Mississippi

## Additional Actions

- Facility closed by state health department at onset of investigation
- Investigation by law enforcement due to fraudulent billing
- Egregious lapses in injection safety prompted patient notification for bloodborne pathogen testing
  - 623 patients notified to be tested for HBV, HCV, HIV



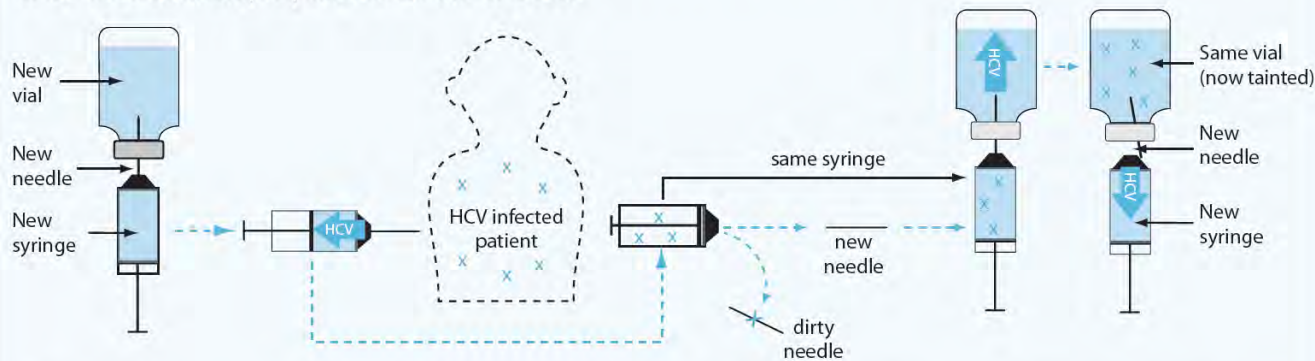
# Case Study: Unsafe Steroid Injections in a Pain Management Clinic

- Newly diagnosed acute hepatitis C in two adults reported to the State and investigated by the local health department
- Both had received epidural steroid injections from the same physician
- Site visit
  - Observed the physician re-enter a multi-dose vial with a used syringe then attempt to use the same vial for another patient

# Case Study: Pain Management Clinic

## Unsafe Injection Practices and Disease Transmission

Reuse of syringes can transmit infectious diseases such as Hepatitis C virus (HCV). The syringe does not have to be used on multiple patients for this to occur.



1. New needle and syringe are used to draw medication.

2. When used on an HCV-infected patient, backflow from the injection contaminates the syringe. Changing the needle does not prevent contamination of the syringe.

3. When reused to obtain medication, the contaminated syringe contaminates the medication vial.

4. If the contaminated vial is used for other patients, they can become infected with HCV.

Adapted from MMWR (May 16, 2008 / 57(19);513-517)

Safe Injection Practices Coalition

# Case Study: Unsafe Steroid Injections in a Pain Management Clinic

- Patients notified and advised to be tested for hepatitis C, hepatitis B, and HIV
- Patient list matched with State surveillance registries
- Phylogenetic testing performed on blood specimens from infected patients
- Transmission of hepatitis C documented

# Case Study: Pain Management Clinic

- Recommendations to involved physician and facilities
- More widespread patient notifications
- FOIL requests
- Press coverage
- Lawsuits



# Case Study: Transmission of Hepatitis B by Assisted Monitoring of Blood Glucose

- Acute hepatitis B in a patient who had been admitted to the facility during most of the exposure period
- Reported to the State; investigation begun
- Another patient on the same unit was known to be chronically infected with hepatitis B
- Both patients received assisted monitoring of blood glucose; no other known shared risks



# Case Study: Transmission of Hepatitis B by Assisted Monitoring of Blood Glucose

- Site visit
  - Observed use of a shared glucometer without proper cleaning and disinfection and also use of re-usable fingerstick devices
  - Outdated infection control policies
- Phylogenetic testing performed on blood specimens from the 2 infected patients
- Viruses were a rare subtype and were identical





# Case Study: Transmission of Hepatitis B by Assisted Monitoring of Blood Glucose

- Recommendations to the facility
- Patient notifications
- Substantial negative press coverage

# Promotion of Safe Injection Practices in Your Facility

- Active infection control program
- Written policies and procedures
- Well-trained staff
- Culture of injection safety
- Involvement by infection preventionist in all aspects of facility operation that may impact injection safety (e.g. purchasing, education, medication administration)

# Resources

<http://www.cdc.gov/injectionsafety/>

CDC Home  
Centers for Disease Control and Prevention  
Your Change Source for Credible Health Information

A-Z Index: A B C D E F G H I J K L M N O P Q R S T U V W X Y Z #

## 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.

**Reduce hospital and dialysis infections.**  
Protecting hospital and dialysis patients. [GO](#)

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### Injection Safety Topics

<b>Information for Providers</b> Slide presentations, FAQs.	<b>Information for Patients</b> Patient Resources, FAQs, Syringe Reuse.
<b>Preventing Unsafe Injection Practices</b> Guidelines, Recommendations...	<b>Assisted Monitoring of Blood Glucose</b> CDC Clinical Reminder, FAQs...
<b>Recent Publications</b> Injection Safety Related Publications...	<b>Recent Meetings</b> Ambulatory Surgical Centers (ASCs)...

### One & Only Campaign

**1 ONE NEEDLE, ONE SYRINGE, ONLY ONE TIME.**

[About the campaign](#)

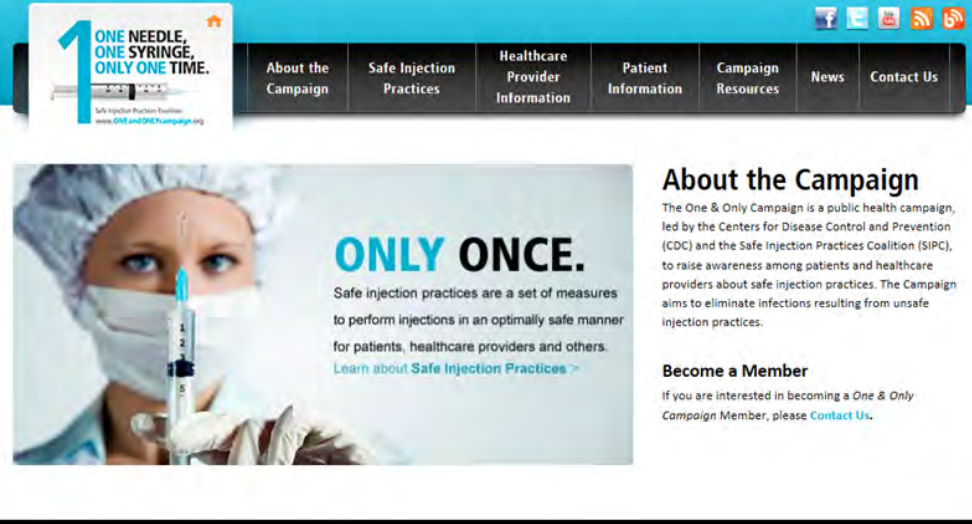
CDC Medscape Commentary:  
**Make Every Injection Safe!** [ 3:36 ]  
 February 14, 2011

# Resources

## One and Only Campaign

### CDC and Safe Injection Practices Coalition

[www.oneandonlycampaign.org](http://www.oneandonlycampaign.org)



**1 ONE NEEDLE, ONE SYRINGE, ONLY ONE TIME.**  
Safe Injection Practices Coalition  
[www.ONEandONLYcampaign.org](http://www.ONEandONLYcampaign.org)

- About the Campaign
- Safe Injection Practices
- Healthcare Provider Information
- Patient Information
- Campaign Resources
- News
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### ONLY ONCE.

Safe injection practices are a set of measures to perform injections in an optimally safe manner for patients, healthcare providers and others.  
[Learn about Safe Injection Practices >](#)

### About the Campaign

The One & Only Campaign is a public health campaign, led by the Centers for Disease Control and Prevention (CDC) and the Safe Injection Practices Coalition (SIPC), to raise awareness among patients and healthcare providers about safe injection practices. The Campaign aims to eliminate infections resulting from unsafe injection practices.

### Become a Member

If you are interested in becoming a One & Only Campaign Member, please [Contact Us](#).

**NEW YORK**  
STATE OF OPPORTUNITY.

**Department of Health**

# Resources

- FDA video about fingerstick devices at:  
<http://www.youtube.com/watch?v=W77W8SN6KOQ>



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Preventing Bloodborne Infections When Using Fingerstick Devices

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FDA and CDC are alerting healthcare professionals and patients about the

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- Unstick Lancing Device review by USFoodandDrugAdmin 422 views
- Inside the Classroom: Medical Assistant by USFoodandDrugAdmin 12,328 views
- Comfort Bath with Skin Check by USFoodandDrugAdmin

# Resources

## FDA information about cleaning and disinfection of blood glucose meters

U.S. Department of Health & Human Services | www.hhs.gov

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**Products and Medical Procedures**

- In Vitro Diagnostics
  - Glucose Testing Devices
  - Home Use Tests
  - Lab Tests

### Letter to Manufacturers of Blood Glucose Monitoring Systems Listed With the FDA

*OVD has sent the following letter to manufacturers with blood glucose monitoring systems (BGMS) listed with the FDA. The letter outlines recent changes in the review of BGMS submissions. These review changes were instituted in response to a critical public safety risk concerning the risk of transmission of disease from shared use of fingerstick (lancing) devices and point of care blood testing devices.*

[Manufacturer Address]

Dear [Contact Name],

Your company has been identified as having listed blood glucose monitoring systems (BGMS) with the Food and Drug Administration [product code NBW]. The review of BGMS was recently changed in response to a critical public safety risk. The regulatory changes outlined in this letter are effective immediately and will apply to all new BGMS submissions to be submitted to OVD. Please read the following in its entirety and include information on how you have addressed the following issues when preparing a BGMS pre-market submission for OVD review.

During the week of August 23, 2010, the FDA, CDC, and CMS issued clinical reminders and public health notifications highlighting the risk of transmission of disease from shared use of fingerstick (lancing) devices and point of care blood testing devices. The posting of these notifications was in response to recent outbreaks of viral hepatitis among patients where these devices were shared between users. The CDC and the FDA currently recommend the following:

- Lancing devices should never be used for more than one person. Only auto-disabling, single use lancing devices should be used for assisted blood glucose monitoring in multiple patients.
- Point of care blood testing devices such as blood glucose meters should be used only on one patient and not shared. If dedicating blood glucose meters to a single patient is not possible, the meters must be properly cleaned and disinfected after every use following the guidelines provided in device labeling.
- Healthcare personnel should change gloves between patients, even if patient dedicated testing devices and single-use, self-disabling lancing devices are used.



# Acknowledgments

Mary Beth Wenger  
Health Communications Specialist  
Public Affairs Group - NYSDOH

Kimberley Baker, MSN, RN, CNS-CH  
Bureau of Healthcare-Associated Infections – NYSDOH

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