



# Injection Safety Workshop 1

## Oct. 30, 2018



**Jill Marette, RN, PHN**

Injection Safety Coordinator

HAI/AR Unit, MDH

**Janet Lilleberg, MPH**

HAI/AR Unit, MDH

# Agenda

Topic(s)	Date
Injection Safety Introduction/Why	October 30, Webinar Session 1
Outbreaks, Outcomes, and Lessons Learned	October 30, Webinar Session 1
Safe Injection Practices and Principles	November 6, Webinar Session 2
Drug Diversion	November 13, Webinar Session 3
Setting Up Your Injection Safety Education and Training Program for Facility Staff	November 13, Webinar Session 3

You must register and complete the evaluations for each session in order to be eligible for CEUs.

**Register for the next two webinars in this series:**

<http://www.health.state.mn.us/divs/idepc/dtopics/infectioncontrol/is/amb/index.html>

## Participants will be able to:

- **Describe outbreaks that have occurred as a result of unsafe injection practices.**
- **Identify available resources to promote injection safety.**
- Describe the correct use of single-use and multi-dose vials and IV solution bags.
- Describe the importance of strict adherence to aseptic technique for preparing and administering medication using a syringe and needle.
- Define drug diversion, describe outbreaks that have occurred as the result of these practices and lessons learned.
- Identify first steps to creating an injection safety program for education and competency testing for facility staff.

# In the Beginning

- Ancient Romans used metal syringes with disc plungers for enemas and nasal irrigation.
- In the 17<sup>th</sup> & 18<sup>th</sup> centuries, physicians extended the sites of entry to the vagina and rectum using syringes of metal, pewter, ivory, and wood.
- In 1675, intravenous injections were introduced using a quill, inserting it into the patient's exposed vein pumping in water, opium, or a purgative (laxative).

# Civil War

During the Civil War, some of the first syringes were developed.



# As Time Goes On

- Metals used for syringes and needles rusted
  - Stainless steel was developed and rusted less
- Alkali-free hard glass for syringes was an important development
- Sharp needles were an issue
  - Only upon request would manufacturers send instructions for sharpening

# Tubex Syringes





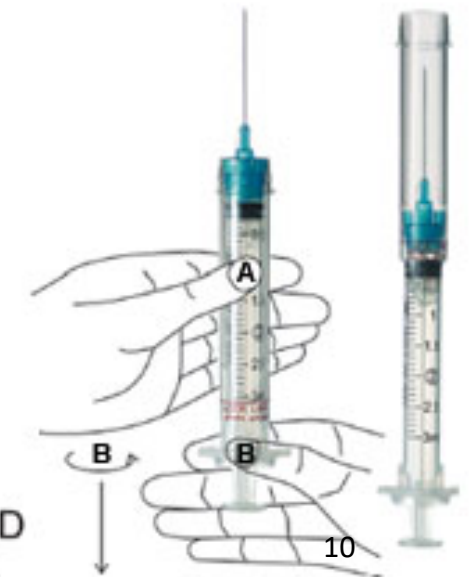
- In 1955, Roeher Products introduced the Monoject Syringe, the first disposable syringe
- In 1961, BD followed with the Plastipak Syringe
- Since the 1970s disposable syringes have been used almost exclusively
- In 1990, OSHA required use of safety needles to prevent re-capping of needles and needle stick injuries

# Safety Syringes



## AFTER USE

HOLD "A" AS DEPICTED,  
TURN "B" RIGHT OR LEFT AND  
PULL BACK UNTIL LOCKED.



- All plastic syringes **and** needles are individually packaged for sterile, single-use
- Once the package of either is open the sterility is compromised
- Plastic syringes are designed for administration **not** storage



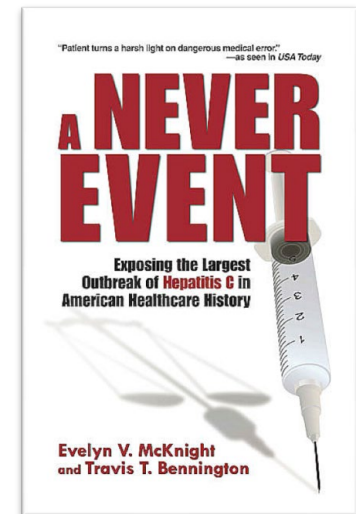
# Evelyn McKnight's Story



Dr. Evelyn McKnight, mother of three, was battling breast cancer and was infected with hepatitis C during treatment because of syringe reuse to access saline flush solution.

Along with Evelyn, a total of 99 cancer patients were infected with hepatitis C in America's largest outbreak in health care history.

Evelyn co-founded HONOReform, a foundation dedicated to improving America's injection safety practices, and was the catalyst of the formation of the Safe Injection Practices Coalition.



The Safe Injection Practices Coalition (SIPC) is a partnership of healthcare-related organizations led by the Centers for Disease Control and Prevention (CDC). Coalition members include:

- Healthcare-related organizations
- Patient advocacy organizations
- Industry partners
- Other public health partners

# One & Only 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)
- Raising awareness among patients and health care providers about safe injection practices
- The Campaign aims to eliminate infections resulting from unsafe injection practices

# One and Only Campaign Toolkit

- Single-Dose and Multi-Dose Vial Infographic
- One & Only Campaign Posters (serve as reminders for health care settings to adhere to safe injection practices)
- Healthcare Provider Brochure
- Patient Brochure
- Insulin Pen Safety Brochure
- Provider Pocket Cards
- FAQs
- Dangerous Misperceptions (Injection Safety Myths & Truths)
- Injection Safety Checklist
- Videos for training staff

# Materials Available for Order



## One & Only Campaign Materials For Order Via CDC-INFO



Safe Injection Practices DVD  
Item 22-0087



Rx for Safe Injections Poster  
Item 22-0696



It's Elementary Poster  
Item 22-0697



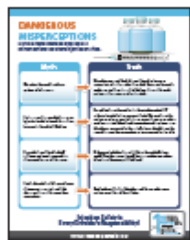
Provider Brochure  
Item 22-0702



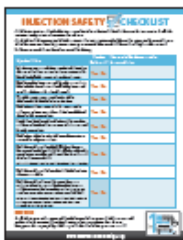
Injection Safety Infographic  
Item 22-1504



Single-Dose & Multi-Dose Vial Infographic  
Item 22-1599



Injection Safety Dangerous Misperceptions Flyer  
Item 22-1178



Injection Safety Healthcare Provider Checklist  
Item 22-1176

**You Can Order 3 Ways**

**CLICK**  
[www.cdc.gov/pubs/CDCInfoOnDemand.aspx](http://www.cdc.gov/pubs/CDCInfoOnDemand.aspx)  
 Select Injection Safety–One & Only Campaign to order materials

**CALL**  
 1-800-CDC-INFO

**SCAN**  
 Scan with your smartphone to access the ordering page



Be Aware Don't Share Insulin Poster  
Item 22-1503



Be Aware Don't Share Insulin Brochure  
Item 22-1501



Injection Safety Pocket Card  
Item 22-0713



Logo Poster for Providers  
Item 22-0700



Oncology Flyer  
Item 22-2127



Pain Clinic Flyer  
Item 22-1908

The One & Only Campaign is made possible by a CDC Foundation partnership with Eli Lilly and Company

**1-800-CDC-INFO**



# 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 be used for each injection and each entry into a medication vial.
Syringes can be reused as long as an injection is administered through IV tubing.	Syringes and needles should never be reused. The IV tubing, syringe, and other components represent a single, interconnected unit. Distance from the patient, gravity, or infusion pressure do not ensure that small amounts of blood won't contaminate the syringe once it has been connected to the unit.
If you don't see blood in the IV tubing or syringe, it means that those supplies are safe for reuse.	Germs such as hepatitis C virus and staph or MRSA are invisible to the naked eye, but can easily infect patients even when present in microscopic quantities. Do not reuse syringes, needles, or IV tubing.
It's okay to use leftover medicine from use single-dose or single-use vials for more than one patient.	Single-dose or single-use vials should not be used for more than one patient regardless of how much medicine is remaining.

Injection Safety is Every Provider's Responsibility!

The *One & Only Campaign* is a public health effort to eliminate unsafe medical injections. To learn more about safe injection practices, please visit [OneandOnlyCampaign.org](http://OneandOnlyCampaign.org).

For the latest news and updates, follow us on Twitter @injectionsafety and Facebook/OneandOnlyCampaign.



## 2011

- Survey of 5,500 U.S. health care professionals
- 1 percent “sometimes or always” reuse a syringe on a second patient
- 1 percent “sometimes or always” reuse a multi-dose vial for additional patients after accessing it with a used syringe
- 6 percent use single-dose/single-use vials for more than one patient

Pugliese G., Gosnell C., Bartley J., & Robinson S. (December 2010). Injection practices among clinicians in United States health care settings. *American Journal of Infection Control*, 38 (10), 789-798. Retrieved from <http://www.ajicjournal.org/article/PIIS0196655310008539/abstract>.

## 2017

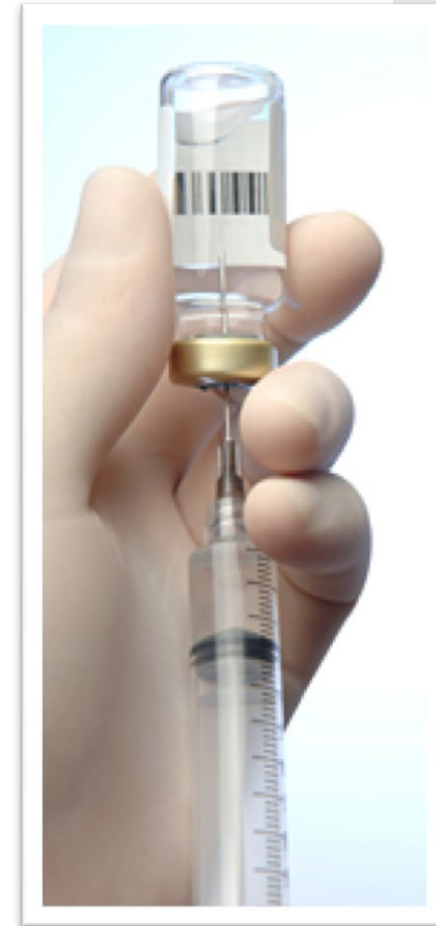
“One needle, one syringe, only one time? A survey of physician and nurse knowledge, attitudes, and practices around injection safety”

- 12.5% of physicians and 3% of nurses indicate reuse of syringes for >1 patient occurs in their workplace.
- Nearly 5% of physicians indicated this practice usually or always occurs.

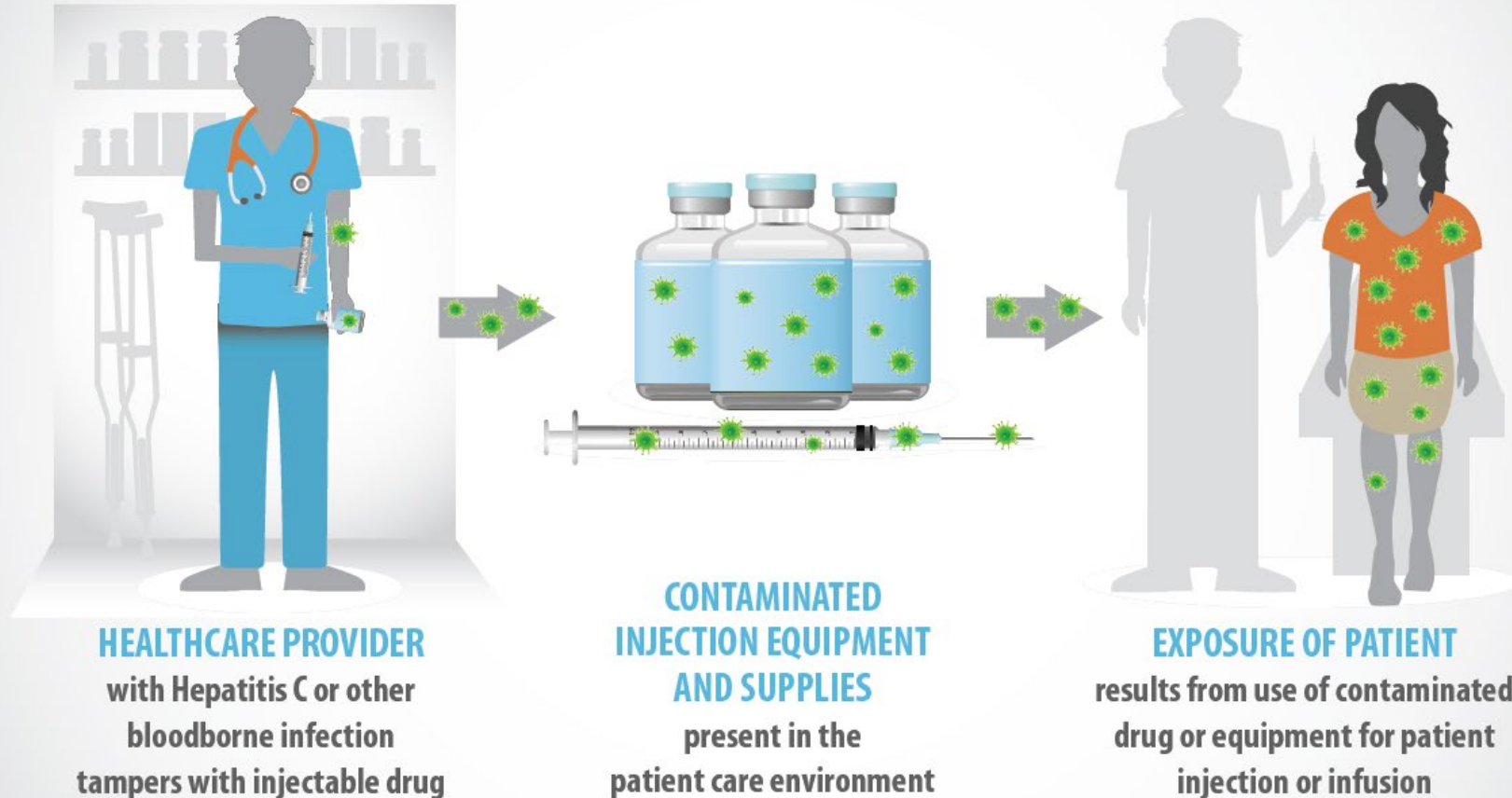
One needle, one syringe, only one time? A survey of physician and nurse knowledge, attitudes, and practices around injection safety ([www.ajicjournal.org/article/S0196-6553\(17\)30680-6/fulltext](http://www.ajicjournal.org/article/S0196-6553(17)30680-6/fulltext))

# Injection Safety Basics

- Injection safety is included in standard precautions
- Health care practices should not provide a pathway for transmission of life-threatening infections
- Safe injection practices protect both patients and health care workers



# DRUG DIVERSION\* SPREADS INFECTION FROM HEALTHCARE PROVIDERS TO PATIENTS



\*Drug diversion occurs when prescription medicines are obtained or used illegally by healthcare providers.

FOR MORE INFORMATION, VISIT [CDC.GOV/INJECTIONSAFETY/DRUGDIVERSION](https://www.cdc.gov/injectionsafety/drugdiversion)





# HELP ENSURE PATIENT SAFETY.

## MAKE EVERY INJECTION A SAFE ONE.



## 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](#).

### Featured Content

- ▶ [Getting Medical Care? How to Avoid Getting an Infection](#)
- ▶ [New CDC Safe Healthcare Blog- One Nurse's Plea: Report Signs of Drug Abuse](#)

### Spread the Word

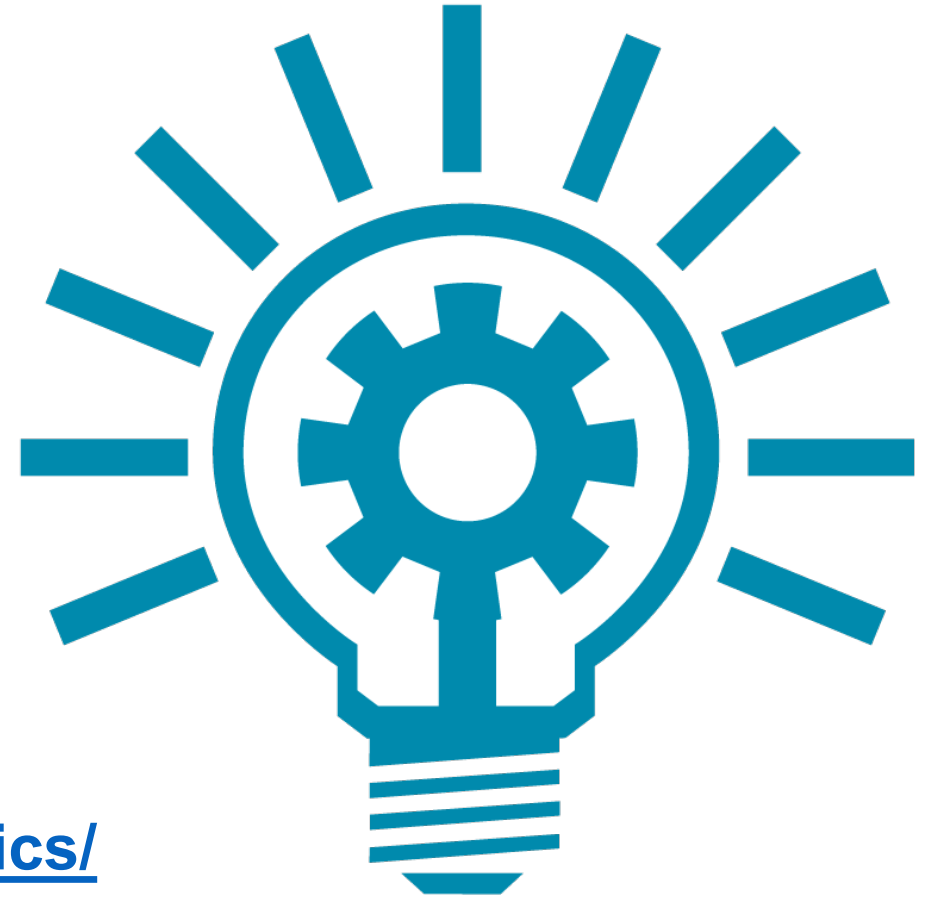
Do your part to make healthcare safe, one injection at a time. Order FREE materials from the CDC. [CDCInfoOnDemand/InjectionSafety](#)

### Translated Campaign Resources

The One & Only Campaign has translated print materials in Spanish and Japanese! [Access translated resources here.](#)

Sign up for email updates:  [SIGN UP](#)

- [www.cdc.gov/injectionsafety](http://www.cdc.gov/injectionsafety)
- [www.ONEandONLYcampaign.org](http://www.ONEandONLYcampaign.org)
- [www.health.state.mn.us/oneonly](http://www.health.state.mn.us/oneonly)
- [www.health.state.mn.us/divs/idepc/dtopics/infectioncontrol/is/amb/materials.html](http://www.health.state.mn.us/divs/idepc/dtopics/infectioncontrol/is/amb/materials.html)





# Thank You!

Jill Marette, RN, PHN  
Minnesota Department of Health  
Injection Safety Coordinator  
651-201-5536  
[Jill.Marette@state.mn.us](mailto:Jill.Marette@state.mn.us)





## Never Events – Injection Safety Outbreaks

Janet Lilleberg

October 2018



- Safe injection practice
- Outbreaks related to injection safety
  - Outcomes
  - Lessons learned
- MDH can help

# Safe Injection Practice



# Seems Obvious, Right?

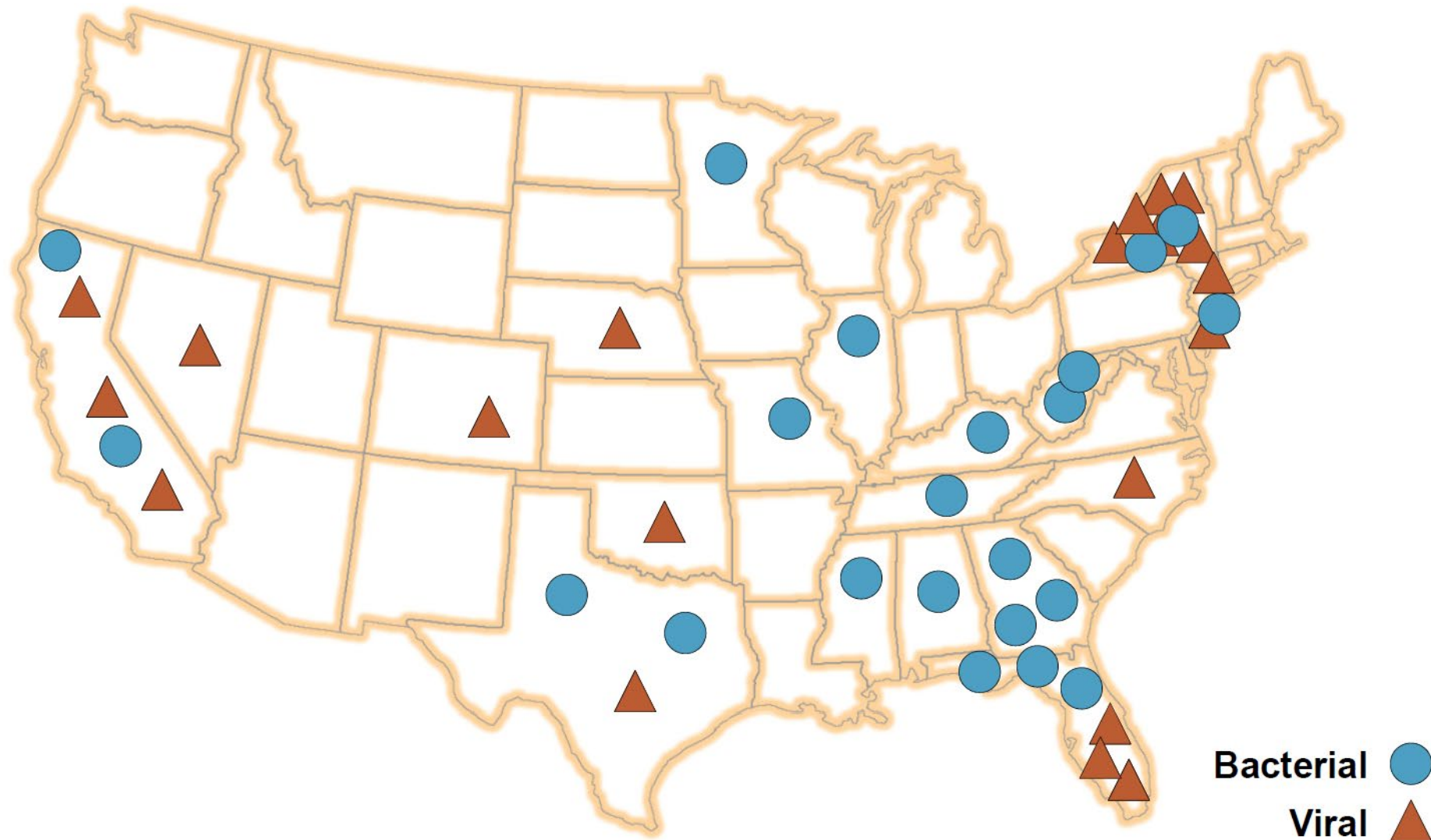


# Why are we concerned?

- Multiple exposures and outbreaks of viral and bacterial infections have occurred
- Unsafe injection practices include, but are not limited to, the:
  - Reuse of syringes for multiple patients
  - Administration of medications from single-dose, single-use medication vials or IV bags to multiple patients
  - Failure to use aseptic technique when preparing and administering injections

# U.S. Outbreaks Associated with Unsafe Injection Practices, 2001-2011

Over 50 outbreaks





Let's take a  
closer look  
at some  
real cases.

# Las Vegas, Nevada - Outbreak, 2008

- Cluster of three acute hepatitis C (HCV) infections identified in Las Vegas.
- All three patients had procedures at the same endoscopy clinic.
- The clinic notified 50,000 patients of possible HCV exposure.
- Southern Nevada identified 114 cases of HCV infection potentially associated with clinics



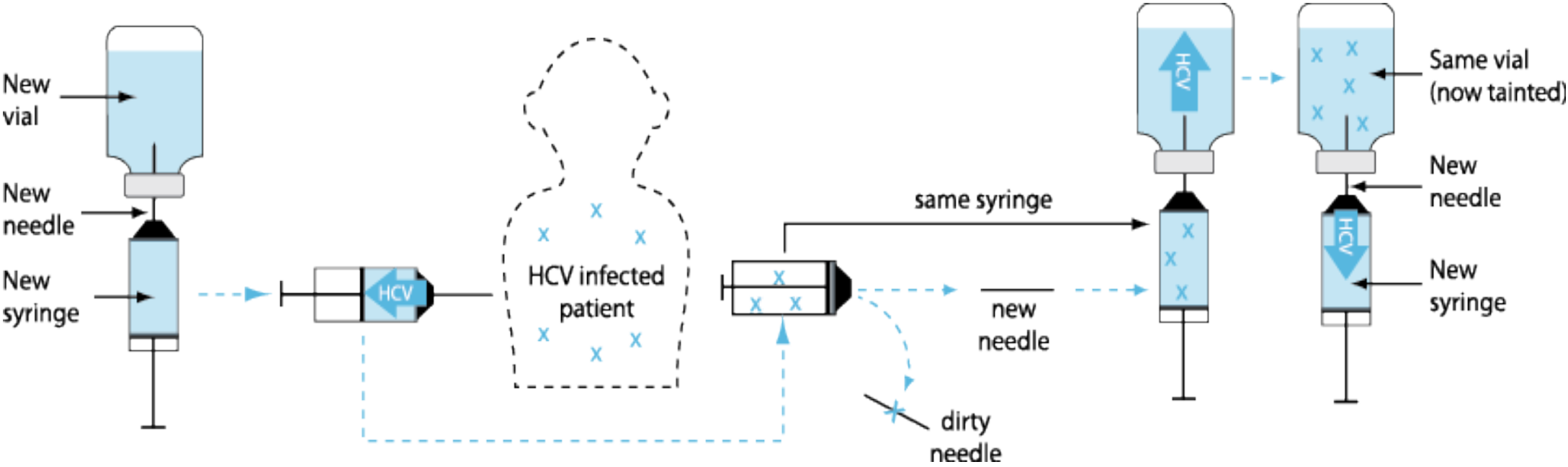
# What Was Observed...

- A new needle and syringe were used to administer anesthetic.
- If the patient started to wake up, the nurse changed the needle, but used the same syringe to draw more of the drug from the vial.
- This contaminated the vial with the patient's blood.
- The contaminated vial was used to draw anesthesia for the next patient.
- If the nurses filled a syringe from multiple vials, including a contaminated vial, that contamination could be passed on to other vials and to patients.





# Labus Serial Contamination Theory



## True or False?

**If I enter a medication vial more than once using the same syringe or needle, that vial is now permanently contaminated.**



# Veterans Affairs (VA) Hospital in Western New York, 2010-2012

- Reuse of insulin pens for multiple patients, reportedly after changing needles, exposed at least 700 patients to HBV, HCV, and HIV.
- Employees were unaware that reusing insulin pens on multiple patients was dangerous.
- Staff assumed changing the needles on the pens prevented contamination.



**BE AWARE**  
**DON'T SHARE**



# Outbreaks Associated with Glucose Monitoring in Long-term Care

CDC reported 15 hepatitis B outbreaks between 2008 and 2016

- Long-term Care
- Unsafe blood glucose monitoring

Totals:

- 1243 residents were notified
- 110 infected
- Never reuse finger sticks.
- If possible dedicate glucose meters to one resident.
- Do not share if manufacturer does not have instructions for sharing.



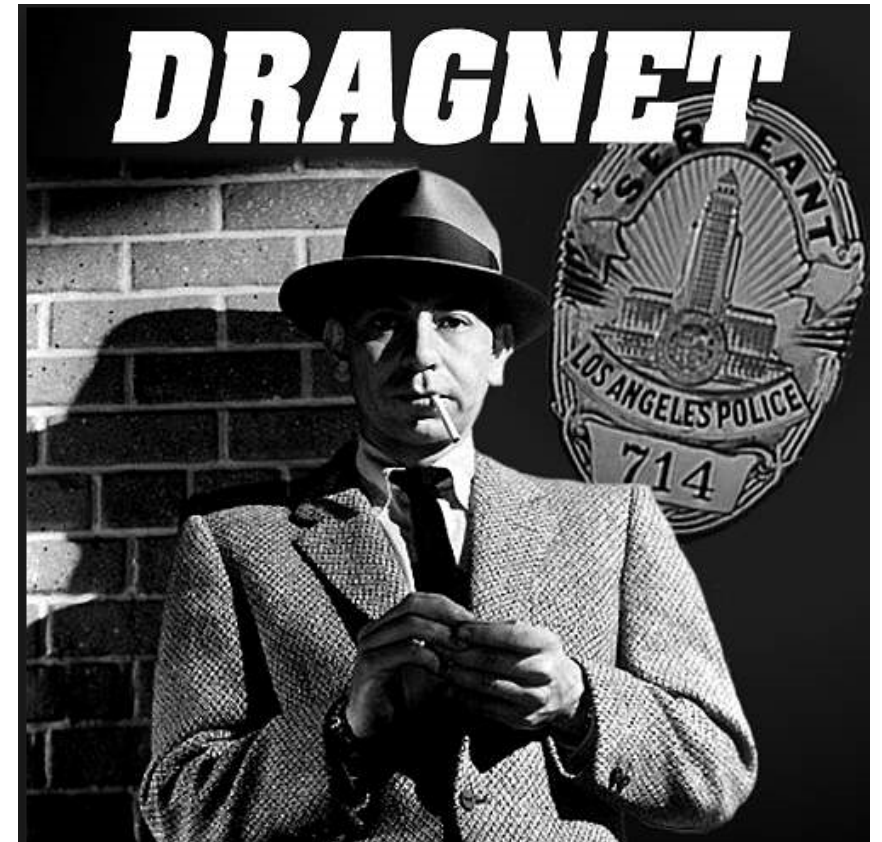
Year	State	Persons Notified	Number Infected
2008	IL	21	7
2008	PA	25	9
2009	FL	65	9
2009	VA	64	5
2010	CA	28	3
2010	NC	87	8
2010	TX	235	23
2010	VA	126	14
2010	VA	151	5
2010	NC	109	6
2011	VA	103	7
2011	CA	14	2
2012	VA	84	2
2014	PA	49	8
2016	PA	82	2
<b>TOTAL</b>		<b>1243</b>	<b>110</b>

# Minot, North Dakota - Investigation

“The story you are about to hear is true.”

Our neighbors in Minot, North Dakota investigated the largest HCV outbreak in a long-term care facility in the U.S.

“Here’s the facts ma’am....!”



# Epidemiologic Investigation Begins-Case Identification

## Cases Identified

3 - passive reporting system

12 - look back to 2011 using lab-based surveillance

19 - Serologic Screening

All residents of ManorCare



# Epidemiologic Investigation- Case Identification Summary

## Further investigation: 52 cases HCV (matched the outbreak strain)

- 48 former or present ManorCare residents during the outbreak period. Prevalence 28%
- 3 current residents of assisted living facility Y identified through serologic testing.
- 1 current resident of assisted living facility Z.
- Zero cases in general community matched the outbreak strain.





# Chart Review and Observation of Manor Care

## ManorCare:

- Chart review comparison of infected and not infected revealed use of a single nail clipper, wound care, nail care, phlebotomy, INR testing by phlebotomy, and podiatry care were associated with the HCV outbreak. When the odds ratios were calculated, **phlebotomy for INR monitoring and podiatry remained significant.**
- Single set of nail clippers used on each floor.
- Glucose monitoring devices were used for multiple patients. Not cleaned and disinfected according to manufacturer's instructions.



# Observation and interviewing Trinity Staff

Trinity Hospital phlebotomy and podiatry contract employees:

- No handwashing after removing gloves or upon entry to resident's room.
- Sharps container attached to tray but used bathroom to dispose of sharps.
- Primary phlebotomist: no handwashing, long nails, answers consistent with standards.
- Podiatrist: no breaches identified through interview.



# You Be the Judge!



**Was it...**

- A. Testing by phlebotomist: hospital
- B. Podiatry: hospital
- C. Nail care: nursing home employees
- D. Blood sugar monitoring/glucometer: nursing home employees
- E. All of the above

So now you have the facts.  
You decide what caused this outbreak and who is responsible.

# Phlebotomist Performance Investigated

## Phlebotomist performance at Trinity hospital and rehabilitation

- Banned from drawing blood at Trinity's own nursing home and rehabilitation facilities.
- Two patients and two nurses reported the Trinity phlebotomist reused intravenous needles with multiple patients.

## Performance at 4 other facilities

- Handwashing, laid needle on the floor, laid needle on resident's chest, pulled syringe off with her teeth, left patient bleeding.
- All complained that the phlebotomist did not use aseptic technique and did not dispose of the needles in a sharps container.



# How Would You Rule Now?



**The people are real.  
The cases are real.  
The rulings are final.**

# New England Compounding Center

- National outbreak of fungal meningitis kills 64 and sickens more than 793.
- 76 surgery centers, hospitals, and pain clinics performed injections with contaminated steroids purchased from the New England Compounding Center (NECC).





# Inspection of NECC's Clean Room

- The family recycling plant located 100 feet away from the HVAC unit
- Insect infestation
- Thick residue on the hoods designed to filter particles out of the room
- Cracked, corroded, sticky walls
- Broken glass
- Birds flying in sterile products packaging area
- Staff with dirty hands
- Leaky boiler with a pool of stagnant water
- Leaky roof with buckets catching the rain



"Killer Pharmacy: Inside a Medical Mass Murder Case." *Newsweek*. April 16, 2015. (<http://www.newsweek.com/2015/04/24/inside-one-most-murderous-corporate-crimes-us-history-322665.html>)

# Where was the Oversight?

- All pharmacies, including compounding pharmacies, are regulated by state pharmacy boards.
- The FDA oversees the manufacturing of large quantities of pharmaceuticals.
- NECC stayed under the radar of the FDA by claiming they were compounders, not manufacturers.
- If you see something, say something.  
Report infection control breaches to MDH.



IMAGE SOURCE: GETTY IMAGES.



# How Can MDH Assist?

- **Prevention: ICAR staff work with facilities to identify infection control gaps and mitigate them before an outbreak occurs. (Non-regulatory)**
- **Assess details of the breach**
- **Laboratory testing**
- **Consultation regarding patient notification.**
- **Engage CDC experts for further consultation and lab testing as needed.**

**Contact us at 651-201-5414  
or toll free at 1-877-676-5414.**

# Conclusion

- Patient safety should not be compromised by taking short cuts, or to save money, or peer pressure
- Facilities need policies and procedures that support injection safety
- Individual training needs to be ongoing
- Culture at the work place needs to support individuals speaking up when they see non-compliance
- Regulations and oversight from government or licensing facilities is important



# Questions?

Thank you again!

**Janet Lilleberg**

[Janet.lilleberg@state.mn.us](mailto:Janet.lilleberg@state.mn.us)

651-201-5938