

# Practical Tips on Investigating Single Cases of Viral Hepatitis

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Public Health



# Disclosures

- None!
- The views we present are our own and do not necessarily represent the official views or policies of the Los Angeles County Department of Public Health



# Three Parts of the Presentation

- 1) Initial investigation a single case of possible nosocomial or facility-based hepatitis
- 2) Full Investigation including site visit
- 3) Case study of an investigation



# CDC Guidance on Investigating Single Cases of Hepatitis B and C

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## Healthcare Investigation Guide

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Recommended Steps for Investigating Single Cases of Hepatitis B Virus (HBV) or Hepatitis C Virus (HCV) that are Suspected to be Related to Healthcare Delivery

### PURPOSE

This toolkit provides a framework for use by state and local health departments to investigate possible healthcare-associated viral hepatitis transmission events, particularly those involving only a single patient. Investigation of these single cases is an important public health response as it can result in the identification of an outbreak or unsafe clinical practices that are putting additional patients at risk.

<http://www.cdc.gov/hepatitis/Outbreaks/index.htm>



# Four Parts in an Investigation

- Epidemiological assessment
- Initial investigation
- Full investigation (including site visit)
- Monitor



# Epi: In-Depth Questionnaire

- Used for those <50 years with specific nosocomial risk factors elicited on initial interview
- Used for all >50 years regardless of answers to initial interview

Los Angeles County Department of Public Health Acute Communicable Disease Control Program  
Healthcare-Related Hepatitis Investigation Supplement  
Patient Exposure Assessment

Exposure Period: \_\_\_/\_\_\_/\_\_\_\_\_ to \_\_\_/\_\_\_/\_\_\_\_\_

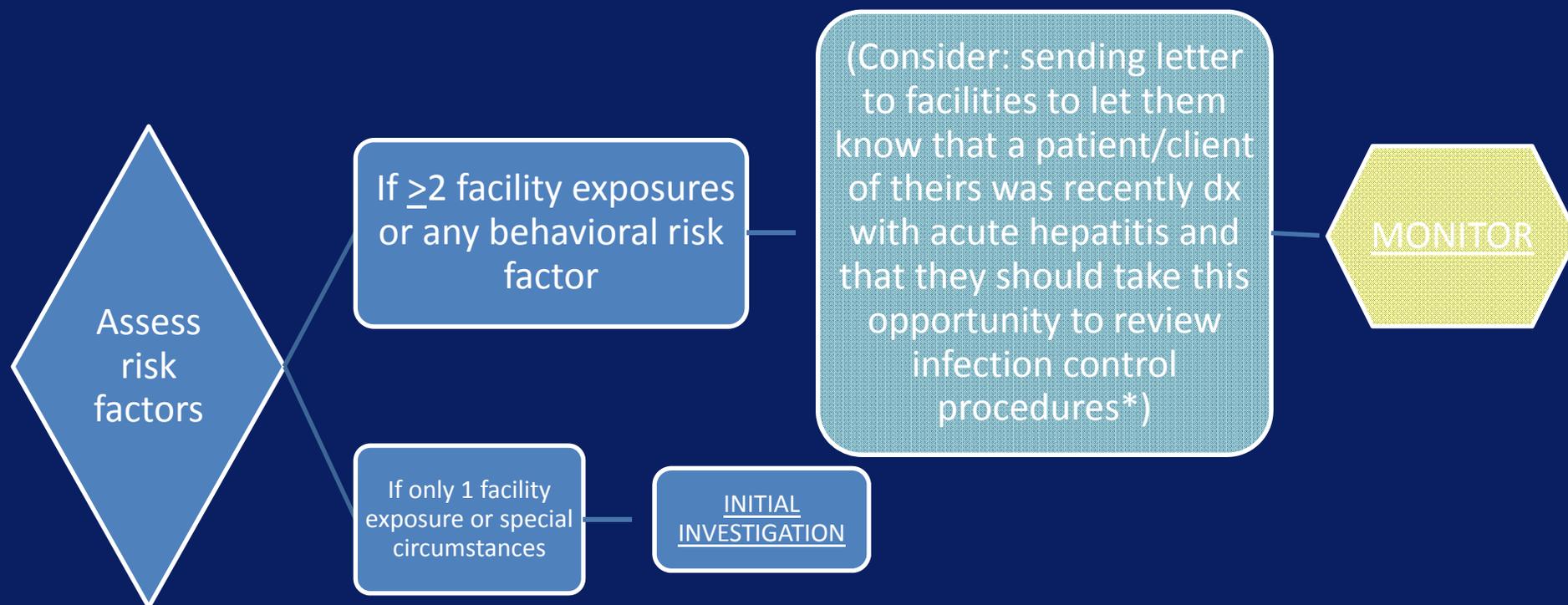
**Procedures during Exposure Period:** Check the box next to the appropriate procedure and complete table below for each checked procedure.

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> Acupuncture         | <input type="checkbox"/> Dental/oral surgery                         | <input type="checkbox"/> Overnight hospitalization       |
| <input type="checkbox"/> Allergy Injections  | <input type="checkbox"/> Dialysis                                    | <input type="checkbox"/> Organ or tissue donation        |
| <input type="checkbox"/> Anesthesia          | <input type="checkbox"/> Electroly                                   | <input type="checkbox"/> Pain management injections      |
| <input type="checkbox"/> Aphaeresis          | <input type="checkbox"/> Gastroenterology study                      | <input type="checkbox"/> Podiatry                        |
| <input type="checkbox"/> Arthroscopy         | (e.g. endoscopy, colonoscopy, sigmoidoscopy, ERCP)                   | <input type="checkbox"/> Radiation treatments            |
| <input type="checkbox"/> Blood Transfusion   | <input type="checkbox"/> Gynecologic Procedures (e.g. D&C, abortion) | <input type="checkbox"/> Receive medical care outside US |
| <input type="checkbox"/> Blood tests         | <input type="checkbox"/> Hospital ED visit                           | <input type="checkbox"/> Steroid/orthopedic injections   |
| <input type="checkbox"/> Bronchoscopy        | <input type="checkbox"/> Injected Imaging Dye                        | <input type="checkbox"/> surgery (minor or major)        |
| <input type="checkbox"/> Cancer chemotherapy | <input type="checkbox"/> Intubation                                  | <input type="checkbox"/> Vaccinations                    |

# First Steps



# Prioritizing Cases to Investigate



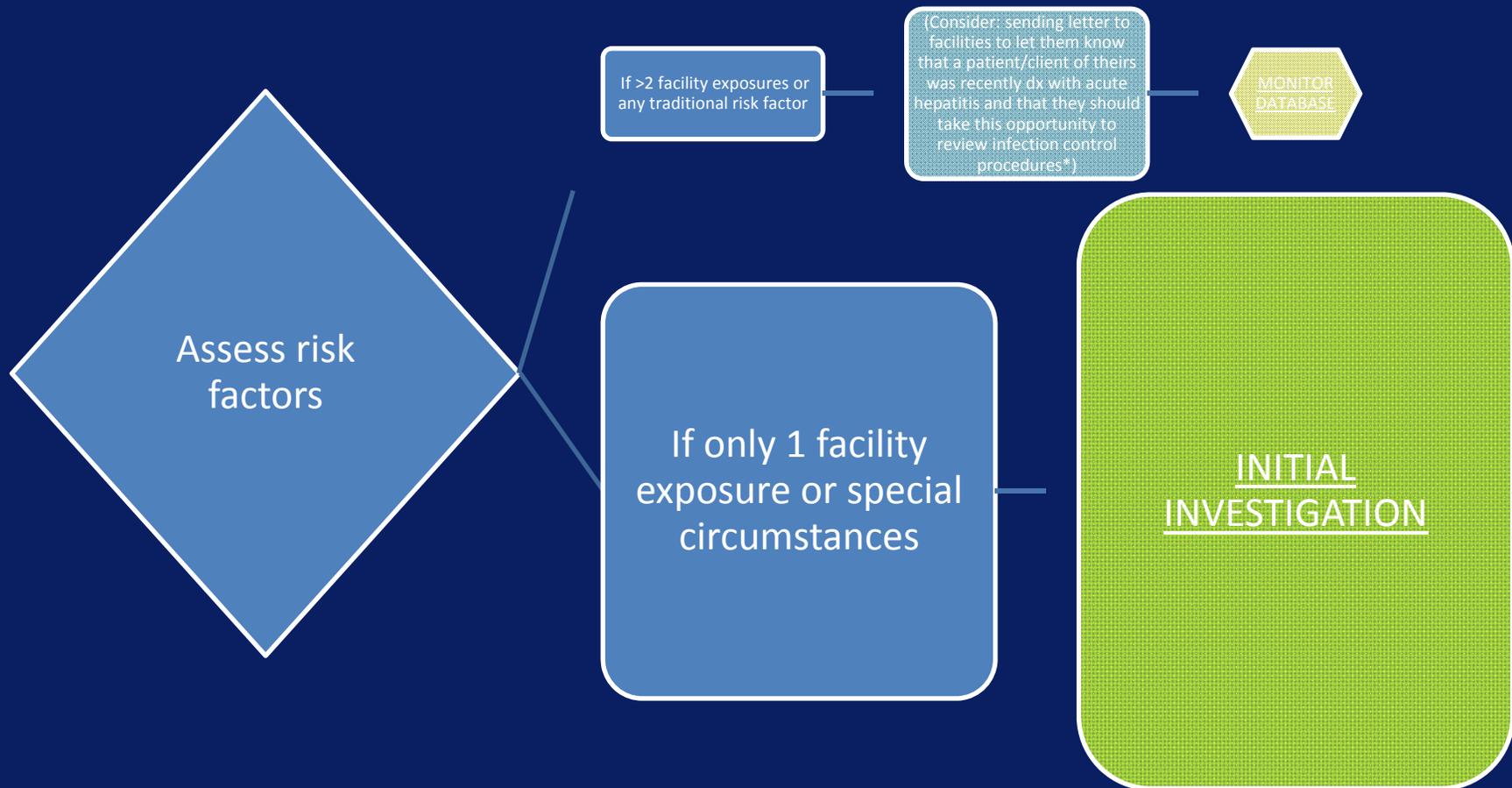
# Monitor



- Check facility/personnel database regularly
  - Monthly
- Check by name of facility/personnel
- Also check by address (some facilities change names)



# Prioritizing Cases to Investigate

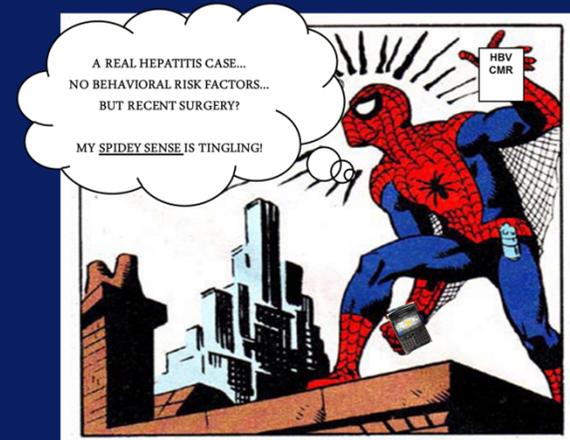


[\\*http://www.cdc.gov/hepatitis/Outbreaks/index.htm](http://www.cdc.gov/hepatitis/Outbreaks/index.htm)



# Special Circumstances: AKA “Spidey Sense”

- Patient in skilled nursing facility or assisted living facility who is diabetic
- Patient who received fingersticks with equipment not their own
- High Risk Facilities
  - Dialysis units
  - Pain, oncology, alternative medicine clinics

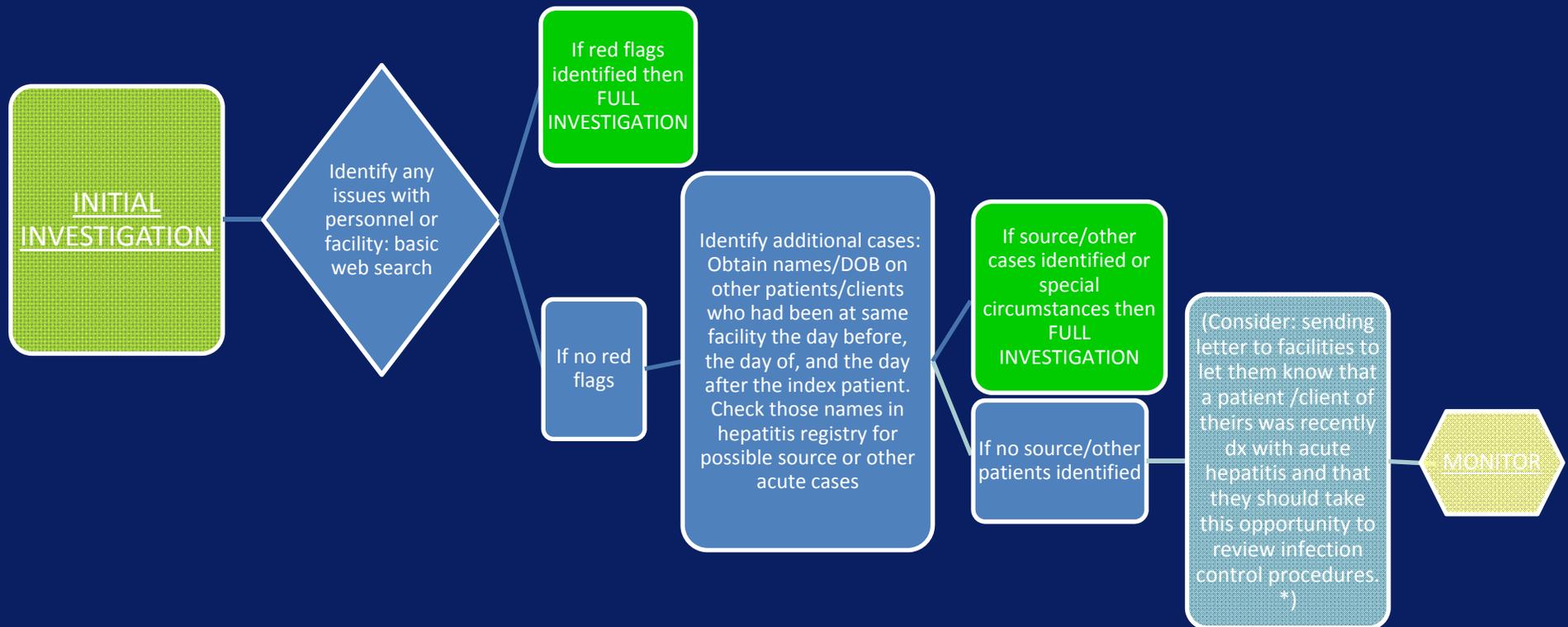


# Diabetes: A Special Case

- Hepatitis B commonly associated with outbreaks in diabetics
- Due to re-use of pen-like devices between patients
- Greater understanding that there might be microcontamination of other equipment that is used for multiple patients including glucometers



# Initial Investigation



[\\*http://www.cdc.gov/hepatitis/Outbreaks/index.htm](http://www.cdc.gov/hepatitis/Outbreaks/index.htm)



# Goals of Full Investigation

- Conduct case finding
- Determine source of infection
- Identify and recommend control measures
- Identify and notify other patients at risk

FULL  
INVESTIGATION



# Aspects of Site Visit

- Interviews
- Document review
- Chart Review
- Observation



# Before the Site Visit

- Consider announced or unannounced visit
- Pick a day when procedures are taking place
- Anticipate that you might need to return to the clinic



# Site Visit- Be Prepared!

- List of questions and tool kit
- Camera
  - Photo consent forms
- Chart abstraction form
- Legal authority
  - Title 17 of California Code of Regulations § 2501
  - Letter from County Counsel



# Site Visit: Tool Kits

- Tool kits help you focus what you should observe
- Tool kits help you systematically document behaviors observed
- Three main tool kits-
  - CMS Worksheet
  - CDC Infection Prevention Checklist for Outpatient Settings
  - One and Only Campaign Injection Safety Checklist



Exhibit 351

*Ambulatory Surgical Center*

**INFECTION CONTROL SURVEYOR WORKSHEET**

*(Rev. 68 Issued: 11-24-10, Effective: 11-24-10, Implementation: 11-24-10)*

**I. Hand Hygiene**

**Observations are to focus on staff directly involved in patient care (e.g., physicians, nurses, CRNAs, etc.).**

Hand hygiene should be observed not only during the case being followed, but also while making other observations in the ASC throughout the survey. Interviews are used primarily to provide additional evidence for what the surveyor has observed, but may in some cases substitute for direct observation to support a citation of deficient practice.

<b>Practices to be Assessed</b>	<b>Was Practice Performed?</b>	<b>Manner of Confirmation</b>
A. All patient care areas have:		
Note: 42 CFR 416.51(a) should be cited only if the answer to both a and b is "No."		
a. Soap and water available	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Observation <input type="radio"/> Interview <input type="radio"/> Both



# GUIDE TO INFECTION PREVENTION FOR OUTPATIENT SETTINGS: Minimum Expectations for Safe Care



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



11/10/10

<http://www.cdc.gov/HAI/settings/outpatient/outpatient-care-guidelines.html>



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## Section I: Administrative Policies and Facility Practices

Facility Policies	Practice Performed	If answer is No, document plan for remediation
<p>A. Written infection prevention policies and procedures are available, current, and based on evidence-based guidelines (e.g., CDC/HICPAC), regulations, or standards</p> <p><i>Note: Policies and procedures should be appropriate for the services provided by the facility and should extend beyond OSHA bloodborne pathogen training</i></p>	Yes   No	
<p>B. Infection prevention policies and procedures are re-assessed at least annually or according to state or federal requirements</p>	Yes   No	
<p>C. At least one individual trained in infection prevention is employed by or regularly available to the facility</p>	Yes   No	



## Injection safety

A. Needles and syringes are used for only one patient (this includes manufactured prefilled syringes and cartridge devices such as insulin pens)	Yes   No	
B. The rubber septum on a medication vial is disinfected with alcohol prior to piercing	Yes   No	
C. Medication vials are entered with a new needle and a new syringe, even when obtaining additional doses for the same patient	Yes   No	
D. Single dose (single-use) medication vials, ampules, and bags or bottles of intravenous solution are used for only one patient	Yes   No	
E. Medication administration tubing and connectors are used for only one patient	Yes   No	
F. Multi-dose vials are dated by HCP when they are first opened and discarded within 28 days unless the manufacturer specifies a different (shorter or longer) date for that opened vial  <i>Note: This is different from the expiration date printed on the vial.</i>	Yes   No	

<http://www.cdc.gov/HAI/settings/outpatient/outpatient-care-guidelines.html>





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



Safe Injection Practice  
[www.ONEandOnlyCampaign.org/](http://www.ONEandOnlyCampaign.org/)

**The One and Only Campaign is a partnership between the CDC and the American Society of Health-System Executives at raising awareness among the general public and healthcare providers about safe injection practices.**

## INJECTION SAFETY CHECKLIST

The following Injection Safety checklist items are a subset of items that can be found in the *CDC Infection Prevention Checklist for Outpatient Settings: Minimum Expectations for Safe Care*.

The checklist, which is appropriate for both inpatient and outpatient settings, should be used to systematically assess adherence of healthcare personnel to safe injection practices. (Assessment of adherence should be conducted by direct observation of healthcare personnel during the performance of their duties.)

Injection Safety	Practice Performed?	If answer is No, document plan 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 manufactured prefilled syringes and cartridge devices such as insulin pens).	Yes No	
The rubber septum on a medication vial is disinfected with alcohol prior to piercing	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 solution 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 specifies a different (shorter or longer) date for that opened vial.	Yes No	

Note: This is different from the expiration date printed on the vial.

<http://www.oneandonlycampaign.org/>

# Site Visit: Facility Background

- Ownership
- Accreditation/Inspection
  - Previous inspection reports
- Primary procedures done
- Patients/month or year
- Procedures per month



# Site Visit: Personnel

- Who/how many
- License(d)
- Procedures performed
- Employment other locations
- History of drug use
- Interview
  - Knowledge of policies
  - Infection control training



# Site Visit: Document Review

- OSHA training
- HCW vaccination policies
- Infection control policies
  - Injection policies
  - Medication preparation and administration policies



# Site Visit: Observation

- Conduct walk through
  - Identify where meds are prepared
  - Identify handwashing stations or hand gel
- Observe staff involved in medical procedures
  - Ideally on patients
  - Alternatively as “mock” procedures
- Take photos/video



# Site Visit: Injection Safety

- Medication Handling
  - Single dose/multi-dose vials
  - Re-use of needle or syringe
  - Re-entry of vials
  - Where meds are stored/prepared
- Equipment used on >1 patient



# Injection Safety

- Multi-Dose Vial
- Single Dose Vial



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# Multi-Dose Vial

- Dated when opened-discarded within 28 days
- Dedicated to individual patients when possible

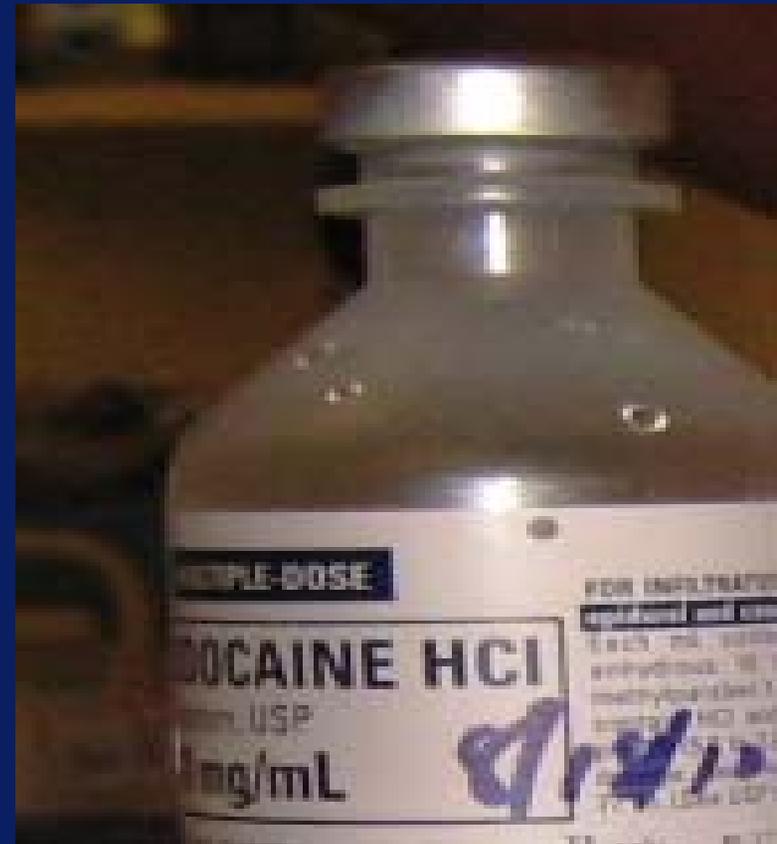


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# Where Medications Prepared



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# Point of Care Devices for Diabetes

- Single use auto-disabling devices for fingersticks
- If glucometer used for more than one patient, meter is cleaned and disinfected after every use



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# Disposal of Sharps



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# Chart Review

- Date and time of procedure performed
- Medications received
- Names of all staff involved with procedures
- Any mention of previous history of viral hepatitis



# Bloodwork

- Very helpful to definitively link patient(s) to source(s)
- Consult with CDPH before obtaining specimens
  - Hepatitis C often lasts longer in the body but specimens need special processing
  - Hepatitis B may be cleared quickly from the body but remnant specimens may be useable



# Case Study



# First Report of HCV

- In July 2010 –Orange County (OC) reports a case of acute HCV in OC resident
  - Stated patient medical procedures at an outpatient clinic in Los Angeles County during incubation period



# Initial Epi

- Confirmed patient diagnosis and incubation period
- Detailed interview of index patient using healthcare-associated exposure questionnaire
  - Patient reported one major healthcare related exposure



# Initial Investigation

INITIAL  
INVESTIGATION

- Requested a list of patients receiving treatment on/adjoining days as index case
- Reviewed names of patients in hepatitis registry for prior report of hepatitis B and/or C



# Initial Investigation Results

- 208 Patient Names Reviewed
  - 3 additional Hepatitis C patients identified
  - 1 acute hepatitis B patient identified



# Full Investigation

FULL  
INVESTIGATION

- Interviewed owner/staff
- Obtained infection control, OSHA, vaccination, and accreditation documents
- Chart review
- Observed medical procedures



# Interviews

- Outpatient Pain Clinic
- 1 physician (MD) and 2 registered nurses (RN) who alternate days
- Majority of patients seen for back pain
- Most common treatments are epidural injections
- IV sedation offered during epidural procedures



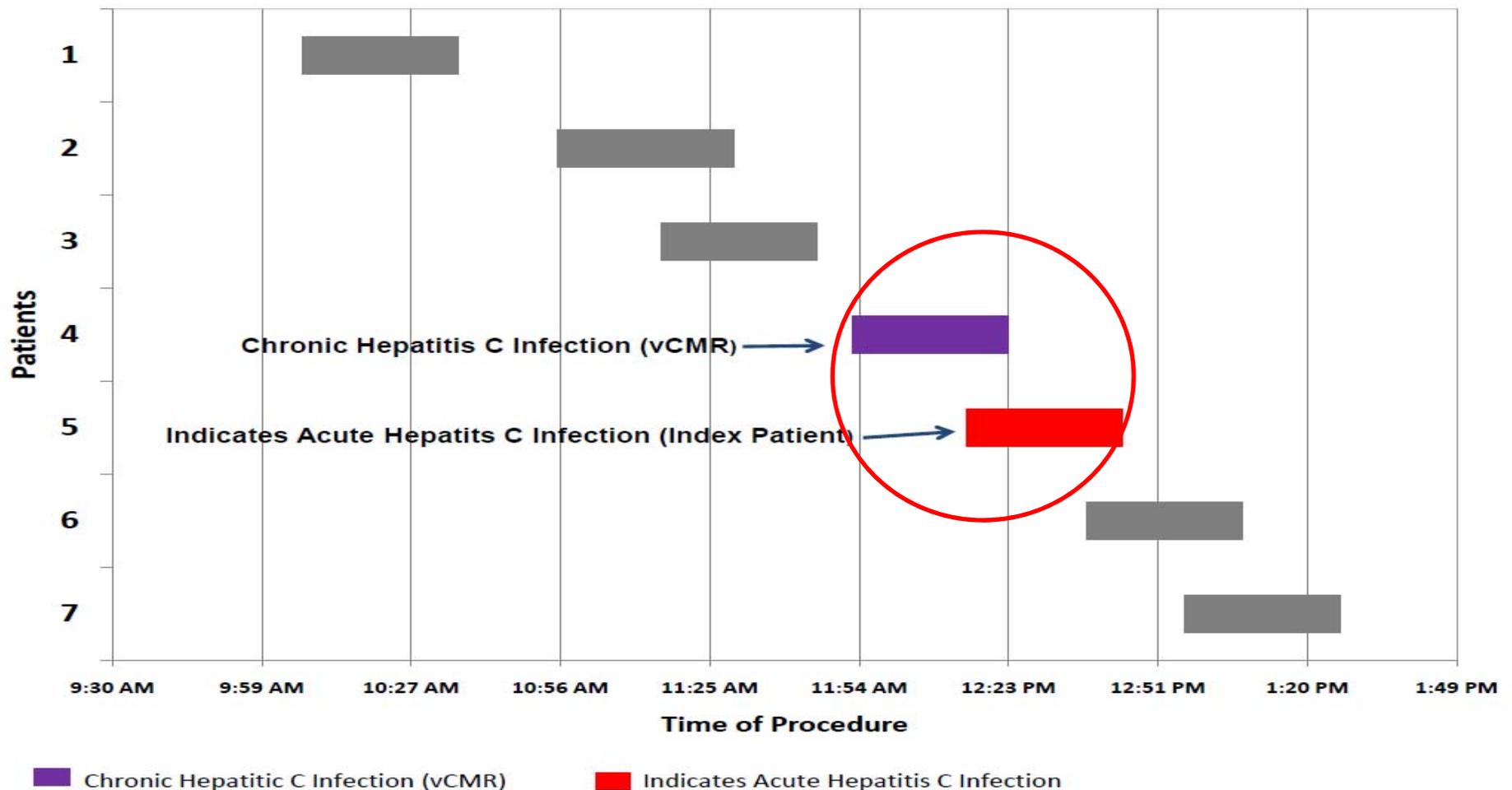
# Document Review

- Accreditation certificate
- Infection control training of staff was OSHA focused
- Standard Infection Control Policy was outdated
- No Injection Safety Policy



# Chart Review Results

## Procedures Performed on April 2<sup>nd</sup> by Time



# Observation of Injection Practices

- We observed 2 RNs insert heparin locks and administer sedation medication
- We observed epidural procedures by MD



# Infection Control Observations

- Using single dose vials for multiple patients
- No alcohol swab to access vials
- Vials not dated when opened
- The physician re-used thick gloves between patients with no cleaning of the gloves

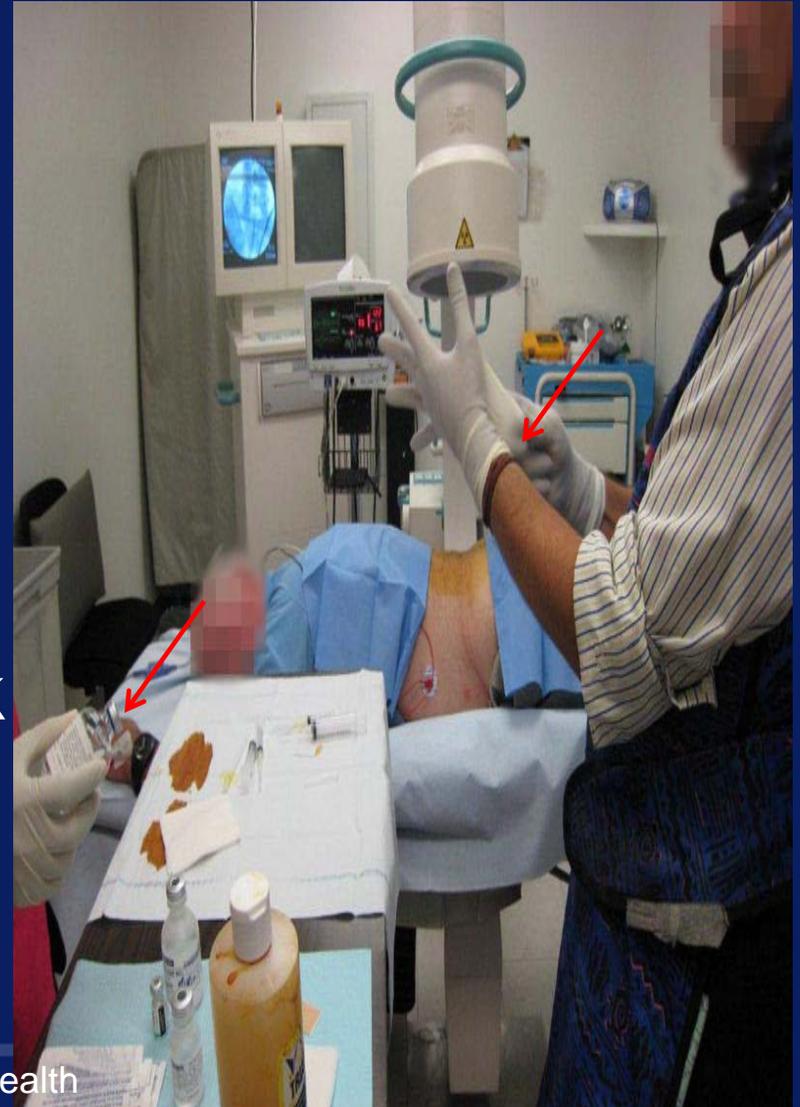
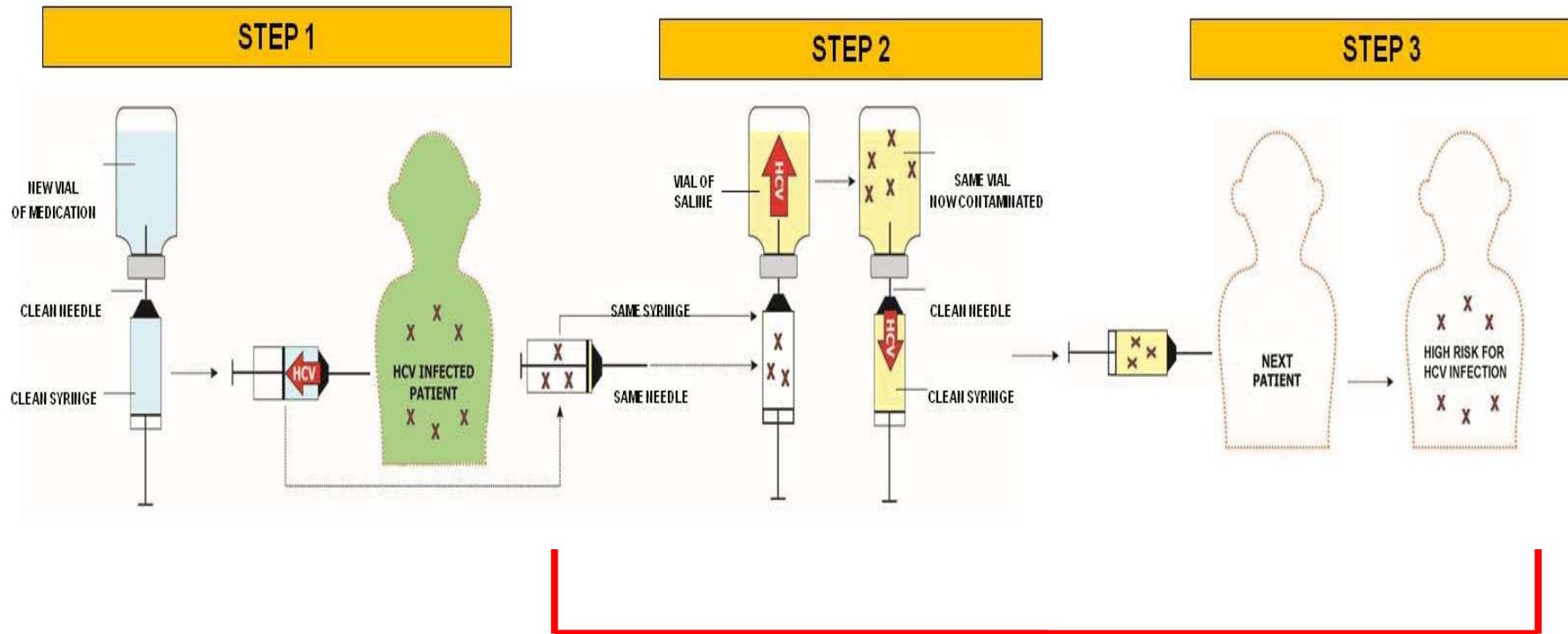


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# Unsafe Injection Practices and Disease Transmission



**Breach in Infection Control Practice**

Adapted from Centers for Disease Control and Prevention

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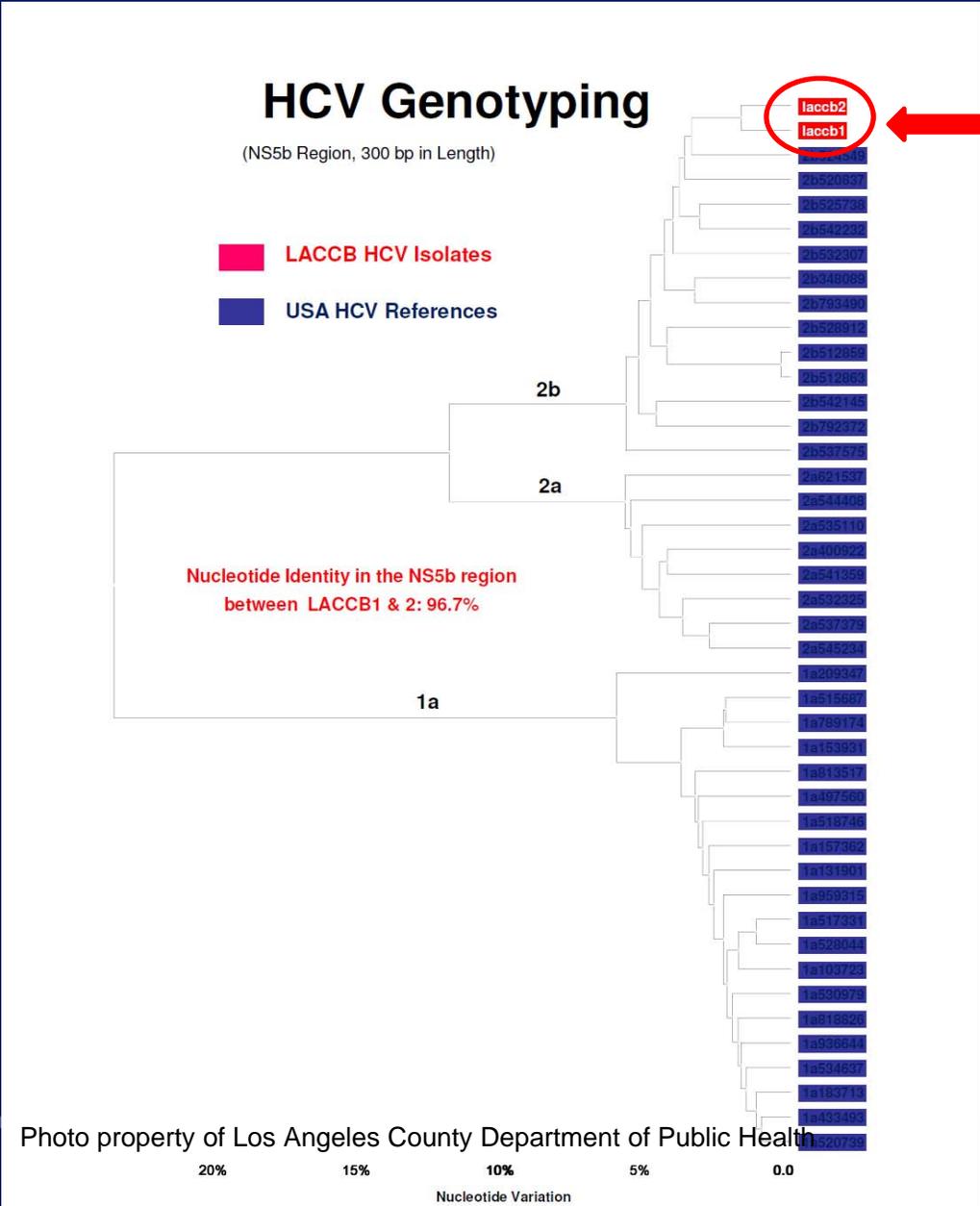
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# Laboratory Methods

- Blood samples were obtained and sent to CDC for analysis



# CDC Laboratory Test Results



The results are consistent with infection of both patients with the same strain of Hepatitis C virus

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# Conclusions

- Documented patient to patient transmission
- Identified the likely cause of transmission



# Immediate Interventions

- Infection control recommendations given during site visit
  - Immediately cease unsafe injection practices
  - Use single dose vials only one patient



# Notifications

- Notified Medical Board and Board of Registered Nursing
- Patient Notification
  - Letters sent to 2,293 patients advising them to get tested for bloodborne pathogens



# Challenges for Investigation and Control of Nosocomial Hepatitis

- Lack regulatory oversight for infection control and injection safety
- Lack of infection control programs in outpatient clinics
- Lack of education for healthcare workers in the community regarding infection control
- Limited expertise/experience of Public Health staff in investigating these situations



# Solutions

- Consider regulations that require assessment of infection control as part of accreditation
- Consider requiring education for healthcare workers
- Train public health investigators
- Encourage greater use and acceptance of investigation guidelines and tool-kits



# Questions!

- Don't be shy
- No question is stupid
- If you have a question, then at least one other person has the same question and wishes someone would ask it
- So ask away!

