RECOMMENDATIONS FOR USING THIS TRAINING

- *Trainer(s)*: Should be an infection prevention expert with strong VMMC knowledge or an experienced VMMC clinician; trainers should thoroughly familiarize themselves with the training slides and supporting materials.
- *Participants:* Up to 20 participants: physicians, clinical officers/associates, registered nurses, enrolled nurses. Smaller groups allow for more discussion and attention to individual participants, but in reality this is not always feasible. If a larger group requires training, we recommend using multiple trainers/facilitators and breaking into discussion groups to ensure participants have full comprehension of training content.
- *Supplies and logistics:*
  - Necessary:
    - Technology to project slides, e.g., LCD screen, or flip chart/hard copy of slides (large size is best so all participants can see)
  - Recommended:
    - Meeting room with tables and chairs for all participants
    - Hard copy slide packets with notes pages for all participants
    - Hard copies of Project IQ injection safety job aid: http://sites.jhpiego.org/project-iq-resources/resource/3-questions-for-safe-injectionsinjection-dos-and-donts/
    - Hard copy/ies of World Health Organization (WHO) Best practices for injections and related procedures: http://www.who.int/injection_safety/9789241599252/en/
    - Hard copy/ies of WHO injection safety toolbox: http://www.who.int/injection_safety/toolbox/en/
    - Internet connection for video on slide 24, featuring the U.S. Centers for Disease Control and Prevention U.S. injection safety campaign, which summarizes of many of the concepts discussed in this training.
- *Time allotment*: (including participant Q&A/discussion): 1.5-2 hours
- *Adaptation*: Programs may wish to make minor changes to reflect local regulations and policies.
- *Follow-up*: Injection safety reminders should be routinely provided during staff meetings and emphasized in quality assurance activities. Injection safety job aids should be placed where injections are prepared.

Injection Safety For VMMC Service Delivery

OBJECTIVES

- Explain the risks to patients and providers from both obvious and 'hidden' exposures to blood, body fluids and bacterial contamination through injections
- Analyze current injection safety practices during VMMC service delivery
- List the safe injection best practices
- List steps for safe disposal of sharps
- Demonstrate safe injection practices for safe VMMC services

INJECTION SAFETY – WHAT IS IT?

- Measures taken to perform injections in a safe manner for patients/clients and providers
- Prevent transmission of infectious diseases via contaminated needles and syringes from:
  - Patient to patient
  - Patient to provider
  - Provider to patient
- Prevent harms such as needle stick injuries

BACKGROUND

- The World Health Organization defines a safe injection as one that "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"
- Injection safety has many components; this training focuses on the components most relevant to VMMC service delivery.
- For more in-depth information on injection safety, visit:

  http://www.who.int/injection_safety/9789241599252/en/
  http://www.who.int/injection_safety/toolbox/en/

BACKGROUND

- Injection statistics in low and middle income countries:
  - 15.7 billion healthcare injections are administered per year
  - On average, 2.88 injections per person every year
  - Reuse of syringes or needles estimated to occur in 5.5% of injections
- Unsafe injections can result in transmission of a wide variety of pathogens, including viruses, bacteria, fungi and parasites

Pepin J, Abou Chakra CN, Pepin E, Nault V (2013) Evolution of the Global Use of Unsafe Medical Injections, 2000–2010. PLoS ONE 8(12): e80948. doi:10.1371/journal.pone.0080948

BACKGROUND

- Unsafe injections expose patients to pathogens either directly (via contaminated equipment) or indirectly (via contaminated medication vials)
- Estimated global burden of disease from unsafe injection practices in 2010:
  - 1.7 million HBV infections
  - 315,000 million HCV infections
  - 33,800 HIV infections

WHO (2015): Making all injections safe

GROUP WORK: CURRENT INJECTION PRACTICES IN VMMC SERVICE DELIVERY

- In your group, discuss and report on the following about your VMMC program
  - Definition of Injection Safety
  - Three practices in your program that **increase** injection safety
  - Three practices in your program that **decrease** injection safety
  - Root causes of these unsafe practices
  - Possible solutions to address these unsafe practices

2010 SURVEY OF PROVIDER PRACTICES

5,500 healthcare professionals in the USA

- 1% "sometimes or always" reuse a syringe on a second patient (direct)
- 1% "sometimes or always" reuse a multidose vial after accessing it with a reused syringe (indirect)
- 6% use single-dose vials for more than one patient

Pugliese et al 2010. AJIC. Available at: http://www.cdc.gov/injectionsafety or http://www.ajicjournal.org/article/PIIS019665531000853 9/abstract

KEY SAFE INJECTION PRACTICES

- Use aseptic technique
  - **Asepsis** and **aseptic technique** are the combination of efforts made to prevent entry of microorganisms into any area of the body where they are likely to cause infection.
  - Aseptic technique can be defined very broadly and encompass all safe injection practices, but in this case, we are referring to contamination of injection equipment from the non-sterile environment.

ASPECTS OF ASEPTIC TECHNIQUE

- Key elements of the aseptic technique are
  - Barriers: using personal protective equipment (PPE) to reduce patient contamination by the health worker or vice versa
  - Use of sterile instruments to perform the procedure
  - Observing strict environmental control – to reduce traffic and potential contamination where surgical procedures are conducted
  - Keeping a sterile field during the procedure – to ensure that no unsterile items are touched at all by the operating team
  - Hand hygiene to reduce microbial contamination

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KEY SAFE INJECTION PRACTICES

- Do not administer medications to multiple patients using the same syringe or reuse a syringe to access medications from a vial that may be used on multiple patients – even if the needle is changed
- Do not use single-dose vials for multiple patients
- Others mentioned at end

IMPORTANT UNSAFE PRACTICES IN VMMC

1. Syringe reuse (direct and indirect)
2. Misuse of single-dose/single-use vials
3. Failure to use aseptic technique

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1. SYRINGE REUSE

- Direct Reuse
  - Using a single needle and/or syringe to administer local anesthetic to multiple VMMC clients

- Indirect Reuse or "double dipping"
  - Syringe that had been used to inject local anesthesia into a client is reused to enter a medication vial or bag
  - Vial/bag contents are then used for subsequent clients
  - Cause of large hepatitis outbreaks

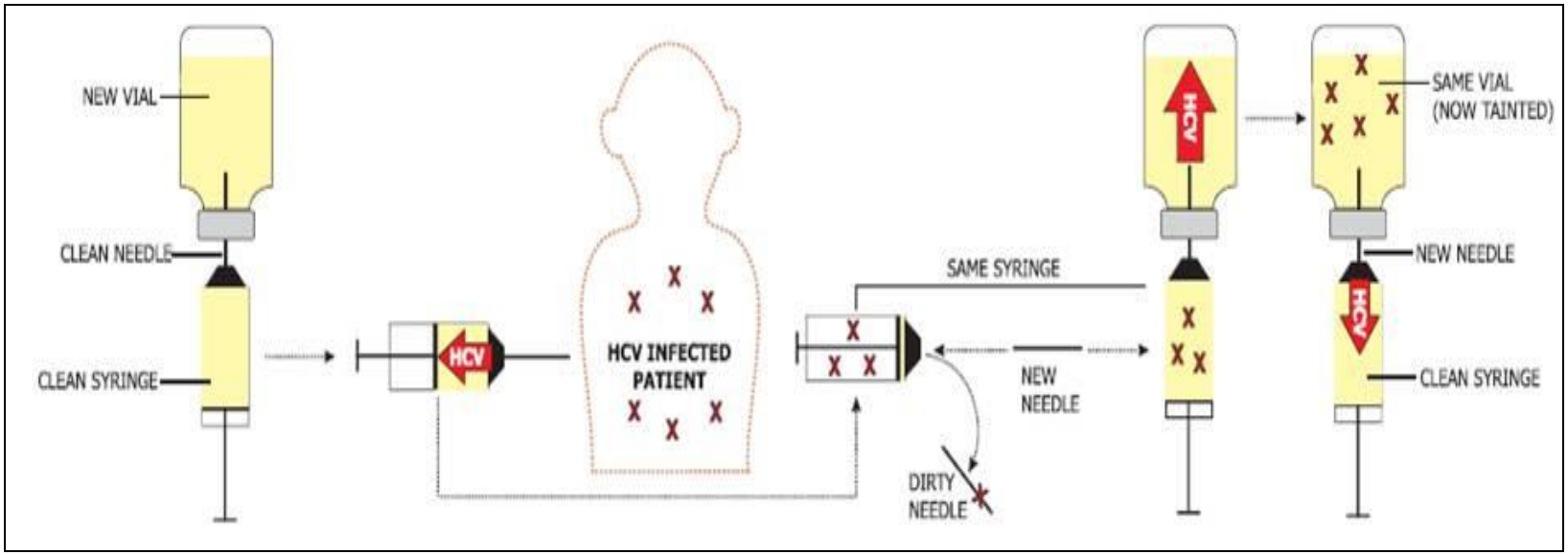
DOUBLE DIPPING

- When a syringe that has been used to inject medication into a client is then re-used to enter a vial to withdraw more medication
- Contaminates the medication in the vial with any blood-borne pathogen the first client has, and/or environmental bacteria
- Risk exists
  - Whether or not the needle is changed before double dipping
  - Whether or not additional medication was for the same client
  - Whether vial was multi-dose or single-dose
- If later clients get injections from that vial, even with new needles and syringes, they can become infected with the blood-borne pathogen and/or environmental bacteria.

CROSS CONTAMINATION: MECHANISM

Two breaches contribute to transmission in this example:

- Double dipping into a vial
- Then using contents from this vial on a later client



Source: MMWR 2008 57(19);513-517

EXPERIMENTAL EVIDENCE

- A study found: needles and syringes retained small volumes of fluid after use (mean, 25 microL, in syringe alone, mean 16 microL) which could be transferred to multi-dose vials of local anesthetic
- 10 mL of anesthetic solution contaminated with 8 microL of HIV-infected solution (equivalent to 1% of body's white blood cells infected) contained active virus on hour later and in some settings, HIV could be detected four hours after exposure

Druce JD, Locarnini SA, Brich CJ, Isolation of HIV-1 from experimentally contaminated multidose local anaesthetic vials, Medical Journal of Australia 1995 May 15; 162(10): 513-5

DANGEROUS REUSE MISCONCEPTIONS

- Changing the needle makes a syringe safe for reuse.
- Syringes can be reused as long as an injection is administered through an intervening length of IV tubing.
- If you don't see blood in the IV tubing or syringe, it means that those supplies are safe for reuse.

Once they are used, both the needle and syringe are contaminated and must be discarded!

2. MISUSE OF SINGLE-DOSE VIALS

Single Dose Vials	Multi-Dose Vials
• Vials labeled by the manufacturer as "single dose" or "single use" should only be used for a single patient. • Leftover parenteral medications should never be pooled for later administration www.cdc.gov/injectionsafety/CDCposition-SingleUseVial.html	• Contains more than one dose of medication. Multi-dose vials are labeled as such by the manufacturer and typically contain an antimicrobial preservative to help prevent the growth of bacteria. • The preservative has no effect on viruses and does not protect against contamination when healthcare personnel fail to follow safe injection practices (e.g., 20 mL 2% Lignocaine Local Anesthetic)

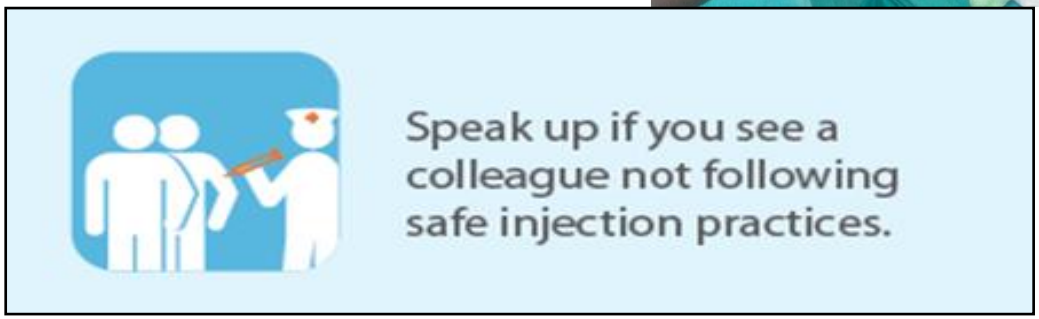
3. FAILURE TO USE ASEPTIC TECHNIQUE

Aseptic technique: Handling and preparing supplies used for injections in a manner that prevents microbial contamination between the injection materials and the non-sterile environment

SUPPORTING COLLEAGUES' COMPLIANCE

- Injection safety is not limited to individual practice
- If you see colleagues taking unsafe action(s), **immediately** remind them of the correct injection procedure.
- Management should make clear this intervention is encouraged from everyone and not disrespectful.

Photo: Jhpiego



ADMINISTRATIVE GOOD PRACTICE

- Designate someone to provide ongoing oversight
- Develop written infection control policies
- Provide safe injection training and refreshers
- Conduct continuous quality improvement and quality assurance assessments
- Stock loose needles and syringes so that providers can easily access them for additional anesthetic
- Document any injection safety lapses and corrective actions taken
- Expect and support staff to speak up to colleagues when they see unsafe practices

CASE STUDY

A provider is about to administer an injection. There is a clearly marked single-dose vial on the counter, and he has confirmed the needle and syringe are new/unused. He prepares and administers the injection, then recaps and discards the needle, and moves on to the next client.

Can you identify at least three practices that are or might be unsafe?

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VIDEO: ONE SYRINGE CAMPAIGN

https://www.youtube.com/watch?feature=player_detailpage&v=uiboFZZVcLI

KNOW AND PRACTICE THESE SIMPLE RULES

- Needles and syringes are single-use devices in VMMC. They should not be used for more than one patient or reused to draw up additional medication for one patient.
- Do not administer medications from a single-dose vial or IV bag to multiple patients.
- Limit the use of multi-dose vials and dedicate them to a single patient whenever possible.

OTHER KEY SAFE INJECTION PRACTICES

- Do not recap needles, or use a single hand scoop technique if you must!
- Do not prepare/administer an injection if there is no sharps box available; do not use sharps box if it is more than 2/3 full
- Do not prepare/administer an injection without ensuring adequate illumination of the field
- Do not administer an injection to a client who is clearly uncomfortable or uneasy

OTHER KEY SAFE INJECTION PRACTICES (CONT'D)

- Place sharps container within arm's reach
- Never pre-soak cotton wool in a container – these become highly contaminated
- Never leave a needle in a multidose vial
- Specifics of hand hygiene and glove use

- See WHO Best Practices for Injections and Related Procedures Toolkit

SAFE INJECTION IN VMMC: SUMMARY

DO	DO NOT
DO ensure you have a sharps container available before preparing an injection	Do **NOT** discard injection materials in regular waste bin
DO use aseptic technique when preparing or administering medications	Do **NOT** reuse a needle and/or syringe to enter a medication vial or solution
DO use a new needle AND new syringe for every client	Do **NOT** use the same needle and/or syringe for multiple clients
DO check vial for expiration date and to see if it is single dose or multi-dose before drawing medication	Do **NOT** use a multi-dose or single dose vial if you think it might be contaminated, spoiled, or expired
DO limit use of multi-dose vials and dedicate them to a single client whenever possible	Do **NOT** use a single dose vial or IV solution bag for multiple clients
DO discard single dose vials immediately after use	Do **NOT** reuse a syringe/needle to access medications from a multi-dose vial
DO discard needles and syringes immediately after use	Do **NOT** recap needles, or use a single hand scoop technique if you must recap

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
- Perz, CDC Public Health Grand Rounds, 11/14/12
- Montana, B. Keeping the Infection out of Injection. NJ Department of Health and Senior Services
- Moore, Zack. Various Slides. NC DHHS.