Pan American Health Organization

World Health Organization

Regional Office for the Americas
Webminar

- Recommendations:
- Please turn off your microphone.
- There will be 40 minutes of presentation and 1 hour of questions and answers.
- Questions should be in writing, through the Chat or by email to: Infectioncontrol@paho.org
- The presentation will be available on the PAHO website in 48 hours.
Occupational exposures to bloodborne pathogens among Healthcare Workers

Dr Cristiane Rapparini
March 2017
Network – HCW & Healthcare facilities

Project
Aug 2000

Website
Forum
Surveillance System

Dr Cristiane Rapparini
Dr Valéria Saraceni
Dr Alcyone Artioli Machado
Dr Guilherme Côrtes Fernandes
Disclosure
(CFM nº1.595/00 18/5/2000; ANVISA nº120/2000 30/11/2000)

Riscobiologico.org Project

Lectures in meetings organized from several different companies (BD, BBraun, Biodina, AstraZeneca, etc.). Educational Grants from BD.

The inclusion of photos of products from different companies in this presentation does not mean that they are endorsed by the Riscobiologico.org Project. The purpose is only educational, to show examples of products available in the market.
PATIENTS

HEALTHCARE WORKERS
Hazards to health care workers

Physical/Ergonomic
- Heavy lifting
- Handling patients
- Repetitive movements
- Heat

Chemical
- Sodium hypochlorite
- Glutaraldehyde
- Latex
- Ethylene oxide
- Cytotoxic drugs
- Pesticides
- Anesthetics
- Mercury

Biological
- Tuberculosis
- Rubella
- HIV/AIDS
- Hepatitis B, C
- Measles
- Influenza
- SARS

Organizational, Psychosocial
- Workload
- Technology
- Job Insecurity
- Violence

Occupational infections among HCW

HIV
HEPATITIS B
HEPATITIS C

Bloodborne transmission

(Total of 60 pathogens or species)

Published case reports were found for a total of 60 pathogens or species: 26 viruses, 18 bacteria/rickettsia, 13 parasites, and 3 yeasts.

Burden of disease

Number of health-care workers at risk
Prevalence of HBV, HCV and HIV among patients and the general population
Annual incidence of sharps injuries
Risk of transmission
Use of postexposure prophylaxis
Worldwide, it was estimated that more than **three million** health-care workers will be exposed to a sharp object contaminated with HCV, HBV or HIV **every year**.

2,000,000 exposed to HBV, 900,000 to HCV, 300,000 to HIV

World Health Organization, 2002
Prüss-Üstün et al., 2003
Wilburn e Eijkemans, 2004
Worldwide, it was estimated that more than **three million** health-care workers will be exposed to a sharp object contaminated with HCV, HBV or HIV **every year**.

2,000,000 exposed to HBV, 900,000 to HCV, 300,000 to HIV

**Year 2000**

- 66,000 HBV
- 16,000 HCV
- 1,000 HIV

World Health Organization, 2002
Prüss-Üstün et al., 2003
Wilburn e Eijkemans, 2004
Occupational infections among HCW

- Worldwide, it was estimated that more than **three million** health-care workers will be exposed to a sharp object contaminated with HCV, HBV or HIV **every year**.

2,000,000 exposed to HBV, 900,000 to HCV, 300,000 to HIV

~ 1,000 cases / 1 year
(HIV – Burden of Disease)

World Health Organization, 2002
Prüss-Üstün et al., 2003
Wilburn e Eijkemans, 2004
### Sharps-associated infections in health-care workers – Amr B

<table>
<thead>
<tr>
<th></th>
<th>HIV (1,000)</th>
<th>HBV (66,000)</th>
<th>HCV (16,000)</th>
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<tbody>
<tr>
<td><strong>HCW exposed to at least one percutaneous injury with a sharp object contaminated with HBV, HCV and HIV</strong></td>
<td>23,000 (4,100–109,000)</td>
<td>61,000 (22,000–99,000)</td>
<td>57,000 (20,000–93,000)</td>
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<tr>
<td><strong>Proportion of exposed HCW per year (%)</strong></td>
<td>1.5 (0.3–7.1)</td>
<td>4.0 (1.4–6.5)</td>
<td>3.7 (1.3–6.1)</td>
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<tr>
<td><strong>Number of infections among HCW attributable to sharps injuries</strong></td>
<td>70 (13–360)</td>
<td>6 000 (1 800–25 100)</td>
<td>1 000 (360–5 500)</td>
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</table>

( ) Lower and upper estimates

Amr B Region - Antigua and Barbuda, Argentina, Bahamas, Barbados, Belize, Brazil, Chile, Colombia, Costa Rica, Dominica, Dominican Republic, El Salvador, Grenada, Guyana, Honduras, Jamaica, Mexico, Panama, Paraguay, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago, Uruguay, Venezuela.

Surveillance Systems & Case reports
Occupational Transmission to HIV

Summary of Published Reports. National or regional systems for the surveillance of occupationally acquired HIV infection have been developed in most of the countries mentioned in this map. Early case descriptions appeared in mainstream journals but newly recognised cases are now likely to be included in aggregate data in routine surveillance output from national or regional surveillance centres.

Occupational Transmission to HIV

Summary of Published Reports. National or regional systems for the surveillance of occupationally acquired HIV infection have been developed in most of the countries mentioned in this map. Early case descriptions appeared in mainstream journals but newly recognised cases are now likely to be included in aggregate data in routine surveillance output from national or regional surveillance centres.

106 Documented cases (108)
238 Possible cases (249) +15

Occupational Transmission to HIV

Summary of Published Reports. National or regional systems for the surveillance of occupationally acquired HIV infection have been developed in most of the countries mentioned in this map. Early case descriptions appeared in mainstream journals but newly recognised cases are now likely to be included in aggregate data in routine surveillance output from national or regional surveillance centres.

166 Documented cases (108)
238 Possible cases (249) +15

HPA Cfl et al. 03/2005 Ed; 1-39. **Posterior updates.**
WHO (2000)

1,000 HIV / year

Burden of Disease

- Number of HCW at risk
- Prevalence of HBV, HCV and HIV
- Annual incidence of sharps injuries
- Risk of transmission
- Use of postexposure prophylaxis

World Health Organization, 2002
Prüss-Üstün et al., 2003
Wilburn e Eijkemans, 2004

Surveillance System

106 (108) documented cases
238 (249) possible cases

In 30 years !!

Surveillance System
Summary of Published Reports
National or regional systems

HPA Cfl et al. 03/2005 Ed; 1-39
WHO (2000)

No Data = No Problem

Janine Jagger
International Healthcare Worker Safety Center
University of Virginia

Wilburn e Eijkemans, 2004
WHO (2000)

Surveillance System

“… If You Can’t Measure It, You Can’t Manage It

“… If You Can’t Measure It, You Can’t Improve It…”

Wilburn e Eijkemans, 2004
Occupational Transmission to HIV

Summary of Published Reports. National or regional systems for the surveillance of occupationally acquired HIV infection have been developed in most of the countries mentioned in this map. Early case descriptions appeared in mainstream journals but newly recognised cases are now likely to be included in aggregate data in routine surveillance output from national or regional surveillance centres.

MMWR – January 9, 2015 / 63(53);1245-1246.

106 Documented cases (108)
238 Possible cases (249)
Occupationally Acquired HIV Infection Among Health Care Workers — United States, 1985–2013

Year

No of confirmed cases


0 1 2 3 4 5 6 7 8 9 10

MMWR - January 9, 2015 / 63(53);1245-1246.
Since 1999, only one confirmed case (a laboratory technician sustaining a needle puncture while working with a live HIV culture in 2008) has been reported…

Occupationally Acquired HIV Infection Among Health Care Workers — United States, 1985–2013

MMWR - January 9, 2015 / 63(53);1245-1246.
Occupationally Acquired HIV Infection Among Health Care Workers — United States, 1985–2013

Since 1999, only one confirmed case (a laboratory technician sustaining a needle puncture while working with a live HIV culture in 2008) has been reported...

What could explain this reduction of cases?
Occupationally Acquired HIV Infection Among Health Care Workers — United States, 1985–2013

- Underreporting
- Effectiveness of more widespread and earlier treatment to reduce patient viral loads
- Postexposure management and prophylaxis
- Improved technologies and training to reduce sharps injuries and other exposures

MMWR - January 9, 2015 / 63(53);1245-1246.
Brazil
HIV Ocupacional

Frequência segundo Ano Diagnóstico

Categ Exp Hierar: Acid. Material Biológico

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<th>Frequência</th>
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Dados consolidados até 30/06/2016.

Fonte: Ministério da Saúde/SVS – SINAN-NET.

Exposures to BBP among HCW / year of occurrence
Brazil – 2007-2014 (N = 284,877)

Preliminary data – subject to change.
2007 – 2014 - Total = 284,877 accidents

~ 35,600 / year
Distribución de los accidentes de trabajo con material biológico, según las circunstancias de ocurrencia, por regiones y total, Brasil 2014.

Brazil

Occupationally Acquired HIV Infection Among Health Care Workers
Occupationally Acquired HIV Infection

- Female, nursing aide
- Exposure 10/14/94 – venous catheter
- Source patient – AIDS diagnosis
- 10/17/94 = ELISA neg
- Nov/94 = fever + lymphadenopathy
- 29/12/94 = 2nd ELISA neg
- 04/11/95 = ELISA +, W.Blot +

Occupationally Acquired HIV Infection

Rio de Janeiro, female, nursing technician
Percutaneous exposure, Winged steel needle, Jan 1996
Source patient - AIDS, previous undiagnosed

- Purpose or procedure for which sharp item was used or intended: To insert a peripheral intravenous line

Rapparini et al - 1996.
Occupationally Acquired HIV Infection

Rio de Janeiro, female, nursing technician
Percutaneous exposure, Winged steel needle, Jan 1996
Source patient - AIDS, previous undiagnosed

- Purpose or procedure for which sharp item was used or intended: To insert a peripheral intravenous line

- After the procedure, passing used device

Rapparini et al - 1996.
Occupationally Acquired HIV+HCV Infection

Florianópolis - Santa Catarina
Male, nursing aide, 37 year-old
Percutaneous exposure, IV catheter stylet, 06/06/98
Neurotraumatology ward – Source patient HIV+

After the procedure, during device fixation by stylet left on tray

Simultaneous co-infection with HIV and HCV following an occupational exposure.

Rapparini, C. Am J Infec Control 2006;34:237-40
Occupationally Acquired HIV Infection

Percutaneous exposure - December 2007
Nursing aide, female, 42 year-old
Thumb injury, slight bleeding that was immediately washed
While performing a Capillary Blood Glucose (CBG) testing
The lancet had not been completely enclosed and was left on the table after the procedure
The HCW wore a latex glove during the procedure

PEP HIV (ZDV + 3TC + LPV/r) was initiated within the first 2 hours and maintained for 28 days
EIA neg jan/mar/may 2008, pos in June 2008

Source patient - AIDS, CD4 11 cels/mm³, not receiving any antiretroviral treatment, pulmonary TB
The patient had a history of neglect or irregular use of antiretroviral drugs (EFV, ZDV, 3TC)

Occupationally Acquired HIV+HCV Infection

- 27 year-old, female, laboratory technician, percutaneous exposure 01/12/2013, IV catheter – 20-gauge needle

- **IV access** – source patient – AIDS

- **Source patient**: homeless female, on irregular use of ZDV+3TC +LPV/r. She had been prescribed different regimens including NRTI, NNRTI and PI, since 2011, VL 4.56 log10, CD4 143 cel/ml. She was HCV coinfected (VL 5.9 log10).
Occupationally Acquired HIV+HCV Infection

- **HCW: PPE ZDV + 3TC + LPV/r within 1 h of the accident.** The regimen was prescribed for 28 days, but she did not return to follow up.

- **Three months after the accident,** the HCW presented at an emergency unit with weakness, vomiting and ictericia, with high transaminases compatible to **acute HCV.** Anti-HCV+, VL 6.43 log10, **anti-HIV+,** 1031 CD4 cels/ml, VL 3.9 log10.
Occupationally Acquired HIV+HCV Infection

- **HCW:** The patient was treated for hepatitis C and an antiretroviral regimen was subsequently instituted.

At the last follow-up evaluation, the patient had undetectable viraemia to both HCV and HIV.
Brazil

Examples – Occupationaly Acquired HBV+HCV Infection
1 CASE - HEPATITIS B
Jan/98 - RS, 26 year-old, fem, housekeeper, inappropriate disposal of sharp - sharp in trash, unknown source patient, initiated PEP for HIV, no information about vaccination against HBV

1 CASE CO-INFECCION - HEPATITIS B & C
mar/98 - AAC, 22 year-old, fem, housekeeper, inappropriate disposal of sharp - sharp in trash, unknown source patient, no PEP for HIV, not vaccinated against HBV

SMSDC-RJ/SUBPAV /SAP/CLCPE/GSAIDS
Jan 1997 – Dec 2012 - Total = 32,796 accidents
Acute HCV Infection

- SÃO JOSÉ DO RIO PRETO - SÃO PAULO, Brazil
- ESF, 43 year-old, male, maried, nursing aide - ICU
- Source Patient - chronic liver disease/cirrhosis related to HCV (Child-Pugh C), ascites and renal failure

→ Percutaneous exposure, hollow-bore needle left in bed.

HCW suffered the needlestick while the patient was given a bath in bed.

Multi-causality in nursing work accidents with biological material

Contributing Factors

- Insufficient number of workers
- Work overload
- Fatigue
- Physical and emotional exhaustion
- Poor technical training
- Assistance in continuous shifts and at night shifts
- Lack of attention
- Overconfidence
- Inadequate equipment
- Stress
- Non-adoption of standard precautions

Plan de Prevención de Riesgos de Accidentes con Punzocortantes
Decreto MTE n. 1.748, del 30 de agosto de 2011

Designing, Implementing and Evaluating a Sharps Injury Prevention Program

Continuous quality improvement

Integrated into existing programs
Determine Intervention Priorities

Develop and Implement Action Plans
I.V. ACCESS (venous, arterial):

While inserting needle in patient
While inserting/manipulating needle in line
While withdrawing needle from patient
While withdrawing needle from line
DISPOSAL:

In transit to disposal
Placing sharp in container - Injured by sharp being disposed
Placing sharp in container - Injured by sharp already in container
While manipulating container
Over-filled sharps container / Punctured sharps container
Identify the location of the sharps disposal container; place it as close to the point-of-use as appropriate for immediate disposal of the sharp.

**DISPOSAL:**

In transit to disposal
- Placing sharp in container - Injured by sharp being disposed
- Placing sharp in container - Injured by sharp already in container
- While manipulating container
- Over-filled sharps container / Punctured sharps container

Avoid bringing the hands close to the opening of a sharps container; never place hands or fingers into a container to facilitate disposal of a device. Use a mechanical device to pick up the sharp if it cannot be performed safely by hand.

Is it necessary to change the size or shape of sharps containers? More frequent removals and a new container obtained?
In 1992, data from EPINet showed that the needles used to connect IV lines or IV access points were responsible for a large proportion of punctures.

Power in Numbers – Using EPINet Data to Promote Protective Policies for HCW

DATA

The single most important tool for promoting change.

In 1992, EPINet data showed that needles used to connect IV lines or access IV ports were responsible for a large proportion of needlestick injuries.

Needleless IV systems, recommended by the FDA (1992)


The FDA was very responsive and sent out the requested safety alert in only 6 weeks.

Inyectores laterales, terapia IV intermitente, etc.
Red Latinoamericana de Bioseguridad en Servicios de Salud (Febrero 2015)

Colombia:
• Alba Cecilia Garzón, Auditoría y Consultoría en Garantía de Calidad Ltda.
• Martha Luz Bernal, Avenir Ltda, Bioseguridad y Salud Ocupacional
• Consuelo Granja, Universidad Javeriana
• Beatriz Carvallo, Comité Permanente en Salud Ocupacional
• Zulma García, Ex Presidente de COPERSO

Panamá:
• Argelis Olmedo, Gerente de Control de infecciones y seguridad del paciente, Hospital Punta Pacífica

México:
• Florencia Cabrera Ponce, Presidente de Asociación Mexicana para el Estudio de las Infecciones Nosocomiales AMEIN
• Roxana Trejo, Secretaria General de Asociación Mexicana para el Estudio de las Infecciones Nosocomiales AMEIN, Hospital ABC
• Martha Huertas, Instituto Nacional de Ciencias Médicas y Nutrición Salvador Zubirán
• Raúl Sánchez Román, Instituto Mexicano del Seguro Social IMSS
• Elia Enríquez, Federación Nacional de Salud en el Trabajo FeNaSTAC

España –@NTAB – Consejería de Sanidad y Consumo - Comunidad de Madrid

EE.UU. – EPINet – International Safety Center

EE.UU. – CDC – National Healthcare Safety Network

EE.UU. – Massachusetts Sharps Injury Surveillance System – Massachusetts Department of Public Health

Brasil. - PSBio – Riscobiologico.org Network

REDLATAMBIOS
Registro de Accidente de Trabajo con Patógeno de Transmisión Sanguínea

THE HUMAN FACE
OF THE NUMBERS...
Workplace Accidents and Their Consequences

- Estimated risks for infection
- Social and psychological impact
  - Medical costs
  - Personal costs
  - Legal liability

Adapted from Cardo D, 2001.
Post-traumatic stress disorder (PTSD)

- Nurse technician
- São Paulo, Brazil
- Exposure to a Source Patient HIV+
- Suicide

October 18, 1997

One night …

One needle …

So many lives changed ….
Life after an HIV/HCV Diagnosis

Kaitlyn

Rebecca

Lisa Black – Presentación – Univ Virginia – Nov 2011
Occupational HIV + HCV
Lisa Black

“Dying in 10 years” x “Become part of the solution”
“Was a specific law really necessary? Why?

Yes, a specific law was needed. “FDA had issued a needlestick prevention alert five years prior to my injury, and the facility at which I was employed failed to heed this recommendation to eliminate using needles to access IV lines after initial insertion.”
PREVENTION
FLUJO Y CONSUMO

Empleados: 3.540
Flujo: cerca de 11 personas/día
~ 500 camas

5 toneladas de ropas lavadas/día
4.500 jeringas y agujas desechables/día
3 millones de pares de guantes/año ó 10 mil/día
Estimated Preventability of Percutaneous Injuries Involving Hollow-bore Needles (n=13,847)

- Preventable, 56%
- Improper sharps disposal, 9%
- Safer work practice, 6%
- Undetermined, 17%
- Uncontrolled patient care events, 27%

Safer device available, 26%
Unnecessary needle use, 9%
No/improper activation of safety feature, 6%

NaSH - The National Surveillance System for HCW - Report (Jun95 - Dec 07)
The Needlestick Safety and Prevention Act
November 6th 2000

Directive (2010 / 32 / EU)

“Where there is a risk it must be eliminated”

Deadline for transposition and mandatory implementation of this Directive in all EU countries – May 2013.
**US** – *The Needlestick Safety and Prevention Act.* signed into law in November, 2000. The effective date of the regulations was April 18, **2001**.

**EU countries** – Directive UE 2010/32/EUA of 10 May 2010 - is required to be implemented as national law in all EU countries by May **2013**.

**Brazil** – NR 32 (Sept **2005**) – NR32 established and required that healthcare employers had to implement safety-engineered sharp devices in order to reduce employees' occupational exposure to HIV, HBV, HCV and other bloodborne diseases.

Decreto MTE n. 1.748, 30 Aug **2011**. Employers should elaborate and implement a Sharps Injury Prevention Program in no more than 120 days (December, 2011).
Sharps Injury Prevention Program
Ministry of Labour and Employment
Decreto MTE n. 1.748, 30 August 2011

- Needlestick prevention committee / Multidisciplinary Management Committee
- Baseline Profile of Sharps Injuries
- Determine Intervention Priorities / Sharps Injury Prevention Priorities
- Hierarchy of control measures
- Selection of Sharps Injury Prevention Devices
- HCW Training
- Implementation Plan and Schedule
- Perform Post-implementation Monitoring
Ahora lo ves

Ahora no

Protégete y protege a los demás utilizando dispositivos punzocortantes de seguridad
Percutaneous Injuries before and after the Needlestick Safety and Prevention Act

23,908 injuries
85 hospitals in 10 states

38% (95% confidence interval, 35 to 41) in 2001 when the NSPA took effect.

Subsequent injury rates, through 2005, remained well below pre-NSPA rates.

Indicadores Generales:
Lesiones Percutáneas por cada 100 trabajadores

\[ y = 0.1681x^2 - 2.3371x + 11.784 \]
\[ R^2 = 0.745 \]
How we get there . . .
Hierarchy of Controls

- Elimination
- Substitution
- Engineering Controls
- Administrative Controls
- Work Practice Controls
- Personal Protective Equipment
Hierarchy of Controls

- Elimination and/or Substitution
- Engineering Controls
- Administrative Controls
- Work Practice Controls
- Personal Protective Equipment

Increased effectiveness and sustainability

Increasing need for participation and vigilance
Prevention of Needle-Stick Injuries in Healthcare Facilities: A Meta-Analysis

Prevention of Needle-Stick Injuries in Healthcare Facilities: A Meta-Analysis

<table>
<thead>
<tr>
<th>Training</th>
<th>RR</th>
<th>LCL</th>
<th>UCL</th>
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<td>Summary</td>
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* RR = Rate ratio  
LCL = Lower confidence limit  
UCL = Upper confidence limit

WHO calls for worldwide use of "smart" syringes
WHO guideline on the use of safety-engineered syringes for intramuscular, intradermal and subcutaneous injections in health-care settings (Feb 2015)

WHO calls for worldwide use of "smart" syringes
February 2015

Good injection safety and waste management practices deliver injections that result in:

no harm to the **recipient**, no harm to the **health worker**, and no harm to the **community**.
INTERRELATIONSHIP BETWEEN PATIENT AND HCW HEALTH AND SAFETY

PATIENT SAFETY AND HEALTH

HEALTHCARE WORKER SAFETY AND HEALTH

Use of injections worldwide

16.7+ billion/ year

Immunization injections 5% to 10%

Therapeutic injections 90 to 95%

WHO calls for worldwide use of "smart" syringes
February 2015

Prevention of reuse

Inmunization - Children

Sharps waste management

Prevention of needlesticks

Sharps waste management

Therapeutic injections

2000 2015 2020

WHO calls for worldwide use of "smart" syringes  

February 2015

What needs to happen, who needs to do it?

The injection safety policy and global campaign is a three to five year initiative that engages many public and private sector stakeholders such as Ministries of Health, international donor programmes, industry players and umbrella organizations representing injection device manufacturers and health care workers.

Making all injections safe

To reduce:
- Reuse of injection equipment
- Accidental needle-stick injuries
- Overuse of injections
- Unsafe sharps waste

New policy 2015
Safety-engineered injection devices
Exclusive use by 2020

World Health Organization

Apresentado por B. Allegranzi, fevereiro 2015, SIGN WHO, Genebra.
WHO calls for worldwide use of "smart" syringes
February 2015

UNSAFE INJECTIONS

- Overuse of injections
- Accidental needle-stick injuries in HCWs
- Re-use of injection equipment
- Unsafe sharps waste management

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Unsafe Injections

Overuse of Injections

1.7 to 11.3 per person per year

WHO, with the support of SIGN, has developed and assisted countries in the implementation of a behavior change strategy between patients and HCW with the aim of reducing unnecessary injections and ensuring safe injecting practices.

WHO calls for worldwide use of "smart" syringes
February 2015

Between 2000 and 2010, in developing countries worldwide, there was a decrease in the number of unnecessary injections: the average number of injections per person decreased from 3.4 to 2.9.

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UNSAFE INJECTIONS

Overuse of injections

Accidental needle-stick injuries in HCWs

Re-use of injection equipment

Unsafe sharps waste management

PATIENTS

HEALTHCARE WORKERS
Between 2000 and 2010, in developing countries worldwide, **re-use of injection equipment decreased from 39.6% to 5.5%**.

Reduction in re-use of injection equipment

Infection safety has played a crucial role in progress on reducing the global burden of HIV and hepatitis.

Reduction in HIV/HBV/HCV infections due to unsafe injections

87% VIH

83% VHB

91% VHC

To Prevent Transmission of Infections in Healthcare

1 ONE NEEDLE, ONE SYRINGE, ONLY ONE TIME.

Safe Injection Practices Coalition
www.ONEandONLYcampaign.org

Injection Safety is Every Provider’s Responsibility
Paciente é contaminado por Aids em hospital

Imagem do jornal O Globo, data: 11/05/2002

Vítimas do dengue pedem indenização

Ação crítica omission governamental

O VENDEDOR contaminado pelo vírus da Aids: "Tinha planos de ter mais filhos e não posso mais."
Rx for Safe Injections in Healthcare

1 Needle
1 Syringe
+ 1 Time

0 Infections

Safe injection practices prevent transmission of infectious diseases. Patients and healthcare providers must insist on nothing less than One Needle, One Syringe, Only One Time for each and every injection.

For more information, please visit:
OneandOnlyCampaign.org
50 OUTBREAKS AND COUNTING

Since 2001, at least 50 outbreaks involving unsafe injection practices were reported to CDC.

- **Bacterial Infections**: 56%
- **Viral Hepatitis**: 44%

- 90% (n=45) occurred in outpatient settings
- Many hundreds of infected patients
- Over 150,000 patients notified and tested

http://www.oneandonlycampaign.org/
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 in what was one of the largest outbreaks of hepatitis C in American healthcare history.

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

Indirect syringe reuse

1. Clean needle and syringe is used to draw medication
2. When used on an HCV-infected patient, backflow from the injection or removal of the needle contaminates the syringe
3. When again used to draw medication, contaminated syringe contaminates the medication vial
4. Contaminated vial that is reused exposes subsequent patients to risk of HCV infection

MMWR; May 16, 2008; 57:19

Melissa Schaefer, SIGN 2009.
Injection Practices Among Clinicians in United States Health Care Settings

Survey of 5,500 U.S. healthcare professionals

• 1 percent “sometimes or always” reuse a syringe on a second patient

• 1 percent “sometimes or always” reuse a multidose vial for additional patients after accessing it with a used syringe

• 6 percent use single-dose/single use vials for more than one patient

Drug diversion is a medical and legal concept involving the transfer of any legally prescribed controlled substance from the individual for whom it was prescribed to another person for any illicit use.

http://www.oneandonlycampaign.org/
U.S. Outbreaks Associated with Drug Diversion by Healthcare Providers, 1983-2013

1985: 3 cases of *Pseudomonas pickettii* bacteremia associated with a pharmacy technician at a Wisconsin hospital

1992: 45 cases of HCV infection associated with a surgical technician at a Texas ambulatory surgical center

1999: 26 cases of *Serratia marcescens* bacteremia associated with a respiratory therapist at a Pennsylvania hospital

2000: 16 cases of HCV infection associated with a certified-registered nurse anesthetist at a Texas hospital

2004: 9 cases of *Achromobacter xylosoxidans* bacteremia associated with a nurse at an Illinois hospital

2006: 5 cases of HCV infection associated with a radiology technician at a Florida hospital

2008: 5 cases of HCV infection associated with a surgical technician at a Colorado hospital

2009: 18 cases of HCV infection associated with a surgical technician at a Colorado hospital

2011: 25 cases of gram-negative bacteremia associated with a nurse at a Minnesota hospital

2012: 45 cases of HCV infection associated with a radiology technician at hospitals in New Hampshire, Kansas, and Maryland

http://www.oneandonlycampaign.org/
U.S. Outbreaks Associated with Drug Diversion by Healthcare Providers, 1983-2013

- 1992: 45 cases of HCV infection associated with a surgical technician at a Texas ambulatory surgical center
- 1995: 16 cases of HCV infection associated with a certified-registered nurse anesthetist at a Texas hospital
- 2008: 5 cases of HCV infection associated with a radiology technician at a Florida hospital
- 2009: 18 cases of HCV infection associated with a surgical technician at a Colorado hospital
- 2012: 45 cases of HCV infection associated with a radiology technician at hospitals in New Hampshire, Kansas, and Maryland

1985: 3 cases of Pseudomonas pickettii bacteremia associated with a pharmacy technician at a Wisconsin hospital

http://www.oneandonlycampaign.org/
Exposure-prone invasive procedures

Characteristics of exposure-prone procedures include digital palpation of a needle tip in a body cavity or the simultaneous presence of the HCW's fingers and a needle or other sharp instrument or object in a poorly visualized or highly confined anatomic site.

Updated CDC Recommendations for the Management of HBV–Infected HCP and Students

HCP – The health-care provider must be sufficiently **viremic** (i.e., have infectious virus circulating in the bloodstream)

+ HCP must have an **injury** (e.g., a puncture wound) or a **condition** (e.g., nonintact skin) that allows exposure to his/her blood or other infectious body fluids

+ HCP’s **blood or infectious body fluid must come in direct contact** with a patient’s wound, traumatized tissue, mucous membranes, or similar portal of entry during an exposure-prone procedure

Holmberg SD et al. MMWR 2012 / Vol. 61 (3)
“SAFETY is avoiding both short- and long-term harm to people …

“This definition does not differentiate among patients, their families, staff and licensed independent practitioners, visitors, …. And yet, many health care organizations have “siloed” safety programs, creating one for patients, another for workers, and yet another for others who may be at risk.

The organizational culture, principles, methods, and tools for creating safety are the same, regardless of the population whose safety is the focus.”

https://www.jointcommission.org/assets/1/18/TJC-ImprovingPatientAndWorkerSafety-Monograph.pdf
Hippocratic Oath

“First, do no harm.”

In health care, the primary ethical imperative is “First, do no harm.” Although we have traditionally applied this obligation to our patients, it is important to establish it also as our obligation to those with whom we work—and to all within the health care setting.
El ciclo de investigación en Seguridad del Paciente

1. Medir el daño
2. Comprender las causas
3. Identificar soluciones
4. Evaluar el impacto
5. Trasladar a la práctica
Value of Institutionalizing a **Culture of Safety** to Healthcare Organizations:

A culture of safety is the shared commitment of management and employees to ensure the safety of the work environment.
Occupationally Acquired HIV Infection

“For better or worse, my life took a new direction the day a contaminated needle punctured my hand. I'm telling my story on behalf of all nurses who face this hazard daily, and my message is this: It doesn't have to happen.”

Lynda Arnold, Nursing 1997.
Thank you very much!
Acknowledgment

This seminar was possible thanks to the auspices and cooperation of the Infection Control Center (CDC), according to the cooperation agreement CDC-RFA-CK13-1301. "BUILDING CAPACITY AND NETWORKS TO ADDRESS EMERGING INFECTIOUS DISEASES IN THE AMERICAS"
Next Webminar
April 11 – 2pm EST

“Costs of healthcare associated infections in Latin American and Caribbean countries: Systematic Review of the literature”

- Dr. Cristiana Toscano– Universiade federal de Goias