

SIGN 2010

## Annual Meeting of the Safe Injection Global Network

9 to 11 November 2010  
Dubai, United Arab Emirates



## Report of the SIGN2010 Meeting



ANNUAL MEETING OF THE SAFE INJECTION GLOBAL NETWORK (SIGN)

9-11 November 2010, Intercontinental Dubai Festival City Hotel  
Dubai, United Arab Emirates

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### **Introduction**

The annual Meeting of the Safe Injection Global network was held at the Intercontinental Dubai Festival City Hotel, Dubai, United Arab Emirates from 09 to 11 November 2010. More than 135 experts from 40 countries and SIGN member organizations worked to reach consensus.

Five plenary sessions with presentations and discussion addressed:

- Disease burden from unsafe injection practices
- Cost effectiveness of injection safety strategies
- Injection safety and the Millennium Development Goals
- Global and Regional initiatives on injection safety and sharps waste management
- Countries' initiatives on injection safety

Three parallel working sessions with presentations and discussion addressed:

- Strategies needed for country implementation of WHA 63/R18 recommendations on injection safety
- Development of strategies for patient and community involvement to ensure rational and safe use of injections
- Health Care Waste Management

The participants of each plenary session and the three tracks voted on recommendations using hand held wireless devices to rank the draft recommendations

The meeting consensus produced 43 recommendations to guide efforts towards increased injection safety and related infection prevention and control through to 2012 and beyond.

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Tuesday 9 November 2010 Plenary Session: Welcome

Chair: Dr Steffen Groth, Director, Essential Health Technologies, World Health Organization, Geneva Switzerland

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### **Report by the Secretariat on 2009 meeting recommendations**

Selma Khamassi, SIGN Secretariat, WHO/EHT, Geneva Switzerland

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The 10th SIGN meeting was held at WHO Headquarters, Geneva, from 30 November to 2 December 2009, with 120 participants representing 40 member countries. The meeting format included plenary sessions with presentations and discussions on the first and third days and 3 parallel sessions of presentations. The development of draft recommendations was done in plenary on day three of the meeting. The three parallel sessions' themes focused on PHC oriented strategies to improve implementation and outcomes of: injection safety and related infection control programmes at country level; healthcare workers safety strategies; and healthcare waste management strategies. All draft recommendations were presented and discussed in plenary on day 3.

The SIGN 2009 meeting agreed a total of 39 consensus recommendations, 7 to countries, 4 to industry, 10 to the SIGN network, and 16 to the SIGN Secretariat. The main recommendations to the Secretariat were:

### **Injection Safety**

- The SIGN Secretariat should provide clear guidance to countries on multidose vial handling and proper device use. This was achieved with the production, translation and dissemination of the Injection Safety Toolkit and the Phlebotomy guidelines.
- Encourage partners and countries to introduce injection and blood drawing devices combining reuse and sharps injury prevention. This is an ongoing activity with recommendations made in all country visits and country and regional training workshops.
- Develop an action plan to reduce unsafe injection practices worldwide by 50% by 2015. This is an ongoing activity and is the overall objective of the programme.
- Secretariat and Network should collaborate on mapping all potential groups and partners to accelerate transition to safer injection devices, procedures and practices. This is an ongoing activity with several new partners joining the network since 2009.

### **Information/Education/Communication**

- Development of clear messages on the role of IS in developing strong health systems including primary health care. This has been achieved. Injection Safety (IS) is included in HSS components of GAVI and GF, and under the HSS strategic direction of the WHO/PEPFAR collaborative agreement.
- Multi stranded educational interventions targeting the community to ensure safe injection practices. This is under development by the WHO Collaborating Centre in Jordan which is developing these messages and Track 2 will take this further at this meeting.

### **Surveillance and Response**

- Development of guidelines for investigation of suspected injection transmitted BBP. The US CDC has developed such guidelines.
- SIGN Secretariat and Network should strengthen needlestick injury (NSI) surveillance systems in countries and hospitals specifying circumstances surrounding these injuries. This is an ongoing activity. The development and implementation of NSI surveillance systems are a core component of injection safety programmes and are part of all SIGN training and country support activities.

### **Advocacy**

- The SIGN Secretariat and network should inform, support and advocate for a WHA resolution specifically on injection safety and blood collection safety to prevent the transmission of hepatitis and HIV in health care. This was achieved with the adoption of World Health Assembly resolution WHA 63/R18 on viral hepatitis prevention and control with special emphasis on injection safety and urging member states to implement the tools and guidelines developed by SIGN

- The SIGN secretariat and network should encourage country demand for appropriate and safe HCWM technologies. This is an ongoing activity.
- The SIGN Secretariat and network should strive to place injection safety high on the list of necessary actions to achieve the MDGs. This was achieved and the completed study will be presented on Day 2.
- Secretariat and network should support Patient Observed Sterile Treatment (POST) with special emphasis on injection safety. This is under development by the WHO Collaborating Centre in Jordan. Track 2 will further explore and develop strategies.

### **Working Groups**

- Secretariat to convene a working group to develop, compile and maintain an accessible data base on previous successful experiences in injection safety. This has not been achieved
- Secretariat to convene a working group to develop a strategy for active community involvement and participation in injection safety and conduct pilot test in one country or more in 2010. This was not achieved and will be the task of track 2.

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### **Session 1: Disease burden from unsafe injection practices**

Chair: Prof Shaheen Mehtar, Head, Unit for IPC, Tygerberg Hospital and Faculty of Health Sciences, Stellenbosch University. Cape Town, South Africa

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### **Preliminary results of the updated WHO GBD from unsafe injections**

Savanna Reid, University of Nevada, School of Community Health Sciences, Las Vegas, Nevada USA

The global burden of disease from unsafe medical injections has been estimated for the year 2008 by the World Health Organization from a probabilistic model. In total unsafe medical injections led to 340,000 HIV infections, 15 million HBV infections, 1 million HCV infections, 3 million bacterial infections and 850,000 injection site abscesses in 2008. These infections accounted for 14% of HIV infections, 25% of HBV infections, 8% of HCV infections and 7% of infections with bacteraemia worldwide and accounted for 28 million disability adjusted life years, a metric of the years of life lost to death and disability from AIDS, acute hepatitis, liver cancer, end-stage liver disease and fatal sepsis.

After adjustment for a change in methodology in calculating the number of HIV infections resulting from unsafe medical injections, these figures represent a reduction in the burden of disease from unsafe medical injections since the year 2000. Since the creation of the Safe Injection Global Network, reductions in unsafe therapeutic injection frequency have prevented 430,000 HIV infections, 5 million HBV infections and 1 million HCV infections in the developing world each year.

Autodisable syringes, introduced for all immunization injections in 1999, prevented 5,000 HIV infections, 200,000 HBV infections, 50,000 HCV infections, 86,000 bacterial infections and 34,000 injection site abscesses in 2008. Vaccination for hepatitis B prevented 1.5 million hepatitis B infections from unsafe medical injections in 2008.

Reuse without sterilization is not unheard of at hospitals with working sterilizers. Misconceptions about injection safety that lead to reuse without sterilization arise from the structure of injection technology, and were widespread in high income developed countries less than 20 years ago. Reuse without sterilization usually occurs when health workers ***mistakenly believe*** that (1) it is safe to reuse a syringe after changing the needle, (2) it is safe to reuse a needle or syringe on the same patient, re-entering a multi-dose vial or saline bag with a used needle or syringe, or (3) it is safe to reuse a needle or syringe when accessing an IV port separated from the patient by intervening lengths of IV tubing with heparin locks or valves.

The assumption that reuse rates in sub-Saharan Africa are high in the informal sector has been called into question and unsafe injection frequency in this region will be re-estimated setting aside this assumption. New data available at the SIGN conference on injection equipment reuse in Southeast Asia will also be used to update the model.

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### **HCV and HIV prevalences strongly correlated in Asian communities**

Presented by Devon Brewer, Interdisciplinary Scientific Research, Seattle Washington, USA  
Authors: Devon D. Brewer, Adnan A. Khan

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**Background:** In some Asian communities, HIV epidemics initially concentrated in high-risk groups develop into generalized epidemics, while in others HIV epidemics remain confined to high-risk groups. We examined whether blood exposures in a community, as indicated by hepatitis C virus (HCV) prevalence, can account for the variability in HIV prevalence in Asia.

**Methodology:** We searched the published literature for temporally comparable HCV and HIV prevalence estimates for pregnant women and other "low-risk" population segments in Asian communities with established HIV epidemics in injection drug users or prostitute women. We assessed the correlation between HCV and HIV prevalences in these communities.

**Results:** HCV and HIV prevalences were strongly correlated ( $r = .97, p < .001$ ).

**Conclusion:** This finding suggests that blood-borne transmission drives generalized HIV epidemics in Asia and highlights the need for appropriately designed investigations of transmission modes.

Please note that this work was published in the Journal of Infection in Developing Countries, 2010, 4(7): 442-447; <http://jidc.org/index.php/journal/article/view/20818092>

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### **Nosocomial HIV Infection: Epidemiology and Prevention – A Global Perspective**

Maria Ganczak, Department of Hygiene, Epidemiology and Public Health, Faculty of Health Sciences, Pomeranian Medical University, Szczecin, Poland

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Globally, HIV is transmitted mainly by sexual practices and intravenous drug use and due to its long asymptomatic period means healthcare-associated HIV transmission receives little attention even though an estimated 5.4% of global HIV infections result from contaminated injections alone.

It is an important personal issue for healthcare workers (HCWs), especially those who work with unsafe equipment or have insufficient training. They may acquire HIV occupationally or find themselves in court, facing severe penalties for passing on HIV infections. Prevention of blood-borne nosocomial infections such as HIV differs from traditional infection control measures such as hand washing and isolation and requires a multidisciplinary approach.

There has been little research on healthcare-associated HIV, contrasting circumstances in poor and rich regions of the world, comparing the epidemiology of HIV in healthcare facilities in such settings, with a consideration of general approaches to prevention, specific countermeasures, and a synthesis of methods used in infection control, injury prevention, and occupational safety.

The evidence indicates that while occasional incidents of healthcare-related HIV infection in high-income countries continue to be reported, the situation in many low-income countries is alarming, with transmission ranging from frequent to endemic. HIV transmission in health facilities occurs by unexpected and unusual, as well as more frequent routes. HIV can be transmitted to patients and to HCWs by specific vehicles and vectors during blood transfusion, plasma donation, and artificial insemination, by improperly sterilized sharps, through medical equipment during activities such as dialysis and organ transplantation, and by HCWs infected by occupational exposure to hazards such as blood-contaminated sharps. Personal, equipment, and environmental factors predispose those susceptible to the acquisition of nosocomial HIV and are all pertinent for effective prevention. For infection and injury control, poverty is often an underlying determinant. While sophisticated new tests offer improved HIV detection, increasingly higher marginal costs limit their application in many settings. Modest investments in the elimination of unnecessary injections, safer equipment, and public education, promotion of safe healthcare practices equally for patients and staff, and appropriate integrated training of HCWs in infection control, injury prevention, and occupational safety should provide greater benefits.

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### **Unsafe diabetes care practices: Ten year review of hepatitis B outbreaks and patient notification events**

Presented by Melissa Schaefer, prepared by Joseph F. Perz and Nicola D. Thompson, Division of Healthcare Quality Promotion, US Centers for Disease Control and Prevention, Atlanta, GA USA

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**Objective:** Opportunities for bloodborne pathogen (BBP) transmission exist when equipment used for diabetes care procedures (DCP) is not dedicated for individual use (i.e., fingerstick devices, insulin pens) or cleaned and disinfected between each use (i.e., blood glucose meters). CDC has published safe practice guidelines for assisted monitoring of blood glucose (AMBG), yet outbreaks of hepatitis B virus (HBV) infection and patient notifications due to equipment misuse continue.

**Method:** We reviewed public health investigations of confirmed outbreaks associated with AMBG in the United States between 2000 and 2009. For this same period, we also reviewed reports of patient notification events that resulted in groups of patients receiving notifications recommending BBP testing following a potential exposure to another patient's blood during DCP.

Result: During the 10-year period, 15 HBV infection outbreaks and 3 patient notifications were identified; 9 outbreaks (60%) and all of the patient notifications occurred in the last 3 years. All outbreaks occurred in long-term care facilities where AMBG was performed; almost 900 persons underwent BBP testing and 116 (13%) residents acquired HBV infection due to equipment misuse during AMBG. Patient notifications occurred in 2 hospitals and a community health center; 3305 persons were contacted. The predominant unsafe practices identified were: use of reusable (penlet-style) fingerstick devices or insulin pens on multiple persons, and sharing of glucose meters without cleaning and disinfection between each use.

Conclusion: HBV infection outbreaks and patient notifications due to equipment misuse during DCP have been identified with increasing frequency. These findings suggest the need for better labeling, validated instructions for blood glucose meter cleaning and disinfection, and engineering controls and innovation in equipment design specific for applications involving AMBG or insulin delivery. Healthcare personnel who assist with blood glucose monitoring and/or insulin administration should also review the existing CDC infection prevention recommendations available at: <http://www.cdc.gov/injectionsafety/blood-glucose-monitoring.html>.

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### **Viral hemorrhagic fevers: injection safety and beyond**

Sergey Eremin, MD, PhD, Infection Prevention and Control in Health Care, Department of Global Alert and Response, World Health Organization, Geneva, Switzerland

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Human-to-human transmissible viral hemorrhagic fevers (e.g. Ebola, Marburg, Lassa, and Crimean-Congo) could hardly be comparable to the “conventional” bloodborne diseases, such as HIV, hepatitis B, and hepatitis C, in terms of global burden and geographical spread. But, also rare in occurrence, outbreaks of viral hemorrhagic fevers (VHF) often result in high case fatalities (especially those caused by filoviruses, with case fatality rates in untreated Ebola patients reaching 40-90%), and expose healthcare workers (HCW) and patients to serious risks of infection and death from these diseases.

Extensive spread of VHF in medical settings where infection prevention and control (IPC) practices are poorly applied or lacking can make health-care facilities (HCF) act as amplifiers of the outbreaks, increasing the number of cases. VHF usually create fear and anxiety among both HCW and the general public, and undermine the already limited capacities of the health care systems.

The available data from the VHF outbreaks, albeit limited, show that transmission of VHF is associated with re-use of contaminated needles and syringes and with provision of patient care without appropriate precautions to prevent exposure to blood and other body fluids that contain the virus. Lack of application of Standard Precautions outside isolation units increases transmission of VHF related to the care of unrecognized cases. Overuse of personal protective equipment (e.g. use of airborne protection or double gloving required by some existing guidelines) and psychological effects associated with VHF outbreaks increase probability of needlestick and sharp injuries among HCW. Outdated guidance on VHF clinical management and IPC continues to be a constraint, with dangerous injection techniques and waste management methods still advised in print.

It is time to revise IPC measures, focusing on avoiding unprotected contact with blood and body fluids and stopping unsafe injections. Up-to-date evidence-based guidelines for clinical management and IPC for VHF are desperately needed. VHF should always be included in the list of bloodborne pathogens covered by injection safety programmes and addressed appropriately. These activities should be part of the global strategy of implementation of the IPC Core Components in national and HCF IPC programmes.

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## **Session 2: Cost effectiveness of injection safety strategies**

Chair: Dr Glenn Post, Senior Medical Advisor, USAID office of HIV/AIDS, Washington DC, USA

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### **Update of WHO studies on cost effectiveness of injection safety strategies**

Savanna Reid, University of Nevada, School of Community Health Sciences, Las Vegas, Nevada USA

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The cost-effectiveness of injection safety interventions to reduce the overuse of injections and prevent unsafe injections has previously been evaluated by WHO, with estimated incremental cost effectiveness ratios ranging from US \$15 to over \$77,000 per disability adjusted life year gained on average across ten world regions. Subsequent reductions in the burden of disease from unsafe injections have eroded some of these potential gains from eliminating injection equipment reuse, but the present update to the burden of disease from unsafe medical injections expands the scope of the model to include bacterial infections, a frequent and costly complication resulting from unsafe reuse.

Forty eight different syringes with reuse prevention features meet WHO specifications for therapeutic injections. Today the average price of a needle and syringe with reuse prevention features is \$0.12. In 2008, unsafe medical injections incurred US \$119 billion in productivity losses and the costs of treating nosocomial HIV, HBV, HCV, bacteraemia and injection site abscesses worldwide. The global incremental cost effectiveness ratio of introducing reuse prevention syringes for all medical injections is 0.0187, indicating that this intervention would be cost-saving. In no region does the cost per disability adjusted life year gained by preventing injection equipment reuse exceed average annual earned income.

This cost-effectiveness assessment suggests that the incremental cost of introducing reuse prevention syringes for all medical injections is outweighed by the societal benefit in all world regions. However, the uncertainty intervals surrounding estimates of the burden of disease from unsafe medical injections for some regions include the null, as some countries report no injection equipment reuse and no reuse prevention interventions are supported.

These estimates may be optimistic, as they are derived from observational injection safety assessments that are subject to the Hawthorne effect, in which the act of direct observation influences study participants to practice their best behavior. The cost-effectiveness ratios were borderline only in regions where there are few estimates of injection frequency but the average person in populations for which data are available receives 4 or more injections per year.

Not all reuse prevention feature (RUP) syringes approved for therapeutic injections engage automatically, and the cost effectiveness of introducing RUPs will be re-assessed using corrected reuse rates and looking only at those models that engage automatically.

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### **Cost of Infection – Injection Safety and Beyond**

Prof Shaheen Mehtar, Head Unit for IPC, Tygerberg Hospital and Faculty of Health Sciences, Stellenbosch University. Cape Town, South Africa

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The cost of infection is usually measured in monetary terms because the major impact is felt by the health services; however there are several other aspects to the cost of infection.

There is a significant and sometimes ignored aspect for both the patient and the healthcare worker. There may be increased morbidity, mortality, loss of family earnings, and loss of family members. For healthcare workers the exposure and sero-conversion to a blood borne virus may result in drastic career changes. While it is accepted that often education and training is lacking or obsolete, even where there is a robust education programme, constant reinforcement is necessary.

This presentation will address the aspects of occupational exposure (OE) among healthcare workers, students and the support that is required to ensure injection safety is taken beyond the realm of just a policy. Our data from Tygerberg Academic Hospital, collected from 2004 onwards will be presented and compared where possible, to other similar situations in the published literature. A major emphasis will be on medical and nursing students who are exposed to OE in the process of being educated. Finally a short cost benefit analysis shows that the 97 OE averted by good education and equipment support resulted in a R500,000 (US\$ 73,000) cost benefit to the hospital.

The conclusion is that while education and training programmes may exist on paper, sustained implementation is the key.

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### **Cost effectiveness of injection safety options in emergency situations**

Lisa Hedman, FCH Initiative for Vaccine Research, WHO Geneva

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The WHO pandemic influenza A (H1N1) vaccine deployment initiative delivered critical pandemic vaccines and safe injection equipment to 77 member states. The management burden of moving supplies, especially the injection safety materials, is significantly higher in a pandemic or emergency situation than routine situations, highlighting the need to plan for higher costs. The actual cost of the injection device is relatively small related to the overall costs of international transport and in-country deployment. The low proportional cost of the injection equipment highlights the option to consider higher level safety syringes in emergency situations. Other issues to consider in pandemics or emergency situations are stockpiling syringes, strategies for effective and rapid deployment, and the physical location of inventories.

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## **Overview of PATH's injection safety activities: delivery technologies, procurement and Health Care Waste Management**

Nancy Muller, PATH, Seattle Washington, USA

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PATH's recent work in injection safety is discussed including delivery technologies, procurement, and health care waste management (HCWM). Specific technologies discussed include: formulation and processing methods, delivery technologies, packaging and cold chain.

HCWM and procurement updates discuss PATH's new CDC-funded project in Kenya to strengthen HCWM including procurement, considerations for HCWM sharps waste management by community health workers using community-based distribution mechanisms, examining infectious waste from viral load testing, and a summary of technical HCWM and procurement documents developed by PATH through the Making Medical Injections Safer project.

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## **Injection safety and illicit drug use: linking with SIGN**

Sharon Stancliff, MD, Harm Reduction Coalition, New York, NY USA

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Injection of illegal drugs including heroin, amphetamines and cocaine has been identified in over 148 countries. There are estimated to be 15.9 million injection drug users (IDU), 3 million of whom are believed to be HIV positive. This accounts for approximately 10% of HIV transmission globally; if sub-Saharan Africa is excluded then injection drug use accounts for 30% of HIV transmission. These populations are not isolated, transitions have occurred in 8/18 epidemics with high prevalence HIV among IDUs and appears imminent in 2 more.

This mode of transmission could be eliminated if a new syringe was used for every injection but there are formidable barriers. Injection drug use is criminalized, stigmatized and many users live in poverty, thus purchasing and possessing syringes is problematic. Needle and syringe programs (NSP) have been associated with aborting and reversing HIV epidemics. For example in New York City over 50% of IDUs were HIV positive in 1990; syringe exchange was initiated in 1992, 10 years later less than 15% of IDUs were positive and there was also a decrease in injection among heroin users. WHO recommends provision of sterile equipment for each injection but, recognizing these obstacles, has recommended that IDUs be provided with at least 200 syringes to reduce the sharing of syringes. However, as of 2009, only 82 countries had NSPs; few reach this target.

Because of poor access to syringes IDUs need syringes which can be easily cleaned for safer reuse by the owner. Emerging data suggests that particular types of syringes, those with "low dead space" for blood are less likely to transmit HIV if syringes are shared. It is also vital to consider user needs and preferences. For example, while auto-disable syringes have the potential to reduce reuse of syringes in medical settings reduction in supply of standard syringes has the potential to increase risk among IDUs. NSPs and pharmacy sales of appropriate syringes are crucial to the prevention of HIV. Advocates for safe medical injection and advocates for IDUs can cooperate in working towards elimination of HIV and hepatitis transmission.

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Wednesday 10 November 2010 Morning: Plenary

**Session 4: Injection safety and the MDGs**

Chair: Devon Brewer, Interdisciplinary Scientific Research, Seattle Washington, USA

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**Global2015: Global challenges survey and injection safety**

Lars Vogelsang, Global2015, Berlin, Germany

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The non-profit project Global2015 provides an impartial summary of the most urgent global challenges based on data and risk assessments exclusively from scientific reports, the UN and other reputable and trustworthy sources. The survey is intended as a tool with which to approach decision-makers in politics and business for the purpose of assessing priorities to meet these challenges.

The survey covers issues which, firstly, are avoidable and secondly, are due to either a lack of access to basic resources or large-scale human activities. There are 24 challenges covered in the survey which are weighted according to the following indicators: number of affected people, number of deaths, lost healthy life-years (DALYs), affected natural resources, and finally economic damage.

This has resulted in four groups with different levels of priority. The first group of challenges consists of: world nutrition and poverty eradication, stopping epidemics, addressing climate change, and providing safe birth conditions. The second group of topics includes issues such as financial stability, and peace and security. According to the indicators used in this survey we have identified safe injections as belonging to the third group, which includes other issues such as maintaining water availability and providing protection from natural disasters, all of which rank above the fourth group, which includes topics such as measles.

Unsafe injections affect 10-26 million people and cause 417,000 to 1.3 million deaths per year, as well as the loss of 6.96-28 million DALYs (the latter figure according to the global burden of disease update presented at this conference). The description of the injection safety topic, as with other challenges, includes the following: 1) an internationally agreed goal – to promote total injection safety (WHA63); 2) a trend analysis – improving (according to the GBD update presented at this conference), where only a quarter of the topics covered by the draft version of the survey are improving; 3) recommended measures and their costs and benefits.

Cost-efficiency is not considered as a criterion for selecting challenges – each of them has to be tackled – but cost-efficiency is taken into account for selecting appropriate measures. However, injection safety, along with safe birth conditions, is among the most cost-efficient of issues to address. Although the data is very incomplete, our study indicates that tackling all the global challenges is actually affordable.

Download the complete presentation at <http://www.global2015.net/news.html#sign>

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## **Impact of injection safety interventions on the Millennium Development Goals**

Savanna Reid, University of Nevada, School of Community Health Sciences, Las Vegas, Nevada USA

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Injection safety interventions have the potential to contribute to meeting Millennium Development Goals 4, 5 and 6, reducing under five mortality, maternal mortality, and the spread of HIV/AIDS. An estimated 989 children under age five die of nosocomial HIV/AIDS, 628 die of fulminant hepatic failure as a result of nosocomial hepatitis B virus infection, and 45,992 die of fatal sepsis as a result of nosocomial bacteraemia from unsafe medical injections each year.

Worldwide only 0.12% of deaths in children under age five can be attributed to unsafe medical injections. An estimated 7,270 mothers die of fulminant hepatic failure as a result of nosocomial hepatitis B virus infection, and 4,492 die of fatal sepsis as a result of nosocomial bacteraemia from unsafe medical injections each year. Worldwide the prevention of unsafe medical injections could reduce maternal mortality by 2.3%. In 2008, an estimated 342,916 new HIV infections resulted from unsafe medical injections, 14% of new HIV infections worldwide.

By far the most important contribution of injection safety interventions towards meeting the Millennium Development Goals is in HIV prevention. Individual level associations between injection history and HIV status provide perhaps the strongest evidence of iatrogenic HIV transmission, but most studies that have been conducted in Africa and India were poorly controlled or produced results that could not be generalized to the whole population.

The association between the hepatitis C virus (inefficiently transmitted except in exposures to blood) and HIV at the population level and at the individual level in Asia and Africa respectively also suggests a role for blood exposures as a secondary HIV transmission route. The number of HIV positive children with no exposures other than injections describes an upper bound for the incidence of HIV from unsafe medical injections in children, and this upper bound is fairly consistent with the modeled incidence of HIV from medical injections in India. The ecological associations between injections and HIV prevalence in Africa and India suggest that the proportion of HIV transmission explained by injections in the model may be accurate.

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## **The role of Infection Prevention in Reaching the Millennium Development Goal of Reducing Maternal Mortality**

Mary Catlin, University of Washington, Seattle Washington, USA

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In many regions, SIGN members have been able to prevent blood borne infections by reducing the re-use of syringes and making injections safer. Successful programs now reassessing where to focus their prevention efforts are encouraged to make their perinatal services a target for their new efforts.

Not only can improved infection prevention in these services contribute to much needed efforts to reduce maternal mortality and improve neonatal health; but the quality of infection control in many prenatal, labor and delivery and postpartum wards is lower than in providing care of comparable complexity in the same facility. This is despite the fact that improving maternal and infant health requires the same or more sophisticated attention to infection control as that in the operating room.

This presentation discusses the need for improvements including better personal protective equipment, safer reprocessing of equipment, rational use of injections, infusions and antibiotics; HBV vaccination, and the other areas where lowered standards of injection safety and infection control may be contributing to poor maternal health.

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## **Safe injection at the Maternal and Child Health Centers in UAE**

Hessa Khalfan Alghazal Director of Maternal and Child Health, Sharjah, UAE

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Patient safety is a top priority in the United Arab Emirates (UAE). The UAE Government is committed to WHO recommendations on patient safety and safe injections. The Ministry of Health (MOH) has adopted WHO & UNICEF Resolutions on childhood vaccinations. Several national guidelines and policies have been developed and implemented to ensure immunization safety and quality including safe injection practices. To date, the prevention of unsafe injections has been successful however fragmented. In the UAE, we need to update and reassess infection control, patient safety and safe injection programs.

Our recommendation is that the safety of vaccination should be redesigned through nationally coordinated safety programs that implement these strategic objectives including: to support the Maternal Child Health department role as an end user in formulation of national safety policies; to include private and non MOH authorities & other stakeholders in safety and quality management programs; to disseminate a culture of patient safety and safe injections with community involvement; to develop sustainable training and supervisory activities; to evaluate and measure the effectiveness of training; to strengthen the health system through the co-ordination of immunization programs with safe injection; to adopt an international accreditation process to monitor compliance and performance especially in the private sector; to establish a notification system and database or registry for safe injection including needle stick injuries; and finally to support the use of needle-free injection technologies.

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## **UNICEF Contribution to Injection Safety**

Ruhiyya Baghirova, Annika Salovaara, UNICEF Copenhagen Denmark, Edward Hoekstra, UNICEF New York USA

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UNICEF manages vaccines on behalf of governments for 80-100 countries annually. In 2009 UNICEF purchased a total of US\$848 million worth of vaccines and devices including US\$16.7 million for injection devices. While a lot has been done within the area of EPI with vaccine coverage at a record high of 82% globally, there are still 23.5 million children that are not reached with immunization.

The Injection Safety and the Bundling policy have enabled UNICEF to introduce Auto Disable (AD) syringes in EPI programs.

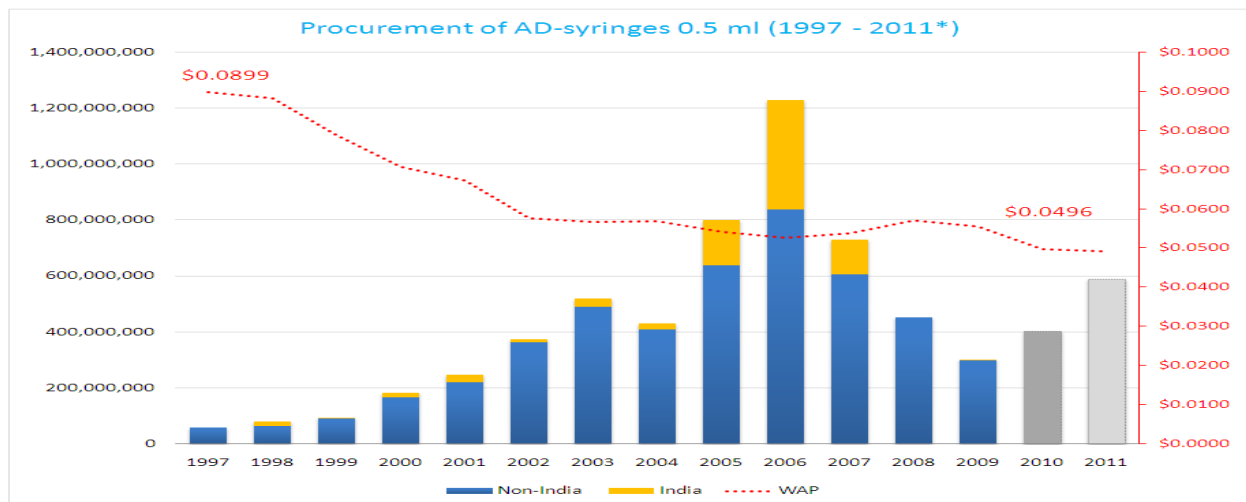


Figure 1 above illustrates AD syringes supplied by UNICEF during 1997-2010. The demand for AD syringes has been steadily growing until 2006. During a 3 year period, India requested temporary assistance from UNICEF. In addition, a decrease in campaigns, the end of GAVI year 3 support in 2008 as well as countries moving to procure their own vaccines and devices have resulted in overall lower demand in the years 2008-2009. From 2011, demand is predicted to increase with the introduction of pneumococcal and Hib vaccines.

Until 2008, UNICEF provided disposable syringes for reconstitution of vaccines. The PEPFAR project’s activities together with the availability of WHO PQS listed Re-Use Prevention (RUP) featured syringes enabled UNICEF to move forward with an ‘Enhanced Injection Safety’ concept encompassing also the reconstitution syringes. Following a UNICEF *Program Instruction* shared with all country offices in 2006 urging countries to shift from disposable syringes to RUP syringes by the end of 2010, UNICEF issued *Long Term Arrangements* with industry in 2008. Despite introducing RUP syringes as part of the UNICEF annual forecast exercise since 2008, the demand is small and covers 8 countries so far. During the UNICEF country forecast exercise for year 2011, the demand for RUP syringes have increased slightly, now covering 4 additional countries. Continued work is required to introduce RUP syringes in measles campaigns starting with two countries introducing RUP syringes 2011.

There is a need for UNICEF to move the RUP syringe agenda forward and scale up the dialogue with countries to achieve goals the stated in UNICEF’s *Program Instruction* on introduction of RUP syringes.

The next open issues to consider within Injection Safety includes: (1) Does SIGN need to position itself when it comes to pre-filled non-AD, non-needle devices, (2) A need for a policy guideline on how to prevent needle stick injuries through the use of Sharps Injury Prevention featured syringes, use of shield and/or needle cutters and (3) Support for the common UN effort towards more sustainable procurement - including the environmental impact assessment of supplied products – constrained by the need to ensure a sustainable uninterrupted supply of affordable quality products.

## **GAVI support to injection safety: opportunities, country uptake and results**

Abdallah Bchir, GAVI Alliance, Geneva, Switzerland

Since its launch in 2000, GAVI Alliance has provided various types of support to eligible countries. Country priorities and ownership are among the principles behind the design of these supports. Many of these supports (either in cash or in supply) are partially or totally addressing injection safety and waste disposal. The objectives of this presentation are 1/ to analyse how countries have used these opportunities to improve their injection safety and waste disposal practices 2/ provide an update on new GAVI policies

The table below summarizes the support GAVI provided to countries

Type of support	Description	Number of countries benefiting	Disbursement US\$	Period
Injection Safety	AD syringes and safety boxes to all EPI vaccines	71	133 million	2001-2010
New vaccines support	<ul style="list-style-type: none"> <li>AD syringes and safety boxes to all vaccines provided by GAVI</li> <li>Cash for vaccine introduction (could be used for injection safety and waste management if needed)</li> </ul>	67	1.5 billion (including vaccine costs)	2001-2010
Immunization Services Support	Cash (could be used for injection safety and waste management)	53	337 million	2001-2009
Health System Strengthening	Cash (could be used for injection safety and waste management if needed)	53	264 million	2001-2009

The injection safety support has ended in the majority of the 71 approved countries; however governments with their partners have ensured a continuous use of AD syringes and safety boxes. GAVI cash support to countries is quite flexible and countries have to identify their needs and priorities (which could include injection safety and waste disposal) and submit their applications accordingly.

### **Session 5: Update on Global and Regional initiatives on injection safety and sharps waste management**

Chair: Dr. Rouf May Yassin, Medical Director, Sharjah Blood Transfusion & Research Centre Ministry of Health, United Arab Emirates

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## **New EU directive on prevention from sharps injuries in the hospital and health care sector**

Herbert Beck, University of Heidelberg, Heidelberg, Germany

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*Council Directive 2010 / 32 / EU of 10 May 2010 implementing the Framework agreement on prevention from sharp injuries in the hospital and healthcare sector*

The directive aims are: To achieve the safest possible working environment by preventing workers injuries caused by all medical sharps and protecting workers at risk.; To set up an integrated approach establishing policies in risk assessment, risk prevention training and information, awareness raising and monitoring; To put in place response and follow-up procedures

All workers in the hospital and healthcare sector and related services, agency and self-employed workers, workers of subcontractors, trainees, apprentices and students are covered by this directive.

The importance of a well-trained, adequately resourced and secure health service workforce is underlined as essential to prevent the risk of injury and infection from medical sharps. Exposure prevention is key in this strategy.

The directive establishes a hierarchy of risk elimination and prevention. The role of health and safety representatives is stressed.

It is the employer's duty to ensure the safety and health of workers in every aspect related to the work. It's the workers duty to take care of their own safety and health and that of other persons affected by their actions at work. The worker shall use personal protective equipment (PPE), undergo training programs, and observe instructions.

Risk assessments made by the employer shall include an exposure determination and identify all factors related to working conditions.

Workers exposure must be eliminated by specifying and implementing safe procedures for using and disposing of sharp medical instruments and disposing of contaminated waste. Safety-engineered devices should be provided and the practice of recapping shall be banned immediately.

A no blame culture should be promoted which means that reporting procedures should focus on the working environment as whole and not on individual mistakes. Vaccination and if necessary revaccination must be offered free of charge.

Every hospital in the EU should have an accident log book, where they are required to keep a record of accidents. Workers should immediately report any incident or accident involving sharps. In case of a sharp injury the employer has to take immediate steps for the care of the injured worker and to investigate the causes and circumstances of the accident. The employer shall consider counselling, medical treatment, rehabilitation, continued employment and access to compensation.

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## **Tackling Social Determinants of Health through Community-based Initiatives in the Eastern Mediterranean Region**

Mohammad Assai, Regional Advisor Community Based Initiatives, WHO EMRO, Cairo Egypt

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The Alma Ata Declaration of 1978 expressed the need for urgent and unified actions by all governments, health workers and communities to protect and promote the health of all people. The declaration emphasized: equity in access to health services, economic and social development, the community's right and duty to participate in health, access to primary health care (PHC) and intersectoral collaboration for health development.

During the past few decades, the health sector has confirmed its catalytic role for health promotion, devising appropriate initiatives for improving health and quality of life of the community. This effort has been promoted in the Eastern Mediterranean Region (EMR) of the World Health Organization (WHO) since 1988 through Community-Based Initiatives (CBI), which have provided opportunities to integrate health interventions in local development processes.

The CBI approach addresses the major determinants of health within a broad perspective of development, and creates access to essential social services for an optimum level of equity at the grass roots level through the active involvement of the community and intersectoral collaboration. The initiative adheres to the recommendations of the Alma Ata Declaration, and provides an excellent, replicable model of community ownership for health development.

Currently, CBI covers a population of nearly 18 Million in 17 countries of the Region. The major strength of CBI remains the empowered and organized communities who gained the knowledge and capacity to change in order to attain better social and economic status. This has created a move among the communities to achieve self-reliance, self-sufficiency and solidarity. The success of the programme has resulted in improvements in health and other socioeconomic indicators in the implementing sites.

The presentation shared experiences from countries in the WHO/EMR, with a focus on community ownership, intersectoral actions and building partnerships for health development. In addition a training manual for health volunteers and cluster representatives on the 16 highest priority health programmes was introduced. The organizers were requested to consider development of a short module on role of the community in promoting injection safety and empower them to improve injection safety at the community level.

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## **Practical research designs for investigating modes of HIV transmission**

Devon Brewer, Interdisciplinary Scientific Research, Seattle Washington, USA

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Despite 30 years of epidemiologic research on HIV transmission, no published investigations in sub-Saharan Africa or Asia have involved study designs that allow HIV transmission modes to be determined with confidence. Consequently, there is much uncertainty about what is driving HIV transmission in these regions, which hampers prevention.

There are four design elements in a rigorous investigation: inclusion of persons with incident HIV infection (cases) and uninfected controls; comprehensive assessment of blood and sexual exposures; tracing of contacts to such exposures for both cases and controls; and sequencing of infected persons' HIV DNA to identify persons with genetically related infections. Although all four elements are necessary to determine transmission modes with greatest confidence, investigations with the first two or three elements provide stronger evidence than exists currently and offers useful guidance on prevention strategies until more definitive investigations can be conducted.

Investigations with these design elements can piggyback on existing clinical and other health services, and thus require little or no funding to implement.

Scientific help is available for conducting these investigations. The most important requirement for starting this kind of project is the desire to know what is driving HIV transmission in one's community.

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### **Healthcare waste management in the Eastern Mediterranean Region: challenges and prospects**

Raki Zghondi, Urban Health and environment focal point on health activities, Regional Centre for environmental health activities (CEHA), WHO EMRO Amman Jordan.

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The presentation described the challenges of healthcare waste management in the (EMR). The major challenges are the need to reduce the risks associated with healthcare waste in low income countries, to improve and sustain the management of healthcare waste in middle and high income countries, and to integrate healthcare waste management into the health systems of WHO member states in the region. The presentation provided information about the burden of diseases caused by contaminated syringes at global and regional levels and a vision and a strategy for reducing the risks associated to healthcare waste and improving the management of healthcare waste in the Eastern Mediterranean Region.

The presentation stated that the management of healthcare waste in the region is implemented according to WHO guiding policy principles and strategy and that there is a need for more collaboration and cooperation with other health programmes such as injection safety, vaccination and immunization, infection control and patient safety to help sustain the integration of healthcare waste management in the health systems at country, regional and global levels. Building countries capacity for healthcare waste management as an integral part of health programmes would reduce the burden of disease and national health expenditures.

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Wednesday 10 November 2010 - Breakout Sessions

#### **Track 1: Strategies needed for country implementation of WHA 63/R18 recommendations on injection safety**

Chair: Steven Wiersma, Expanded Programme on Immunization Plus, WHO Immunization, Vaccines, and Biologicals, Geneva Switzerland

Rapporteur: Victoria Masembe, Making Medical Injections Safer Project, John Snow Inc., Kampala, Uganda

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## **World Health Assembly Resolution 63.18: Viral Hepatitis**

Steven Wiersma, Expanded Programme on Immunization Plus, WHO Immunization, Vaccines, and Biologicals, Geneva Switzerland

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WHA63.18 designated 28 July as World Hepatitis Day, and called on Member States to improve surveillance, strengthen lab capacity, support integration, incorporate policies, strategies and tools recommended by WHO, strengthen national health systems, protect health-care workers, provide access to preventive, diagnostic and treatment technologies against viral hepatitis (VH); implement monitoring and evaluation tools; observe World Hepatitis Day, promote injection safety

WHA63.18 called on WHO to establish guidelines, strategies, time-bound goals and tools for surveillance, prevention and control of VH; support research, assess global and regional economic impact and burden; support events to mark World Hepatitis Day; strengthen surveillance, prevention and control programmes, diagnostic and laboratory capacity, and management of VH, enhance access to treatments in developing countries; strengthen SIGN; report to 65th WHA on implementation.

At six months and counting, WHO has established the global hepatitis programme in WHO, drafted a comprehensive strategy, consulted on strategy, mobilized resources, to implement, implement, implement, and monitoring and evaluation.

Prevention: immunization against hepatitis B; hepatitis B birth dose; increase hepatitis B 3<sup>rd</sup> dose; increase coverage older children; most at risk populations (MARPs); HCWs, set and achieve control goals, safe healthcare to prevent blood-borne pathogen transmission, safe blood, safe injection, community awareness, immunization, safe food and water to prevent hepatitis A

Identify and Treat: develop evidence and policy basis for screening and treatment of viral hepatitis, formulate guidelines for treatment of chronic viral hepatitis, especially for resource-constrained settings; expand care and treatment services for people chronically infected with hepatitis viruses.

Integrate: Integrate interventions for the prevention, treatment and care of HBV/HCV into existing services for those at risk for HIV and STI infections and for IDUs; access to sterile needles and syringes; hepatitis B vaccination; antiviral treatment. Integrate viral hepatitis prevention and control into national cancer control programmes. Services and programmes can provide good entry points for both infected and most-at risk people, and coordination can promote synergies.

Innovate: Prioritize new preventive strategies to prevent chronic liver disease and liver cancer, including; development of vaccines for hepatitis C and E; technologies for vaccination: use of vaccine out of cold chain, needle free delivery, etc; technologies for screening; technologies for safe health care.

SIGN input: What are highest priorities for WHO strategy? What are the best indicators? What can be accomplished by SIGN 2011?

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## **EMRO strategy on prevention and control of viral hepatitis in health care settings: Infection prevention and control in health care: time for collaborative action**

Mamunur Malik, Surveillance, Forecasting & Responses, WHO Eastern Mediterranean Regional Office, Cairo Egypt.

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Infections acquired during health-care delivery: Health care-associated infections (HAIs) are the most frequent adverse events that threaten the safety of patients. HAIs occur worldwide and affect both developed and resource-poor countries. About 5-15% of patients admitted to acute care hospitals in developed countries acquire HAIs at any given time but the risk of acquiring a HAI is 2-20 times higher in developing countries. The Eastern Mediterranean Region of WHO has one of the highest frequencies (11.8%) of HAI in the world confirming that this is a growing challenge to the quality of health-care in the Region. The economic cost of HAIs as well as the opportunity cost to health services is enormous. According to some estimates, preventing a single HAI saves on average more than US\$ 10,000 and reduces the patient's risk of death from 7 % to 1.6%.

The pandemic (H1N1) 2009 virus infection, the growing emergence of antimicrobial resistant microorganisms and the evolving public health threats from known and unknown disease pathogens such as the severe acute respiratory syndrome (SARS) and viral hemorrhagic fevers (VHFs) have demonstrated the urgent need for the organization and implementation of infection prevention and control programmes in health care and other public health services and interventions. Despite a number of World Health Assembly and Regional Committee resolutions urging the Member States to recognize safe health care practices as fundamental to quality of care in health systems, these resolutions have not addressed the multi-directional and cross-cutting scope of infection prevention and control programmes in health care. There remain considerable gaps in terms of harmonized and systematic approaches to prevent and tackle health care-associated infections across the continuum of patient care.

The current global evidence clearly demonstrates that, a considerable proportion of the burden of diseases attributable to HAIs can be prevented with low cost interventions. The translation of evidence into reliable and sustainable practice in health care remains a major challenge despite increasing clinical awareness on ways and means to reduce and prevent infections acquired during health care. The implementation of evidence-based infection control measures needs greater public health action for the universal application of evidence-based infection control practices, practice compliance, behavioural change, risk management, standardized surveillance methods, sterility assurance and the generation of more reliable estimates of the burden of HAI through periodic studies and operations research. All these interventions need to be embedded and sustained in a comprehensive strategy for infection prevention and control.

Despite the availability of low-cost interventions for infection prevention and control, compliance with standard infection control practices remains very low, particularly in low-income and middle-income countries. The current opportunities to improve patient safety, quality of care and to significantly reduce health care cost with low-cost, high yielding interventions should not be wasted. This is the time for a collaborative action. Breaches in infection control measures in health care facilities can undermine every health gain and investment made in the health sector.

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## **Program Update and Progress on Injection Safety in Pakistan**

Arshad Altaf, SIGN Pakistan, Karachi Pakistan

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Pakistan is one of the most populous countries in the Eastern Mediterranean Region with an estimated population of 176 million persons (UNICEF). Hepatitis B and C have been established as two of the most serious and challenging diseases burdening the fragile healthcare system of the country. The national study to estimate the burden of hepatitis B and C, (2007-8) found a nationwide prevalence of 7.5%, equivalent to nearly 12 million Pakistanis infected with these life threatening bloodborne pathogens.

HIV has also gained a strong hold with national prevalence among injecting drug injectors nearly 20% in 2008. With such a high burden of disease and poor injection practices in the curative sector, the risk of further transmission is extremely high.

The SIGN Pakistan Alliance along with the SIGN Secretariat at WHO/HQ worked closely during 2004-5, advocating for the establishment of programmes, ultimately resulting in The Prime Minister's Hepatitis Control Programme in 2005 and a provincial programme in Sindh in 2008. However, their focus has been on treatment and immunization and the treatment aspect has immensely overburdened the resources of the programmes. About 55,000 people have been provided treatment so far which is insignificant considering the burden of disease. While policies and legislation have been drafted addressing key issues like irrational injections, quackery and reuse of injection equipment, they have not been officially signed leaving a gap in implementation on the ground.

The circumstances of unsafe injection practices in the curative sector in Pakistan urgently demands the introduction of reuse prevention (RUP) devices but the Ministry of Health is uncertain; without government direction no local or international manufacturer is keen to invest in upgrading their manufacturing plants. Advocacy is needed to promote RUPs in Pakistan.

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### **Senegal's strategy on viral hepatitis prevention and control**

Pr Babacar Ndoye, Ministère de la Santé et de la Prévention , Programme National de Lutte contre les Infections Nosocomiales (PRONALIN), Sénégal

Stratégie de prévention et de contrôle des hépatites virales au Sénégal

NDOYE B. ; DIA Badiane N.M. ; DIOP S. ; MBAYE P.S.

1: MSP (PRONALIN) Dakar; 2: Service Maladies Infectieuses CNHU FANN Dakar; 3: Centre National de Transfusion Sanguine Dakar; 4: Hôpital Principal de Dakar.

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**Introduction:** Les hépatites virales (surtout à VHB) constituent un véritable problème de santé publique au Sénégal. Des mesures sont déjà prises avec la mise en place de plusieurs structures nationales et périphériques chargées de la prévention et de la prise en charge des cas : CNTS, Services hospitaliers spécialisés (HPD), DPM, Programme National Hépatites et PRONALIN.

**L'objectif** est de sensibiliser sur l'importance actuelle du problème et de donner des recommandations pertinentes et réalisables permettant une amélioration de la situation, compte tenu de l'existence d'un vaccin pour le VHB qui pose le plus de problèmes au pays.

**Méthodologie:** Recueil des données sur le fonctionnement, les résultats d'activités et les difficultés des 5 structures précitées citées plus haut.

**Résultats:** Centre National de Transfusion Sanguine : De 2005 à 2009, 97.193 donneurs bénévoles ont été testés pour l'AgHbs avec 12.434 positifs soit 12,79%. (à noter que les prévalences du VHC et du VIH se situent autour de 1% dans la population générale).

Difficultés: ressources humaines : en dehors du CNTS et de l'HPD, les donneurs de sang ne font pas l'objet d'un examen médical préalable par un médecin ; ressources matérielles : nombreuses difficultés concernant les équipements et la maintenance mais on retiendra surtout les ruptures de réactifs notamment dans les banques de sang des structures périphériques.

Services hospitaliers spécialisés : Au niveau du service du Prof P.S.MBAYE à l'HPD, une cohorte de 874 porteurs chroniques de l'AgHbs est suivie avec des malades et des porteurs asymptomatiques et au sein de cette cohorte 277 sont répliatifs du VHB soit 31,69%.

DPM : Le vaccin contre l'hépatite B est intégré au PEV depuis 2004 mais il y a des difficultés logistiques.

Programme National Hépatites : Difficultés logistiques et de disponibilité du vaccin.

PRONALIN : De nombreux personnels cadres (une centaine) ont suivi la formation "Nosovigilance" avec des thématiques sur les AES, la sécurité des injections et un plan d'action proposé aux structures périphériques mais il y a des difficultés pour la répliation généralisée des formations ainsi que pour la disponibilité d'EPI et de matériels de sécurité.

**Discussion/Recommandations:** Une discussion est faite sur les résultats, en particulier les chiffres recueillis au niveau du CNTS et des services cliniques et il convient surtout de retenir qu'il y a sans doute un important réservoir humain infectieux dans la population sénégalaise si on considère le faible niveau d'hygiène et la non-conformité des pratiques souvent observées lors des soins, il apparaît impératif de renforcer les mesures de prévention et des recommandations sont données dans ce sens.

**Mesure prioritaire :** Renforcement du Programme Elargi de Vaccination (logistique) et du volet hépatite B [NB : Impact sur le long terme seulement]

Mesures d'accompagnement à effets sur le court terme : CNTS : renforcement des ressources humaines, des équipements et réactifs afin d'assurer un meilleur dépistage systématique des hépatites ; Programme National hépatites : renforcement en logistique et en vaccins afin d'assurer la vaccination systématique des femmes enceintes et de toutes les personnes à risques : professionnels de la santé, de secours d'urgence (sapeurs pompiers) et groupes à risques de MST ; PRONALIN : renforcement de la formation des personnels (AES, sécurité des injections, gestion des DASRI) et opérationnalisation au niveau périphérique des plans d'action Nosovigilance par la mise à disposition d'EPI et de matériels de sécurité.

**Conclusion:** Les hépatites virales et en particulier l'hépatite B, constituent un véritable fléau au Sénégal, même si les solutions sont bien connues dans l'ensemble.

Cependant, une volonté politique ferme et des moyens matériels et humains sont nécessaires pour leur mise en oeuvre.

SIGLES ET ABREVIATIONS: AES : Accident d'Exposition au Sang; CNTS : Centre National de Transfusion Sanguine; DASRI : Déchets d'activités de soins à risques infectieux; DPM : Direction de la Prévention Médicale; EPI : Equipement de Protection Individuelle; HPD : Hôpital Principal de Dakar; PRONALIN : Programme National de Lutte contre les Infections Nosocomiales; MST : Maladies Sexuellement Transmissibles; PEV : Programme Elargi de Vaccination

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## **Occupational infections with blood borne pathogens among medical personnel as a public health problem in Poland**

Maria Ganczak, Department of Hygiene, Epidemiology and Public Health, Faculty of Health Sciences, Pomeranian Medical University, Szczecin, Poland

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Occupational infections with blood-borne viruses among health care workers (HCWs) create a significant problem faced by Poland and many other countries. The prevalence of infection in the general population, or more specifically, in patients, determine the risk of infection among HCWs together with other factors such as the probability of transmission by a contact with blood or other potentially infectious material and the number of such contacts during medical procedures. Data provided by the Central Register of Occupational Diseases in Poland indicates that among new cases of occupational diseases in HCWs in 2008, hepatitis B and C represented 45.6% of all cases, most of them occurring in nurses. Although the number of HBV infections has fallen in compared to the previous few years, mostly because of the availability of active immunization against HBV, the number of HCWs infected with HCV has increased.

According to the results of the latest research conducted among surgical personnel in the West Pomerania region of Poland, one in six HCWs tested positive for anti-HBc and one in seventy one is anti-HCV positive. Most of tested doctors and nurses did not know about their infections. Although the prevalence of HBV/HCV infection in doctors and nurses does not differ significantly, some modifiable risk factors for contracting a blood-borne infection such as frequency and nature of sharps injuries and training in infection control may differ, which calls for tailoring preventive measures to specific job categories with special emphasis on personnel who sustain multiple injuries. Modifiable risk factors such as recapping, underreporting, inadequate use of gloves and lack of safe equipment are common and correspond in both categories. This Polish study also proves that complete success in HBV vaccination coverage is possible and offers the promise of a full reduction of disease burden in medical staff in the future.

It is a challenge for public health in the context of the urgent need for legislation contributing to the reduction in a prevalence of blood-borne infections in medical personnel. From the Polish perspective, mandatory training in infection control for all those working in the health care sector, universal implementation of safer medical devices, introduction of mandatory testing for anti-HBs titer after HBV vaccination, adoption of a universal national exposure information network , and promote of periodical checking for anti-HCV are the most important issues to resolve.

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### **Discussions**

Track 1 participants, the track rapporteur, supported by the Spotme team was tasked to:

1. Identify the top priority interventions/ strategies that should be implemented in countries to prevent viral hepatitis
  2. Identify what countries need to do to implement them
  3. Identify how can WHO/ Partners assist countries implement them
  4. Preparation of group recommendations and voting
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## **Track 2: Development of strategies for patient and community involvement to ensure rational and safe use of injections**

Chair: Abdallah Bchir, GAVI Alliance, Geneva, Switzerland

Rapporteur: Lisa Hedman, FCH Initiative for Vaccine Research, WHO Geneva

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### **Reaching Communities with Safe Injection Messages- an Outcome of BCC Interventions in Nigeria**

Abimbola Sowande , Country Director, Making Medical Injections Safer, Abuja, Nigeria

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**BACKGROUND:** The 2004 qualitative and quantitative Injection safety (IS) assessments revealed that most people prefer injections to oral medications for various reasons although they recognize the risks involved in injection use. The study recommended community initiatives in order to reduce people's demand for injections by educating them on the dangers of unsafe and unnecessary injections and promoting oral medications as an effective alternative.

**METHOD:** A Community based behavioral change communication and advocacy strategy was developed with stakeholders. The specific interventions were community dialogue, interpersonal communication and the use of mass media. The community based interventions were carried out in partnership with the National Orientation Agency (NOA), an organization with proven record on community mobilization that has staffers at grass root level in all 774 Local Government Areas in Nigeria. Community opinion leaders and gate keepers were educated on issues of IS and health care waste management (HCWM) who in turn shared information with other community members. The community based activities were reinforced with mass media such as Radio messages. On the provider side, health care workers were trained to give injection to patients that are necessary and to provide them safely.

**RESULTS:** Partnership with the NOA has resulted in greater spread and wider reach into the community with injection safety messages. Many community members interviewed recently mentioned that they would prefer to take oral medication instead of injections and, when taking an injection that is necessary, would check if it is a new syringe. They also said that their decision is based on the information they got from the radio messages and community dialogue.

**CONCLUSION:** A successful public health program with community based interventions can cost effectively promote certain behavioral changes and is important for sustainability as part of a holistic approach.

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### **Knowledge of BB transmission risk inversely associated with HIV infection in sub Saharan Africa**

Devon Brewer, Interdisciplinary Scientific Research, Seattle Washington, USA

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**Background:** Accurate and comprehensive knowledge of an infectious pathogen's modes of transmission helps people to avoid infection. Growing evidence suggests that blood-borne HIV transmission is widespread in sub-Saharan Africa.

**Methodology:** I examined the association between knowledge of blood-borne HIV risk and prevalent HIV infection in Demographic and Health Survey data from 16 sub-Saharan African countries. I also searched three on-line databases for evidence of public education campaigns focused on blood-borne HIV risks in these countries.

**Results:** Knowledge was moderately to strongly inversely related to HIV prevalence at the national level (i.e., countries in which many respondents were aware of blood-borne risk had lower HIV prevalence than countries in which few respondents were aware of such risk). At the individual level, respondents who knew about blood-borne HIV risk were modestly less likely to be infected than those who did not show awareness of this risk, independent of demographic and sexual behavior variables. This relationship was stronger in southern Africa than in west, central, and east Africa. In parallel analyses, knowledge of condom use as a way to prevent HIV was positively associated with prevalent HIV infection at both the national and individual levels. West, central, and east African countries with low to moderate HIV prevalence had implemented public education campaigns that included a focus on blood-borne transmission risks. Such campaigns were absent from high prevalence countries in southern Africa.

**Conclusions:** These findings suggest that knowledge of blood-borne HIV risk protects against HIV infection and that public education campaigns are important for spreading that knowledge.

Article in press: *The Journal of Infection in Developing Countries* <http://www.jidc.org>

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### **Task shifting and community rehabilitation: a case study of a community rehabilitation programme**

Suraya Dawad and Geoffrey Jobson, University of KwaZulu Natal, South Africa

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**Background and Objectives:** This paper explores some of the implications of a nongovernmental organisation (NGO)-initiated Community Based Rehabilitation (CBR) programme in a low income, rural context in KwaZulu-Natal, South Africa. The CBR programme, run by multi-skilled Community Rehabilitation Facilitators (CRFs) recognizes multiple facets of disability. The programme focuses on both the physical aspects of rehabilitation, and the social effects of living with disabilities. The primary objective of this paper is to explore the benefits and challenges associated with running the CBR programme using multi-skilled CRFs.

**Methods:** Semi-structured interviews were conducted with beneficiaries (n=35) of the CBR programme, home and community-based carers (HCBCs) (n=13) and managers (n=2) from The NGO. In addition a focus group was conducted with CRFs (n=5).

**Results:** Multi-skilled CRFs are an effective means of implementing community based rehabilitation programmes, particularly in low-income rural areas. The combination of rehabilitation, community development, and social inclusion has multiple benefits for people with disabilities. These include physical rehabilitation, emotional support and counselling, facilitating access to grants, implementing disability awareness programmes, improving social inclusion, and accessing assistive devices.

The success of the CBR programme depended on relationships and partnerships at different levels within the community. Relationships between HCBCs and CRFs facilitated access to people with disabilities, relationships between CRFs and therapists provided a referral system, and the implementing NGO played an important role in coordinating the programme. A key partnership lacking in the programme, which had important implications for the programmes sustainability, was between the NGO and government.

Conclusion: Using multi-skilled mid-level workers who have undergone effective training programmes in community based rehabilitation programmes provides a good example of how the WHO's task-shifting guidelines can be implemented, and demonstrates that a wide range of rehabilitation activities can be effectively undertaken at a community level. There is potential for this approach to be used in extending a range of other health services to communities that lack effective healthcare infrastructure. Importantly, community level activities need to be supported by a referral system that provides access to professional services when they are required.

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### **Role of nurses and midwives in conveying health messages to the community**

Fariba Al Darazi, WHO Eastern Mediterranean Regional Office, Cairo Egypt and

Mwansa Nkowane, Health Professional Networks, Nursing and Midwifery, Human Resources for Health, WHO Geneva, Switzerland

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Wherever nurses and midwives operate, they have ample opportunities to convey health messages to the community as they provide close to client services and are in most cases trusted by community members. Community settings include: hospital-affiliated clinics, community health centres, homes, schools and community based health services. In most countries, nurses and midwives comprise the largest group of health workers and provide up to 80% of health care services.

About 20 billion injections are given each year, most of these are unnecessary. As more and more chronic conditions such as diabetes are treated at home there is increasing concern of reuse and disposal of needles and syringes by members of the community. It is imperative that communities are educated and protected from the resulting health risks.

In defining the roles of nurses and midwives in conveying health messages to the community, it must be acknowledged that team work and multidisciplinary approach are critical. Nurses and midwives operate at various levels of the health system and can have an impact at every level of the system. Their roles may include, developing national policies and plans related to injection safety and safe waste disposal, ensuring educational pre and post basic educational curricula address community interventions on safe injections, community mobilization, implementing educational campaigns, advocating for the welfare of the community and participating in impact assessment of effectiveness of interventions. Such a systematic approach can ensure that consistent messages are conveyed to the community. Bearing this in mind, the World Health Organization Eastern Mediterranean Regional Office has embarked on capacity building efforts targeting the nursing and midwifery profession. These efforts have culminated in the development of an Action Frame Work on Infection Prevention and Control and injection safety as a reference point for regional activities with the conviction that nurses and midwives can educate and impart good practices on safe injections and safe waste disposal, deliver evidence based interventions and support the creation of a culture of health and safety in the community.

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## **Patient centered approaches to injection safety**

Presented by Charles Gore, International Alliance of Patients Organization, Prepared by Jerimiah Mwangi, IAPO, London, United Kingdom

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International Alliance of Patients Organization (IAPO) is a patient-led global alliance of 209 organizations which promotes patient-centered healthcare around the world. IAPO's membership of patients' organizations represents and supports patients at an international, regional and national level and spans over 50 countries and 50 disease areas. When we consider approaches to improving injection safety, our challenge is to eliminate not only unsafe but also unnecessary injections worldwide. As we know, the improper reuse of injections is a major challenge. To address these challenges, IAPO believes that a patient-centered approach is the most appropriate.

A patient-centered approach recognizes that bringing people and patients to the centre of healthcare, with a focus on the whole person, not just the disease, and on the people that deliver healthcare is necessary to align healthcare systems with the needs of patients. Engaging patients and patients' organizations in health policy-making helps to ensure that policies reflect patient and caregiver needs, preferences and capabilities.

IAPO has developed a definition of patient-centered healthcare outlined in the IAPO Declaration on Patient-Centered Healthcare. The principles of patient-centered healthcare are respect, choice and empowerment, patient involvement in health, access and support, and finally, Information.

In the case of injection safety patients must be empowered, given the tools to take an active interest in their healthcare, supported to ask questions and be aware of their responsibilities. Key allies in achieving this are patients' organizations and they should be a central part of future injection safety strategies. Patients' organizations can:

Bring knowledge of the patient experience from large groups of patient populations with the ability to identify common experiences, different experiences and evidence of trends; Highlight values that patient communities share; Access patients to consult with to bring a patient perspective on specific issues and to invite patients to be involved in health policy activities; Raise awareness and provide information to patient communities in an appropriate and accessible way; Join calls to request, or demand, changes in healthcare, better care, and more research; Advocate for patient involvement and define what this means and how it can be done.

In conclusion, it is important that we pilot projects to decrease unnecessary injections. In this and in other activities, IAPO emphasizes the importance of working together, industry, regulators, patients' organizations, medical professionals and governments. But at the centre of everything must be patients.

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## **Injection Safety and the Human Right To Health: Placing patients and communities at the core of a strategy for universal injection safety**

Garance Upham, General Secretary, Safe Observer International, Preveessin, France

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In view of the difficulties incurred over the past 25 years "*to promote total injection safety at all levels of the health care system*" - to quote the Kenyan addition to the hepatitis resolution 63/18 adopted at the World Health Assembly in May 2010 - our purpose was to reflect on methods and approaches to achieve universal safe injection in the era of HIV, going outside traditional methods.

Traditional method consist of elaborating 'guidelines' and issuing recommendations, WHO level, with dissemination within Ministries of Health, followed by vertical training of health care staff, or to issue 'messages' for Community groups or to large donor funded NGOs to disseminate.

Instead, experience shows that a horizontal approach, not a vertical one, is the only one apt to give results. INCLIN INDIA carried out an exemplary survey to evaluate the rate of dirty injections in India in 2004. But actions by activists 5 years later show how essential grass root movements are. The India based People's Health Movement (PHM) affiliated NGOs have carried out village and street mobilization to expose the danger of dirty injections and of unnecessary 'saline' injections, embedded in the activities of the Right to Health Care movement mobilizing 10s of thousands of people, with rallies and street parades, culminating in regional Public Tribunals.

The campaigns against dangerous injection practices in communities start with the education of women and community grass root activists; Includes a graphic pictorial on the dangers of saline injections and dirty injections; In some cities, a "*Dear Doctor Letter*" petition is drafted and read on public squares and in rallies. Even non-literate people sign with thumbs after oral reading and drafting; Then the "*petition letters*" are brought to the private clinics where 'injection doctors' operate (and like to give injections to earn money); Injecting doctors are asked to show diplomas, evidence of training in injection and told to stop unnecessary injections. Posters are placed in the clinics and in the streets.

Within formal health settings, we propose, in addition to injection safety assessments, a bottom up approach involving low level staff brought into the research protocol to evaluate their own practices and behavior and ways to improve.

The insufficiency of implementation research (IR) on infection control in general and injection safety was identified in this authors review of the literature the TDR/WHO a book on IR for diseases of the poor. (see <http://apps.who.int/tdr/svc/topics/health-systems-implementation-research> website for announcement).

Considering the 'systemic' by the WHO, the author recommends a Plan-Do-Check-Act (PDCA) implementation protocol in which, instead of assessments conducted by 'external persons' and episodic training, the research on implementation of injection safety involves low level health care staff, nurses and below, notably community volunteer staff to put together participatory action research projects to engage in participatory training, review practices as a team, evaluate which practices could be at risk, meeting in a report back process - PDCA.

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## **Considerations for disposal of injection waste in the context of community-based distribution of injectable contraceptives and immunizations**

Nancy Muller, PATH, Seattle Washington, USA

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With a drastic shortage of trained health care providers in many countries, task shifting is occurring. Community health workers (CHW) are being given increased responsibilities including administration of some immunizations and family planning injections. A large body of evidence suggests that the provision of injectable contraceptives in a woman's home by a CHW is acceptable, effective, and satisfactory to user and provider.

In 2009, a technical consultation at WHO agreed that community health workers can safely and effectively administer injectable contraceptives, namely Depot Medroxyprogesterone Acetate (DMPA). In order to achieve success, the provider must receive training on screening and counseling, safely delivering an injection, and proper waste disposal.

When injections are delivered through community-based distribution (CBD) at levels where the infrastructure for health care waste management is lacking, consideration must be given to ensuring injections are safe for the CHW, the client, and the community.

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### **Discussions**

Track 2 participants, the track rapporteur, supported by the Spotme team was tasked to identify:

1. key effective messages to decrease injection overuse
2. key channels to convey these messages to the community
3. ways to evaluate the impact of the communication strategies
4. Preparation of group recommendations and voting

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### **Track 3: Health care Waste Management**

Chair: Raki Zghondi, CEHA, WHO EMRO, Amman Jordan.

Rapporteur: Ute Piper, ETLog Health GmbH, EnviroTech & Logistics, Berlin, Germany

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#### **Revised RAT on Healthcare Waste Management - Results from Uzbekistan**

Ute Pieper, ETLog Health GmbH, EnviroTech & Logistics, Berlin, Germany

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In many, mainly low income, countries - improper management of wastes generated in healthcare facilities causes direct health impacts on the community, the personnel working in healthcare facilities, and on the environment. In addition, pollution due to inadequate treatment of waste can cause indirect health effects to the community.

This rapid assessment tool (RAT) is a part of an overall strategy developed by WHO in the year 2000 which aims at reducing the disease burden caused by poor healthcare waste management through the promotion of best practices and the development of safety standards. The aim of this tool is to gather sufficient relevant information so as to provide decision makers/experts, etc. with the necessary data to help them elaborate a national strategy and action plan.

In 2009 the complete tool was used and tested during a WHO project in the Seychelles. The results were presented during the SIGN 2009 meeting. Consequently the tool has been revised based on the findings of the field test. Beside structural changes, a major modification included adding evaluation sheets. The additional sheets enable the user of the tool to summarise the questionnaire results in a template, which is used by excel functions and formulas to automatically present the results of the assessment.

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### **PATH's recent work in healthcare care waste management**

Nancy Muller, PATH, Seattle Washington, USA

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PATH's recent work in HCWM is discussed, including the new CDC-funded project working with government and partners in Kenya to strengthen HCWM, an investigation of waste produced from viral load testing, a review of consideration for HCWM / sharps waste management by community health workers using community-based distribution mechanisms, and a summary of technical HCWM and procurement documents developed by PATH through the Making Medical Injections Safer project.

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### **Update on developments in Nepal: Introducing Injection Safety, Waste Segregation and Mercury Substitution via Model Wards in Hospitals of Nepal**

Mahesh Nakarmi, SIGN Focal Person for Nepal, Director, Health Care Foundation Nepal with Saraswoti Thakuri Nimesh Dhakal, Prava Panthi, Sita Thapa, Shrawasti Karmacharya Health Care Foundation Nepal, and Ruth Stringer, International Science and Policy Coordinator, Health Care Without Harm

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Nepal has no medical waste management infrastructure so many hospitals simply dispose of infectious waste with municipal waste which piles up on the city streets. Bir Hospital, Kathmandu, with about 400 beds, is Nepal's oldest hospital and the National Academy of Medical Sciences.

It has recently installed two 175 litre autoclaves in a dedicated waste treatment facility to combat this public health threat and practices are being expanded from model wards. Health Care Foundation Nepal, Health Care Without Harm and the World Health Organization are supporting this effort.

A Waste Management Committee has been established and hospital staff have helped develop segregation procedures and adapt trolleys to segregate waste at the bedside. For the first time in history, Safe Injection has also been introduced to the model wards and now syringes are destroyed immediately after use by needle cutters and destroyers. Similarly, mercury thermometers and sphygmomanometers are being replaced, making these wards models in injection safety, waste handling and mercury substitution,

Infectious and non-infectious waste are transported to the treatment centre separately and dealt with in different parts of the building. Non-infectious plastic, paper, glass and metal are sold to recyclers. Infectious waste is disinfected in autoclaves that have been validated using chemical and biological indicators and will be regularly tested to check they continue to work effectively.

Over the next year, the system will be completed and optimized. Waste flows and revenue will be tracked systematically. The hospital can also be developed as a centre of excellence in waste management and the subject added to its teaching curriculum.

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### **Validating autoclaves for medical waste disinfection - a case study**

Ruth Stringer, International Science and Policy Coordinator, Health Care Without Harm, Mahesh Nakarmi, Sita Thapa, Shrawasti Karmacharya, Saraswoti Thakuri, Prava Panthi, Health Care Foundation Nepal, Sarita Shrestha, Sunil Shrestha, Bir Hospital, Kathmandu.

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Bir Hospital, Kathmandu, is Nepal's oldest hospital and has recently become one of the first in the country to install autoclaves to disinfect medical waste. It is essential that medical waste autoclaves are validated to make sure they are working effectively.

The validation procedure was carried out with two waste streams, surrogate (fake) medical waste and date-expired but unused syringes. 24 experiments were carried out to establish the number of pressure pulses required to get proper steam penetration, an efficient combination of sterilisation temperature and time, and the best waste containment system. Some experiments had to be repeated because of mechanical problems, power failure or other unexpected events. However, these are issues that autoclave operators face daily, and the fact that they occurred during the validation allowed good solutions to be derived. From this point of view, problems encountered enhanced the validation rather than obstructed it.

Most small scale autoclaves operate at either 121° C or 134° C. 134° C is generally preferred because of the quicker microbial inactivation, but in this case 121° C was chosen because the autoclaves took too long to reach 134° C. It also avoided the potential for polyethylene waste bags to melt and stick to the chamber walls.

Mixed infectious waste is collected in small polyethylene bags; placing them in large cotton bag allowed easy handling, good steam penetration and reduced chances of bags melting and spilling their contents. Cotton and plastic bags were also tested for the syringes, but even though they have their needles destroyed immediately after use, the chance of a needle accidentally being present could not be discounted, so syringes were autoclaved in metal dressing drums instead.

Initial experiments were carried out with steam integrators, which change colour after a specified time at high temperature. Once suitable parameters were established, microbial inactivation was confirmed with biological indicators containing heat-resistant bacteria (105), indicating level III STAATT disinfection (State and Territorial Association on Alternate Treatment Technologies). Validation was confirmed only when this test was passed three times in a row. Regular testing will be conducted to check that the autoclaves remain effective.

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### **Waste management in yellow fever campaign in Guinea**

M. Fodé Ousmane BANGOURA, PHE / OMS-Guinée

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La présentation de la Guinée, portant sur la gestion des déchets de la campagne de vaccination de masse contre la fièvre jaune au mois de juin 2010, était développée autour de trois parties. A savoir : i) le contexte, ii) la planification et la mise en œuvre d'une démarche de gestion efficace des déchets, iii) les leçons apprises et les recommandations.

Il s'agissait donc, tout d'abord, de donner un profil de la Guinée mais surtout de faire un aperçu de la situation sanitaire par rapport à la fièvre jaune, y compris la riposte organisée dans 24 des 25 districts à haut risque sur un total de 38 que compte le pays. Aussi, les données chiffrées montrant l'envergure de la gestion des déchets à envisager ont été mises en exergue.

Ensuite, l'évaluation de la situation a été présentée montrant une faible capacité nationale de gestion des déchets d'une campagne de vaccination de masse, ainsi que les dispositions à prendre qui en ont découlé, y compris les outils de gestion et de monitoring et le plan de collecte qui ont été élaborés. Sans oublier le projet de renforcement des capacités nationales d'incinération des déchets. Cette partie de la présentation a également montré les différentes formations données aux agents chargés de la gestion des déchets, les équipements et matériels mobilisés et les efforts fournis dans le cadre de l'élimination des déchets (augmentation de la capacité nationale d'incinération avec la réparation des incinérateurs et l'incinération des déchets avec l'utilisation des incinérateurs rendus disponibles). Aussi, les dispositions envisagées en vue de l'installation de nouveaux incinérateurs ont été présentées.

Enfin, les leçons apprises et les recommandations ont été partagées avec les participants. Les dernières étaient constituées principalement des points suivants :

- Promouvoir la collaboration entre les Ministères en charge de la Santé et de l'Environnement et avec le secteur privé;
- Intégrer la gestion des déchets dans les stratégies globales de renforcement du système de santé et de l'amélioration de la qualité des soins;
- Veiller à une bonne utilisation des ressources allouées à la gestion des déchets;
- Envisager la planification de la gestion des déchets des campagnes de vaccination 12 mois à l'avance;

Les zones à déchets devraient être spécialement aménagées dans les structures de soins.

## **A Randomized Controlled Trial of Use of Needle Removal Devices during Routine Immunization in Bangladesh**

Presented by Selina Ahmed, Vaccine Safety and Quality, WHO Bangladesh

Prepared by Sanwarul Bari<sup>1</sup>, Shams El Arifeen<sup>1</sup>, Selina Ahmed<sup>2</sup>, Serguei Diorditsa<sup>2</sup>, Stephane Guichard<sup>2</sup>, Yves Chartier<sup>2</sup>, Abdul Jalil Mondal<sup>3</sup>, A.K.M.Fazlul Haque<sup>1</sup>

<sup>1</sup>ICDDR,B, GPO Box 128, Dhaka 1000, Bangladesh, <sup>2</sup>World Health Organization (WHO)

<sup>3</sup>Expanded Programme on Immunization (EPI), Directorate General of Health Services, Ministry of Health and Family Welfare, Government of Bangladesh

The objective of this study was to assess the effect of the introduction of needle removal devices in routine outreach immunization sites of Bangladesh on the frequency of needle stick injuries and other blood exposures among workers potentially exposed to sharps waste. We also evaluated the effect of needle removal devices on the volume of sharps waste and the rate of needle removal device failures over the study period.

This study adapted the generic WHO protocol and was jointly implemented by the Ministry of Health and Family Welfare, government of Bangladesh and ICDDR,B and was carried out in 9 systematically selected rural sub-districts (upazila) by high, medium and low immunization coverage and the size of the upazilas from November 2009 to January 2010. A total of 408 wards/clusters were selected for the study from nine selected upazilas around the country. Wards were randomly allocated to intervention (using needle removal devices) and control (current practice) arms within each of the selected upazilas with 204 wards in each arm. Each ward/cluster had one vaccinator (government health worker) who was engaged to vaccinate children and women and provided daily reports.

A total of 92,207 injections were given in 4,667 vaccination sessions in the intervention wards and 88,493 injections were given from 4,571 sessions in the control wards. A total of 14 needle-stick injuries were reported in the intervention wards from 101,945 syringes used (1.38 per 10,000 syringes used) and 16 injuries were reported from control wards with 97,777 syringes used (1.64 per 10,000 syringes used). The rate of needle-stick injury was slightly higher in the control arm than in the intervention arm, although the difference was not statistically significant. Only 5 exposures to blood or body fluid were reported from each arm and the rate was very low and the difference between the arms was insignificant (0.54 and 0.57 per 10,000 injections provided in the intervention and control wards respectively). Only one needle-stick injury was reported by the waste handlers.

The needle removal devices performed reasonably well with regard to cutting the needle from the used syringes and many of the devices were able to cut and store needles from more than 500 syringes. Around a fourth of the devices used had permanent failure.

Safety boxes used in the intervention arm accommodated a higher number of syringes than those in the control arm. The intervention arm produced 2.46m<sup>3</sup> sharps waste volume per 100,000 syringes used while control wards produced 2.72m<sup>3</sup> per 100,000 syringes used and the difference of production of sharps waste volume between the two arms was statistically significant.

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### ***Discussions***

Track 3 participants, the track rapporteur, supported by the Spotme team, was tasked to:

1. Discuss health care waste management and immunization campaigns
  2. Preparation of group recommendations to SIGN and voting.
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Thursday 11 November 2010 Morning: Plenary

**Session 6: Update on countries' initiatives on injection safety**

Chair: Annika Salovaara, UNICEF Copenhagen, Denmark

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**Overview of injection safety in Mongolia**

Gohcoo Soyolgerel, Department of Medical Services Policy & Coordination, Ministry of Health, Ulaanbaatar Mongolia

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The presentation discusses injection safety progress in Mongolia since the rapid assessment of injection practices in Mongolia (2001) which found: The rate of injections per capita in Mongolia was the highest ever reported (13 injections/person-year); Most injections were given in two high-risk settings: Hospitals and in Households

Mongolia faces challenges such as regulations that state: *"Providers of the injection have to clean out used syringes ... count and discard into the appropriate container and hand back ...."* Numerous breaks in infection control practices do occur, including possible re-use of disposable injection equipment and use of multi-dose vials; Health-care workers (HCW) were exposed to a high risk of needlestick injuries (2.6 needlesticks per year); Dangerous practices were observed in the implementation of the policy requiring health workers to count used syringes before disposal. The rapid assessment led to the development of IEC tool for promoting behaviour change and the development of injection safety strategies and regulations supported by SIGN and WHO.

We organized a national injection safety workshop in 2002 and developed new regulations for infection control and injection practices in 2003. Communication tools and IEC materials were printed and distributed. From 2002 to 2005 we improved the partnership with the syringe manufacturer and conducted HCW injection safety training. The injection safety national working group was formed. Pre and in-service training strengthened, supervision and monitoring increased, and a health worker behavior change campaign was conducted. Efforts were made to improve waste management. A community campaign was conducted using IEC materials, talks from community leaders on radio, TV and newspapers.

The 2006 Re-assessment of injection practices indicated that: the injection per capita rate was reduced to 8; immunizations were 18.5 % of all injections; health facilities used disposable syringes, and waste management improved with safety boxes used in 86% of curative services. The re-assessment recommended that a HCWM policy should be developed, improved interventions to reduce unnecessary injections implemented, budget allocated for safety boxes and supplies to health facilities, increased HCW hepatitis B immunization coverage, and action to reduce home care injections.

From 2006 to 2009 we developed a national strategy for HCWM, assessed injection practices in specialized hospitals, developed and distributed new IEC materials including posters, leaflets, and a movie, organized a workshop on the development of national injection safety policy, the Training of HCWs, and conducted population interventions. The next steps are the approval of the national strategy on injection safety; Planning for the procurement of shredding equipment for selected health-care facilities; The integration of injection safety into pre-service health worker training programmes.; And securing the cost, budget and finance for maintenance.

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## **Progress in injection safety, China, 2001-9: Sequential assessments in two provinces**

Fan Chunxiang, National Immunization Programme, China Centres for Disease Control and Prevention, Beijing, China

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**Background:** A 2001 assessment in Fumeng and Wulong Counties (Liaoning province, North-eastern China and Chongqing municipality, Western China) reported unsafe sterilization practices for glass syringes (7%, 95% Confidence interval [CI]: 0%-17% and 52%, 95% CI: 28%-75% of facilities), breaks in infection control practices and unsafe disposal. We repeated the survey in the same areas to identify progress and areas for improvements.

**Methods:** As in 2001, we used an adapted version of the WHO standardized assessment tool to assess injection practices in a random sample of 29 hospitals, 40 village clinics and 400 villagers. We collected information through direct observation and interviews.

**Results:** In 2009, all facilities in Fumeng and Wulong counties used new, disposable syringes for injections compared with 34% in both counties in 2001. Fifty-nine percent (95% CI: 37%-80%) and 74% (95% CI: 55%-94%) of providers in Fumeng and Wulong collected used sharps safely, against 33% (95% CI: 20%-45%) and 36% (95% CI: 20%-53%) in 2001. Five percent (95% CI: 0%-15%) and 50 % (95% CI: 25%-76%) of facilities discarded injection devices directly in the regular trash compared with 7 % (95% CI: 2%-12%) and 64 % (95% CI: 47%-80%) in 2001. Between 2001 and 2009, the average number of annual injections per person increased from 1.8 to 6.3 in Fumeng and was stable (3.4 and 3.1) in Wulong.

**Conclusions:** Between 2001 and 2009, sterilizable injection devices were phased out and disposal practices improved. However, unsafe practices persist, which should be improved. Use of injections to administer medications may be increasing and must be addressed.

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## **Results from 4 injection safety assessments using Revised tool C**

Mohamed Hsairi, WHO Consultant

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Injection safety assessment surveys using WHO Revised tool C were conducted in the public and private health sectors in Oman, Philippines, Seychelles and Lao PDR.

The objectives of these surveys were to: i) determine whether health facilities where injections are given or procedures undertaken with needles and syringes, meet necessary requirements for staff competence, equipment, supplies, and waste disposal, ii) to determine whether the critical steps of an injection administration are executed according to recommended best practices, iii) to identify the unsafe practices that may lead to infections and that should be targeted by injection safety interventions, iv) to determine the status of the health care waste management system in the health facilities.

As main results, there were some insufficiencies whose amplitude varied by country. These insufficiencies expose patients, providers and the community to risk. For example, the proportion of facilities in which phlebotomies are prepared on a clean, dedicated table or tray where contamination of the equipment with blood, body fluids or dirty swabs is unlikely was better in public sector than the private sector in Oman (86% vs 76%) and Lao (78% vs 53%) ; while this proportion was 65% in Philippines and 56% in Seychelles.

Similar results were observed for the proportion of facilities for which before a phlebotomy, skin at the puncture site was prepared using the recommended antiseptic; 87% and 63% in Oman, and 78% and 67% in Lao, for the public and private sectors respectively, while the proportion was 77% in Philippines and 67% in Seychelles.

Regarding the practice that the provider immediately dispose of the used needle/syringe in an appropriate sharps container after therapeutic injections, the proportions were 93.6% and 84.1% in Oman, 49.2% and 58.8% in Lao, 80% and 100% in Seychelles for public and private sector respectively, while this proportion was only 8.3% in Philippines.

Wearing a new pair of gloves for a phlebotomy was observed in 46.2% and 38.2% of health facilities in Oman, 26.1% and 21.4% in Lao, in public and private health sector respectively. This proportion was 17% in Philippines and 88.9% in Seychelles. Not two-handed recapping of any needles after performing phlebotomies occurred was observed in 27.0% and 61.8% of health facilities in Oman, 26.1% and 53.3% in Lao, in public and private health sector respectively. This proportion was 26.5% in Philippines and 88.9% in Seychelles.

The new revised tool for injection safety assessment is flexible and can be used at national, regional, local level, and at individual facilities. These injection safety assessments revealed to variable degrees according to country, some insufficiencies related to i) lack of equipment and supplies: vacuum extraction tubes, safety boxes, ii) health workers practices: recapping, touching needles etc. iii) lack of training and immunization against hepatitis B, and iv) lack of sharps waste management: waste collection, transport and treatment. For these four countries, there is need for a successful strategy to achieve safe injection practices which requires making deliberate efforts to engage all national programmes and services involving injections.

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## **Strengthening the pre-service education of injection safety: Experiences from Ethiopia**

Fekadu Abebe, Country Director, Making Medical Injections Safer, Addis Ababa, Ethiopia

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Ethiopia is the second most populous country in Africa, with a population of nearly 78 million. The HIV infection prevalence in Ethiopia is 7.7% in urban and 0.9% in rural areas. Several local studies have demonstrated that there is a high burden of unsafe injection practices in Ethiopia that poses significant risks to patient, providers and community at large.

To reduce the risk of medical transmission of HIV and other blood borne infections the six year USAID-funded injection safety project provides technical assistance to the government of Ethiopia for implementing interventions to reduce unsafe and unnecessary injections and to ensure the proper disposal of healthcare wastes. One of the project strategies was to collaborate with the medical training institutions to incorporate injection safety and health care waste management (HCWM) in their pre-service training curricula.

Why strengthening the pre-service education? The project has been conducting in-service training to build the capacity of health workers on injection safety: due to the high turnover of staff and the resource intensive nature of in-service training it is less likely that the strategy will be eventually owned and sustained by the healthcare system. Strengthening pre-service education on injection safety in Ethiopian Universities is a cost effective and sustainable capacity building approach that will continually equip all new graduates with the essential competencies in injection safety.

Achievement: Four public universities, with nursing and environmental health departments, were identified for the curriculum strengthening activity. In June 2010 an exercise was conducted by the project in collaboration with experienced professionals and instructors from the four universities to identify the current gaps in the contents in injection safety and HCWM.

Core competencies in injection safety for new graduates of nursing and environmental health were developed. Based on the identified gaps the new content was integrated into the courses in a workshop held in August 2010. Several basic concepts of injection safety were systematically added to the course syllabi. As the subject was already included as part of the curriculum there was no need to add extra teaching hours for the injection safety component.

Department level working groups were established to strengthen and follow the teaching process based on integrated content. Moreover, to standardize the knowledge and skill of instructors on injection safety, training was organized and provided by AIDSTAR-One in August and September 2010.

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### **Injection safety in Nepal**

Mahesh Nakarmi, SIGN Focal Person for Nepal, Director, Health Care Foundation Nepal with Saraswoti Thakuri, Health Care Foundation Nepal, and Ruth Stringer, International Science and Policy Coordinator, Health Care Without Harm

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In Nepal, untreated medical waste is a recognized hazard to hospital staff, patients and the community. Unsafe injection practice and improper sharp management is a major problem. Many health care workers - medical doctors, nurses, and support staff are at high risk for occupational exposure to blood-borne pathogens through needle stick injuries (NSI). Many injuries are unreported. The prevalence of NSI in the health care industry is still unknown in Nepal. No comprehensive research on NSI has been carried out.

HECAF has conducted a questionnaire survey on NSI in hospitals of Pokhara city. This study helped elucidate NSI prevalence, its causes and the level of awareness on injection safety among medical professionals. 131 staff at all levels, including administration, medical services and support services filled in questionnaires. Of these, 70% had experienced a needle stick injury at some time. Amongst the 100 doctors, nurses and paramedics who participated, 72% had had a NSI or other sharps injury, whereas amongst the 31 support, administrative and other staff, the figure was 63%, indicating that the non-medical staff have nearly the same level of risk as the medical staff. However, 71% of doctors, nurses and paramedics had received hepatitis B vaccination, but fewer than half (48%) of support, administrative and other staff had, putting them at greater risk of contracting hepatitis following a needle stick injury.

The leading cause of NSI for doctors, nurses and paramedics was medicating patients (26% of injuries), followed by recapping needles (25%) and inserting IV lines (21%). For the other staff, 50% of injuries occurred during waste disposal. Overall, 22% of injuries happened during recapping or waste disposal. The survey identified both poor awareness of safe procedures and lack of protective treatment. 80% of respondents thought that needle recapping was necessary and only just over half (56%) reported needle stick injuries to their superiors. Only two thirds (67%) of respondents were aware of post exposure prophylaxis just one third (33%) knew anyone who had ever received it.

The hazards of NSI extend beyond the hospital. Nepal is one of many countries where there is an illegal trade in used syringes. Rag pickers, young and old, seek out syringes in medical waste dumping sites and sell them to scrap dealers. The scrap dealers then sell them on to others who illegally repackage them for sale. Most hospitals require patients to purchase their own syringes in pharmacies or other small outlets, so there are no quality control systems to ensure that the syringes in use are safe. A number of incidents of repackaged syringes have been reported in the Nepali media, and the issue represents a very serious but so far un-quantified public health threat.

To combat the dangers of unsafe injection equipment at all levels in Nepalese society, HECAF has taken the SIGN campaign as the tool to promote injection safety issues. HECAF is incorporating safe injection practices into its waste management programmes. Better vaccination, PEP and NSI reporting are promoted, though these policy level changes can be slow to implement. A more rapidly effective method is to train all staff in the medical waste management programmes about injection safety; needle cutters are installed in every ward so that syringes are destroyed at the point of use. There is still a long way to go to eliminate the dangers of unsafe injections in Nepal, but improving practices inside the hospital and strengthening waste management systems so that used syringes cannot harm staff or enter the illegal recycling market, will be important factors in achieving that goal.

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### **UAE Strategy to ensure blood transfusion safety**

May Raouf, Medical Director, Sharjah Blood Transfusion & Research Centre, Ministry of Health, United Arab Emirates

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Blood transfusion is an essential part of patient care, when used correctly; it saves lives and improves health.

Unsafe blood transfusions have significantly contributed to the global burden of new hepatitis and HIV infections.

The government has supported Voluntary non Remunerated Blood Donation as the first step towards safe blood transfusion and has hosted the global event for world Blood Donor Day (WBDD) 2008 with the theme of ' Giving Blood Regularly'.

The Strategy of the UAE Blood Transfusion Service for safe blood transfusion includes the following four elements.

**Regulatory Issues:** Formulating Supreme National BTC , Issuing UAE Blood Transfusion Regulations, and Prohibiting Blood collection or processing in private sectors.

**Blood Donors Recruiting, Selection and Counseling:** Recruiting new voluntary donors and encouraging first time donors to be regular donors by the introduction of mobile blood donation. Offering Post-donation counseling as an entry point for the treatment and care of infectious disease positive donors.

**Blood Collection:** Blood collection bags and sample collection pouches are single use. Single use lancets for hemoglobin estimation, appropriate disposal of blood units, and appropriate containers are used for needles and sharps. An infection control plan is followed.

**National Screening Program For Blood Donors:** All blood collection facilities in the UAE must follow the national screening programme for: Red Cells antibody screening; Serological Tests (ELISA) for HBV Ab , HBc Ab ,HCV Ab,HIV Ab/Ag, HTLV Ab, Syphilis Ab; Malaria Ag testing; NAT for HCV ,HBV ,HIV.

Blood Processing and Quality Control: 100% prestorage leucodepletion (2002). Blood and component irradiation (2003). Pathogen inactivation for plasma and platelets (2010). Routine QC testing for blood and components. Proper storage and transportation.

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## Session 7: Summary Recommendations

Chair: Jean-Baptiste Tapko, WHO Regional Advisor for Africa, Health Systems and Service Department, WHO AFRO, Brazzaville, Congo

Rapporteur: Allan Bass, WHO Consultant

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The participants of each plenary session and the three thematic tracks voted on recommendations using a hand held wireless communications device to rank the draft recommendations presented on a scale of 1 to 6, with 6 being the most agreed with and 1 the least agreeable.

Some recommendations were edited in plenary before e-voting. Where only a few recommendations were presented in a session they were agreed by consensus. The breakout session track recommendations have been rephrased to be consistent with standard usage. The recommendations that follow were agreed in plenary on 11 November 2010.

### **Disease burden from unsafe injection practices**

1. Countries should immunize all health care and ancillary workers against all vaccine preventable diseases at an early stage of training or employment. 4.63
2. The WHO Global Burden of Disease (GBD) project should review and finalize the updated unsafe injection GBD preliminary results. The results should be presented to allow comparability with previous GBD reports. 4.51
3. The SIGN Secretariat and partners should assist countries to build capacity for research related to injection safety and exposure related disease transmission. 4.46
4. WHO and the WHO Regional Offices should actively promote the introduction of the *WHO guidelines on drawing blood: best practices in phlebotomy* and the *WHO best practices and related procedures toolkit*. 4.45
5. Countries should adapt and harmonize guidelines with current WHO best practice guidance. 4.44
6. The SIGN Secretariat should assist countries to integrate injection safety in vertical programs, aligning priorities with recently developed guidelines. 4.39
7. Countries should develop indicators and reporting systems for monitoring Post Exposure Prophylaxis (PEP) implementation. 4.31
8. SIGN should develop and provide guidance on the use of glucose monitoring devices in health facilities. 4.00

### **Cost effectiveness of injection safety strategies**

9. Partners should improve communications to countries on funding opportunities for injection safety programmes. 4.30

10. Needle syringe programs (NSPs) should follow SIGN recommendations in implementing community interventions. 4.05
11. UNICEF should inform low and middle income countries of procurement options for injection devices with reuse prevention features (RUP). 3.97
12. Countries with a market of greater than 200 million injection devices annually should consider establishing local manufacture to supply national requirements. 3.97

### **Injection safety and the MDGs**

13. Countries should integrate injection safety into maternal and child health (MCH) and reproductive health services. 4.55
14. WHO regional Offices should hold annual injection safety meetings to update member states on current issues and to address country needs. 4.35
15. SIGN network should work with countries to broaden efforts to prevent disease transmission in reproductive and perinatal care 4.30
16. The SIGN Secretariat should develop a five year action plan and an annual operational plan. Plan implementation should be reviewed annually and presented at the annual SIGN meeting. 4.10
17. Countries should use perinatal care infection indicators as a sentinel for healthcare-associated infection (HAI) surveillance. 3.85

### **Global and Regional initiatives on injection safety and sharps waste management**

18. Countries should implement community-based initiatives to address injection safety, reduce unnecessary injections, and health care waste.
19. Countries should budget for Health Care Waste Management.
20. WHO Regional Offices should support countries to develop national databases of injection practices as part of infection control surveillance using Tool C and other appropriate tools.

### **Countries initiatives on injection safety**

21. All countries should integrate infection prevention and control including injection safety and community interventions in all core medical and health professional education.
22. SIGN members should visit SIGN affiliated projects when visiting countries to motivate and support projects implementation.

### **Strategies for country implementation of WHA 63/R18 recommendations on injection safety**

23. SIGN partners should assist countries to achieve at least 80% coverage with Hepatitis B vaccine for all health care workers by 2015. 4.58
24. WHO should strengthen national regulatory authorities (NRAs) capacity to ensure that medical devices including syringes are appropriate for the intended uses. 4.21
25. Countries should establish and strengthen infection prevention and control programs (IPC) both at national and health care facility levels. 4.19

26. Countries and partners should make hepatitis testing services available and affordable at health facilities. 4.18
27. WHO should support countries to establish and regularly update data on the epidemiology of the blood transmissible viruses 4.18
28. Countries should conduct community awareness programs addressing the risk factors for transmission of blood borne diseases from unsafe injections and the availability of testing for such diseases. 4.16
29. Countries should now take over, own and implement WHO and SIGN recommendations 3.90
30. Countries should establish and maintain robust blood screening programmes. 3.63

### **Strategies for patient and community involvement to ensure rational and safe use of injections**

31. Countries should conduct action oriented implementation research including the lowest cadres of healthcare workers (HCW) to encourage innovation and broader sustainability. 4.50
32. Countries should conduct studies and surveys to evaluate behavioral change in the community compared to the baseline data linked to communication strategies through follow up assessments using Tools A and C. Additional country studies should assess the impact of behavioral change on the overall economic and the national welfare of the country. 4.43
33. WHO, as part of the global hepatitis strategy, should issue a policy statement calling on national formularies to list only oral medicines where they are equivalent to injectables, and include key unnecessary injection reduction messages for the pharmaceutical industry. 4.29
34. Countries should use “bottom up” community approaches to encourage ownership, focusing on schools, community leaders and multiple modes of communication. 4.25
35. Countries should ensure that messages include patient perspectives in order to empower patients. Patients should be encouraged to find information about their health. 4.00
36. Countries should develop messages with and directed at students at schools, using the WHO child-to-child approach. 3.86
37. Patients should recognize that injections are not always better than tablets, Countries should promote the idea that whenever or wherever possible: ***Don't Demand Injections.*** 3.71
38. SIGN should ensure that messages are especially channeled to the WHO AFRO region countries. 3.71

### **Health Care Waste Management**

39. Countries should allocate and mobilize necessary funding of Health Care Waste Management (HCWM) for the development and implementation of national policies and plans. 4.60
40. WHO and the SIGN network should advocate for countries to integrate healthcare waste management into all healthcare. 4.40

41. The SIGN secretariat should fund a review of existing epidemiological data. 4.30
  42. WHO should review and summarize the existing literature and finalize its position on the usage of needle removal equipment and devices. 4.10
  43. The SIGN Network should support the WHO Centre for Environmental Health Activity (CEHA) initiative for the development of generic national and local plans on healthcare waste from immunization campaigns. 3.80
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**ANNUAL MEETING OF THE SAFE INJECTION GLOBAL NETWORK (SIGN)  
9-11 November 2010, Intercontinental Dubai Festival City Hotel**

**Dubai, United Arab Emirates  
Programme of Work**

**Programme of work at a glance**

	<b>Day 1: 9 November 2010</b>	<b>Day 2: 10 November 2010</b>			<b>Day 3: 11 November 2010</b>
	<b>Morning: Plenary</b>	<b>Morning: Plenary</b>			<b>Morning: Plenary</b>
<b>08:30-09:45</b>	1. Introduction to the use of the SpotMe device 2. Report from the Secretariat on 2009 meeting recommendations	<b>Session 4:</b> Contribution of injection safety to achieve MDGs 4,5&6			<b>Session 6.</b> Update on country initiatives on injection safety
<b>10:00-11:00</b>	<b>Official opening ceremony</b>				<b>Session 7:</b> <b>1.</b> Report on main recommendations from sessions 4,5 &6
<b>11:00-11:30</b>	<b>Coffee/Tea Break</b>	<b>Coffee/Tea break</b>			<b>Coffee/Tea break</b>
<b>11:30 - 13:00</b>	<b>Session 1:</b> Disease burden from unsafe injection practices	<b>Session 5:</b> Update on global initiatives on injection safety			<b>2.</b> Summary reports and recommendations from outbreak sessions 1,2&3
<b>13:00-14:00</b>	<b>Lunch</b>	<b>Lunch</b>			<b>Conclusions of the meeting</b> <b>Closing ceremony</b>
	<b>Afternoon: Plenary</b>	<b>Afternoon: breakout sessions</b>			<b>Lunch</b>
<b>14:00-15:30</b>	<b>Session 2:</b> Cost effectiveness of injection safety strategies	<b>Track1 :</b> Country strategies needed to implement WHA 63/R18	<b>Track2 :</b> Development of strategies for patient and community involvement to ensure rational and safe use of injections	<b>Track3:</b> Health care waste mangement	
<b>15:30-16:00</b>	<b>Coffee/Tea break</b>	<b>Coffee/Tea break</b>			
<b>16:00-17:30</b>	<b>Session 3:</b> Discussion of main recommendations from sessions 1&2	Group work (cont'd)	Group work (cont'd)	Group work (cont'd)	
<b>19:00-20 :00</b>	<b>Welcome reception hosted by WHO- SkyLine Lounge</b>				

**Day 1: Tuesday 9 November 2010**  
**Plenary. Al Baraha 2 Conference Room**

<b>07:30-08:30</b>	<b>Registration</b>	
	<b>Preliminary session</b>	<b>Chair: Dr Steffen Groth</b>
08:30- 09:15 09:15-09:45	1. Introduction to the use of the Spot Me device 2. Report by the Secretariat on 2009 meeting recommendations	Mr Ivan Probst Selma Khamassi
10:00-11:00	<b><u>Al Baraha 3 Conference Room</u></b> <b><i>Official opening ceremony</i></b> Separate programme included in the meeting file	
<b>11:00-11:30</b>	<b>Coffee/Tea break</b>	
<b>Session 1</b>	<b>Disease burden from unsafe injection practices</b>	<b>Chair: Pr Shaheen Mehtar</b>
11:30-11:45	Preliminary results of the updated WHO GBD from unsafe injections	Ms Savanna Reid
11:45-12:00	Discussion	
12:00-12:15	HCV and HIV prevalences strongly correlated in Asian communities	Dr Devon Brewer
12:15-12:30	Discussion	
12:30-12:45	Nosocomial HIV infection: epidemiology and prevention- Global Review	Dr Maria Ganczak
12:45-13:00	Discussion	
<b>13:00-14:00</b>	<b>Lunch Break</b>	
	<b>Disease burden from unsafe injection practices (Cont'd)</b>	
14:00-14:15	HBV transmission associated with assisted blood glucose monitoring	Dr Melissa Schaefer
14:15-14:30	Viral hemorrhagic fevers: injection safety and beyond	Dr Sergey Eremin
14:30-14:45	Discussion	
<b>Session 2:</b>	<b>Cost effectiveness of injection safety strategies</b>	<b>Chair: Dr Amin Al Amiri</b>
14:45-15:00	Update of WHO studies on cost effectiveness of injection safety strategies	Ms Savanna Reid
15:00-15:15	Cost effectiveness of IPC strategies	Pr Shaheen Mehtar
15:15-15:30	Discussion	
<b>15:30-16:00</b>	<b>Coffee break</b>	
16:00-16:15	Cost effectiveness of injection safety options in emergency situations	Ms Lisa Hedman
16:15-16:30	Discussion	
16:30-16:45	Overview of PATH's injection safety activities: delivery technologies, procurement and HCWM	Ms Nancy Muller
16:45-17:00	Discussion	
17:00-17:15	Injection safety and illicit drug use: linking with SIGN	Dr Sharon Stancliff
17:15-17:30	Discussion	
<b>Session 3</b>	<b>Discussion of main recommendations from Sessions 1 and 2</b>	<b>Chair: Mr Charles Gore</b>
17:30-17:45	Presentation of main recommendations from Session 1 and 2 and vote on top 3 from each session	Dr Allan Bass SpotMe team
17:45-18:00	Introduction to parallel sessions work	Dr Selma Khamassi SpotMe team
<b>19:00-20:00</b>	<b>Welcome reception hosted by WHO</b>	<b>All participants</b>

**Day 2 : Wednesday 10 November 2010**

**Morning: Plenary**

**Al Baraha 3 Conference Room**

<b>Session 4</b>	<b>Injection safety and the MDGs</b>	<b>Chair: Dr Devon Brewer</b>
08:30-08:45	Global2015: Global challenges survey and injection safety	Mr Lars Vogelsang
08:45-09:00	Contribution of injection safety strategies to achieve MDGs 4,5&6	Ms Savanna Reid
09:00-09:15	Discussion	
08: 45-09:00	The role of infection control and injection safety in safe motherhood	Ms Mary catlin
09:00-09:15	Safe injection at the Maternal and Child Health Centers in UAE	Dr Hissa Khalfan
09:15-09:30	Discussion	
09:30-09:45	UNICEF contribution to injection safety	Ms Annika Salovaara Dr Edward Hoekstra
09:45-10:00	GAVI support to injection safety: opportunities, country uptake and results	Dr Abdallah Bchir
10:00-10:15	Discussion	
<b>10:15-10:45</b>	<b>Coffee /Tea break</b>	
<b>Session 5</b>	<b>Update on Global and Regional initiatives on injection safety and sharps waste management</b>	<b>Chair: Dr Glenn Post</b>
10:45-11:00	New EU directive on prevention from sharps injuries in the hospital and health care sector	Mr Herbert Beck
11:00-11:15	Discussion	
11:15-11:30	Tackling Social Determinants of Health through Community Based Initiatives in the Eastern Mediterranean	Dr Mohammad Assai
11:30-11:45	Discussion	
11:45-12:00	Practical research designs for investigating modes of HIV transmission	Dr Devon Brewer
12:00-12:15	Discussion	
12:15-12:30	Healthcare waste management in the EMR: challenges and prospects	Mr Raki Zghondi
12:30-12:45	Discussion	
<b>12:45-14:00</b>	<b>Lunch Break</b>	

**Day 2: Wednesday 10 November 2010**

**After noon : Breakout Sessions**

**Track 1: Strategies needed for country implementation of WHA 63/R18 recommendations on injection safety**

**Al Baraha 1 Conference Room**

<b>Chair: Dr Dejana Selenic</b>		<b>Rapporteur: Dr Victoria Maseembe</b>
14:00-14:15	WHA 63/R18 on Viral Hepatitis	Dr Steve Wiersma
14:15-14:30	Discussion	
14:30-14:45	EMRO strategy on prevention and control of viral hepatitis in health care settings	Dr Mamunur Malik
14:45-15:00	Discussion	
15:00-15:15	UAE Strategy to ensure blood transfusion safety	Dr May Raouf
15:15-15:30	Discussion	
<b>15:30- 16:00</b>	<b>Coffee/Tea break</b>	
16:00-16:15	Pakistan programme on hepatitis prevention and control : achievements and remaining challenges	Dr Arshad Altaf
16:15- 16:30	Discussion	
16:30-16:45	Senegal's strategy on viral hepatitis prevention and control	Pr Babacar Ndoye
16:45-17:00	Discussion	
17:00-17:15	UAE Strategy for preventing the importation and transmission of viral hepatitis	Dr Ibrahim Al Qadi
15:15-17:30	Discussion	
17:30-17:45	Occupational infections with blood borne pathogens among medical personnel as a public health problem in Poland	Dr Maria Ganczak
17:45-18:00		
18:00- 18:30	<p>Group discussion to :</p> <ol style="list-style-type: none"> <li>1. Identify the top priority interventions/ strategies that should be implemented in countries to prevent viral hepatitis</li> <li>2. Identify what countries need to do to implement them</li> <li>3. Identify how can WHO/ Partners assist countries implement them</li> </ol> <p>Preparation of group recommendations</p>	<p>Group participants Group rapporteur SpotMe team</p>
<b>18:30</b>	<b>Meeting adjourn</b>	

**Day 2: Wednesday 10 November 2010**  
**After noon : Breakout Sessions**

**Track 2 : Development of strategies for patient and community  
involvement to ensure rational and safe use of injections**

**Al Baraha 2 Conference Room**

<b>Chair: Dr Abdallah Bchir</b>		<b>Rapporteur: Ms Lisa Hedman</b>
14:00-14:15	Reaching communities with safe injection messages- an outcome of BCC interventions in Nigeria	Dr Abimbola Sowande
14:15-14:30	Discussion	
14:30-14:45	Knowledge of BB transmission risk inversely associated with HIV infection in sub Saharan Africa	Dr Devon Brewer
14:45-15:00	Discussion	
15:00-15:15	Task shifting and community rehabilitation: a case study of community rehabilitation programme in South Africa	Dr Suraya Dawad
15:15-15:30	Discussion	
<b>15:30-16:00</b>	<b>Coffee /Tea Break</b>	
16:00-16:15	Role of nurses and midwives in conveying health messages to the community	Dr Fariba Al Darazi Ms Mwansa Nkowane
16:15-16:30	Discussion	
16:30-16:45	Patient centered approaches to injection safety	Mr Charles Gore
16:45-17:00	Discussion	
17:00-17:15	Placing patients and communities at the core of a strategy for universal injection safety	Ms Garance Upham
17:15-17:30	Discussion	
17:30-17:45	Considerations for disposal of injection waste in the context of community-based distribution of injectable contraceptives and immunizations	Ms Nancy Muller
17:45-18:00	Discussion	
18:00-18:30	Group discussion to identify: 1. key effective messages to decrease injection overuse 2. key channels to convey these messages to the community 3. ways to evaluate the impact of the communication strategies  Preparation of group recommendations	Group participants Group rapporteur Spot Me team
<b>18:30</b>	<b>Meeting adjourn</b>	

**Day 2: Wednesday 10 November 2010**  
**After noon : Parallel Sessions**

**Track 3: Health care Waste Management**

**Al Baraha 3 Conference Room**

<b>Chair: Mr Raki Zghondi</b>		<b>Rapporteur: Ms Ute Piper</b>
14:00-14:15	Revised RAT on Health care Waste Management: results from Uzbekistan	Ms Ute Piper
14:15-14:30	Discussion	
14:30-14:45	PATH's recent work in healthcare care waste management	Ms Nancy Muller
14:45-15:00	Discussion	
15:00-15:15	Update on developments in Nepal	Mr Mahesh Nakarmi
15:15-15:30	Dicussion	
<b>15:30-16:00</b>	<b>Coffee/Tea break</b>	
16:00-16:15	A case study on waste autoclave validation	Ms Ruth Stringer
16:15-16:30	Discussion	
16:30-16:45	Hospital waste management at Holy Family hospital, Rawalpindi, Pakistan (GAVI)	Dr Nasir Mahmoud
16:45-17:00	Discussion	
17:00-17:15	Waste management in yellow fever campaign in Guinea	Mr Fodé Bangoura
17:15-17:30	Discussion	
17:30-17:45	A randomized controlled trial of use of needle removal devices during routine immunization	Dr Selina Ahmed
17:45-18:00	Discussion	
18:00-18:30	- Discussion around immunization campaigns - Group discussion and preparation of recommendations to SIGN	Group participants Group rapporteur SpotMe team
<b>18:30</b>	<b>Meeting adjourn</b>	



**Day 3: Thursday 11 November 2010**

**Morning: Plenary-**

**Al Baraha 3 Meeting Room**

<b>Session 6</b>	<b>Update on countries' initiatives on injection safety</b>	<b>Chair: Dr Edward Hoekstra</b>
08:30-08:45	Overview of injection safety in Mongolia	Dr Gohcoo Soyolgerel
08:45-09:00	Discussion	
09:00-09:15	China injection safety re assessment	Dr Fan Chunxiang
09:15-09:30	discussion	
09:30-09:45	Results from 4 injection safety assessments using Revised tool C	Dr Mohamed Hsairi
09:45-10:00	Discussion	
10:00-10:15	Strengthening pre-service education for injection safety: Experiences from Ethiopia	Dr Fekadu Abebe
10:15-10:30	Discussion	
<b>10:30-11:00</b>	<b>Coffee Break</b>	
11:00-11:15	Injection safety in Nepal	Mahesh Nakarmi
11:15-11:30	Discussion	
11:30-11:45	Safe injection practices: nursing policies& procedures implemented in the UAE to prevent the spread of infectious diseases	Dr Fatima Al Rifai
11:45-12:00	Discussion	
<b>Session 7</b>	<b>Summary report and recommendations from Sessions 4,5 and 6</b>	<b>Chair:Dr Jean-Baptiste Tapko</b>
12:00-12:30	Report on recommendations from 3 sessions	Allan bass
	Vote on top 3 recommendations from each session	Spot Me
	<b>Summary Reports and Recommendations of Parallel Sessions</b>	
12:30-12:40	Summary report and recommendations Track 1	Dr Victoria Masembe
12:40-12:50	Summary report and recommendations Track 2	Ms Lisa Hedman
12:50-13:00	Summary report and recommendations Track 3	Ms Ute Piper
<b>Closing session</b>		<b>Chair: Dr Steffen Groth</b>
<b>13:00- 13:15</b>	<b>Conclusions of the meeting</b>	
<b>13:15 -13:30</b>	<b>Closing remarks</b>	
<b>14:00</b>	<b>Lunch</b>	



**Annual Meeting of the Safe Injection Global Network (SIGN)  
Contribution of Injection Safety to achieve MDGs 4, 5 & 6  
9 to 11 November 2010, Dubai, United Arab Emirates**

**List of Participants**

**Country participants**

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- |                     |  |   |
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