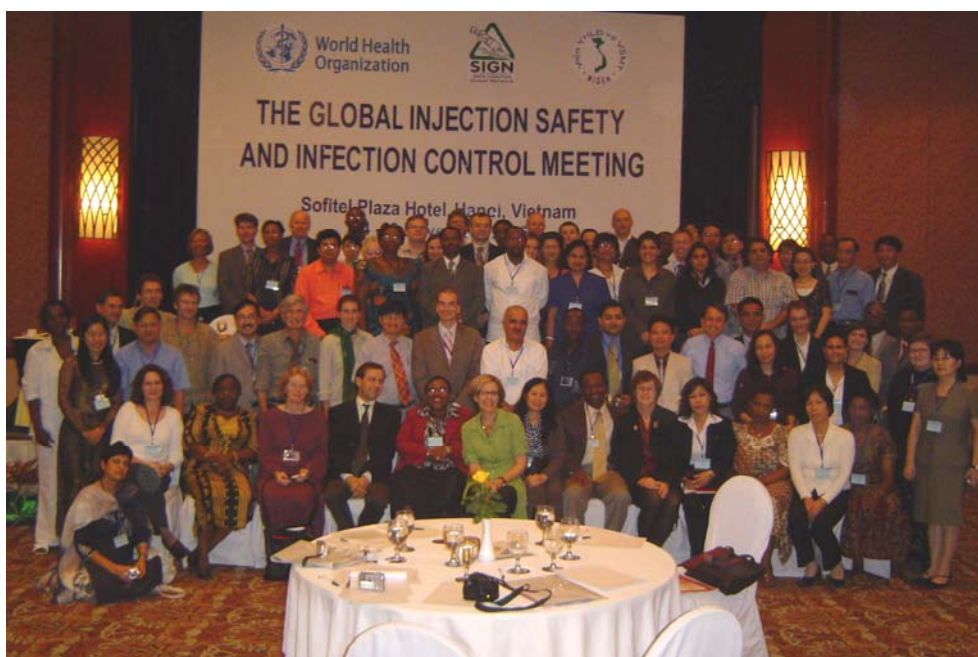




Safe Injection Global Network (SIGN)



Report of the Global Injection Safety and Infection Control Meeting

14 -16 November 2005
Sofitel Hotel, Hanoi, Viet Nam

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Executive summary

Global and Country Initiatives for Injection Safety and Infection Prevention and Control

Unnecessary injections can be reduced with multi-approaches. More economic data on the cost of unsafe and unnecessary injections in terms of burden of disease is required at all levels. The importance of the role of National Regulatory Authorities (NRA) in reducing unnecessary injections was recognized and NRAs are urged to act.

Reviewing Progress in African Injection Safety Projects What Lessons For Scaled Up Approaches?

Progress to reduce syringe and needle reuse in public hospitals in Africa to date has been impressive and is enabling us to move on to other infection control issues. Action is needed in the informal sector – community and household treatment, injection drug users, and in the private healthcare sector. Participants emphasized the principle of ‘duty of care’ - a duty to do everything reasonably practicable to protect others from harm. Data on actual reduction in nosocomial infection is needed from projects. Training strategies need to be strengthened at country level with regional level support.

Healthcare Worker Protection and Occupational Exposures to Bloodborne Pathogens

100% of needlestick is preventable. Recommendations on occupational safety should be formalized within a legislative framework. Employers should have universally acceptable policies on workplace safety, needle stick injury (NSI), hepatitis B vaccine, and support.; Needlestick surveillance should not be integrated into routine medical accident reporting systems. Confidentiality of reporting and in support and treatment services, and job security for health workers is a priority.

Integrated Infection Prevention and Control Strategies

Unsafe practices at health facility level may result from the expectation that health care workers save money and resources. Funding and commodity procurement for infection control must be included in regular budgets of health facilities. The South African study of the potential for HIV transmission in dental, maternity and paediatric services in public health facilities should be replicated in other settings in low-income countries. The power of professional associations in enforcing infection prevention and control policy and guidelines must be explored.

Quality and Access to Injection Devices

There is a WHO process and procedure for the pre-qualification of immunization devices. The trend in developed countries is to mandate the use of safety devices. Wide use will bring down costs through bulk purchase. Markets should decide on appropriate choices. Healthcare workers should have a role in device selection. Standards for safety boxes are needed. Protected lancets should be standardized. A working group on lancets is needed.

Health Care Waste Management

We need to develop strong partnerships to help countries develop national plans and comprehensive approaches. To achieve progress, health care waste

management (HCWM) needs to be high on national agendas, have a home in the bureaucracy, a focal person, human resources, and a working group. Advocacy for appropriate policies and financial resources to support healthcare waste management activities is necessary. Countries should improve collaboration between ministries of health and ministries of environment develop and include HCWM in national environment plans.

Conclusions and the Way Forward

The injection safety problem is larger than unsafe medical injections in public health services. Informal providers meet a market demand from rural, poor consumer to bypass formal private providers. The network needs to understand the roles of private sector and informal sector providers. Health care worker protection is identified as one of the SIGN priorities. SIGN should also address health care associated infections for health workers. Given that SIGN is the only organization focused on unsafe injection, concerns about the potential loss of focus on injection safety resulting from additional scope was expressed.

A more systematic approach to health care waste management (HCWM) would be more effective in addressing cost, enable the development of more solutions, and would facilitate interdisciplinary action.

It is a priority for the network to identify ways to implement recommendations, to get action at the lower levels of the health system, to achieve behavioural change, and most importantly improving the practices of front line health workers.

The reduction of unnecessary injections and rational drug use was suggested as a theme for the next SIGN meeting. Alternative injection and drug delivery technologies should be included in the meeting. Pharmacists and pharmaceutical manufacturers should be encouraged to participate in SIGN. Participation of health workers from the developing world as meeting speakers should be enlarged.

Chairpersons

Day 1

Dr Gerald Dziekan
Healthcare Associated Infections Prevention & Control
ADB/WHO Regional Outbreak Response Team
Communicable Disease Surveillance & Response, WHO/WPRO
Manila - Philippines

Day 2

Dr Antonia Idowu ERINLE
National Injection Safety Forum
Federal Ministry of Health
Abuja - Nigeria

Day 3

Mrs Susan WILBURN
WHO consultant
SDE/PHE department
Geneva - Switzerland

Rapporteur

Mr Alan Bass
Independent consultant
Tyagarah NSW- Australia

Day 1: 14 November 2005

Opening session

Welcome address from the host

*Mr Le Ngoc Trong
Vice Minister of Health, Viet Nam*

Viet Nam has made great progress in the control of infectious diseases; it was the first SARS-free country. Also, Viet Nam has made major improvements in medical treatment, the implementation of medical technologies, greatly expanded the provision of medical services at district and community level, with significant improvement in quality and adequate funding. The private sector expanded in parallel with the growing public health system and expansion of international cooperation. The Government and Ministry of Health wishes to express their appreciation for the international support and cooperation with Viet Nam. Efforts to improve injection safety in Viet Nam is achieving results in immunization and therapeutic services and is a priority for the Ministry of Health. The Ministry of Health is implementing hospital infection control. Also, the Government of Viet Nam has invested in a factory for auto-disable (AD) syringe manufacture and in medical and public education. This meeting is very helpful for the exchange of experience with other countries. The Ministry of Health thanks and welcomes the meeting and participants. We look forward to future cooperation.

*Professor Nguyen Khac Hai
NIOEH, Viet Nam*

WHO estimates that there are over 12 billion injections given every year worldwide. Unsafe injection are common in many countries, especially in developing countries, and are a major cause for transmitting many diseases like hepatitis B (HBV), hepatitis C (HCV), and HIV. With the increase of Hepatitis B, C, HIV and other blood-borne pathogens, the risk of unsafe injection becomes one of the largest public health concerns. Under WHO perspective, "A safe injection does not harm the recipient, does not expose the provider to any avoidable risk, and does not result in any waste that is dangerous for other people", injection safety becomes an synchronized issue, because it not only belongs to health care providers/practitioners but also related to policy makers, professionals in occupational health, environmental health, waste management, and medical equipment industries.

The National Institute of Occupational and Environmental Health (NIOEH), are very glad to be a co-organizer of the SIGN Meeting this year in Hanoi, Viet Nam. This meeting is linked to the second International Conference on Occupational and Environmental Health also held by the NIOEH Institute. This shows the close multi-sectoral relation between safe injection and related fields.

On behalf of the NIOEH, all participants from over 30 countries and international organizations all over the world are warmly welcomed to the meeting. NIOEH wishes the Safe Injection Global Network Meeting 2005 in Hanoi great success!

Welcome address from WHO

*Dr Neelam Dhingra
WHO, Geneva, Switzerland*

In her opening address, Dr Dhingra thanked the hosts and the organizers of the meeting. He also thanked experts, programmeme managers, policy-makers, industry partners and NGOs from all over the world who, since the launch of the SIGN alliance in 1999, have come together every year to share their experiences, exchange ideas and discuss recent initiatives aimed at making injection practices safer and preventing bloodborne infections, particularly HIV/AIDS.

Objectives of the Meeting included:

- Exchange information regarding global progress in the safe and appropriate use of injections and in infection prevention and control;
- Identify areas of global concern related to unsafe injections, and identify/develop mechanisms to address these;
- Review progress of the various injection safety country projects, health care worker protection and waste management approaches;
- Review progress of the health care worker protection project, including the three WHO needlestick prevention projects;
- Review global progress in infection prevention and control activities.

Poor injection practices remain a major challenge. Two decades into the HIV pandemic, the use of unnecessary injections and unsafe practices are still common in developed and developing countries. There is an urgent need to use injections safely and appropriately to prevent bloodborne infections worldwide. In addition to the ongoing challenges in injection safety, blood safety and the risk of infections transmitted in health care settings, WHO will continue its support in implementation of programmes and operational research at country, regional and global levels, and it will maintain its normative role in a broader infection prevention and control approach, which includes injection safety, blood safety, patient safety and health care worker protection.

Prevention of health care associated HIV infection has been identified as a key initiative that cuts across the work of EHT Department and also supports the work of other departments and other UN agencies such as UNICEF, UNFPA among others.

The area of blood and injection safety in EHT/WHO, with the support of the United States Centers for Disease Control and Prevention and the United States Agency for International Development (USAID), will continue to host SIGN Secretariat in close collaboration with other WHO departments involved in the global efforts to prevent HIV and other bloodborne pathogen infections. Dr Dhingra wished a successful meeting, and expressed her enthusiasm to continue working with the SIGN Network in the future to ensure safe injection and prevention of infection in health care settings.

WHO Strategic Directions for Injection Safety and Related Infection Prevention and Control

*Dr Neelam Dhingra
WHO, Geneva, Switzerland*

Strategic Direction of the Department of Essential Health Technologies is improved health and reduced morbidity and mortality through the safety, availability and appropriate use of essential health technologies within health systems.

Blood and injection safety will provide, promote and support appropriate strategies for blood safety and availability, injection safety and infection prevention and the control of bloodborne infections with organization-wide results expected 2006-7.

In the area of injection safety and related infection prevention and control including SIGN, our goal is to support the reduction of health care associated transmission of infections by ensuring safe injections, and related infection prevention and control by providing advocacy and guidance to promote national, evidence-based policies on injection safety and related infection prevention and control; promoting the development and implementation of 'best practices' in injection safety and infection prevention and control; providing a global repository of resources and tools on injection safety and infection prevention and control including 'best practices' guidelines, technologically appropriate injection safety devices & needles; defining the research and development agenda on injection safety and related infection prevention and control, and preparing protocols for research on injection safety and infection prevention and control.

Key Activities: The scope of the SIGN initiative has been broadened to include related infection prevention and control. Our key activities have been the recruitment of an injection safety focal point in WHO-HQ, ongoing consultation with WHO Communicable Disease Surveillance and Response (CSR), to review and further development of Standard Precautions guidelines. Engaging in the Global Patient Safety Challenge, participating in the Joint ILO/WHO consultation on post-exposure prophylaxis (PEP), updating the SIGN website to accommodate the broadened initiative with links to related websites and programmes, and continuing the dialogue on SIGN Focal Points in WHO regional and country offices with responsibility for injection safety (SIGN) activities.

Our future priorities are: promoting safe and appropriate use of injections, providing advocacy and focus on injection safety and infection prevention and control at national level, seeking support of countries for implementation of WHA/EB resolutions on injection safety and infection prevention and control, and measuring the impact of global injection safety activities. Future work for the SIGN alliance could be better guided through a more focused list of action points.

The strengths of the SIGN coalition are that: safe and appropriate use of injections has gained visibility internationally, a unique network of stakeholders with a focus on injection safety and infection prevention and control is in action, and SIGN partners have moved the agenda forward with country-level achievements.

Within WHO, SIGN includes these departments and section: Communicable Diseases - Surveillance, Evidence and Information for Policy - burden of disease estimates, guidelines, health services, nursing, Family and Community Health - injected contraceptives, Immunization safety, Water, Sanitation and Environment - waste management, Health, Technology, and Pharmaceuticals (HTP) - blood safety, injection safety and rational use of drugs, Non Communicable Diseases - diabetes injections, Social Change - Injection drug use.

The SIGN Strategic Framework 1999 focused on Innovation in approaches with

Target A: Pilot interventions aiming at safe and appropriate use of injections, and

Target B: Large-scale introduction of newer technologies that support safer use of injections. The second strategy in the framework was for achieving safe and appropriate use of injections and focuses on Target C: the Implementation of national policies and plans and Target D: Injection safety in donor or lender-funded services.

To monitor the impact of SIGN activities we use the process indicators: injection frequency and proportion of safe injections and the outcome indicators: incidence of injection-associated infections with bloodborne pathogens and the incidence of injection-associated abscesses.

Day1, Session 1: Global and Country Initiatives for Injection Safety and Infection Prevention and Control

Viet Nam: From a National Injection Safety Assessment to Policy Changes

*Dr Ly Ngoc Kinh, Dr Pham Duc Muc,
Ministry of Health, Hanoi, Viet Nam*

Viet Nam has had major achievements in the containment of epidemics and was the first country to become SARS-free.

Infection Control including Injection Safety is a priority of MOH. The National Nursing Assn (NNA) is an effective advocate for injection safety and has initiated an Injection Safety Campaign and conducts health worker interviews, produces training materials, organizes competitions, writes articles, and undertakes field observations. WHO was a catalyst and with the assistance of the WHO, the Ministry of Health has introduced Regulation on Healthcare Waste Management and three demonstration hospitals successfully implemented. Technology transfer has enabled local technology for injection safety: the Medical Plastic Company is able to produce auto-disable syringes and needles, safety boxes, and sharps containers for use in our health system. The national immunization programme uses auto-disable syringes for all immunization injections. A demonstration project facilitates syringe destruction and reduces needlestick injuries through the use of needle cutters, and needle pits are being implemented in Viet Nam with the assistance of WHO EPI & PATH, USA. A recent assessment showed improvements in injection safety practices among nurses. We did find unsafe practices such as the lack of segregation of used syringes and needles continuing in the face of scarce resources - safety boxes and limited district level incinerator provision. The majority of health care settings use available bottles for isolation of used needles

The MoH has introduced policy changes, with departments of Infection Control in all Hospitals established. Injection safety, using safety boxes, needlestick injury (NSI) prevention systems were included in the list of criteria for hospital inspection annually from 2004. Hospital Drug Committee have been established in all hospitals to control rational use of drug including reducing the over use of injections. In 2004, a compensation policy for health care workers exposure to NSI infected with HIV was introduced. NSI prevention regulations are being developed. The new Regulations on Medical Waste Treatment are in place

Our achievements in injection safety are considerable. We still face many challenges to maintain injection safety. We plan to carry out following activities: (National Nurses Associations (NNA) and Ministry of Health will continue the National Injection Safety Campaign to educate health care workers and the public about the risks of unsafe injections and unsafe practices. We are working toward forming a Viet Nam - SIGN to share information and further promote activities of injection safety in Viet Nam and working toward having a national day on injection safety.

Mongolia: From a National Injection Safety Assessment to Policy Changes

*Gochoo Soyolgerel
Ministry of Health, Ulaan Baator, Mongolia*

The challenging issues for Mongolia are: 1. Injection overuse (the ratio of injection per capita in Mongolia is the highest at 13 per person per year) and 2. Unsafe practices. Most injections are given in high-risk settings: Hospitals and family houses. Health-care workers are exposed to a high risk of needlestick injuries, as injections are one of the most common health care procedures. There is a low awareness of risks from sharps, needle-stick injuries among health care workers, waste handlers, and the community.

Our objectives are to work with policy makers to formulate safe injection policies, change old regulations, assist implementation of safe injection practices and waste disposal, provide tool kits and resource materials to organizations and institutions to improve injection safety in their settings, and to develop injection safety information, education and communication (IEC) materials in the Mongolian context, advocate and disseminate to the communities. The first national injection safety meeting was May 2002 to form the Safe Injection Working Group. A second national workshop was conducted to improve injection safety in curative services, prepare a policy statement on rational and appropriate use of injections, interventions to focus on rational use of medications and injections, work closely with injection prescribers and providers on safe injection practices, work to include injection safety in medical curriculum.

A new regulation on injection safety was approved, and the injection safety supervision commission was established. Injection safety IEC materials have been distributed to health facilities and communities.

There is a budget allocation for safety boxes and local production of safety boxes. National strategy for immunization safety has been developed and a Plan of Action for 2004-2008 was approved. We plan a second nation-wide assessment of injection safety. And we seek to identify funding for AD technology transfer to the national syringe factory. Regular budget for injection safety and the development of regulations to monitor the practice of needlestick injuries. Injection safety should be included into undergraduate programmes of allied, medical and nursing colleges. Health care waste management and the lack of high temperature incinerators are still a serious problems to be solved.

Cambodia: A Comprehensive Strategy to Reduce Overuse of Injections and to Prevent Health Care Associated Infections with HIV and Other Bloodborne Pathogens

*Chean Rithy Men,
Consultant, Phnom Penh, Cambodia*

Rapid assessment on injection situation was conducted in Cambodia (2002). The results did not suggest that re-use of injection device was a major problem in the country, but pointed to reduction of injection overuse and health care worker protection and disposing of waste as priority activities.

On the basis of the results of the assessment, the Injection Safety Committee of the Ministry of Health formulated a Plan of Action in May 2003. One of the key activities of the Plan of Action, "Interactional Group Discussion" (IGD) to reduce injection overuse was piloted in one province and in Phnom Penh city.

The results indicated that the IGD was effective in reducing overuse of injection in Cambodia with a reduction of 20%. However, there has been no follow-up activity to determine whether this change is sustainable. Some pilot educational materials have been produced based on those from the SIGN resources but adapted to the Cambodian context.

A comprehensive strategy is needed to deal with all aspects of injection overuse and safe injections practices that is well coordinated with the larger issues of universal precautions and infection control efforts. Funding had been requested from USAID to further extend prevention efforts in these areas. Plans are made to scale up IGD that combined with other interventions such as MTP and IEC materials to be implemented in 5 provinces to reduce "unnecessary and inappropriate" injections; promote safe practice (as part of good patient care and universal precautions); and safe disposal (as part of infection control).

Furthermore, plans are also made: 1) to review and develop infection control and waste management guidelines, 2) to develop training curricula for allied, medical and nursing schools on injection safety and 3) to set up surveillance system for Accidental Exposure to Blood. Such comprehensive strategy must be the goal to prevent injection-associated infections in all sectors of healthcare.

*Robert Chen,
Centers for Disease Control and Prevention, Atlanta, USA*

In the 1980s and 1990's The Expanded Programme on Immunizations at WHO Headquarters took the lead in quantifying the problem and developing approaches to improve injection safety in immunization. These reports, policies and documents produced. The WHO Essential Drug programme "Anthropology of Injections", articles on immunization by J Lloyd, M Zaffran, A Battersby, R Felden, R Steinglass, R Fields, S Landry, and others. In 1994 the Yamoussoukro Declaration set a target of reducing the ~30% unsafe to => 5% by 1997. In 1986 the WHO/UNICEF established the policy on the use of a single sterile syringe + needle, and WHO issued a RFP on AD syringes to prevent reuse. In 1997 WHO/UNICEF established a policy on "bundling of needles, syringes, and safety boxes along with vaccines for mass campaigns,

The seminal analysis in 1997 by Adam Kane of the magnitude of the problem of unsafe injections. the 1998 EPI Special Advisory Group of Experts (SAGE) statement on unsafe injections in immunization, and the participation of the BASICS project marked the beginning of increased attention to the problems.

At its inception in April/July 1999, this initiative found a name: the Safe Injection Global Network (SIGN), and the SIGN Secretariat was hosted in the WHO Department of Essential Health Technologies), a coordinator (Yvan Hutin), and a modus operandi (a Secretariat providing leadership, the encouragement of National SIGN and the SIGNpost listserv). Advocacy began in earnest with the 1999 publication of the Bulletin of the WHO special issue on injection safety and in 2000 with a proposed World Health Assembly Resolution to eliminate the largest iatrogenic problem of 20th Century. Injection technologies such as autodisable syringes were promoted. Additional single use injection technologies such as disposable cartridge jet injectors and plastic needles were explored.

Current and Future Challenges

More data is needed to properly address the many risks for healthcare associated infections. A repeat of the South Africa studies by Shisana et al in a less developed African country using the same forensic methods of investigation is needed. We need to know more about syringe use in curative services. (e.g., intravenous injections, removable needles, and the ability to manipulate plungers, combine syringes with other devices, and remove needles in phlebotomy), not just immunizations. We note the importance of reducing unnecessary injections – the most cost effective, but most difficult of interventions. We need to learn how to implement effective surveillance for needlestick and sharps injury to protect health workers and their families.

SIGN Implementation

Our current technological solutions to critical operational problems are imperfect: How to manage sharps waste? How to reliably manage the supply of disposable or AD syringes and the waste system necessary for their destruction? Can purchases, supervision and training be scaled up? Can injection safety and hospital acquired infections (HAI) compete for attention with other AIDS programmes? We need to understand the roles of private sector and informal sector providers such as, traditional medicine practitioners, illegal drug vendors, injectionists and quacks, clinic housekeepers and cleaners, and dispensers. We need to address other key population groups such as injection drug users, whose role in HIV transmission is becoming very clear.

Self-medication using informal channels is the main means of using pharmaceuticals in non-Western cultures. Informal providers meet a market demand from rural, poor consumer to bypass formal private providers. Assessments of the problem in the informal sector are needed.

Waste management remains one of the most difficult issues to be solved. One way forward is to ensure that large, externally currently funded initiatives such as the Global Fund and PEPFAR either budget direct costs needed for medical waste, or set aside funds, as an

“overhead charge” to manage the million of sharps waste that they generate. Eventually this should be the norm for all health services.

The challenges are technological, economic, and cultural. SIGN was overdue in starting, but is making excellent progress. There is a real opportunity to implement the objectives of SIGN as part of the major investment in HIV prevention taking place.

WHO Report on Immunization Safety Priority Project (ISPP) 1999–2005

*Dina Pfeifer
WHO, Geneva, Switzerland*

WHO established the Immunization Safety Priority Project in 1999, as a focus for addressing the many challenges relating to immunization safety existing in the world at the time. The project was set to strengthen national authorities in preventing or detecting immunization safety issues. Expected outputs of the project were:

- the development of quality control procedures and quality specifications to ensure vaccine safety from vaccine development through vaccine clinical trials to routine vaccine production;
- the development of tools to ensure the quality and safety of vaccines up to the point of use;
- the implementation of safe and effective systems for vaccine delivery and management of immunization related waste;
- the establishment and improvement of mechanisms to monitor and respond to adverse events following immunization.

In 1999, WHO together with United Nations Children's Fund (UNICEF), the United Nations Population Fund (UNFPA), and the International Federation of Red Cross and Red Crescent Societies (IFRC), recommended that, by the end of 2003, all countries use only auto-disable syringes. The introduction of the equipment in the immunization services was monitored through WHO./UNICEF Joint Reporting Form on Vaccine Preventable Diseases together with other related indicators on policy, designated budget allocations and associated practices. The proportion of non-industrialized countries using auto-disable syringes for routine immunization increased from 42% in 2001 to 62% in 2004. Despite the gradual increase, exclusive auto-disable syringe use in immunization programmes was still low in 2004. In an attempt to monitor and evaluate injection safety, both in preventive and curative sectors, standardized assessment tools were developed. By the end 2005, 78 primary assessments and 8 re-assessments had been carried out. These assessments confirm that, during the past few years, major gains have been made in reducing risks for vaccine recipients as a result of unsafe injection practices, while progress in terms of reducing risks for health workers and the environment has been much more limited. Subsequent to the assessments, WHO has provided assistance in addressing the problem areas identified. When requested, support has been provided to assist with the development of national injection safety policy.

With the introduction of the Global Immunization Vision and Strategies (GIVS), in an attempt to immunize more people against more diseases and introduction of a range of newly available vaccines and technologies, sustaining achieved status and further development and improvements are required to ensure immunization safety.

Full report available at:

http://www.who.int/immunization_safety/ispp/ispp_final_report_Home/en/print.html

*Sophie Logez,
WHO, Geneva, Switzerland*

Irrational use of injections remains very widespread. Irrational use of injections harms patients through increased adverse drug reactions, increased antimicrobial resistance, spread of hepatitis B/C and HIV and waste of resources.

The Recommendations for injection safety from the 2nd International Conference for Improving Use of Medicines (ICIUM, <http://www.icium.org>) Chiang Mai, Thailand, 2004, were: Effectiveness of interventions of different nature suggests that various methods could be combined to improve impact on injection frequency and injection safety; use of standardized indicators of injection use (the proportion of patients who were prescribed an injection) allowed comparisons across these studies; Health care workers should empower patients to express a preference for oral medications.

Key research recommendations for injections safety were: Will reducing injection use in the public sector result in shifts of patients to the private sector? What are the characteristics of "positive deviants" (i.e. prescribers or health institutions employing fewer injections)? Are there perverse financial incentives, that encourage greater use of injections, which can be identified, and how could they be reversed to reduce injection use?

The first step towards rational use of injections is a National Medicines Policy to promote equitable access to medicines of good quality, safety and efficacy, and promote correct use of medicines. Cost reasons for a national medicines policy are that drugs are 20-40% of health budgets - antibiotics and injections are most expensive. A national task force to monitor inappropriate injections use and plan action; ensure sufficient government expenditure to ensure availability of drugs, supplies, and staff; select appropriate injectable medicines and supplies, and increase availability of alternative forms; enforce drug regulations reducing the availability of inappropriate injections through effective registration of drugs and dispensing outlets, establish functional drug and therapeutic committees in hospitals and eliminate economic incentives encouraging injection over-use - prescriber salaries from drug sales (expensive injections).

The SIGN coalition should strengthen collaboration with: national medicines / Essential Drugs programmes, national drug authorities, partners involved in promoting rational use of medicines.

Global and Country Initiatives for Injection Safety and Infection Prevention and Control - Summary of Plenary Discussions

What is the data on unnecessary injections in the developed world?
Are there lessons for developing countries?

Unnecessary injections can be reduced with multi-approaches:

1. Drug utilization studies to develop evidence to convince decision makers and stakeholders of the problem and its scale
2. Give feedback to providers and peers on the drug use/injection use studies
3. Use of champions as high status supporters to communicate to communities about best practices
4. Use of preprinted order forms, pharmacy review, second signature requirements for highly used injectable medications at various health facility levels
5. Disseminate medical information from independent sources in medical letters or other formats, rather than relying on manufacturers marketing materials.
6. Routinely repeat follow-up (reminders rewards, reviews)
7. Remove financial incentives for prescription of injections

More economic data on the cost of unsafe and unnecessary injections in terms of burden of disease is required at regional, country, and facility level. Research should include data on

health care worker compensation, post exposure prophylaxis, long term treatment and transplants.

The importance of the role of National Regulatory Authorities (NRA) in reducing unnecessary injections was recognized and NRAs are urged to act.

Patient empowerment: A global safe injection day was proposed.

World Blood Donor day is 14 June. A theme for 2006 is currently being selected. It is possibly that the safety of blood collection – i.e.: the use of lancets and injections could be such a theme.

Day 1, Session 2: Afternoon: Reviewing Progress in African Injection Safety Projects

U.S. President's Emergency Plan for AIDS Relief: Update on HIV Prevention through Safer Medical Injections

*Glenn Post,
USAID, Washington, DC, USA*

The President's Emergency Plan for AIDS Relief is a U.S. Government 5-year initiative that promises \$15 billion in programme resources, including \$10 billion for 15 focus countries (12 in Africa). The goals in focus countries include: supporting treatment of 2 million HIV-infected persons with combination anti-retroviral therapy; supporting prevention of 7 million HIV infections, and; supporting care for 10 million individuals infected or affected by HIV/AIDS, including orphans and vulnerable children.

Ensuring safer medical injections is among the key Emergency Plan strategies to prevent 7 million new infections. About 20% of Emergency Plan funding is for prevention, of which more than half is aimed to prevent sexual transmission. A total of \$30.2 million is anticipated in FY 2006 for injection safety, and nearly \$150 million is anticipated over the 5-year project agreements.

The goal of the safer medical injections programme is to prevent HIV infections through safe and appropriate use of medical injections. Through USAID and CDC support for 7 countries each, the programmes are being implemented with the assistance of various U.S.-based organizations plus local and international partners, working with national governments. In the first 1-year phase, baselines and pilot activities, with a focus on the curative sector, were completed in each country, and national governments were assisted to develop national plans covering injection safety. During the remaining 4 years, the programmes have begun scaling up nationwide, including capacity building, behavior change and reducing the demand for injections, sharps waste management, and procurement and supply management. Additional challenges in scaling up include ensuring ownership, quality and commodity security, as well as promoting safe injections in the private sector. Health worker safety is also a priority, especially preventing needlestick injuries.

This programme represents a unique opportunity to prevent transmission of HIV and other infections through expanding injection safety. There is a focus on consistent indicators and targets, for impact and lessons learned. The President's Emergency Plan is committed to support safer medical injections. Success and sustainability will depend on collaboration with a range of partners.

Update of the Making Medical Injections Safer (MMIS) Project

*Jules Millogo,
JSI, Arlington VA, USA*

Making Medical Injections Safer (MMIS) is funded by the President's Plan for AIDS Relief (PEPFAR) through USAID and the CDC. Working in 11 countries with high HIV prevalence in

Africa and the Caribbean, MMIS is implemented by John Snow, Inc. (JSI) and subcontractors Programme for Appropriate Technology in Health (PATH), Academy for Educational Development (AED), and the Manoff Group. A five-year project from March 2004–September 2009, MMIS' goal is to establish an environment with partners and national counterparts where patients, healthcare workers, and the community are better protected from the medical transmission of HIV and other bloodborne pathogens. This presentation provides an update on early results and foundations for sustainability.

Policy and institutional environment—Injection safety and waste management policies and guidelines have been developed. National injection safety groups are active, with MMIS facilitating collaborative approaches with Ministries of Health and other government partners to mainstream injection safety into enforced policies.

Training and capacity building—About 7,000 health care workers have been trained in safer injection and infection control practices and new technologies. Supportive supervision reinforces new behaviours.

Safe injection commodities and logistics—MMIS procured 16 million safety syringes the first year, and about 85 million syringes are being procured this year. National governments decide the type of devices to be procured, and the project is enabling existing systems to sustain procurement and distribution.

Advocacy and behaviour change—Comprehensive BCC strategies developed by country teams emphasize reducing un-necessary injections and ensuring the safety of necessary injections and also advocate facility injection safety protocols.

Sharps waste management—MMIS works with partners and local governments to establish sound waste management policies and systems. A major meeting held in Addis Ababa, Ethiopia discussed practical waste management solutions for Africa, including innovative partnerships and approaches to meet this challenge.

Introducing Injection Safety in Curative Care in Côte d'Ivoire: How
Baseline Assessment Informs District Level Planning

Jean-Marie N'Gbichi, MMIS, Côte d'Ivoire
Bernard N'Guessan, Côte d'Ivoire

Injection Safety Global Assessment a tool for micro-planning at district level, Côte d'Ivoire. In order to have reliable information to plan injection safety and waste management (ISWM) activities in curative services in Côte d'Ivoire, Ministry of Health and local partners including JSI-MMIS have conducted an assessment of current waste management and injection safety practices. District Health Management Teams participated in data collection activities and used data from the assessment to inform their district planning activities. This use of data for district-level planning can be used as a model for systems strengthening efforts in the area of injection safety and waste management.

To generate information on ISWM to support activities planning in curative services at district level, a prospective cross-sectional assessment was conducted in five districts through interviews, observations and inventory of supplies in five health districts with JSI-MMIS health facility assessment tools. Initial findings suggest an inadequacy in supplies procurement (injectable drugs versus syringes/needles), needle re-capping as a common practice, lack of functioning incinerators in most facilities, and waste management methods including open/hole burning and un-controlled disposal. In addition, personnel are not trained in ISWM and there are no specific precautions available for infection prevention and control among health workers.

Information from the districts assessed has been used for ISWM micro-planning in these districts through a planning workshop. Data played a critical role in situation analyses to determine, together with districts management teams, specific priorities in each ISWM area, and interventions have been planned based on the analyses. The developed micro-plans were mostly focused on health worker capacity building, strengthening of waste management processes, reinforcement of supplies procurement capacities, BCC and advocacy to raise awareness and involve local partners in ISWM issues, and monitoring and evaluation of interventions.

The assessment of injection safety and waste management practices highlights priorities and enables health districts in developing appropriate micro-plans to effectively guide programme implementation.

Building Foundations for Sustainability of MMIS Programme in Ethiopia

*Yohannes Tadesse, MoH, Ethiopia
Solomon Worku, MMIS, Ethiopia*

Injection Safety Situation in Ethiopia: HIV/AIDS rate of 4.4% nationally with 1.5 million people living with HIV/AIDS. Making Medical Injection Safer (MMIS) project Ethiopia, started in March 2004, implemented programme interventions in fifty three health facilities in four districts of SNNP and Oromiya states. During the first year of the programme MMIS Ethiopia has made tremendous strides in establishing a National injection safety task force which later coordinated the development of national five year country strategic framework.

Sub-committees have also been established to deal with advocacy and BCC strategy and Health Care Waste Management (HCWM). In addition, district level committees were formed to plan, implement and monitor the safe injection and HCWM. The project has trained 589 health workers, provided safe injection supplies and waste management commodities to all project facilities. Follow-up assessment in targeted health facilities shows a significant improvement in safe injection and waste management practices.

Higher level advocacy at policy and decision making level resulted in developing national five year strategic framework in making medical injection safer countrywide. Ministry of Health (MOH) decided to conduct resource mapping and organize round table conference for donors for leveraging resources to scale-up MMIS nationally. Ministry of Health and Regional Health Bureaus are also supporting the supplemental strategy of safe injection commodities supply and use the existing revolving fund infrastructure to ensure sustainability of the programme. The profit generated will be utilized in bridging supply gap, purchase of protective gears, maintenance of incinerators and post-exposure prophylaxis.

MMIS is working in partnership with pertinent stakeholders is an approach to make injection safety universal in the context of infection prevention and control. MMIS supervisory checklists have been included in WHO, INTRAHEALTH, JSI/ESHE, and CDC/JHPIEGO for monitoring and supervision of injection practices in health facility level. The project has made preliminary works with professional associations to disseminate MMIS agenda and promote rational use of injections. MMIS is also working with Carter Center and training institutions to include injection safety and waste management as content in a comprehensive fashion in pre service training curricula.

Championing Injection Safety in Nigeria

*Antonia Idowu Erinle, Federal Ministry of Health, Nigeria
Abimbola Sowande, MMIS, Nigeria*

Unsafe injections may lead to transmission of bloodborne infections like HIV, hepatitis B and hepatitis C; needlestick injuries to health workers and patients and environmental pollution due to poor medical wastes management. The World Health Organisation (WHO) estimates that 20-50% of the 16 billion injections given worldwide are unsafe, unnecessary or ineffective. It is further estimated that 5% of HIV transmission is through unsafe injections.

With the HIV prevalence rate of 5% in Nigeria (range between 1.2% and 12%), the magnitude of HIV/AIDS warrants concerted efforts targeted at the reduction of the risk of transmission from every source. An assessment of injection safety healthcare management in 2004 revealed that most unnecessary injections arise from formal and informal health sources. Nigeria has an estimated 4.9 injections per person per year, ranking the country as poor to moderate in the global scheme of injection practices.

MMIS Nigeria utilized results of the assessment to develop a National Behaviour Change Communication (BCC) Strategy aimed at risk reduction of unsafe injection. Expected behavioral

outcome include: promotion of oral medication as alternatives, immediate disposal of used syringes and needles in safety box without recapping and safe management of waste. The organization thereafter identified a positive role model and advocate for change to champion the cause of injection safety in Nigeria. Professor Dora Akunyili, a pharmacist and Director General of National Agency for Food Administration and Drug Control (NAFDAC) was nominated as a result of her track records in creating awareness and educating the populace about adverse events of unsafe injections through community mobilization efforts tagged 'pharmaco vigilance'. Coordination and collaboration efforts have been initiated at three levels – federal, state and community to concentrate awareness and educational activities as part of the project's second phase intervention on injection safety and healthcare waste management. Activities would include the use of traditional and mass media to promote oral medication, client provider communication aimed at prevention in the care setting spilling over to continuous prevention in the communities.



Leveraging Resources to Promote Safe Health Care Waste Management in Rwanda

*Bonaventure Nzeiman
Ministry of Health, Rwanda*

JSI/MMIS project and the World Bank's Multisectoral AIDS Project (MAP) in Rwanda have common objectives in the area of medical waste management, and a framework for collaboration was developed with the Ministry of Health. The partnership began by defining areas of collaboration, and developed an operational implementation plan. Different yet complementary activities were identified for each organization to prevent duplication of effort and combine resources in order to achieve the given objectives.

Baseline surveys, training of health workers, ensuring supplies of syringes and safety boxes, supporting supervision activities, and construction of needle pits are activities implemented by MMIS. MAP is providing waste handlers with protective equipment and will oversee construction of incinerators. However, the projects will work in close consultation with one other before implementing any of these activities to ensure programmatic success. This collaborative approach has been approved and endorsed by the National Safe Injection Task Force, chaired by the Ministry of Health.

In the construction of the much-needed "DeMontfort type" incinerators, both projects and the MoH (through the safe injection task force) are collectively contributing to this activity. The MoH has established a team for follow up, which includes the ministry in charge of environment. MMIS will provide technical assistance to supervise the proper construction of a model incinerator, and MAP will ensure the quality of construction in all of the intervention districts. Furthermore, MMIS and the MoH will invite experts from PATH and WHO to participate in technical assistance efforts.

This collaborative process can be a model for other projects working in similar areas of the fight against HIV/AIDS and indeed in other areas of injection safety and public health. By combining resources and expertise, public health projects can expedite their efforts in saving lives.

Update on Medical Injection Safety Project in Namibia

*Lydia Nisbet
Medical Injection Safety Programme, Namibia*

The Medical Injection Safety Programme, Namibia is a programme of the Ministry of Health & Social Services (MOHSS), Namibia with funding from USAID with technical support provided by University Research Co., LLC.

Under PEPFAR, URC assists the Namibian MOHSS to implement interventions promoting safe medical injection and waste management practices.

Improvement Interventions: To reduce transmission of bloodborne pathogens through medical injections, a 4-part strategy is being used: improve rational use of medical injections by substituting oral drugs where feasible; improve occupational safety through introduction of safe sharps disposal practices; promote better injection administration practices to reduce needlestick injuries; and availability of post-exposure prophylaxis. To rapidly scale-up best practices, URC is using a large-scale implementation collaborative approach. Using this approach, each facility develops safe injection improvement plans. Participating facilities receive continuous support with implementation of their improvement plans. All facilities meet quarterly to review which interventions are producing desired results and which require fine tuning.

In Phase 1 of the project, URC brings together staff from a number of facilities in each sub-district in 5 regions in Namibia to implement the programme. Phase 2 of the project started in April 2005 when the successful interventions were scaled-up in all facilities of the original sub-districts, in 3 new regions of the country as well as coverage to private providers.

The programme has trained over 500 healthcare workers covering: 9 hospitals; 7 health centers; 33 clinics. The training is based on MOHSS's draft policy guidelines on injection safety, quality assurance and medical waste management developed under the project. Since project start-up, there have been changes in prescription practices and administration procedures of medical injections. Availability of guidelines (infection control, standard treatment, PEP) has increased in the pilot sites. Practices on preparation and administration of injections have improved. In addition, there has been a decline in sharp injuries and an increase in number of health workers receiving post-exposure prophylaxis after needlestick injuries.

Innovations in Improving Quality of Care in a Low Resource Setting in Zambia

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Chemonics International, Zambia*

In the first year of the PEPFAR/USAID-funded Prevention of Medical Transmission of HIV project in Zambia, the team worked with the Government in two pilot districts of Zambia and carried out Trial for Improved Practices (TIPs) survey in order to learn the current practices by health care providers and community members; propose and discuss one or more new behaviours to try during the trial period; and learn if the clients were willing to try out new practices. A rapid randomised trial was conducted covering 12 facilities. This is now being tried out in three provinces during the first year of the scale up phase.

Proper hand hygiene is one of the key components in minimizing the spread of disease and in maintaining an infection free environment. One of the innovations that generated measurable results in key areas of provider practices, raising the standard of health care provided was the introduction of alcohol hand rub. To address this gap, the providers were introduced to waterless

hand rub, which is a very simple innovation that can be prepared using locally available alcohol and glycerine.

Health care providers, without adequate space, facilities, and sometimes without water, practiced basic hand hygiene. As a result of this innovation, hand hygiene practices improved and were observed in clinical practice 66% from only 10% during the initial TIPs survey. Proper utilization of safety boxes improved from 10% to 19% and two handed recapping of needles dropped from 26% to 4%.

Training Curricula on Injection Safety in Immunization Programme in Western Africa

*Alfred Da Silva
AMP, Paris, France*

EPIVAC is a public private and academic partnership implemented by AMP for GAVI-Eligible francophone West African countries. EPIVAC is offering four distinct components of capacity building for immunization programmes.

Training for health district medical officers: each academic year, 50 candidates are pre-selected by their respective MOH and included in the programme, in order to create a critical mass of professionals able to optimize the performances of their immunization programmes at district level after 5 years; Training of trainers for 27 national supervisors and academic lecturers; EPIVAC 1st and 2nd graduating classes in 2003 and 2004. Currently Benin, Burkina Faso, Côte d'Ivoire, Mali, Senegal, Mali and Togo have participated in the programme.

EPIVAC is a one year on-the-job professional academic training and capacity building programme. Its main objectives are to strengthen sustainable vaccination programmes, to improve vaccine and management skills of District Health Officers and to prevent the brain-drain of African human resources for health. The EPIVAC framework is composed of 3 educational components scheduled on 12 months : a residential course, a field tutoring and a operational research thesis. Successful completion of the training is rewarded by a university diploma from the Universities of Paris Dauphine and Cocody-Abidjan.

The EPIVAC on-the-job training framework allows trainees to be trained while carrying out their professional activities, thereby enabling them to continue to provide vital public health services to their communities. Studying at they work also facilitates the practical application of their training to their job, especially the supportive supervisions focus on problem solving and implementation of improvements in the immunization programme, with an emphasis on safety of injection and access to immunization.

The design of the distance learning component was based on; trainees' access to computers and the use of interactive CD-Rom as media for the educational content, supported by a dedicated learning website at <http://www.epivac.org>. This enables the trainees to complete teaching from the residential course and to go deeper into concepts and knowledge.

EPIVAC Computer-based training is on CD-ROMs provided to each trainee during the residential course and contains information and experiences sharing, about 30 interactive lessons and exercises in Vaccinology, Epidemiology and Management, Documentation (dissemination at district level +), an Interactive glossary. The trainee can save and load his own learning session, check progress, and homework assignments for the diploma.

A contextual learning process based on real situations and issues, where the learner plays the main role EPIVAC Learning strategy. The units unlock depending on learner progress.

EPIVAC accomplishments to date are the development of unique training material and supervision tools for 195 trainees from 8 African countries, academic accreditation by bridging a University of the "North" with a University of the "South" , 3. Training of Trainers (27 National EPIVAC supervisors), the generation of relevant data on immunization programmes, performance, progress and constraints at district level, and implementing an effective public, private and academic partnerships.

Reviewing Progress in African Injection Safety Projects. What Lessons For Scaled Up Approaches? - Summary of Plenary Discussions

Progress to reduce syringe and needle reuse in public hospitals in Africa to date has been impressive and is enabling us to move on to other infection control issues.

However most projects are not addressing the informal sector or the private sector in countries. Action is needed in the informal sector – community and household treatment, injection drug users, and in the private healthcare sector.

Participants emphasized the principle of 'duty of care' - a duty to do everything reasonably practicable to protect others from harm – to do otherwise may be considered negligence in a legal action.

Data is needed from projects: Is there an actual reduction in nosocomial infection. What is the most appropriate way to measure improvements in outcomes as a result of interventions?

Training strategies need to be strengthened at country level with regional level support.

Reduction of Unnecessary Injections

- Must improve links with essential medicines projects and rational use of medicines project and link training with clinical practice
- Need more data available for professionals on oral vs injectable formulations for medicines and the availability of oral preparations
- Annual reviews of hospital /facility management and job performance evaluation for appropriate use of injections. Reward and recognize good performance of health providers

Behaviour change strategies

- The network should broaden the approach to patient care
- Use the "Champion Approach" in stakeholders country and regional offices to emphasize impact of key messages to communities.
- Increase support to MOH, including regulatory authorities participation in SIGN meetings
- Use model injection centres for training and demonstration of best practice standards

Day 2: 15 November 2005

Day 2, Session 1: Health Care Worker Protection and Occupational Exposures to Bloodborne Pathogens

Adapting SIGN Tools for Occupational Health of Health Care Workers A new WHO Tool Kit to Prevent Needlestick Injuries & Occupational Exposure to HIV/AIDS

*Susan Wilburn
WHO Consultant, Geneva, Switzerland*

Two million injuries from needlesticks and other sharp objects occur to the world's 35 million health care workers each year according to WHO (WHO Aide Memoire, 2003).

Nurses suffer the most needlestick injuries of all health care workers, on average 1 – 4 needlestick and other sharps injuries per year exposing them to over 20 different bloodborne pathogens. The most common and serious of the bloodborne pathogens are HIV, hepatitis B and hepatitis C. In November 2002, the World Health Report published data demonstrating that 2.5 % of HIV infections among health care workers and 40% of hepatitis B and hepatitis C infections are the result of occupational exposure.

The hepatitis B immunization is safe and 95% effective to prevent HBV but less than 20% of healthcare workers in many parts of the world have received the immunization.

The WHO/International Council of Nurses (WHO/ICN) Needlestick Prevention Project began in 2003 with a pilot project in South Africa, Tanzania and Viet Nam to protect health care workers from occupational exposure to HIV/AIDS and other bloodborne pathogens utilizing existing tools and resources from the SIGN Injection Safety Tool Kit. A multidisciplinary team of national health, injection safety, occupational health, and national nurses associations recommended adaptation of the tools to incorporate concepts of occupational health and the hierarchy of controls to protect workers from occupational hazards.

The resulting new WHO tool kit to Preventing Needlestick Injuries and Occupational Exposure to HIV/AIDS, launched at this 2005 SIGN meeting recognizes the highest risks endangered from the use of intravenous and phlebotomy (blood-filled) devices not covered by injection safety tools and incorporates the broader principles of infection prevention and control and occupational health.

The tool kit includes a revised assessment tool, key elements for occupational health programmes, sharps injury log and anonymous survey to determine proportion of under-reporting of incidents as well as PowerPoint presentations for use as training tools and resources.

Prevention of Occupational Needlestick Injury in Some selected Health Care Settings in Hanoi

*Duong Khanh Van,
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A follow-up study was carried out in 642 health care workers (HCW) from 3 hospitals in Hanoi aiming at supporting the Ministry of Health (MoH) in raising the awareness on the risks of needlestick injury (NSI) transmission of HBV, HCV and HIV among HCWs in selected health care settings; applying effectively the prevention measures in practices; developing critical indicators for evaluating the impact of implementing measures for prevention of NSI and developing guidelines on prevention of NSI. The data collection tools were made based on the assessment tools recommended by WHO*. Some adjustments were made to adapt to Viet Nameese settings.

The results of the survey showed that in the three selected hospitals, 68.84% - 71.2% of HCW have been injured by sharps during work. Knowledge, attitude and practices related to injection, needlestick injury and risk factors were not very good. Lack of standard safety boxes in hospitals and most containers for sharps disposal were made from plastic bottles. The notification system for NSI was not well established; and many cases of NSI were not reported and managed in all the three hospitals.

Following the results of survey, all 3 hospitals provided safety boxes in sufficient quantity for HCWs. It was one of the most important interventions of the project. Almost all HCWs in selected hospitals agreed that activities of infection control and measures to prevent needlestick injury were very important. 95.70% of HCWs agreed that the prevalence of NSI was reduced; 98.22% of HCWs became more observant of the prevention of NSI at work. In order to eliminate unsafe injections, to prevent occupational NSI and bloodborne transmissions to HCWs, to enhance HCWs' health, as well as community health, some recommendations for application were given.

Report on the ILO/WHO Expert Meeting on Post-Exposure Prophylaxis (PEP)

*Benjamin Alli, ILO, Geneva,
presented by Una Reid
WHO Consultant, Geneva, Switzerland*

The focus of this joint ILO/WHO consultation, 5-7 September 2005, was Post-Exposure Prophylaxis (PEP). The objective of the meeting was to develop a consensus approach to Post-Exposure Guidelines.

Post-exposure prophylaxis or post-exposure programme is meant to assist people who may have been exposed to HIV through sex, occupational exposure such as needlestick and other sharps injury, or injection drug use in the past 72 hours to try to prevent HIV infection. The programme includes HIV testing, a 28-day course of anti-HIV medications, and counselling, and referrals to assist people stay safe and HIV negative in the future.

The major issues discussed included; 1) review of basic scientific and epidemiological evidence supporting the use of PEP; 2) current policies and practices regarding assessment of exposure in different situations and the strategies for providing PEP; 3) current recommendations and practices for monitoring and managing patients who have been prescribed PEP; 4) the cost benefit/effectiveness of provision of PEP in different settings; 5) the most appropriate strategy for provision and management of PEP, and 6) the ethical and legal responsibilities of employers, government and civil society in the provision of PEP within the context of scale-up of ART for HIV infected persons.

Confidentiality, informed consent, and areas of responsibility for the employer and the exposed workers were also of concern. Successful implementation of PEP requires a programme of information, education, training, and social dialogue.

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Establishment of a Network to Promote Health Care Worker Safety
(SafeHandS)

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Measures to increase injection safety mean improved outcomes for health care workers (HCW) as well as patients. SafeHandS is a new network to help HCW in resource limited settings in the Asia Pacific region to provide quality patient care and a safe work environment to protect against the transmission of blood borne viruses and other communicable diseases.

SafeHandS developed from a project by the Albion Street Centre for the World Bank to produce a Guidance Note on Health Care Worker Safety from HIV and other Bloodborne Infections. Consultations conducted with HCW from the Asia Pacific region recommended the development of a network on health care worker safety to provide support and information. The Australian Agency for International Development (AusAID) supported the initiative and a strategic plan was developed for 2005 -- 2007.

A website and a quarterly newsletter were launched in July 2005. The first newsletter defined HCW safety and its importance. An introductory letter and the newsletter were disseminated to HCW we had worked with in the region by email. In the first seven weeks, 27 people have joined the network. Members are working in at least seven different countries in the Asia Pacific region.

The three services most requested by members for SafeHandS to provide are: training resources; access to current publications on HCW safety, and, sample policies and procedures.

In August 2005, a moderated email discussion group started to allow members to ask questions and share resources. Responses to date suggest that a network is an appropriate way to share information to improve HCW safety, including injection safety. It will be important to ensure that material promoted through the network is relevant and practical for implementation in resource limited settings.

The SafeHandS website: <http://www.uow.edu.au/health/safehands/index.html>

Healthcare-Associated Viral Hepatitis in the United States: Recognizing and Reducing Risks to Patients

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Preventing the spread of bloodborne pathogens such as hepatitis B virus (HBV), hepatitis C virus (HCV) and HIV represents a core element of basic patient safety. In the United States, healthcare-associated outbreaks of HBV or HCV infections have been increasingly recognized. We reviewed the results of recent outbreak investigations to identify transmission mechanisms and prevention opportunities.

Since the year 2000, recognized healthcare-associated outbreaks of HBV or HCV infections have been associated primarily with long term or outpatient care and involved patient-to-patient spread. Outbreaks in nursing homes and assisted living centers all involved HBV infections among diabetic patients who received routine finger sticks as part of their glucose monitoring regimes. Transmission resulted from failure to implement long-standing recommendations against sharing fingerstick blood sampling devices or from blood contamination of other diabetes care equipment including glucometers and insulin vials. Outbreaks in outpatient care have occurred in a variety of settings including private medical offices, pain clinics, endoscopy clinics and an oncology clinic. The investigations associated with these outbreaks identified hundreds of patients who acquired infection with HBV and/or HCV. Transmission was attributed to contamination of parenteral medications or infusates that resulted from breaches of aseptic technique such as syringe reuse. Deficiencies related to oversight of personnel and lack of follow-up of identified infection control breaches resulted in delays that contributed to large numbers of patients becoming infected.

Preventing transmission of bloodborne pathogens among patients requires adherence to aseptic techniques for handling multidose vials, administering injections, and sampling blood, as well as prompt response to identified instances of transmission. These principles and practices should be made explicit in policies and supported through ongoing education and oversight of all personnel involved in direct patient care, including those in long term and outpatient care settings.

Healthcare Worker Protection and Occupational Exposures to Bloodborne Pathogens - Summary of Plenary Discussions

Key points

- 100% of needlestick is preventable
- Recommendations on occupational safety should be formalized within a legislative framework.
- Employers should have universally acceptable policies on workplace safety, needle stick injury (NSI), hepatitis B vaccine, and support.
- Needlestick surveillance should not be integrated into routine medical accident reporting systems as separate systems are considered to be better at ensuring that the occupational health and safety issues are addressed.

Hepatitis B immunization of HCW is resisted by management in resource constrained countries as a cost – and the argument is made that it is too late for the immunization of health care workers as they would have had earlier exposure. More data are requested to demonstrate the need for immunization. Data on entry-level health worker status would be useful. It may be preferable to provide hepatitis B immunization during training or at the registration stage. The cost of immunization should be borne by employers rather than the health worker. Costs could be reduced by using public priced vaccine (UNICEF).

Country programmes must incorporate: Confidentiality of reporting and the support and treatment services, and job security for health workers as a priority.

Keys to Success:

- Working closely with occupational health department where existing. A useful indicator: *Needle Sticks/100 Health Worker Years*
- Advocacy for the use of WHO tools and adaptation of these tools and materials to local languages
- Sharps containers should be ubiquitous and always available – funding is the main problem
- Health care workers should set the standards for acceptable risk
- The person who makes the sharps waste should clean it up themselves

A Challenging Question: What is the minimum acceptable level of risk of needle stick?



Day 2, Session 2 : Integrated Infection Prevention and Control Strategies

Healthcare Associated Infections: Health and Economic Implications

*Gerald Dziekan
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Examples of the Burden of healthcare associated infections (HAI) are striking. In the US the estimated incidence is 5-6%; prevalence is 5 - 15%, with an attributable mortality rate of 3.6%, while in the EU the prevalence is 3.5-14.8%. In the UK the estimated attributable mortality is 5000 deaths/year. In ICU and selected high risk patients prevalence ranges from 25-50%.

There is limited data from low income countries, but the overall burden is estimated to be much higher than in developed countries: prevalence in Malaysia was reported to be as high as 29.2%, and in Mexico a prevalence 23.3% was reported.

With some 300 million people hospitalised each year, conservative estimates of the global burden of HAI (assuming 5% - 10% of HAI in hospitalized patients) results in 15 – 30 million patients with HAI per year. An estimated average mortality rate of 10% suggests that 1.5 – 3 million deaths/year are due to HAI. For comparison: HIV/AIDS was responsible for 3 million deaths/year in 2003.

In developing and transitional countries the financial burden is largely unknown, but estimated to have huge negative financial implications at patient, hospital and societal levels. Examples are: Mexico: 450 million USD / year; South Africa: 37 million USD / year; Turkey: 48 million USD / year.

Decision makers weigh costs and benefits of any intervention compared to “do-nothing”, standard practice or any other intervention to measure value for money.

IC interventions have demonstrated both their cost-effectiveness and their ability to generate net savings to the hospital and the society. Yet, in many resource-constrained countries, IC is missing or grossly underfunded. Financial incentives are missing, infection control programmes cost resources themselves and IC programmes do not generate revenue – a hospital can't charge for infection control while extra length of stay of patients who contracted nosocomial infections do generate revenue for the hospital. In order to understand the incentives for financing IC programmes, one has to clarify who pays for IC interventions and who is the budget holder and therefore the beneficiary of savings? Only if these two match, there are strong financial incentives for investment in IC programmes. Publicly funded and global budget systems generate the strongest, and private, patient-pay systems the weakest financial incentives.

Conclusion

- High mortality and economic costs justify investment in infection control programmes
- Need to better estimate and communicate global burden of HAI (developing countries)
- Need for full economic analysis of HAI from individual, hospital and societal perspective
- Need to analyse existing financing and incentive structures in Healthcare systems

Innovation and Inventiveness in Utilizing and Reallocating Limited Resources for Infection Prevention and Control: A case Study in Far Northwest China

*Peta-Anne Zimmerman
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The Xinjiang HIV/AIDS Prevention and Care Project, (XJHAPAC) is a collaborative project between the Australian Agency for International Development (AusAID) and the Government of the People's Republic of China. The goal of the project is to build capacity in the Xinjiang Uyghur Autonomous Region to respond to the HIV/AIDS epidemic. One objective of this project is to improve infection control in hospitals in the region and in the community. A review of infection control capacity, protocols and practices of the Regional Infectious Diseases Hospital was performed; using a standardised audit tool and a detailed site visit of the facility. The review was conducted in collaboration with the Director of Infection Control of the Regional Infectious Diseases Hospital. The initial review was undertaken in July 2004.

Recommendations were developed in discussion with hospital management and staff, a written report and two workshops on infection control programme development and management of occupational exposures.

As a result of the review, an Infection Control Director was appointed. In addition changes have been observed, particularly the introduction of innovative methods and systems for the safe handling, disposal of sharps and hand hygiene facilities and practice. These include: the reuse of puncture-resistant containers previously used for other purposes such as paint storage; a cloth hand towel dispensing and laundering system; facility-produced alcohol-based hand rub, and; a hand hygiene/standard precautions campaign including a hand washing poster displayed in clinical areas.

This facility has demonstrated innovation in utilizing and reallocating limited resources to improve safety for patients and health care workers and the infection control standards have improved remarkably. Success to date and in the future depends on continuous improvement and collaboration to ensure local ownership and sustainability of the interventions. Further formal evaluation is planned to use this facility as model for others in the region.

International Policies to Prevent Infections with Bloodborne Pathogens in Dental Offices

*Habib Benzian
FDI World Dental Federation, France*

Oral health professionals contribute significantly to the global number of injections. It is conservatively estimated that dentists, dental therapists, hygienists and other oral health professionals give 6-10 million injections per day. Injections in dentistry have some particular characteristics: they are predominantly intra-oral for local anaesthetic use and in developed countries cartridge systems are frequently used. There are also some specific risks associated with injections in dentistry: provider or patient needlestick due to limited access and visibility during intra-oral application; risk of cross contamination through reuse of vials; reuse of same needle for re-injection for the same patient with increased risks during recapping; lingual nerve damage; exceeding safe anaesthetic levels with toxic risks for patients.

Health professional organizations play an important role in bridging the gap between knowledge and practice by making information available and applicable to practitioners. The FDI World Dental Federation is the global, authoritative voice of the dental profession representing 900,000 dentists worldwide in 137 countries. It has issued policy statements on various issues of infection control, injection safety and safe waste management. These policies serve as guidelines for national dental associations around the globe. Policies are

disseminated via the information network of the FDI and training is provided through Continuing Professional Education programmes and other material. The FDI website (www.fdiworldental.org) lists extensive international and national resources and policies.

Risk of Bloodborne Virus Transmission in Dental Services in One South African Province - An Infection Control Survey

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WHO estimates that up to 5% of transmission occurs via unsafe injection and poor infection control (IC) practice. This study was part of a larger investigation into the possible routes of horizontal HIV transmission among the 2- 9 year old children in the Free State province of South Africa.

The aim of this study was to establish compliance to IC practices in all state dental facilities in the Free State. Knowledge among dental practitioners was assessed via a questionnaire, adequate provision for infection control was documented by observation of the dental units and clinical application of knowledge and provision was established by observing clinical practice. The presence of visible and occult blood (OBTI test) was used as a surrogate marker for inadequate infection control practice and possible risk of blood-borne virus transmission. Occult blood was detected in 28.18% and 24.64% respectively of direct clinical equipment and the dental environment sampled.

Of the 24 dental establishments visited, IC policies existed in <4% of units, 8% knew of an IC practitioner, and less than 22% had been trained in IC.

All the units had a hand wash basin but these were also used for washing instruments, discarding body fluids and liquid waste. Only half of those interviewed knew about standard precautions, but majority of them used gloves and masks for dental procedures, but not eye protection. Adequate stocks of protective clothing were noted in the units. A written blood borne virus policy was found in only two units, but approximately half knew about the policy, counseling and anti-retroviral prophylaxis within 4 hours. Dental equipment was inadequately cleaned and processed in 56% of units observed. Appropriate disposal of sharps was noted in 82.6% of units but colour coded segregation of clinical and non clinical waste was only found in 39%, despite adequate provision.

Dental practitioner knew that protective clothing should be worn (53.6%), sterile instruments should be used for each patient (78.5%) and single use of dental injections was recommended (71.4%). However, only 35.7% reported single patient use of an anaesthetic vial, and 21.4% said they would use a sterile drill head for each patient. Observing dental practice revealed that a fresh pair of gloves was used for each patient in 70.8% of cases, and a new needle and anaesthetic vial was used in 62.5% of cases. Sterile extraction forceps and equipment related to dental procedures were only used 25% of the time.

This study reveals the shortcomings in infection control procedures and the gaps between knowledge and practice. In a province with an approximate 15% HIV positive population, the risk of bloodborne virus transmission via dental practice should be seriously considered.

Update on Infection Prevention and Control and Injection Safety
Activities in Countries of the WHO Regional Office for Africa

*Evelyn Isaacs
WHO, Harare, Zimbabwe*

The SIGN Meeting 2003 'Call for Action' was presented to delegates at the International Conference of HIV/AIDS in Africa, Nairobi, Kenya in September 2003. The key message was for HIV/AIDS prevention and care programmes to spearhead interventions for safer health care while "Increasing Access to HIV Prevention, Treatment and Care". Many of the

interventions recommended by partners at the SIGN meeting of 2003 have been implemented. A Global Alliance of Stakeholders including SIGN several partnerships formed the national infection prevention and control (IPC) coalition. International partners providing technical and financial support in countries include the President's Emergency Plan for AIDS Relief --) Centers for Disease Control (PEPFAR-CDC), United States Agency for International Development (USAID), John Snow, Inc. (JSI), and the International Labour Organization (ILO).

HIV/AIDS National Strategic Plans in the 24 high burden countries integrating infection prevention and control into the prevention and care of HIV and TB programmes with national IPC committees was developed, including pre-service and post-basic training programmes and post-exposure prophylaxis programmes (PEP). 31 countries are using funds from the "Global Alliance for Vaccines and Immunization" (GAVI) to procure auto-disable syringes for all immunization injections and safety boxes for used syringes and needles collection. IPC health care worker education programmes and post-exposure prophylaxis policies are being implemented in 12 countries. IPC training has been revised to include health care waste management policies and training of waste handlers in 10 countries with Making Medical Injections Safer (MMIS) support.

WHO/AFRO has intensified its action to support countries for integrated IPC with special emphasis on PEP in HIV/AIDS programmes. WHO/AFRO has also assisted countries to identify operational research studies on health care worker IPC and injection safety (IS) practices; assisted countries within the framework of IPC to develop injection safety plans and budgets to submit to GAVI; implement safe waste management plans during immunization mass campaigns and routine activities, included IPC techniques into simplified training manuals for Integrated HIV/AIDS Management of adult and childhood illnesses at clinical and community levels. Civil Society networks and the private sector were also assisted in incorporating IPC and IS in the health training of health care workers.

The major challenges in the region are: Convincing governments and partners to contribute to more comprehensive IPC and IS programmes, and to take over from GAVI. WHO plans to accelerate technical support to Member States to develop comprehensive IPC and IS policies and training, to incorporate infection prevention and control into HIV care and prevention.

Results of the Study on Risk Factors for HIV Infection Among Children in the Free State, South Africa

*Shaheen Mehtar
TBAH & Stellenbosch University, Cape Town, South Africa*

Children are among the more vulnerable among hospital populations. A large collaborative study between the HSRC, MRC, CADRE and the Unit for Infection Control was conducted in the Free State to assess the risk of possible bloodborne virus (BBV) exposure among children between the ages of 2-9yrs in state hospitals. Infection control (IC) practices were assessed by establishing the level of knowledge among healthcare workers, observation of facilities and provisions for IC in clinical areas and finally the application of knowledge to clinical practice. All healthcare facilities were visited by a trained team of IC nurses. Knowledge was assessed by a questionnaire, ward provisions were observed and clinical practice was documented. Processing of both expressed and formula milk was documented. Occult blood was used as a surrogate marker for poor IC practice.

It is established that if IC processes are in place and implemented, transmission of pathogens is reduced, therefore this study evaluated the IC processes in the Free State.

The results showed that while knowledge of IC existed, it was not always implemented despite available provisions to do so. There was clear evidence of lack IC practice not only in patient care areas but also in the production and distribution of milk.

This study has led to the Free State implementing more rigorous IC training programmes.

WHO Blood safety programme in Western Pacific Region

Yu Junping
WHO Regional Office in Western Pacific, Manila, Philippines

In WHO Western Pacific Region (WPR), around 21,780,000 blood donations are collected annually. The high prevalence of HBV, HCV in the region and the rapid expansion of HIV/AIDS infection in several member states make the supply of blood and blood products in great danger. Reliance on the fragmented blood transfusion services, which is characterized by lack of quality management, staff training and coordination, lack of programme to recruit and retain voluntary unpaid blood donors from low risk population and wide spread irrational transfusion and the in most of the developing countries make the risk of transmission of HIV and other infections through transfusion even greater. The small-scale and isolation of the Pacific island countries pose further challenges for the region.

WHO blood safety programme in the region was developed based on WHO's global blood safety strategy but more attention in this region has been paid to assist the member states in setting up the well organized nationally coordinated blood transfusion services. WHO has been extensively involved in the advocacy and technical supports to develop national blood transfusion services, including significant policy and structural reform in Viet Nam and Cambodia, China and the Philippines. WHO Quality Management Programme (QMP) has been implemented through its collaborating Centre in Singapore in 13 Member States through training at the regional, national and provincial levels, networking building and follow up visits. The major impacts of WHO's programme are the increased awareness among national government of the significant public health importance of safe blood supply and investment either from the national government or from international funding agencies, in the priority countries.

The launch of the Global Patient Safety Challenge 2005-2006: World Alliance for Patient Safety

Julie Storr
WHO, Geneva, Switzerland

The World Alliance for Patient Safety was launched in Oct 2004 to support countries to improve health care safety, to develop and share knowledge, and mobilize resources to implement country projects related to patient safety. The Global Patient Safety Challenge for 2005-2006 is "Clean Care is Safer Care", with the objective to catalyze countries to achieve safer health care to reduce health care-associated infections globally.

Clean Care is Safer Care: The primary measure to prevent health care-associated infection and to reduce the spread of multi-resistant micro organisms is Clean Hands. On October 13th 2005 we launched the WHO Guidelines on Hand Hygiene in Health Care (Advanced Draft). The guidelines were developed by international experts, are evidence-based, and incorporate consensus recommendations. The guide will be tested in districts from all WHO regions. Objective of the Guidelines on Hand Hygiene in Health Care (Advanced Draft) is to provide health care workers, administrators and health authorities with a thorough review of hand hygiene and in-depth information to overcome obstacles to improvement.

Key issues for action: Handwashing with soap and water when hands are visibly dirty and adoption of alcohol-based hand rub as the gold standard in all other clinical situations, whenever possible. District testing of implementation is needed to provide local data on the

resources required to carry out the guidelines recommendations and refine proposed implementation strategies. From November 2005 to December 2006 the next steps are to identify test sites, test and evaluate, achieve ongoing resolution of unresolved issues, encourage country pledges, raise global awareness, and issue final guidelines and implementation guide and tools.

Integrated Infection Prevention and Control Strategies - Summary of Plenary Discussions

Unsafe practices at health facility level may result from the expectation that health care workers save money and resources, to economize, putting pressure on them to reduce usage of supplies and consumables.

- Funding and commodity procurement for infection control must be included in regular budgets of health facilities.

Dental care:

The South African study presented evidence on the potential for HIV transmission in dental, maternity and paediatric services in public health facilities in middle income South Africa.

- It would be useful to replicate this study design in other settings in low-income countries.

Dental care is predominately private practice – problems include lack of knowledge and cost factors. Dental practitioners resist wearing and using protective equipment and devices. Dental cartridge injector systems are traditional, manufacturer driven, awkward to handle – requiring user recapping and sterilization, use pre-packaged doses, and are difficult to aspirate.

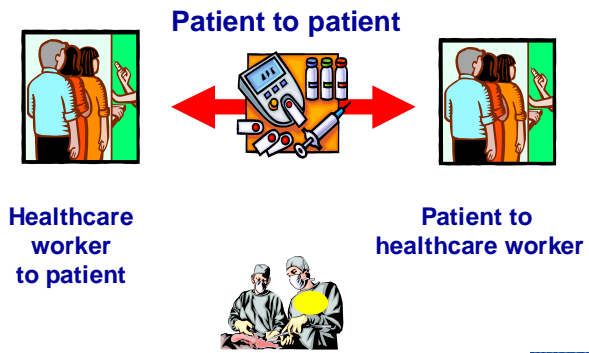
Multidose vials:

- The use of multidose vials is an economic issue for many countries. WHO and CDC recommends the use of single dose vials where possible in all settings. Multidose vials have been implicated in bacterial transmission – needle-less systems can have lower rates of contamination.
- More data are requested in the safe use of needle less system.

Clean Care:

- The use of alcohol hand rubs is secondary to the use of soap, water, and single use clean towels.
- Access to clean water for health care facilities is a priority
- The power of professional associations in enforcing infection prevention and control policy and guidelines must be explored.

HBV & HCV Transmission in Health Care Settings



See: *Clinical Infectious Diseases* 2004; 38:1592-8

Day 3: 16 November 2005

Day 3, Session 1: Quality and Access to Injection Devices

Update on the WHO Performance Quality and Safety (PQS) pre-qualification system for injection devices

*Paul Mallins
WHO, Geneva, Switzerland*

Performance, Quality & Safety: An improved system for pre-qualifying injection devices is a robust three step cycle: 1. Establish norms and standards and keep these under review. 2. Develop and maintain performance specs and verification protocols. 3. Monitor products post-market and use the results.

What was wrong with the PIS? Absence of formal procedures (specification revision, product withdrawal etc) Based on one off-testing with no systematic mechanism to collect post market feedback, Standards written by WHO

What's new about the PQS? WHO standards replaced by ISO device standards (7886-3 & DIS 7886-4), Manufacturing Quality Assurance – ISO 13485 independently verified by a notified body. Systematic feedback mechanism, Cost recovery scheme.

Reports of problems with devices should be documented and reported in writing to WHO PQS.

Achievements to 9 November 2006: 69 product dossiers/preliminary dossiers received and reviewed, 39 products pre-qualified. All complete dossiers received by June 2005 were reviewed in time to meet UNICEF tender deadline.

The Performance, Quality and Safety (PQS) website is: <http://www.who.int/vaccines-access/vacman/pis/pqs.htm>

Preliminary Results of a Study on Injection Devices with Reuse Prevention Feature (RPF) in Karachi, Pakistan

*Mubina Agboatwalla,
HOPE, Karachi, Pakistan*

Various technologies for re-use prevention syringes and needles have been developed that meet WHO specifications for re-use prevention devices. There is a need to assess the usability of these syringes and needles and their acceptability by clinicians in various settings. The field effectiveness of these devices in eliminating re-use of injection equipment needs to be documented to justify their higher price.

Objectives of the study were 1. To assess the usability and acceptability of four different curative syringes and needles with re-use prevention features by general practitioners in Karachi, Pakistan. 2. To identify the specific characteristics of the various syringes and needles assessed that could represent a challenge from a user acceptability point of view, and 3. to determine whether the methods proposed are valid for comparing various syringes and needles with re-use prevention features in terms of usability and acceptability.

A total of 30 GPs offices participated in the assessment. A half day training session was attended by the GPs and Dispensers. The standard WHO tool to assess injection devices in the field was used to collect data were.

Initial observations: 1. Pain to patient on activation of device can occur. 2. Excessive force needed to activate the device. 3. some device gets accidentally locked before administration. 4. Needle can be re-used in some cases.

The analysis and the study report will be finalized by December 2005.

*Darin Zehrung,
PATH, Seattle, USA*

Jet injectors were used for many decades in mass immunization campaigns, such as measles, yellow fever, meningitis, etc. In 1985, there was an outbreak of hepatitis B associated with a particular model of jet injector in a California weight loss clinic. Further clinical and laboratory studies confirmed that jet injectors with a multiple use nozzle design were capable of cross contamination. WHO modified its policy, recommending against use until safety could be demonstrated.

In the early 1990s, new designs of jet injectors were developed. The PATH Needle Free Injector Project is focused on two jet injection technologies. The first is the Mass Immunization Campaign Injector for rapid response and pandemic situations. The device utilizes disposable, Autodisable (AD) "protector caps" to prevent cross contamination. DCJIs are capable of consistent and reliable intra-dermal (ID) delivery. The potential benefits include increased vaccine available for capacity limited vaccines, such as influenza and injectable polio vaccine.

The Biojector 2000 is used in the USA for injectable vaccines, in age ranges from children to adults. It is also used for other therapeutic applications. It can deliver SC and IM, with the use of different cartridges and is the only needle free injector company with a Federal Drug Administration (FDA) licensed product on the market to deliver IM. Cartridges are filled through a vial adaptor and installed on the injector. It utilizes CO₂ as the power source (canisters) and over the last few years.

The Vitajet is self administration device, for insulin or human growth hormone (HGH). It is capable of SC injections and is used throughout the world. It is SC capable only, and manually powered by a spring.

There are several studies in development to further explore ID delivery with dose reduction of vaccines with the objective to demonstrate proper immune response, and evaluate reactogenicity, tolerability, and reliability: CDC influenza trial in Dominican Republic (paediatric); WHO IPV trial in Cuba (adults and paediatric), PATH influenza trial United States (geriatric); and WHO pneumococcal conjugate vaccine trial UK (adults).

Quality and Access to Injection Devices - Summary of Plenary Discussions

Injection Devices

- There is a WHO process and procedure for the pre-qualification of immunization devices.
- Manufacturers should solicit and incorporate user comment and feedback in their device design process.
- Continued repurchase of specific injection devices depend on customer satisfaction and the needs of the government or private procurement systems. Markets should decide on appropriate choices. Healthcare workers should have a role in device selection.
- The trend in developed countries is to mandate the use of safety devices. Wide use will bring down costs through bulk purchase.

Sharps Containers

There are no ISO, EU, USA, or UK standards for sharps boxes. Standards for safety boxes are needed as most seen are not adequate, boxes must be suitable to the health care worker task, and ergonomics must be improved. Local production of Safety Boxes is applauded.

Lancets

Protected lancets should be standardized. A working group on lancets is needed.

Day 3, Session 2: Health Care Waste Management

Sharps Waste Management in Poor Settings in Central America and The Caribbean: Remaining Challenges

*Paulo Froes
UNICEF/TACRO Regional Office, Panama*

Following a brief update on injection safety policies and practices in Central America and the Caribbean, findings from field visits conducted by UNICEF Immunization plus TACRO in 2004-2005 in poor settings in this culturally diverse geographical area are presented.

Gaps in regional knowledge regarding the epidemiology of needle sticks and other sharps-related injuries are highlighted. Sharps waste disposal processes are discussed with emphasis on incineration and burn and burial practices. Within the scope of a strategic approach to address remaining gaps and challenges, key advocacy, managerial, educational and training issues are discussed. Finally, perspectives regarding alternative sharps injury prevention devices and strategies are addressed.

Healthcare Solid Waste Management at Different Levels in Viet Nam

*Nguyen Trong Khoa,
Ministry of Health, Hanoi, Viet Nam*

In 2005, Viet Nam has 1047 hospitals at different levels: central, provincial, district and private. When not collected with domestic waste and disposed of in landfills, it is often onsite buried or open burnt, inducing risk of water contamination and scavenging. Connected to the increase of the population and the development of the healthcare network in Viet Nam, increase of Hazardous HealthCare Solid Waste (HzHCSW) production is estimated to 7% per year for the next 10 years.

From 2001-2003, with technical and financial support from the French Government, the Ministry of Health and line ministries develop a Master Plan on Healthcare Solid Waste Treatment in Viet Nam. The following objectives for rationalizing HzHCSW management and treatment system were defined: more adequate treatment rates, better protection of the environment and human health and higher economical performance.

Case 1: Collection of the entire HzHCSW provincial production of waste. Total HzHCSW production at provincial level would be collected, transported and treated in the Provincial Treatment Centers (PTC)

Case 2: Collection of part of the HzHCSW provincial production of waste. HzHCSW produced in this cluster would be collected, transported and treated in the PTC Remaining HzHCSW production in remote health care facilities would be onsite treated in individual smaller devices. The only existing treatment technique is incineration. To keep air emission sources to a minimum, technical orientation for onsite treatment devices is a combination of electrical destruction of needles and wet disinfection of other clinical waste.

Externalizing transportation and treatment activities would allow central treatment devices to be run by professionals avoiding medical staff to be responsible for this non-medical activity.

Steering Committees at central and provincial levels respectively with representatives of line ministries and representatives of provincial services would be the executive bodies of the Master Plan. Estimated investment required is 21.5 million USD over the 10 year-period, i.e. around 300,000 USD per province, ranging from 80,000 to 1,100,000 USD per province. 46 new incineration devices would be purchased and installed at Provincial Treatment Centers.

The proposed scheme for funding running costs is the implementation of an environmental tax on hospitalization fees for solid and liquid waste treatment and management. The level of this tax is not significant, compare to current hospitalization fees practices.

Immediate activities: Validation of the Master Plan by line ministries; Initialization of the Pilot Project of Application; Elaboration of Provincial Master Plan and Provincial Action Plan in each province;

Pilot Project on Needle Removing and Plastic Recycling in Ukraine
(2003-2004)

Eric Laurent
WHO, Copenhagen, Denmark

Following assessment and the introduction of AD syringe use, a pilot project was initiated in Ukraine with objective to improve injection safety and sharps disposal through a non-burning option. Ukraine previously recycled the plastic of disposable syringes and was interested to avoid incineration and landfill. The project was to test a) needle removing, b) neutralisation by autoclaving, c) containment with safety container and autoclaving bag, d) methods of transport, e) treatment through shredding and recycling, f) costs analysis.

Overall sense of increased safety, compared to previous system where health workers manually separated needle from syringe and chemically decontaminated

No injuries reported with the new system

Using autoclaving for neutralization judged feasible and well accepted by health staff

Quality control of neutralization possible for autoclaving (test indicators)

Transport burden remains the same with the new system, and certainly a costly component

Recycling AD syringe technically feasible and achieved by separation of metal insert; but still technical problems remain

Financial interest for recycling AD syringe lower than regular disposable

The overall cost for the new system remains the same than the previous system

Need for investment in new equipments (autoclave, needle cutter)

The new system provided good argument regarding improvement of safety and its viability in Ukraine. Actions to undertake for a second phase:

1. Put injection safety and healthcare waste management high on the National Agenda
2. Activate a functional inter-sectorial Committee on IS/HCWM at National and Regional level
3. National Plan of Action to be drafted/ revised
4. Gather Partners to support the implementation and equipments purchase
5. Whenever feasible, integrate into the programmeme all injection wastes (therapeutic)

Medical waste management policy in Primary Health Facilities in Indonesia is not yet standardized, while efforts to improve safe injection practices such as the introduction of auto-disable (AD) syringes for the immunization programme makes the issue of medical waste at PHF level more urgent.

To address the problem in 2003-2004 the Ministry of Health, in collaboration with PATH initiated a pilot medical waste management system for PHF in 3 districts of Yogyakarta province. The system covered a mixture of rural-urban population of 1,677,000 and 67 PHFs with infrastructure, distance, and conditions that were considered representative of many districts in Indonesia.

To start, a national workshop to promote awareness of the medical waste problem was held. Mapping and situation analysis of the pilot districts was then conducted to obtain information as basis for the system design. High temperature incineration was used as the final disposal method combined with a waste collection system in a centralized or decentralized manner for urban and rural areas respectively.

Introduction of safety boxes, training on the system and on the use of small-scale incinerators (SSI), supplemented with technical monitoring and supervision was performed. Dialogue between the health office and the local government was promoted to ensure sustainability of the system. After 1 year of implementation, the lessons learned are that (1) high temperature incineration is feasible with SSIs and, in the absence of better alternatives, provides an environmentally acceptable solution for waste disposal. (2) not all SSIs are equal. SICIM incinerators did not perform as well as other SSIs, while De Montfort (>800°C) and locally-designed DD-Best (>1050°C) were able to achieve high temperature with low emission using biomass as fuel; (3) the local situation dictates the design of an optimum medical waste management system, particularly in transportation of waste to a final disposal location, and (4) collaboration between the different units within the MOH is critical to ensure system sustainability.

*Ute Pieper
EtLog, Berlin, Germany*

Objective of the Health Care Waste (HCW) project in Samsun was the introduction of a safe waste management system in healthcare facilities, as well as the planning of the external disposal logistic. In Samsun, improper disposal of healthcare risk waste, including illegal dumping and uncontrolled disposal, increased the risk of spreading infections.

During the evaluation of the current situation, high risk potentials along the complete waste handling chain – from segregation, collection, transport, storage up to final disposal had been identified. Parallel, a “Rapid-On-Site-Assessment (ROSA)” based on standardized questionnaires was introduced. The results provided information about the weak points of the HCW system regarding management, logistic, awareness and supply of equipment.

In order to achieve sustainable results vocational training for the key persons of the healthcare facilities and the responsible governmental level was set up. The strategy of the ETLog training is based on a mixture of presentations, workshops and on the job training. The participants were trained on the waste management principles, risks of waste, planning and implementing of a proper HCW management system. By passing a test the trainees were officially certified as “Healthcare Waste Officer”. The first steps of implementation have been accomplished and supported.

The strategy for disposing of infectious waste and sharps is based on a centralised solution: sterilisation of the waste by an autoclave, which is located on the municipal landfill of Samsun.

The Stockholm Convention on POPs & the GEF Project on Health-Care Waste

*Jorge Emmanuel
GEF Global Project Team*

The Stockholm Convention on Persistent Organic Pollutants (POPs), signed by over 150 countries, has the goal of reducing or eliminating POPs. Among the POPs are dioxins and furans, which travel long distances in the environment, remain for a long time in the environment, and are highly toxic at low concentrations, having been linked to various cancers, reproductive effects, developmental disorders, and other health impacts. Dioxins and furans are formed during medical waste incineration.

A health risk assessment sponsored by WHO in 2004 indicated unacceptable cancer risks from poorly designed or operated small incinerators when used as little as 1 hour a month. Under the Stockholm Convention, countries must require "best available techniques" for new incinerators within four years of the convention's entry into force. Under current draft guidelines, single-chamber, drum and brick incinerators are not considered best available techniques. The Convention requires that priority consideration be given to non-incineration alternatives such as autoclave and microwave technologies.

The Global Environmental Facility (GEF) Project on health-care waste is intended to demonstrate compliance with the convention in Argentina, India, Latvia, Lebanon, Philippines, Senegal and Viet Nam. In addition to non-incineration technologies, the demonstration project will also showcase waste minimization, pollution prevention,

training, monitoring, and other aspects of health-care waste management. The GEF project will also demonstrate local manufacture and use of low-cost, small to medium alternative technologies. Information will be posted on www.gefmedwaste.org. Countries are encouraged to take advantage of the Global Environmental Facility, a funding mechanism to assist developing countries in meeting their obligations under the Stockholm Convention. For countries that have ratified the Convention, Ministries of Health could work with the Ministries of Environment to apply for GEF funding to deploy alternative technologies.

Health Care Waste Management - Summary of Plenary Discussions

Waste management is a process – not a technology. We must stop applying double standards: some appropriate improvement that works is an improvement providing benefits and reduction in transmission risk. To achieve progress health care waste management (HCWM) needs to be high on national agendas, have a home in the bureaucracy, a focal person, human resources, and a working group.

Mapping is a useful technique for developing plans for the management of health care waste.

Users must be careful to segregate waste streams – so that sterilization facilities are not the same autoclaves used for waste treatment

We need to develop a strong partnership to help countries develop national plans and comprehensive approaches. We recognize that there is not one single option but options for various contexts: that incineration or non-incineration are our current options and we should not be split in two camps but rather combine our efforts to safely handle health care waste management.

Actual cost data, burden of disease data, and cost-benefit data on health-care waste management is needed to enable managers to effectively compete for scarce financial and human resources and to advocate for the allocation of resources to HCWM.

Data and action is needed on cruise ships and other shipping dumping medical waste at sea, reported to be a problem for island states

Global Action

There is a great need for advocacy for appropriate policies and financial resources to support Healthcare waste management activities, and to improve collaboration between ministries of health and ministries of environment. Countries should develop and include HCWM in national environment plans.

The World Bank, Asian Development Bank, and United Nations Development Programme municipal waste projects are happening in many countries. Infectious waste is a small part of the waste stream but needs to be included in these projects. These organizations should meet and coordinate policy and planning for HCWM in their development projects.

The Global Environment Facility (GEF) is interested in helping and supporting countries to access POP transition support funding for the introductions of appropriate waste management technologies. Health ministries in developing countries are encouraged to work with environmental ministries to seek GEF funding for alternative (non-incineration) technologies to treat health care waste.

Key Action Points:

Resources are needed to assist in the development of national plans and to support implementation.

1. Bring Waste management high on the international agenda in all forums
2. Conduct a situational analysis of health-care waste management projects being done on a regional basis. The analysis should include projects and future plans by the World

Bank, Asian Development Bank, Bilaterals, NGOs, and other aid and development agencies.

3. Explore the feasibility of organizing an international meeting of stakeholders including international associations on health-care waste management.

4. Explore the possibility of organizing a technical briefing on health-care waste management at the World Health Assembly (2007). Explore the possibility of member states proposing a resolution on health-care waste management at the World Health Assembly.

*Allan Bass
SIGNpost moderator, Australia*

SIGNpost, the Safe Injection Global Network listserv, has operated since October 1999, when there were only 20 subscribers. SIGN Forum objectives are to: maintain a moderated and directed discussion involving appropriate individuals, throughout the world, who are responsible or could contribute to the development and implementation of safe injection strategies; provide a forum for the concise and facilitated exchange of knowledge and experience in implementing safe injection strategies; and contribute to the development of consensus and actions leading to injection safety.

In November 2005 there were 889 subscribers from all regions of the world. Though there is some movement, subscriber levels remain at around 900 worldwide. Many subscribers report that they share postings with colleagues who are not subscribers, multiplying coverage many-fold. Several public health listserv moderators subscribe and cross-post SIGN postings to their subscribers.

Fifty-six editions of SIGNpost were sent to subscribers in the last year. SIGNposts on average contained 65 kb or the equivalent of about 32 pages of plain text. The annual equivalent of nearly 1,800 pages of text relating to safe injections was e-mailed to subscribers. More than 300 contributed items were posted from a wide variety of sources and participants. Additional appropriate news items, corporate and technical information from other e-mail lists were also posted.

Discussions have included: Interventions and country programme development; Waste management technologies and policy; Disease transmission; Studies and research; Pre-publication review of technical tools, strategy, and policy documents; Wide and rapid international dissemination of new documents; Safe injection technologies including auto-disable syringes and needles; Reducing medical injections; Needle-syringe programmes; Needlestick prevention; Counterfeit drugs and injection equipment; Blood safety; Infection control, Multisectoral collaboration

An archive of all key draft SIGN documents in appropriate common file formats is maintained for subscriber download at the SIGNpost ftp website. The ftp website also holds archives of all recent editions of SIGNpost in printer friendly format, and downloadable annual compilations as compressed zip files.

Conclusions and the Way Forward

SIGN 2006 meeting

It was proposed that the next SIGN meeting be held in the Americas region. The reduction of unnecessary injections and rational drug use was suggested as a theme for the next SIGN meeting. Alternative injection and drug delivery technologies should be included in the meeting.

Pharmacists and pharmaceutical manufacturers should be encouraged to participate in SIGN. Participation of health workers from the developing world as meeting speakers should be enlarged.

SIGNpost

SIGNpost continues to be a useful resource for the network. Developing country participants requested that posts be continued in plain text format. Guidelines on referencing postings and conducting archive searches were requested.

Safe Injection Global Network and its focus

Given that SIGN is the only organization focused on unsafe injection, concerns about the potential loss of focus on injection safety resulting from additional scope was expressed.

Lancets and transfusions are also appropriate for SIGN. Should Acupuncture be a SIGN concern?

The injection safety problem is larger than unsafe medical injections in public health services. Informal providers meet a market demand from rural, poor consumer to bypass formal private providers. The network needs to understand the roles of private sector (off-hour nurses, paramedics, midwives, lab workers, pharmacies (pharmacists, attendants, clerks, family members), and informal sector providers such as, traditional medicine practitioners, illegal drug vendors (market, itinerant), injectionists and quacks, clinic housekeepers and cleaners, and dispensers. SIGN needs to address other key population groups such as injection drug users, whose role in HIV transmission is becoming very clear.

Health care worker protection is identified as one of the priorities of SIGN, including Protection of frontline health workers, particularly in view of the HIV and hepatitis C epidemics. SIGN should also address health care associated infections for health workers, prioritized by the level of risk, frequency of exposure, effectiveness of interventions, and an identified hierarchy of controls.

More data about syringe use in curative services is requested. Key questions are: intravenous vs. intramuscular or subcutaneous injections; removable needles and the ability to manipulate plungers; combine syringes with other devices; and remove needles in phlebotomy). A working group on lancets is needed.

A more systematic approach to health care waste management (HCWM) would be more effective in addressing cost, enable the development of more solutions, and would facilitate interdisciplinary action.

A reference panel or working group of users and producers of injection devices with safety features should be established to develop basic principles for the development of tender specifications.

It is a priority to identify ways to implement SIGN recommendations, to get action at the lower levels of the health system, to achieve behavioural change, and most importantly improving the practices of front line health workers.

The meeting was closed by Dr. Nguyen Duy Bao, Deputy Head of the Viet Nam National Institute of Environmental and Occupational Health.

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Appendix 2: Programmeme of work

Day 1- 14 November 2005

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8:00-9:00	<i>Registration</i>	
<i>Morning: Opening session</i>		
9:00-9:30	Welcome remarks	Mr Le Ngoc Trong, Vice Minister of Health, Viet Nam
	Welcome remarks	Professor Nguyen Khac Hai, NIOEH
	Opening address	Neelam Dhingra, WHO
9:30-9:45	WHO strategic directions for injection safety and related infection prevention and control	Neelam Dhingra, WHO
<i>Global and country initiatives for injection safety and infection prevention and control</i>		
9:45-10:00	Viet Nam: From a national injection safety assessment to policy changes	Ly Ngoc Kinh, Pham Duc Muc, Ministry of Health Viet Nam
10:00-10:15	Mongolia: From a national injection safety assessment to policy changes	Gochoo Soyolgerel, Ministry of Health Mongolia
10:15-10:30	Cambodia: A comprehensive strategy to reduce overuse of injections and to prevent health care associated infections with HIV and other bloodborne pathogens	Chean Rithy Men, Consultant
10:30-11:00	<i>Break</i>	
11:00-11:15	Intervention in Syria on improvement of injection practices with a post intervention evaluation	Selma Khamassi, WHO
11:15-11:30	WHO Report on Immunization Safety Priority Project (ISPP)	Dina Pfeifer, WHO
11:30-11:45	Promoting rational use of injections	Sophie Logez, WHO
11:45-12:30	Discussion	
12:30-14:00	<i>Lunch</i>	
<i>Afternoon:</i>		
<i>Reviewing progress in African injection safety projects</i>		
14:00-14:15	U.S. President's Emergency Plan for AIDS Relief: Update on HIV Prevention through Safer Medical Injections	Glenn Post, USAID
14:15-15:45	Update of the "Making Medical Injections Safer (MMIS) Project"	Jules Millogo, JSI/MMIS
	Injection Safety Global Assessment: a tool for micro-planning at district level, Côte d'Ivoire	Jean-Marie N'Gbichi, MMIS
	Building foundations for sustainability of MMIS programme in Ethiopia	Solomon Worku, MMIS
	Championing injection safety in Nigeria	Abimbola Sowande, MMIS
	Leveraging Resources to Promote Safe Health Care Waste Management in Rwanda	Bonaventure Nzeimana, MoH Rwanda
15:45-16:00	SIGN: some insights from inception to implementation	Robert Chen, CDC
16:00-16:30	<i>Break</i>	
16:30-16:45	Update on injection safety project in Namibia	Lydia Nisbet, URC/CHS
16:45-17:00	Innovations in improving quality of care in a low resource setting in Zambia	Martha Ndhlovu, Kuhu Maitra, Chemonics
17:00-17:15	Training curricula on injection safety in immunization programmeme in Western Africa	Alfred Da Silva, AMP
17:15-18:00	Group discussion: What lessons for scaled up approaches?	

<i>Time</i>	<i>Title</i>	<i>Presenter</i>
<i>Morning:</i>		
<i>Health care worker protection and occupational exposures to bloodborne pathogens</i>		
9:00-9:30	Adapting SIGN tools for occupational health of Health Care Workers A new WHO tool kit to prevent needle-stick injuries & occupational exposure to HIV/AIDS	Susan Wilburn, WHO Consultant
9:30-9:45	Prevention of occupational needle-stick injury in some selected health care settings in Hanoi	Duong Khanh Van, Nguyen Khac Hai, NIOEH
9:45-10:00	Report on the ILO/WHO Expert Meeting on Post-Exposure Prophylaxis (PEP)	Una Reid, WHO Consultant
10:00-10:15	Establishment of a network to promote health care worker safety (SafeHandS)	Philip Melling, NSW ICRC
10:15-10:45	<i>Break</i>	
10:45-11:45	Group discussion	
11:45-12:00	Healthcare-associated viral hepatitis in the United States: Recognizing and reducing risks to patients	Joseph Perz, CDC/DVH
12:00-14:00	<i>Lunch</i>	
<i>Afternoon:</i>		
<i>Integrated infection prevention and control strategies</i>		
14:00-14:15	Healthcare associated infections: health and economic implications	Gerald Dziekan, WHO
14:15-14:30	Innovation and inventiveness in utilizing and reallocating limited resources for infection prevention and control: A case study in far northwest China	Peta-Anne Zimmerman, PRC
14:30-14:45	International policies to prevent infections with bloodborne pathogens in dental offices	Habib Benzian, FDI
14:45-15:00	Risk of bloodborne virus transmission in dental services in one South African province - an infection control survey	Shaheen Mehtar, SUN
15:00-15:15	Update on infection prevention and control and injection safety activities in countries of the WHO Regional Office for Africa	Evelyn Isaacs, WHO
15:15-15:30	Results of the study on risk factors for HIV infection among children in the Free State, South Africa	Shaheen Mehtar, SUN
15:30-16:00	Group discussion	
16:00-16:30	<i>Break</i>	
16:30-16:45	WHO blood safety programme in Western Pacific Region	Yu Junping, WHO
16:45-17:00	The launch of the Global Patient Safety Challenge	Julie Storr, WHO
17:00-18:00	Group discussion	

<i>Time</i>	<i>Title</i>	<i>Presenter</i>
<i>Morning:</i>		
<i>Quality and access to injection devices</i>		
8:30-8:45	Update on the WHO Performance Quality and Safety (PQS) prequalification system for injection devices	Paul Mallins, WHO
8:45-9:00	Preliminary results of a study on injection devices with reuse prevention feature (RPF) in Karachi, Pakistan	Mubina Agboatwalla, HOPE
9:00-9:15	Presentation of disposable cartridge jet injectors for immunization	Darin Zehrung, PATH
9:15-9:30	Group discussion	
9:30-10:00	<i>Break</i>	
<i>Health care waste management</i>		
10:00-10:15	Sharps waste management in poor settings in Central America and the Caribbean: remaining challenges	Paulo Froes, UNICEF
10:15-10:30	Healthcare Solid Waste Management at different levels in Viet Nam	Nguyen Trong Khoa, MoH
10:30-10:45	Pilot project on needle removing and plastic recycling in Ukraine (2003-2004)	Eric Laurent, WHO
10:45-11:00	Medical waste management for primary health facilities in Indonesia	Anton Widjaya, PATH
11:00-11:15	Experiences from Health Care Waste Project in Samsun, Turkey	Ute Pieper, EtLog
11:15-12:15	Group Discussion	
12:15-12:30	Report on SIGNpost	Allan Bass, SIGNpost moderator
12:30-13:00	Conclusion and way forward	
13:00-13:15	<i>Closing session</i>	

- Following the closure of the meeting, a special session on health care waste management is organized as a satellite meeting, from 14.30 to 16.30