

# Report of the Third TB Infection Control Core Group Meeting

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**Berlin, Germany**  
**9–10 November 2010**





**Report of the Third TB Infection  
Control Core Group Meeting,  
TB/HIV Working Group of the Stop TB Partnership**

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# Acknowledgements

To all participants that greatly contributed to this meeting.

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## Introduction and objectives

The Core Group (CG) of the Tuberculosis Infection Control (TB IC) Subgroup, TB/HIV Working Group of the Stop TB Partnership, has conducted its 3rd meeting in Berlin on 9-10 November 2010.

After the publication of the WHO Policy on TB-IC in health-care facilities, congregate settings and households (2009) guidelines and an advocacy strategy document for the adoption of this policy (June 2010), TB-IC is entering in a new phase of scaling-up implementation worldwide.

The general purpose of the meeting was to elaborate and to discuss the overall strategy and detailed activities towards this new phase.

The specific objectives were:

1. to review the progress in the global response concerning the implementation of TB infection control at health care level, congregate settings, and in the community;
2. to review progress towards accomplishment of the activities outlined in the Core Group 2009–10 plan of work;
3. to review the subgroup TB-IC strategy and activities needed for a new phase;
4. to draft a plan of work for 2010–2011, based on the accomplishments to date on the 2009–10 plan of work, and prioritizations needed for TB-IC implementation worldwide;
5. to decide on the renewal/rotation of institutional and individual memberships of core group members.

## Proceedings:

### Day 1

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#### **Session 1: Progress and challenges in scaling-up TB-IC implementation - Country experiences**

##### **Objectives**

To review the progress in the global response concerning the implementation of TB infection control at health care, congregate settings, and in the community.

##### **Major topics presented:**

The first presentation addressed different aspects related to the past and present situation of the TB-IC working group, and its next steps. Four presentations followed, which analysed several countries experiences, both at national and community levels (South Africa Latin-America, European and high TB-burden priority countries, Rwanda).

##### **Synthesis of presentations**

#### **1. TB-IC: Where have we been and where are we going? (Dr Bess Miller)**

Since its creation in November 2006, the TB Infection Control subgroup, through different partners and organizations (e.g. TB CTA projects and others), worked mostly in several directions:

- collaborating and initiating the production of policy, advocacy documents and other tools on TB-IC,
- initiating and supporting regional and national trainings and courses (35 trainings with more than 1300 participants for the period 2007–November 2009);
- including specific training in Engineering Infection Control (Harvard School of Public Health Course with more than 100 persons trained).

Next steps will be discussed during the current meeting, but we should increase focus on protection of health care workers, scale-up training, promote the use of TB infection control indicators and promote basic and operational research on TB-IC.

#### **2. Country experiences: tuberculosis infection control in Khayelitsha, South Africa: experience and challenges (Dr Helen Cox)**

High rates of undiagnosed TB, drug-resistant (DR) TB and HIV are affecting vulnerable population in Khayelitsha. From 2007, a pilot project decentralizing and integrating the care of DR-TB into the TB/HIV clinics was implemented at administrative control level, with environmental control components. With respect of personal protective controls, health staff used respirators while paper masks were distributed to all clinic attendees. Information at community level was disseminated through local media. For multidrug-resistant (MDR) patients only, home visits were implemented and patients were encouraged to wear paper mask in overcrowded and closed settings.

Finally an example of a 12-bed renovated facility, the Lizo Nobanda TB Care Centre in Khayelitsha was presented.

### **3. Country experiences: TB-IC in Latin-America 2004–2010 (Dr M. Yagui Moscoso)**

According to a rapid assessment for infection control programmes performed in 2006 and 2007, the majority of the 67 hospitals evaluated in seven countries in Latin America had no conditions for airborne isolation. In Peru, 602 tuberculosis cases had been registered in health workers in hospitals, while in the period 1997–2007, 154 MDR-TB cases in health workers according to occupational group have been reported. In October 2009 PAHO organized a Regional Course in TB-IC. Since 2007, at national level, several countries have been offering a “Course for prevention of transmission of *M. tuberculosis*”.

TB infection control in prisons is also a major concern in Latin America. It has been implemented with Global Fund financing. In 2008, the Pan American Sanitary Bureau (AMRO/PAHO) prepared and published *Guía para el control de la tuberculosis en poblaciones privadas de libertad de América Latina y el Caribe* (Guide for Tuberculosis Control in Populations Deprived of Liberty in Latin America and the Caribbean).

Peru has built its National Reference Laboratory for TB with biosafety level 3 and began a course on biosafety in 2011 with the support of the FioCruz Institute (Brazil).

The Dominican Republic, Ecuador and Guyana, have assessments on TB-IC, national plans and trainings, while more work is needed in Colombia, El Salvador, Guatemala, Honduras, Nicaragua and Suriname. Nothing has been done in Haiti.

### **4. Country experiences: Improving TB-IC in European high-burden priority countries: from theory to practice (Dr Massoud Dara)**

Of 440 000 estimated MDR-TB patients in the world, 81 000 prevalent cases are in the WHO European Region, with the nine highest rates of MDR-TB. These nine countries exceed 12% among new TB cases, and the top six exceed 50% among previously-treated cases. MDR-TB is the result of inadequate infection control and poor management of tuberculosis. Many countries in the Region have reported XDR-TB due to limited access to diagnosis and quality treatment of MDR-TB and high default rates.

To reduce this trend, national and sub-regional TB-IC training and workshops have started, some national and international consultants have been trained and some have been mentored. TB-IC national action plans have been developed and country follow-up visits have been conducted.

### **5. Country experiences: TB-IC implementation: Rwanda’s experience (Dr Claude Rutanga)**

Key steps in the implementation of TB-IC in Rwanda have been: training of health care workers (HCWs), joint assessment of health facility TB risk, development and implementation of health facility IC plan and supervisions. The minimum package for TB-IC in health facilities includes: IC plan and a TB-IC focal point, regular training of health care staff on TB-IC, triage and separation of coughers and TB cases, IEC sessions on cough hygiene done at least once a week in waiting areas, admission of smear positive cases in isolated rooms, natural ventilation in all risk departments by keeping windows and doors open, documentation and reporting of TB cases among HCWs to the national TB-IC officer.

A total of 790 HCWs have been trained on IC measures from 2008 to 2010. The functional MDR-TB specialized care unit where 45% patients are HIV+ is implementing optimally IC measures. By the end of this year, more than 90% of district hospitals will be applying the National TB Programmes (NTP) minimum infection control measures as per their infection control plans. Isoniazid Prevention Therapy guidelines are being discussed now and TB risk assessment among HCWs has started and will inform planning and policy.

## 6. *The impact of chemotherapy on MDR-TB transmission (Dr Ed Nardell)*

Approximately half of the MDR-TB cases reported globally occur in previously untreated patients, as a result of transmission. Among previously treated TB patients with MDR-TB, microbial genotyping suggests additional transmitted re-infection in many settings that is misclassified as acquired resistance. Effective treatment has long been understood to be the most important intervention to stop transmission, but sputum culture conversion of MDR-TB patients on effective treatment averages approximately two months. As a result, current infection control practices assume infectiousness during that period, and in many parts of the world, patients remain hospitalized until two specimens prove sputum culture negative. This places an unsustainable burden on hospitals poorly equipped for infection control, but an increased use of community-based treatment is hampered by fears of household transmission upon discharge. There has been no direct evidence on the impact of effective treatment on MDR-TB transmission.

**Methods:** For the past five years, culture-proven MDR-TB patients were admitted to a six-bed experimental Wells-Riley-type ward at the Mpumalanga Province MDR Treatment Center (in South Africa) for the purpose of directly quantifying MDR-TB transmission and the impact of infection control interventions. Between 180 and 360 sentinel guinea pigs were exposed in nearby chambers to the exhaust air from the ward through an airtight controlled ventilation system. Transmission was documented by tuberculin skin test conversion, and when post-mortem examination of guinea pig tissues revealed the disease, by culture with drug susceptibility testing and genotyping of isolates for comparison with patient isolates. In order to quantify the impact of interventions, subjects believed to be highly infectious were selected: mostly smear positive, coughing, with lung cavitation, and started on therapy only after admission to the ward.

**Results:** In four two- to four-month experiments, 92 MDR-TB patients were admitted to the six-bed ward for average stays of approximately two weeks. In our first and third experiments, transmission was extensive and in each case, there were three unrecognized, inadequately treated XDR patients on the ward. In the first study, 74% of the 362 guinea pigs were infected over four months by exposure to 26 patients: 96% culture positive, 76% sputum smear positive, 37% lung cavities, and approximately 70% HIV positive. Only 12% of the guinea pigs progressed to pathological lesions and in only 13 were viable organisms isolated from frozen tissues. Limited genotyping (the study was not designed or funded for this purpose) revealed that all 13 available guinea pig isolates were caused by just two strains, with five guinea pigs having mixed infections with both strains. These two strains matched two of the three XDR patients. One of the guinea pigs strains also matches two MDR patients, and the drug resistance mutation gene sequencing will confirm if the guinea pig was infected by the XDR or MDR strain. In the third experiment, transmission over just two months exposure was even more extensive and again, three unsuspected, inadequately treated XDR patients, were identified retrospectively. Genotyping data are pending. In the second and fourth three-month experiments, transmission rates were low and no XDR patients had yet been identified. In the fourth experiment, for example, 27 MDR patients selected for the above infectiousness criteria infected just one guinea pig. Second-line susceptibility testing data on the patient isolates is pending.

**Conclusions:** As previously documented in similar experiments by Riley, more than 50 years ago, and more recently by Escombe, TB transmission to guinea pigs exposed to exhaust air from a TB ward predominantly occurs from patients with unsuspected drug resistance who are on inadequate treatment. This study extends those findings to MDR-TB, showing that patients recently started on the standard South African regimen rarely infected sentinel guinea pigs. Patients with unsuspected XDR-TB, however, who were being treated for MDR-TB, infected large numbers of animals. Additional studies will further quantify the amount of MDR treatment needed to halt transmission, and the impact of effective treatment on XDR transmission. These results have policy implications for the use of rapid diagnostics and of hospitalization and community-based treatment of MDR-TB.

## ***Overall discussion and conclusions of the 1st session***

The situation in Khayelitsha, South Africa, is extreme in terms of TB and HIV incidence, it is therefore difficult to generalize this experience. How to prioritize activities in a non-hospital setting was discussed. Prioritization by cough etiquette could not be done easily as people used coughing as an excuse to pass the queue, so distributing masks to everyone in the clinic was decided. The main question now is: how to evaluate such an experience.

The first inventory presented for Latin America raises good material for further discussion. There is a need to develop an inventory of all countries in order to develop national plans in several countries. In most places, general infection control was absent, however, several countries in Latin America could be adequate for piloting TB surveillance among HCWs.

In Europe, the next steps for high-priority countries should be: to complete the country implementation plan for all countries; to have a common approach to TB-IC by all the partners involved; to have a comprehensive TB-IC set of activities in the Regional MDR-TB Action Plan; to integrate TB-IC in every TB-related country visit; to improve human resource capacities in the countries and to include key performance indicators in surveillance. Lastly these challenges are in the context of long-term hospitalization of TB patients in many countries. The group discussed the complex policy issues of routine hospitalization of TB patients in many European and Former Soviet Union countries, often promoting transmission of TB and drug-resistant TB.

Rwanda was presented as an example of an almost completely ambulatory approach. MDR-TB will be prioritized in a second phase in additional hospitals.

In the overall strategy, TB-IC is still often absent from general infection control. Many countries are at a preliminary stage regarding TB-IC implementation and its place in the community is still limited. In the scaling up strategy with the current policy we should discuss different possibilities:

- to concentrate on a few countries with additional resources or
- to scale up more countries without providing the same effort/commitment from external partners.

In both situations, rapid detection and early treatment should be a major policy issue for the next five years, although social economic progress will also contribute to achieve reduction of TB transmission. Inventory of TB-IC activities should be completed by regions, and TB activities at country level should be increased and often coordinated with HIV programmes.

The place of indicators will be discussed later on. Also, “TB-IC” should be renamed “Infection and Prevention Control?”

## Day 1

### **Session 2: TB and health care workers**

#### **Objectives**

To review the progress in the global response concerning implementing TB infection control with regards to health care workers (HCWs).

#### **Major topics presented**

HCWs' occupational risk surveillance and IC measures put in place in Georgia and South Africa, and by PAHO. The last presentation was focused on indicators to monitor TB – IC activities.

#### **Synthesis of presentations**

##### **7. How TB-IC is addressed within MDR facilities in South Africa (Dr N. Ndjeka)**

Epidemiological data on estimated TB incidence from 2008 ranked South Africa as the third highest in numbers and the second highest in rate, and for estimated MDR incidence, as the fifth highest in the world. Data on MDR cases reported in 2009 were: 9070 diagnosed, 4933 registered and 4143 started on treatment; for XDR: 594 494 and 43, respectively. According to a study in KwaZulu Natal (KZN), among the eligible HCWs referred to King George V Hospital between 2003 and 2008, M/XDR-TB is more common among the health care workers than the general population. MDR-TB was 58.9 per 100 000 for KZN HCWs and 10.7 per 100 000 for the KZN general population (OR:5.53, 95% CI 4.70-6.50) and XDR-TB incidence was 4 per 100 000 among KZN HCWs and 1.04 per 100 000 in the KZN general population (OR: 3.89, 95% CI 2.02-7.11).

In 2007 the National Infection Prevention and Control Policy and Strategy was put in place, and the TB Infection control guideline was issued. Risk assessment tools have been developed, and risk assessments conducted at numerous health facilities. More than 10 000 HCWs have been trained on TB-IC since 2007 and standards for health facilities have been designed. Environmental control has been implemented by applying standards for facility design in place and renovation of old facilities. At least half of the 24 DR-TB units had mechanical ventilation installed, about 60% DR-TB facilities have Ultraviolet Germicidal Irradiation (UVGI) fitted and at least half of the DR-TB units have extractor fans. N95 respirators are available in all DR-TB facilities and TB hospitals as protective measures. The use of surgical masks by patients is not consistent in all DR-TB centres and is difficult to enforce in general health care facilities.

##### **8. Experience of TB-IC Surveillance in Georgia (Dr Medea Gegia)**

In Georgia, the WHO-recommended DOTS (the basic package that underpins the Stop TB Strategy) was introduced by the National TB Control programme in 1995 and fully implemented in 1999. Data on MDR surveillance in 2009 report 31.1% of retreated cases and 10.2% of new TB cases. Retreated MDR cases have decreased between 2008 and 2009 from 40% to 31.1%. MDR patients' distribution according to treatment mode shows that 70% of patients are admitted to hospital to be treated.

A cross-sectional study was conducted to assess the prevalence and risk factors for latent TB infection among health care workers in the National centre for TB and Lung Diseases (NCTBLD) and affiliated sites in Georgia. This study showed that the prevalence of Latent TB Infection among HCWs using both the TST and the QFT-3G test is high (out of 265, 203 (77%) HCWs were positive to TST and/or QFT-3g test). Length of employment (>5 years) and age (>30 years) were independently associated with increased risk of both positive TST and QFT-3G result. A

longitudinal study to assess incidence of LTBI or annual risk of TB infection, and to evaluate acceptance for routine testing and treatment of LTBI was initiated in 2009. The study is ongoing and 270 HCWs are already enrolled.

The National TB-IC plan is under development. The training for infection control is in progress and an IC committee is organized. UV fixtures are provided for the entire TB network, mechanical ventilation is designed at the NCTBLD new hospital building and respirators are provided and used by the HCWs in high risk settings. The IC strategic Plan for TB facility is in the process of implementation with support of Dutch KNCV.

## **9. PAHO/WHO Policy and programme for protecting the health of health care workers (Dr Daniel Chemtob on behalf of Ms Marie-Claude Lavoie)**

Among the PAHO Regional Goals for Human Resources (2007) is the policy of health and safety for health workers, including the support of programmes to reduce work-related diseases and injuries. Activities on training, immunization, occupational health surveillance systems and on National Policy of Health workers are ongoing in the entire PAHO Region.

Health care workers are at higher risk of TB than the general population both in high and in low income countries. Several documents have been issued on HCWs' health protection: WHO Global Plan of Action on Workers' Health (2007), Joint WHO/ILO Post Exposure Prophylaxis Guidelines (2008), Joint WHO-ILO policy guidelines for improving health worker access to HIV and TB prevention, treatment and care (2010), (see annex 3). The latter compiles existing guidelines and new evidence into a coherent set of recommendations to improve access for health workers to HIV and TB services. Collaborators are representatives from the ministries of health or labour, workers, employers, universities, professional organizations, occupational health and infection control specialists, network of PAHO/WHO collaborating centres. Collaboration among occupational health services, IC, employers and workers is critical to improve the situation.

## **10. Occupational groups and risk for TB : specifications for surveillance of TB in HCWs (Dr Daniel Chemtob)**

Limited data are available at global level on TB-IC implemented at country level. The Advocacy Strategy document (2010), mentions that "there is a need to provide more evidence, i.e. data to support efficacy and cost-effectiveness of TB-IC interventions". According to the results of the 2009 WHO Annual Global TB Control Report, training on IC was performed in 64 countries. Out of 75 countries, 36 (48%) did an assessment of the status of IC. Out of 80 countries, 55 (69%) reported a focal point for IC in at least one of their tertiary hospitals. The recently performed Introducing New Approaches and Tools (INAT) survey in 26 countries adds some more data: 57.7% did a TB-IC assessment, 13% developed an action plan, 10% implemented their TB action plan and 11% had HCWs surveillance.

At global level, there are few process indicators to monitor TB- IC activities, and mainly outcome/impact indicators. A new TB-IC impact indicator could be the ratio of TB notification rate in health care workers over the TB notification rate in the general population, adjusted by age and sex. Future possible process indicators and targets could be: to implement a) recommended IC measures in more than 20% or 50% of TB hospital wards; b) the recommended package of IC measures in 100% of MDR-TB hospital wards and c) a recommended package for IC in health facilities providing services to people living with HIV in 100%. Additional indicators could be the ones describing the "burden" of TB cases on a specific hospital, e.g. number of TB cases hospitalized in past year in each major hospital and the number of TB cases hospitalized in past years by 100 HCW working at this hospital.

Some of the points raised for discussion are listed below.

- Do we need a TB surveillance system for HCWs?
  - at global level, at country level;
  - advantages and drawbacks of surveillance system vs. ad hoc survey;

which will be the Ministry responsible: Ministry of Health, Ministry of Labour, others?

- Do we need to include other high risk “captive” audiences (e.g. miners, prisoners, etc.)?
- What are the advantages and limitations of current tools?
- Is the present set of information correctly captured in the monitoring systems: paper based vs. computerized, WHO system, etc.
- What are the additional necessary components which are not currently correctly captured?
- What are the current and future indicators; their rationale, their source of data, their targets?
- How can it be kept simple? Which type of institution could validate/certify an adequate TB IPC implementation?
- Can we have some pilot surveys at country level?
- Is there any deliverable for the TB-IC sub-Working Group?

### ***Overall discussion and conclusions of the second session***

The South Africa guidelines (2007) have not been updated since the WHO guidelines (2009) were produced. There is probably a need for prioritization of activities and promotion of information in a simple format, with monitoring for indicators.

In the Georgia presentation, no data on the HIV status of HCWs were available in the study. However, they must be taken into account to compare cases with a control group in the longitudinal study.

Further general discussion continued on the topics listed below.

- We need much more information and documentation, including operational research on TB-IC in health care setting and community care.
- We could start a demonstration/PILOT project with two or three countries in MDR facilities as they might have already started the implementation and collected data.
- We should start close collaboration with other working groups: DOTS, MDR-TB TB/HIV.
- We should make small groups to discuss monitoring and developing process indicators: for instance one indicator could be the number of people trained.
- We should define what is “occupational TB exposure” and who are the HCWs.
- Early diagnosis and early treatment are key for MDR.

## Day 2

### **Session 3: Linking TB Infection control with general infection control efforts, developing human capacity**

#### **Objectives**

To discuss links between TB infection control and general infection control efforts and development of human capacity.

#### **Major topics presented**

The first presentation described the relationship between general infection control, TB infection control and epidemic/pandemic-prone acute respiratory infections. Then core components of Infection, prevention and control (IPC) programmes were analysed. Training experiences for clinical and non-clinical staff were presented. Finally the Vladimir centre of excellence for TB-IC, in Russia, was introduced.

#### **Synthesis of presentations**

##### **11. Infection prevention and control of TB and epidemic- and pandemic-prone acute respiratory infections: a call for wisdom in setting priorities (Dr Carmem Pessoa Da Silva)**

Three WHO-IPC guidelines related to acute respiratory infections and TB have been issued recently: “IPC in acute respiratory diseases in health care” (July 2007); “WHO policy on TB Infection Control” (July 2009); and “Natural Ventilation document” (October 2009).

TB infection control should be included in the updated version of the 2007 document on Administrative and environmental controls and Protective personal equipment implementation and should be linked to general infection control. At country level, infection control focuses only on blood-borne diseases; implementation in general IC has been reported in Asia and European countries, Ghana, South Africa and Uganda.

Key for timely IPC response are generic evidence-based and peer-reviewed policies, support of established network of experts and rapid communication and exchange of information during the communicable disease crisis.

Knowledge gaps appear to be the following:

- modes of transmission
- measures to counteract transmission – focus on effectiveness studies
- quantification of transmission to be associated with health care (e.g. TB, ARI)?
- specific procedures/situations associated with increase in risk of transmission

##### **12. Core components of IPC programmes: setting the ground for effective TB IPC in health care settings (Dr Carmem Pessoa Da Silva)**

Infection control core components at national and at healthcare facility level are listed below.

1. Organizational structure (including defined budget)
2. Technical guidelines
3. Human resources: realistic approach according to each context

4. Surveillance and monitoring of practices: Surveillance activities must NOT hamper other basic IPC strategies ! They should support each other.
5. Microbiology laboratory support
6. Built environment
7. Links with public health, other services and societal bodies
8. Evaluation of IPC programmes: What should be monitored (indicators)? How to monitor? When to monitor? What to do with the findings?

Some windows of opportunity for synergism could be:

- International Health Regulations (2005)
- Global plan of action for worker's health 2008-2017
- 2011 World Health Day: Combating antimicrobial resistance.

A model of IPC in Cambodia, aimed to promote continuous and sustainable improvement in safety of health care, shows that efforts directed to SARS, avian flu, TB, etc. were good leading inputs to improve IC policies although disaggregated and not efficient to build IPC capacity in the country.

### **13. Training on TB infection control - achievements and lessons learned in TB CAP (Dr Max Meis)**

The following was reported on:

- Five international courses have been performed in Cotonou (Benin), Gaborone (Botswana), Conakry (Guinea Conakry), Jakarta (Indonesia), and Riga (Latvia), with 119 participants working at national level or tertiary referral hospitals.
- Eleven international consultants participated in training course in Gaborone, and after the course, three conducted at least two consultancies per year outside their country.
- Two regional courses were organized in Tbilisi (Georgia) and Almaty (Kazakhstan) for 60 participants working at national level or tertiary referral hospitals coming from 10 countries in Central Asia and Eastern Europe. Follow up visits were then offered to seven countries.

Other courses offered:

- Building design and engineering methods for the prevention and control of airborne infections, in Harvard and Boston (USA)
- Regional training courses : basic in Yogyakarta (Indonesia) and advanced in Pretoria (South Africa)
- National training courses (to more than 500 participants)
- Cascade training courses (parallel training courses at sub-national level).

In Ethiopia, a national training course was conducted in 2009; based on the course, a three-day training curriculum was developed; then 10 participants were selected as national trainers. More than 700 health-care workers working in 5 regions, 120 facilities, including 43 hospitals were trained since. One architect and one engineer attended the Harvard course. Both are presently involved in renovations of MDR-TB facilities.

Zambia developed a national TB infection control strategy. Seventy-seven doctors, nurses, clinical officers, environmental and laboratory specialists and building professionals from all nine provinces were trained.

In Uganda, training of health-care workers was completed in all 12 TB CAP supported districts. An evaluation in the 105 health-care facilities in the 12 districts showed that 70% had TB-IC plans, 95% had a TB-IC officer in place, 85% were separating coughers and 81% were conducting health education on cough etiquette.

#### **14. Building TB-IC capacity of non-clinical folks (Dr Paul Jensen)**

The first issue is a matter of definition: what is a HCW?

HCWs are all those in public and in private services, in the health sector and other sectors, whose main activities are aimed at improving health. Community workers and volunteers, not always recognized as HCWs, are front-line caregivers, great advocates, their efforts are not always recognized, and their risks are unknown and often ignored. HCWs should include prison/jail personnel, homeless shelter personnel, religious organization personnel, engineers & architects.

Several airborne IC trainings for engineers and architects courses (in Egypt, India, the Philippines, Russian Federation, and South Africa) and for non-clinical staff are planned for 2011.

Another important issue is to define core components needed for each country. One could include active screening, triage & separation, time to appropriate treatment, training & education of HCWs, HCWs' health surveillance, TB-IPC assessment, decision upon "where environmental controls & respiratory protection are." Minimum Package includes core components plus some of the following: additional administrative or environmental controls or respiratory protection.

Lastly, a web project is under preparation as part of TB CAP, which is describing five case studies of building design, in different climates and situations. Phase I has been done and there actually is a proposal for budgeting the next phase.

#### **15. The Vladimir Center of Excellence for TB infection control: not only training (Dr Grigory Volchenkov)**

The Vladimir Center of Excellence for TB-IC was established by an Agreement of the Vladimir Oblast TB Dispensary and Central TB Research Institute (Moscow), supported by the Vladimir Oblast Administration, CDC and WHO/Russia (July 2008).

Several TB-IC measures have been implemented between 2002 –2007, including: triage and separation of patient flows based on smear and DST, revised hospitalization policy; personal respiratory protection programme; upper room UVGI fixtures safely installed, maintained and used 24/7 in high risk zones; functional mechanical ventilation for all building providing required pressure differentials and air flow directions according to Russian and international regulations.

Thus far eight "general" and two "specialized" TB-IC courses have been organized for 237 participants from 58 oblasts in Russia, as well as from Belarus, Chechnya, Kazakhstan, Kyrgyzstan, Ukraine and USAID/Russia. Many general TB courses and lab biosafety courses are planned for 2011.

In the near future, a Central Asia Region coverage should be implemented; Siberia and Far East regions should be more closely covered by the possible future Khabarovsk TB-IC Center (to be established in 2011) and Russian National Guidelines and regulations will be approved.

## ***Major topics presented***

- What are the minimum requirements for consultants ?
- How do we establish continuous professional education for consultants ?
- How can we link availability and demand for international consultancies ?
- Do we need to and if yes, where do we establish other regional training institutes ?
- Do we need to and if yes, how do we establish a functional network of regional training institutes ?
- Is it possible to develop a training course for architects and engineers in some regional training institutes ?
- Has training changed realities in the Countries ?
- Do we have to give priority to Government trainees ?

## ***Overall discussion and conclusions of the third session***

The discussion of infection prevention and control of TB and epidemic- and pandemic-prone acute respiratory infections raised the issue for the next operational research agenda (e.g. we don't know the burden of transmission for nosocomial ones or variability/sustainability at country level).

The Global network for IPC will be discussed later on, but there is a need for identifying relevant societies/stakeholders. We could also promote the use of WHO resource centres to support training, capacity building in countries, and help with operational research and development of guidelines.

Most training on TB-IC was basic, some more advanced; building capacity for training was mostly during regional training and in places like Pretoria (South Africa) and Yogyakarta (Indonesia).

Mapping the different types of courses by year, region and country is a difficult exercise. A lot has probably gone on in terms of training, but the challenge is on: "what has happened after the training itself" ? Discussion should be made on the best strategy needed: is it better to concentrate on a few countries, for which a cascade approach with technical support will follow the basic training; or to assure that a representative from almost each country, hopefully at national level, will have undergone a training which will include the preparation of a specific National Action Plan as part of it.

The costing issue for building is an important issue, varying with the place and context.

Further discussion continued on:

- considering a broad definition of HCWs;
- the best time to evaluate hospitals costs, taking into account the different costs in each country;
- the best time to select trainees, remembering their impact in the country: they should be committed for that issue in the country.

Discussion on the Health System in Vladimir (Russia) raised the fact that hospitalization has been reduced by two-thirds in the Oblast. This changing paradigm (less hospital-based and more community-based treatment) will be worthwhile to investigate further.

## Day 2

### ***Session 4: The way forward - Development of the Core Group annual workplan***

#### **Objectives**

- To draft a plan of work for 2010–2011 based on the accomplishments to date on the 2009–10 plan of work, and prioritizations needed for TB-IC implementation worldwide.
- To decide on the renewal/rotation of institutional and individual memberships of Core Group members.

#### **Major topics presented**

- Review of overall strategy and activities needed for the new phase, past deliverables and their deadlines, future workplan and deliverables.
- Renewal/rotation of institutional and individual memberships.

#### **Synthesis of presentations**

##### ***16. Review overall strategy and activities needed for the new phase (Dr Bess Miller) and***

##### ***17. Discussion on the TB-IC Core Group annual workplan and deliverables (Dr Daniel Chemtob)***

Both presentations are summarized together, due to their links in both the summary of main issues and the concrete annual workplan and deliverables agreed upon.

The tables with past and future deliverables have been completed through an open discussion between all participants.

## Past deliverables

Items	Planned since, Coordinating body	Done on/by
1. WHO POLICY	2008	2009
2. TB-IC ADVOCACY DOCUMENT	August 2008	Disseminated in July 2010
3. MINI IMPLEMENTATION PLAN / AIDE MEMOIRE	August 2008 PATH	Draft but shelved
4. TB-IC IMPLEMENTATION FRAMEWORK	August 2008 KNCV	November 2010
5. HEALTH FACILITY DESIGN AND RENOVATION CASE STUDY BOOK IN VARIOUS CLIMATIC CIRCUMSTANCES	August 2008 PIH CDC	CDC reports that "phase 1" was finished and that "phase 2" has been submitted for financing
6. STANDARD AND SPECIFICATIONS FOR COMMON TB-IC EQUIPMENT AND COMMODITIES	August 2008 PIH CDC	2010 - Incorporated by WHO in the Budgeting tool
7. SET OF PRESENTATIONS ON TB-IC	August 2008 WHO	2009 - On the Stop TB Partnership website
8. TB-IC HUMAN RESOURCES DEVELOPMENT STRATEGY	August 2008 KNCV	Nov. 2009 - Integrated as an annex in the implementation framework
9. MONITORING & EVALUATION INDICATORS DOCUMENTS	August 2008 KNCV	November 2010 - Integrated in the implementation framework
10. MODELLING THE COSTS OF WHO IMPLEMENTATION IN 27 HIGH MDR-TB BURDEN COUNTRIES + 9 ADDITIONAL HIGH BURDEN COUNTRIES <sub>s</sub>	August 2008 WHO	2010 - Analysis was used for: <ul style="list-style-type: none"> <li>• Development of a module of a planning and budgeting tool for TB IC</li> <li>• Budget estimation for the Global Plan update 2011-2015</li> </ul>

The excel base planning and budgeting tool that provides a ready-made framework for all recommended components of TB control has been introduced. It is available at:

[www.who.int/tb/dots/planning\\_budgeting\\_tool/en/index.html](http://www.who.int/tb/dots/planning_budgeting_tool/en/index.html)

## **Next Steps:**

During this meeting, the summary of high priority items identified is listed below.

- Focus on TB in health care workers, including development and evaluation of surveillance systems and occupational health programmes. Emphasize monitoring and evaluation and development of sustainable surveillance systems.
- Demonstrate, scale up, and share best practices of TB-IC in a variety of health care settings in several countries and document/ publish these experiences.
- Continue to focus on Monitoring and Evaluation, in these and all efforts. The Global TB Report is now collecting information on TB-IC, including TB in health care workers. We should develop and strengthen surveillance systems to promote quality databases.
- Continue to focus on training, including health workers, front line clinicians, engineers (and other environmental health scientists), and architects.
- Further develop a health facility design and renovation case study book.
- Increase networking with other Stop TB Partnership working groups to expand our reach. In particular, identify working group member to liaise and attend meetings of the Global Laboratory Initiative, the DOTS Expansion Working Group, and the MDR-TB Working Group.
- Increase networking with general infection control efforts, specifically the WHO-led Infection Prevention and Control Network globally and general infection control leadership in countries, where available.
- Promote operations research and publication of this research on topics relevant to TB infection control (\*).
- Encourage community involvement and advocacy for TB IC (\*).

(\*) The last two items have been quickly mentioned during the meeting and should probably be further discussed next year.

## Future deliverables

Topic	Deliverable	Responsible person/ agency	Done by:
1. TB in Health Care Workers	Occupational care model (demonstration project, including development of model and documentation) in Peru, one African country (Lesotho, Mozambique, others?), Former Soviet Union? Eastern Europe?	D. Chemtob, N. Nortey, Occupational Health, M. Meis, P. Jensen, Y. Moscoso, E. Nardell	Development of the model by Q2 2011
2. Demonstrate, scale up, and share “best practices” of TB-IC	Sharing & scaling-up of TB-IPC countries “best practices” at Regional level - Meeting of a few countries on their TB-IPC implementation process. Cross-fertilization and documentation, including HCWs’ surveillance experience (Eastern Europe, AMRO?)	Preparatory group: Technical Working Group of TB CARE (3 months) Meeting organization: after first step	2011
3. Monitoring and evaluation		Small working group to discuss future process and outcome indicators (WHO/KNCV/CDC ) D. Chemtob: N. Nortey, C. Rutanga, J. van Gorkom, M. Pearson	Q1 2011
4. Training – overall strategy (cascading a fewer number of countries vs. a larger “horizontal” coverage), quality of consultant, qualification or certification, regional centres, etc.		Small working group to prepare a 2–3 years training plan: M. Meis, P. Jensen, D. Chemtob, Nii, G. Volchenkov, N. Turusbekova, G. Egos	
5. Develop a health facility design and renovation case study book		P. Jensen	Phase 2: Dec. 2010 Phase 3: budget dependent
6. Networking with other Stop TB Partnership working groups	IPC Global Network	C. Pessoa da Silva; B. Miller; D. Chemtob	Q 1 2011
7. Documentation of ambulatory treatment		E. Nardell, B. Miller, P. Jensen, D. Chemtob	Draft Oct. 2011, Final 12/2011

### Overall conclusions of the 4th session

The group has agreed on the above deliverables table as future steps.

## **18. Decide on the renewal/rotation of institutional and individual memberships of Core Group members (only core members and Secretariat)**

After reviewing other examples of Partnership working groups' constituencies on the renewal-rotation of the Core Group members, several issues have been discussed and agreed upon by all (through a voting process).

- The optimal number of members for the Core Group has been agreed to be 12 (current number is 8).
- The principle of renewal-rotation of core members was accepted. The rotation of group members should start next year, on a basis of one-third of the group each year. To allow rotation, some of the "old" members will therefore serve only for a total of three years.
- Future members will serve on the basis of a three-year term, with the possibility of one extension for an additional three-year period.
- The current rotation should start from the next annual meeting. Names of potential new members should be proposed in the coming months to an independent nominating election committee; then sent to the Chair and Secretariat for validating and matching with the specifications needed; and ultimately elected by all registered participants to the sub-Working Group, probably in a video conference that should be organized in a six-month period. By so scheduling, new and old members will start by attending the coming annual meeting on the new agreement.
- The issue of permanent/temporary institutions represented in the Core Group will be decided upon in another annual meeting.

## ***Annex 1: List of Participants***

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## Annex 2: Agenda

Chair: Bess Miller

Tuesday 9 November 2010

08:30 - 08:45	Coffee and networking	
08:45 - 09:00	Welcome remarks, meeting objectives and process; introductions, "conflict of interest" review	B. Miller/D. Chemtob
<i>Session 1: Progress and challenges in scaling-up TB-IC implementation - Country experiences</i>		
09:00 - 9:30	TB-IC: where have we been and where are we going?	B. Miller
9:30 - 10:00	Tuberculosis infection control in Khayelitsha, South Africa: experience and challenges	H. Cox
10:00 - 10:30	TB-IC in Latin-America 2004-2010	M. Yagui Moscoso
10:30 - 11:00	Improving TB-IC in European high-TB priority countries: from theory to practice	M. Dara
11:00 - 11:30	Tea/coffee break	All
11:30 - 12:00	TB-IC implementation: the Rwanda experience	C. Rutanga
12:00 - 12:30	The impact of chemotherapy on MDR-TB transmission	E. Nardell
12:30 - 13:00	Discussion on country experiences	All
13:00 - 14:00	Lunch break	
<i>Session 2: TB and health care workers</i>		
14:00 - 14:30	How TB-IC is addressed within MDR facilities in South Africa	N. Ndjeka
14:30 - 15:00	Experience of TB-IC surveillance in Georgia	M. Gegia
15:00 - 15:30	PAHO/WHO Policy and programme for protecting the health of health care workers	M-C. Lavoie
15:30 - 16:00	Occupational groups and risk for TB : specifications for surveillance of TB in HCWs	D. Chemtob
16:00 - 16:30	Tea/coffee break	
16:30 - 17:30	General discussion and agreement on deliverables for sessions 1 and 2; timelines, focal person, budget, next steps	All
<b>18:30 RECEPTION</b>		

Wednesday 10 November 2010

<i>Session 3: Linking with general infection control efforts, developing human capacity</i>		
09:00 - 09:30	Infection prevention and control of TB and epidemic- and pandemic-prone acute respiratory infections: a call for wisdom in setting priorities	C. Pessoa Da Silva
9:30 - 10:00	Core components of IPC programmes: setting the ground for effective TB-IPC in health care settings	C. Pessoa Da Silva
10:00 - 10:30	Discussion on linking with general IC efforts	All
10:30 - 11:00	Tea/Coffee Break	
11:00 - 11:30	Training on TB Infection Control - achievements and lessons learned in TB CAP	M. Meis
11:30 - 12:00	Building TB-IC capacity of non-clinical folks	P. Jensen
12:00 - 12:30	The Vladimir Center of Excellence for TB Infection Control: not only training	G. Volchenkov
12:30 - 13:00	Discussion on training and human resource issues, progress and challenges	All
13:00 - 14:00	Lunch break	
<i>Session 4: The way forward - Development of the Core Group annual workplan</i>		
14:00 - 15:00	Review of overall strategy and activities needed for the new phase	B. Miller/All
15:00 - 16:00	Discussion on the TB-IC Core Group annual workplan and deliverables	D. Chemtob/All
16:00 - 16:30	Tea/coffee break	
16:30 - 17:00	Decision on the renewal/rotation of institutional and individual memberships of Core Group members	All
17:00	Closing remarks	B. Miller

## **Annex 3: Cited documents**

### **List of deliverables produced as part of their TB-IC sub-WG past annual workplan**

- WHO Policy on TB Infection Control in Health-Care Facilities, Congregate Settings and Households. WHO/HTM/TB/2009.419. [http://whqlibdoc.who.int/publications/2009/9789241598323\\_eng.pdf](http://whqlibdoc.who.int/publications/2009/9789241598323_eng.pdf)
- “An advocacy strategy for adoption and dissemination of the WHO policy on TB infection control in health-care facilities, congregate settings and households” (April 2010), [http://www.ghdonline.org/uploads/TB\\_IC\\_Advocacy\\_Strategy\\_Final\\_April\\_2010\\_1.pdf](http://www.ghdonline.org/uploads/TB_IC_Advocacy_Strategy_Final_April_2010_1.pdf)
- The Global Health Delivery Project GHD online, sponsored by Harvard University, Brigham and Women’s Hospital, and Partners in Health, is a platform of virtual professional communities that includes TB infection control, that allows discussions in real time and participation via email, moderated by Drs Ed Nardell, Paul Jensen and Gregory Volchenkov. <http://globalhealthdelivery.org/>
- TBCTA. IMPLEMENTING the WHO Policy on TB Infection Control in Health-Care Facilities, Congregate Settings and Households. A framework to plan, implement and scale-up TB infection control activities at country, facility and community level.  
  
(<http://www.tbcta.org>; [http://www.stoptb.org/wg/tb\\_hiv/assets/documents/TBICImplementationFramework1288971813.pdf](http://www.stoptb.org/wg/tb_hiv/assets/documents/TBICImplementationFramework1288971813.pdf) ).

This document also includes a TB-IC human resources development strategy and M&E indicators.

### **Documents issued on HCWs health protection**

- WHO Global Plan of Action on Workers Health (2007), [http://www.who.int/occupational\\_health/WHO\\_health\\_assembly\\_en\\_web.pdf](http://www.who.int/occupational_health/WHO_health_assembly_en_web.pdf)
- Joint WHO/ILO PEP Guidelines (2008), [http://whqlibdoc.who.int/publications/2007/9789241596374\\_eng.pdf](http://whqlibdoc.who.int/publications/2007/9789241596374_eng.pdf)
- Joint WHO-ILO policy guidelines for improving health worker access to HIV and TB prevention, treatment and care (2010). [http://www.ilo.org/wcmsp5/groups/public/---ed\\_protect/---protrav/---ilo\\_aids/documents/publication/wcms\\_145872.pdf](http://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---ilo_aids/documents/publication/wcms_145872.pdf)

### **Infection prevention and control of TB and epidemic- and pandemic-prone acute respiratory infections**

- “Infection, prevention and control of epidemic- and pandemic-prone acute respiratory diseases in health care” (Jul 2007), [http://www.who.int/csr/resources/publications/WHO\\_CDS\\_EPR\\_2007\\_6c.pdf](http://www.who.int/csr/resources/publications/WHO_CDS_EPR_2007_6c.pdf)
- “Natural Ventilation for infection control in Health Care Settings” (Oct 2009). [http://whqlibdoc.who.int/publications/2009/9789241547857\\_eng.pdf](http://whqlibdoc.who.int/publications/2009/9789241547857_eng.pdf)

### **TB IPC in health care settings**

- International Health Regulations (2005) [http://whqlibdoc.who.int/publications/2008/9789241580410\\_eng.pdf](http://whqlibdoc.who.int/publications/2008/9789241580410_eng.pdf)
- Global plan of action for worker’s health 2008-2017 [http://apps.who.int/gb/ebwha/pdf\\_files/WHA60/A60\\_20-en.pdf](http://apps.who.int/gb/ebwha/pdf_files/WHA60/A60_20-en.pdf)

### ***Annex 4: Follow-up on workplan (updated 16 March 2011)***

Some of the future deliverables agreed upon in the last Core sub-WG meeting (see table above) were further elaborated by several Core sub-WG members, and submitted to funding request, mostly as part of TB CARE and/or WHO. Therefore, we can expect by end of 2011 the following outcomes:

- development of tools to measure TB incidence and prevalence in Health Care Workers (deliverable 1 and part of 3)
- performance of training and mentoring for Technical Assistance on TB-IC (deliverable 4)
- finalisation of the Health facility design and renovation case study book (deliverable 5)
- participation in a IPC Global Network (deliverable 6)
- development of a core package of IC interventions (that should include deliverable 7).