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USAID/NAMIBIA: HEALTH CARE IMPROVEMENT PROJECT
MIDTERM EVALUATION

NOVEMBER 2010

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University Research Corporation, LLC (URC) staff also cheerfully responded to requests for data or clarification that improved our findings. They booked appointments throughout the country and presented themselves onsite for further assistance in the field that aided the development of this report.

We also thank the staff of GH Tech and USAID for their excellent planning, logistics, transport, and preparation. CDC staff offered their time with good cheer and sage advice. USAID's Rosalia Indongo accompanied us through spectacular geography in eight regions, introducing us to the institutional history of the MOHSS and TB Control Program and to her colleagues in a dozen facilities. We are in her debt.

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ACRONYMS

AD	Auto disable
AIDS	Acquired immune deficiency syndrome
CDC	Centers for Disease Control and Prevention
DQA	Division of Quality Assurance
GH Tech	Global Health Technical Assistance Project
GRN	Government of the Republic of Namibia
HBV	Hepatitis B virus
HCIP	Health Care Improvement Project
HCV	Hepatitis C virus
HIV	Human immunodeficiency virus
IC	Infection control
ICC	Infection control committee
ICN	Infection control nurse
IM	Intramuscular
IPCAN	Infection Prevention and Control Africa Network
IV	Intravenous
KNCV	Royal Netherlands Tuberculosis Foundation
MIS	Medical injection safety
MOHSS	Ministry of Health and Social Services
NAD	Namibian Dollar
NGO	Non-governmental organization
NHTC	National Health Training Center
NIP	Namibian Institute of Pathology
PEH	Public and environmental health
PEP	Post-exposure prophylaxis
PEPFAR	President's Emergency Plan for AIDS Relief
PHC	Primary health care
PPE	Personal Protection Equipment
P&TC	Pharmacy and therapeutics committee
QA	Quality assurance
SIGN	Safe Injection Global Network
TB	Tuberculosis
TCE	Total control of the epidemic
TPM	Team planning meeting
UNAM	University of Namibia
URC	University Research Corporation, LLC
USAID	U.S. Agency for International Development
WHO	World Health Organization

EXECUTIVE SUMMARY AND RECOMMENDATIONS

This midterm project evaluation for the United States Agency for International Development (USAID) assessed the Field Support Contract with Agreement Number: GHN-1-00-07-00003 for the Health Care Improvement Project (HCIP) in Namibia with an end date of September 30, 2012, and a planned life of project funding $1,076,233. The in-country evaluation took place during October 2010.

The evaluation reviewed the achievements of the University Research Corporation, LLC (URC) from 2007 to June 30, 2010. This project continued work begun by the prior USAID project "Making Medical Injections Safer," which had total expenditures of $5,146,725 from February 2004 to September 2009.

The stated goals and objectives of HCIP project are:

Goal: To improve the status of the Namibian public health sector in the management, prevention, and control of blood-borne diseases.

Objective 1: To assist the Government of the Republic of Namibia (GRN) Ministry of Health and Social Services (MOHSS) to develop and implement policies and guidelines for safe injection and waste management practices.

Objective 2: To prevent transmission of blood-borne infectious diseases (human immunodeficiency virus [HIV], hepatitis B virus [HBV], and hepatitis C virus [HCV]) by reducing unsafe and unnecessary injections.

Objective 3: To support post-exposure prophylaxis (PEP) with infection control (IC) as an overall focus, including tuberculosis (TB) IC.

Objective 4: To continue to support commodity management on very small scale.

MAIN FINDINGS: PROGRESS TOWARD OBJECTIVES

Objective 1

Policies and/or guidelines have been developed for waste management, HIV PEP, and IC. Their implementation is likely to have decreased the portion of needlesticks associated with injections. The district waste management plans have improved segregation, disposal, and destruction of infectious waste; transporting waste from clinics to central incinerators also seems to be effective. URC has helped the MOHSS institutionalize infection control committees (ICCs) and medical waste management plans that, with adaptation, will be of benefit for many years to come.

In facilities, the segregation of infectious waste has improved but as in all countries needs ongoing supervision. Some facilities will need funding to improve waste storage areas and ICCs will need to learn how to lobby successfully with sub-national budget committees to maintain IC supplies, particularly in light of competing priorities requiring funds.

The government has been an active and committed partner, establishing a Division of Quality Assurance (DQA), assigning persons to IC tasks at all levels, and maintaining a National Injection Safety Group. The structures are in place but until local expertise matures, periodic external technical expertise will be needed for the foreseeable future.

Objective 2

Progress has been slower to reduce inappropriate use of injections. Both the strategy to target mainly nurses and community members (by door-to-door visits) and the system to audit the number of injections have shortcomings; their continued use is not recommended.

The MOHSS has shown important leadership by introducing an HBV vaccination for infants. URC has helped to advocate for access to HBV vaccine for health care workers also has improved, now setting the stage to target 95% coverage for workers and health students in the next two years.

URC efforts have shown excellent progress toward reducing unsafe injections. The systematic reuse of syringes was not present prior to the project and no evidence of syringe reuse was seen during these sites visits. Two-handed recapping is rare. Incident reports seen during the site visits suggest that the portion of needlesticks related to intramuscular (IM) injections and waste disposal may be declining. However, needlesticks related to phlebotomy, episiotomies, surgery, and intravenous (IV) insertions remain a challenge.

Objective 3

Strong work from other partners has made PEP and HIV rapid testing available. URC has leveraged these efforts to improve awareness of, access to, and appropriate use of PEP for occupational exposures. There are no known cases of occupationally acquired HIV infection in Namibia. Now that PEP is increasingly available, the next objective is to improve its appropriate use; on the site visits, 30% of PEP was used inappropriately. MOHSS also is ready to move from injection safety to broader implementation of standard precautions and measures to prevent the spread of TB in health care facilities.

Objective 4

URC has successfully transferred procurement and supply of safety boxes, bin liners, and personal protective equipment to the MOHSS. Facilities now order these products via the governmental medical stores with occasional stockouts reported for bin liners.

CONCLUSIONS

The project is on track to fulfill the majority of the objectives. Partners expressed appreciation of URC's training and especially credited the outreach visits to facilities. Efforts to institutionalize and implement these new MOHSS policies and guidelines were evident in all facilities visited.

The evaluation team concluded that URC did help the MOHSS prevent and control blood-borne diseases associated with health care and the management of medical waste. No cases of occupationally acquired HIV or HBV had been reported in health care workers, although one case of HBV in a nursing student was reported this year. Reporting is not complete.

KEY RECOMMENDATIONS FOR URC

1. URC should consult with the MOHSS on the terms of reference of the DQA and the advisory committees to ensure that key IC responsibilities are assigned and periodic external technical assistance is available as needed (e.g., the selection of disinfectants and sterilization products/methods for the reprocessing and environmental cleaning; review of construction plans; selection of national priorities and strategies; and review that MOHSS policies and procedures with IC content are cost effective if done centrally).

For example, URC should provide expert technical review of guidelines before printing to ensure they are consistent and meet minimum safe standards. There is an urgent need to issue an erratum for the IC Guidelines to correct advice given about the cleaning of fiberoptic scopes, which could harm patients and destroy devices.

2. As URC continues to transfer responsibilities to the quality assurance (QA) staff, it is essential that the corporation works in closer collaboration with MOHSS QA, taking its direction from QA. For example, URC should handover the responsibility for compiling, analyzing, and reporting essential data to MOHSS when new QA staff are in position. If MOHSS QA staff decide a certain district needs support, they can direct URC to aid it.
3. With URC's reduced funding, it can no longer attempt to cover all 355 facilities. URC should consult QA and the national ICC for direction; our suggestion is to focus on the 34 district ICCs, possibly targeting ICCs in the poorest performing districts. The ICCs increasingly can identify injection safety problems but will need mentoring to resolve problems and to work effectively using plans with measurable goals.
4. URC should collaborate with other existing rational drug efforts to reduce inappropriate use of parenteral drugs and promote adherence to the national treatment guidelines.
5. URC should support the MOHSS to achieve 95% HBV vaccine coverage among employees with occupational exposure to infectious materials.
6. In the next two years, URC should target increasing the appropriate use and completion of PEP.
7. URC should provide technical assistance to MOHSS to eliminate needlesticks associated with inappropriate disposal of sharps, and to reduce injuries from capillary and venous blood draws and episiotomies. Data on the devices and procedures associated with injuries should be reported, analyzed, and used.
8. URC should prioritize the inclusion of IC material into the revision of University of Namibia's (UNAM's) 2011 nursing curriculum.

RECOMMENDATIONS FOR GOVERNMENT STRUCTURES TO TAKE OVER FUNCTIONS

1. Institutionalize IC training so that UNAM provides preservice training for all health professionals, and the National Health Training Centers (NHTCs) provide preservice and in-service training. Focal persons at the facility should orient and supervise staff to ensure that they institute safe practices.
2. Pharmacy and therapeutics committees (P&TCs), with representation from the ICC, should monitor appropriate use of medications, including injections, prescriptions by diagnosis, and IV infusions. USAID should encourage the diverse programs related to rational drug use to communicate and collaborate to better reinforce each others' work.
3. Occupational health staff should provide guidance on specifications for protective clothing for workers, and technical occupational health support. They also should be kept informed of occupational illnesses and injuries in accordance with the law. URC, which serves as the secretariat for the national injection safety group, can invite all partners related with occupational injuries to share data including the Social Security Commission, which is the official repository for occupational illnesses occurring in health care workers including HIV, HBV, and TB.
4. Central medical stores and pharmacy should continue to issue tenders and procure and distribute commodities. The procurement process should incorporate a feedback system that requests, addresses, and responds to input from workers regarding defective or inappropriate products and issues with vendors

5. The work place program should take full responsibility for the Care of Caregiver Program.
6. The Public and Environmental Health Division should retain responsibility for implementing the National Waste Management policy, and should work to develop surge capacity by training a few staff with post-graduate expertise in medical waste and identifying lists of expert consultants.

IS EXTERNAL SUPPORT NEEDED BEYOND 2012?

Yes. The Deputy Permanent Secretary of MOHSS requested one to three years of additional support beyond 2012 to cement the transfer and institution building for the DQA and we concur with this need.

Currently the DQA is managed by an official who is retiring in the next 18 months. Four or five other positions, including the physician director, are unfilled, threatening current gains to institutionalize injection safety.

URC increasingly should support the central MOHSS (as funding permits) and help them to strengthen the capacity of District IC Committees. While the MOHSS envisions placing ICC teams at a regional level, we do not see the need for this level other than to transmit information from the MOHSS. The existing regional management teams should be the decision-making or advisory body when district ICCs cannot resolve problems on their own.

USAID, URC, and the MOHSS are to be congratulated for their efforts in Namibia. The site visit confirmed this remarkable progress.

I. BACKGROUND OF THE PROJECT

DESCRIPTION OF PROJECT

URC, a U.S. global health care consulting organization based in Bethesda, MD, received a USAID Field Support Contract with Agreement Number: GHN-1-00-07-00003 for HCIP September 30, 2007, to September 30, 2012, for the amount of $1,076,233. The agreement focused on reducing blood-borne pathogens through safe injection and waste management in Namibia. URC is the prime partner.

This HCIP period overlapped and continued work from URC's larger, $5 million program, Making Medical Injections Safer (MIS), which ran from February 2004 to September 2009. This initial project made significant progress both regionally and nationally. It trained more than 3,000 health care practitioners in injection safety and waste management and documented significant reductions in sharps injuries. Hospitals documented a decline in the average number of injections prescribed per patient. The project widely disseminated treatment guidelines, PEP Guidelines, and distributed 70,000 sharps containers to more than 70% of the nation's 327 health facilities.

The objectives for HCIP are to sustain and institutionalize these improvements. From the contract, the stated goals and objectives of the project are as follows:

Goal: To improve the status of the Namibian public health sector in the management, prevention, and control of blood-borne diseases.

Objective 1: To assist the GRN MOHSS to develop and implement policies and guidelines for safe injection and waste management practices.

Objective 2: To prevent transmission of blood-borne infectious diseases (HIV, HBV, and HCV) by reducing unsafe and unnecessary injections.

Objective 3: To support PEP with IC as an overall focus, including for TB.

Objective 4: To continue to support commodity management on very small scale.

THE OBJECTIVES OF THE MIDTERM EVALUATION

In September 2010, the HCIP project reached the midterm point. USAID asked the Global Health Technical Assistance Program (GH Tech) to assess progress and define issues in need of additional support. The complete scope of work can be found in Appendix A.

METHODS FOR THE EVALUATION

The evaluation team included a local consultant, a U.S.-based IC expert, and a national USAID program manager. The evaluation team reviewed project documents and facility reports, interviewed key informants, met with regional management teams, visited facilities, and verified select source data from URC reports on needlesticks and exposures to source data at facilities.

The evaluation team requested a list of sites to visit including the ones that were best and worst performing. URC identified public facilities for site visits from the 327 facilities enrolled in the project out of the estimated 355 clinics, hospitals, and health centers in Namibia. The MOHSS granted written permission for the site visits, and notified facilities in advance of visit. The hospitals, health centers, and clinics visited in the eight regions include the following: Omaheke

(2), Hardap (2), Oshikoto (1), Oshana (3), Omusti (1), Kunene (2), Otjzondjupa (1), and Khomas (two hospitals and one Namibian Institute of Pathology [NIP] lab).

USAID, URC, and the consultants identified persons to interview at the central, regional, district, and facility level who had attended URC training and who had responsibilities in IC and waste management. A list of the key informants interviewed can be found in Appendix B. During facility visits, health care staff were asked about changes made in their facility regarding IC issues. The health care staff's practices in medication administration, waste management, and IC were observed as they went about their duties.

USAID Namibia explained that the sub-partners listed in the Scope of Work (Appendix A) - EnCompass LLC, Family Health International, Initiatives Inc, Johns Hopkins University Center for Communication Programs (CCP), and Management Systems International (MSI) - were not working on the HCIP project in Namibia so they were not contacted.

CONSTRAINTS ENCOUNTERED DURING THE EVALUATION

The first week of the evaluation coincided with the dates of a ministerial leadership meeting that was attended by all MOHSS national directors and regional leaders. Consequently it was not possible to meet with all the directors who could have contributed to this report.

II. PROGRESS TOWARD OBJECTIVES

OBJECTIVE 1: TO DEVELOP AND IMPLEMENT POLICIES FOR SAFE INJECTION AND WASTE MANAGEMENT

Progress Toward Objective 1

URC provided funding and technical support to the MOHSS, DQAs, and Public and Environmental Health (PEH) to produce the following documents. The status of the materials is shown in parentheses.

- National Waste Management Policy. URC assisted the PEH Division to develop the National Waste Management Policy in stages from 2006-2010. (Approved in October 2010 printed, awaiting MOHSS "launch.")
- National Waste Management Guidelines (draft prepared with stakeholder input, awaiting technical review)
- HIV PEP Guidelines and job aids (URC funded printing and dissemination; they are widely available)
- 2010 update of PEP guidelines for HBV and HIV after sexual assault and occupational exposure (draft completed, MOHSS review scheduled for November 18, 2010)
- Infection Control Guidelines 2010, incorporating TB infection prevention (distributed, final version not present at all sites visited)
- Modules for Training of Trainers for Care for Caregivers (finalized)
- Modules for Training for Trainers for IC (not seen, final draft reportedly with QA)

URC has encouraged facilities to conduct a quarterly self-audit and note the presence of policies and treatment guidelines. For the quarter ending June 2010, 200 of the 355 (56%) facilities in the country sent a report to URC. Those reporting indicated that 95% to 99% of each type of documents were present in reporting facilities.

Midterm HCIP April–June 2010: Percentage of Facilities Reporting Having Guidelines Present—200 out of 355 Facilities in Namibia Reported
Waste Management Plan 99%
Infection Control Guidelines (draft or final) 97%
PEP Guidelines 99%
Standard Treatment Guidelines 95%

This objective included both policy development and implementation. During the site visits, the waste segregation, storage, and transport were observed to be implemented well by health workers and cleaners in the eight regions visited. During these announced visits, safety boxes were at the point of use well placed and were not overfilled, but other informants report that that is sometimes observed.

The process of creating district waste management plans with URC's support helped identify the need for incinerator repair/replacement, which the MOHSS had accomplished in eight hospitals with funding from another sources.

The implementation of safe injections practices also is underway and being institutionalized. The improvement in the portion of facilities reporting safe injections by specific indicators from self-assessment reports is shown in Table 1.

Table 1. Status of Injection Safety Indicators: from Facilities Reporting in URC Quarterly Reports					
A: Indicator number on quarterly facility assessment	**B: Indicator**	**C: Baseline facility assessments, 5 regions, 2005 (2008 report)1 MIS Project**	**D: Baseline MIS assessment tool C conducted in 32 hospitals in 20042**	**E: Jan–Mar 2009: % of facilities reporting (N=167 of 327) 51% reported this quarter**	**F: Apr–June 2010: % of all facilities (N= 200 of 327 total facilities in program) 54% reported this quarter**
D	**Injection Process**				
1	Syringes and needles taken out of sterile package for each injection			91%	99%
2	Needles always removed from vials between each injection	47%	33%	93%	99%
3*	Medication stored and prepared in clean designated areas		18%	91%	100%
4	Injection reconstituted with sterile diluents from single use vials	53%	Use of IV fluids observed at baseline	93%	100%
5	Use of barriers (e.g., cotton) while opening vials/ampoules			93%	90%
6	Injection sites of patients cleaned with relevant solution before patients are injected			95%	100%
7	Patients held cotton wool swabs on injection sites after being injected			80%	95%
8	Used needles, syringes, scalpels blades, or other sharp objects seen outside of disposal containers where they could cause injury		13%	5%	10%
9*	Staff wash hands before and after procedures	61%		92%	88%
10	Staff discard needles without recapping (one handed recapping allowed for blood draw needles)		61%	94%	99%

*indicates that observations from the midterm evaluation found a lower level of performance.

Practices, spot checked during sites visits, were consistent with quarterly reports except for two indicators: the evaluators would dispute the rate of hand hygiene and the frequency of the use of clean facilities to prepare medications. No staff were observed conducting hand hygiene before or after procedures, between patient contact, or after transporting specimens. Even when the evaluators conducted hand hygiene in front of staff as a hint, the staff did not wash their hands or use alcohol gel. Staff giving medications did not wipe the surfaces down with a disinfectant when setting up to prepare medications and several times left medications prepared in advance with uncovered needles that touched surfaces prior to administration.

URC is to be commended for a job well done in helping to develop and implement a waste policy and guidelines, with widespread use of safety boxes in evidence and a cadre of workers who can clearly explain the actions expected of them role in waste segregation. Implementation of safe injection practices also is generally occurring at a high level among the facilities visited as well as at other facilities participating in the URC activities, according to reports.

Issues for Objective 1

- Domestic waste remains a problem as only two sanitary landfills exist in the country. As waste is discarded at open dumps with scavengers, MOHSS is reluctant to discard items such as gloves as municipal waste. One URC member commented that children play in the waste heaps and blow into used gloves to make balloons. Inability to restrict clinic infectious waste to items more dangerous than household waste increases the volume and costs of destroying infectious waste.
- Incinerators, by their nature, break down frequently and districts need to budget for repair, supplies, preventive maintenance, and replacement costs.
- The PEH division wishes to develop a pool of its staff with expertise to manage medical waste by instigating an academic graduate program at the University or Polytechnic of Namibia. While the evaluators agree with the need to develop a larger pool of persons with expertise in waste management, developing a graduate level university program in this subject may not be cost effective given the few job opportunities available in Namibia. University-level training in environmental health is available in South Africa where perhaps the MOHSS could advocate for course content that meets their needs. MOHSS does send staff for specialist studies abroad (e.g., one person in occupational health currently is studying waste management in the United Kingdom). URC reports that the PEH officers in Karas, Hardap, Erongo, and Kavango regions show notable initiative, conduct staff training, and are actively involved in safe injection efforts. They need to be cultivated to help build a pool of staff with experience in waste management but project work mentored by such an expert might be more cost effective.
- At the clinic level, small-scale, multi-fuel incinerators were seen at two clinics but not in use. Clinics reported that they were transporting their infectious waste to district incinerators by taking advantage of MOHSS vehicles that stopped by for other reasons. Clinics and some district incinerators will need funding to improve waste storage areas that will prevent human, animal, and weather access to waste.
- Segregation of medical waste has improved but as in all countries needs continuous monitoring and feedback. Red bags, intended for infectious waste, frequently contained noninfectious waste such as paper—that increases the cost of disposal—which were reported by Katutura Hospital to be approximately 50 Namibian Dollar (NAD) per red bag.
- As glass vials in the incinerator can explode and cause damage, an alternative waste segregation and destruction or recycling method needs to be implemented for vials with rubber stoppers.

- Guidelines issued sometimes repeated topics addressed in other guidelines and were not always providing consistent, technically safe information. For example, the Medical Waste Guideline (draft) and the Infection Prevention Control Guidelines have different waste classification schemes. The Medical Waste Guidelines recommended consideration of HIV PEP when the source patient was negative, and the National PEP guidelines disagree. The IC guidelines include procedures that do not meet minimal safe standards for care. For example, the reprocessing of fiberoptic scopes with bleach would destroy very expensive equipment (laparoscopes, bronchoscopes, and endoscopes) and also could harm patients.

Recommendations for Objective 1

- While domestic waste is beyond the scope of this project, in the next two years, URC should support the MOHSS to strengthen districts' management of medical waste strategies, including budgeting. Facilities need to budget for waste-related supplies, storage, and transport. In addition, budgets should routinely include incinerator-related costs such as preventive maintenance, repair, and replacement costs. At the central level, it may be necessary to allocate funds centrally so decisions at the facility and regional level do not halt purchasing of safety boxes and incinerator maintenance when local funds are scarce.
- URC should help identify a strategy for the management of used pharmaceutical glass, for example segregation and recycling.
- MOHSS and ICC should continue strict waste segregation with the aim of eliminating injuries related to the disposal of sharp objects and reducing the costs of disposal of infectious waste.
- URC could advocate that the MOHSS develop a technical review process to ensure that MOHSS guidelines are both consistent and safe.
- URC should fund a technical review of the current IC Guidelines and issue a correction for the reprocessing of fiberoptic scopes.
- After 2012, no further support is envisaged for waste management from URC.

OBJECTIVE 2: REDUCE UNSAFE AND UNNECESSARY INJECTIONS

In general, excellent progress toward making injections safer was seen. URC reports by indicator are shown in Table 1. As was the case before the start of the project, no evidence of syringe reuse was seen. The incident reports reviewed show reductions in the portion of needlesticks related to intramuscular (IM) syringes in the last five years. There still is a critical need to reduce unnecessary injections, which is the weakest part of the project.

Progress toward Objective 2 will be discussed in order of the following:

2a: Reducing unnecessary injections

2b: Reduction of susceptibility to infection via HBV vaccination for staff

2c: Reducing needlesticks and exposure

Progress Toward Objective 2a: Reducing Unnecessary Injections

URC undertook large scale, multiday training efforts to encourage mainly nurses to avoid unnecessary injections. URC's HCIP work also trained 300 members of the organization Total Control of the Epidemic (TCE) in six regions where URC reported they reached more than 22,000 persons in FY 2010 during household visits with the message that pills were as effective as injections and community members should try to avoid the risks of injections.

The best information about the impact of this community outreach will be available when the results of the population-based 2009 Demographic and Health HIV/Maternal and Child Health

Survey results are finalized. The 2006-7 Demographic and Health Survey[1] reported that 30.9% of 9,804 women and 17.5% of 3,008 men reported receiving a medical injection in the past 12 months, which is the only available baseline from a population-based survey.

To measure the impact of training health care workers to reduce unnecessary injections, URC customized a MIS tool that sampled patient records to calculate the number of injections prescribed per visit. Using this quarterly system, URC reported a decline as of June 2010 to 0.32 injections prescribed per patient visit from 1.42 prescribed per person at the start of the MIS project in 2005. Several facilities reported that they had initiated projects to reduce injections. Windhoek Central Hospital developed a policy on preoperative antibiotics to reduce both drug use and duration prior to surgery. A pharmacist in Oshakati Hospital that has 1,000-1,500 outpatients per day had written procedures to discourage IM injections in outpatients. One facility also is implementing an electronic medical record that will permit antibiotics, infusions, and injections to be tracked. It is likely that URC's work helped build support for these efforts.

Table 2. Number of Selective Injectable Drugs Prescribed per Patient from URC Quarterly Chart Audits Calendar Year 2005–2010

Indicator	2005 initial facility reports from 5 regions	1st quarter facility reports 2007	1st quarter facility reports 2008	1st quarter facility reports 2009	2nd quarter facility reports June 2010
# of facilities reporting	Unknown	95	91	167	200
Average # of doses of injectable meds. and IVs prescribed per person per visit	1.4	0.8	0.43	0.45	0.32
# Of injectable meds. and IVs prescribed* / # of records audited	UNK	3,780/ 4,545	1,955/ 4560	5,541/ 12,277	UNK

** Intravenous (IV) fluids were included, but immunizations, TB medications, injectable contraception were not. In 2009, staff commented that the definition of medications changed mid-project, but did not know how or when the change occurred. In 2010, the reports from the regions excluded pediatric antibiotics. The audits occurred both in inpatient wards and in outpatient departments excluding casualty.*

Issues for Objective 2a: Reducing Unnecessary Injections

The URC audit system for tracking the number of injections has many shortcomings, including those described in the 2009 MIS End of Project Evaluation. The definition of injections changed several times, which could decrease the number of injections reported even if true number was unchanged. The facility staff reported that they audit a varying mixture of outpatient and inpatient wards, making interpretation and comparison problematic. Because of incomplete reporting, different regions and facilities are included from quarter to quarter. Thus, a decrease in the indicator may represent improvement or simply reporting from better performing

[1] *Namibia Demographic and Health Survey 2006-07: Key Findings*. Maryland, USA: MOHSS Namibia and Macro International Inc, 2008.

facilities. The indicator—number of injections prescribed—does not help prescribers know where improvement is needed, and it is difficult to interpret.

URC supported training for nurses and community members with some success but has not targeted physicians, pharmacists, or Pharmacy & Therapeutics Committees (P&TCs). The private sector and physicians are invited to trainings but rarely attend, partly because these trainings are multiday.

The training material reviewed by evaluators encourages use of antibiotics for two days before switching to oral medications and mentions reducing to two the number of doses of other injections. There is no evidence basis for these general rules. The duration of antibiotic use for patients should be evaluated in the context of the specific drug, disease, and patient response. Unsafe use of IV drugs and infusions including unsafe use of IV push medication was not yet addressed as the MIS project targeted IM injections.

Recommendations for Objective 2a: Reducing Unnecessary Injections

- URC should work with all MOHSS entities, and all U.S.-funded non-governmental organization (NGO) partners involved in appropriate use of medications to develop common indicators, an audit and feedback system that reinforces each others' efforts to both reduce unnecessary injections and improve adherence to national treatment guidelines and other aspects of medication use.
  - URC/MOHSS should improve the audit and feedback system to minimize the paperwork burden, provide meaningful feedback to providers, and reduce the reviewer bias. The URC audit system should reinforce appropriate use of injections for illnesses with a national treatment guidelines or, when consensus exists, on appropriate therapy including preoperative antibiotics use for specific procedures. They also can address inappropriate use (e.g., avoiding unnecessary IV administration of vitamins, infusions, IV push administration of IM medications, and inappropriate use of steroids and benzodiazepines). For maximal impact, feedback should be given to individual prescribers. While at the national level, indicators such as the number of injections per person per year have some utility, indicators for medication and injection use at the patient level should be evidence-based and appropriate for the symptoms, disease, and condition of the patient. The current audit system should not be institutionalized.
  - Include prescribers: Efforts could now be directed to physicians and pharmacists and coordinated across programs to reinforce other efforts to use national treatment guidelines. USAID should encourage collaboration across programs promoting rationale drug use.
  - Focus on appropriate as well as inappropriate therapy: Training should not just say "reduce inappropriate injections" but rather work with prescribers to establish which injections and infusions are appropriate for specific common complaints and diagnoses.

Progress to Date on Objective 2b: Hepatitis B (HBV) Vaccine

The use of the HBV vaccine is the most cost-effective measure to protect employees from this blood-borne pathogen. While the vaccine coverage among Namibian health workers is unknown, the access to HB vaccine has improved. In 2005, only the two MOHSS hospitals in Windhoek routinely provided the HB vaccine to staff at no cost. Now, district hospitals in all eight regions visited report that they vaccinate hospital, health center, and clinic staff.

In August 2010, URC funded and collaborated on a review of the HBV vaccine use and prophylaxis for health care workers. The proposed guidelines eliminated the prevaccination screening and routine booster doses at five years. Prevaccination screening is a barrier to vaccination and increases costs fivefold, as shown in Table 3.

Table 3. Costs of Two Strategies for HBV Vaccination with and without Screening				
Assumptions:				
Estimated prevalence of HBsAg+		7%		
Cost of HBsAg screening in (NAD)		366		
Cost of three doses of HB vaccine in NAD		75		
Percentage of employees needing vaccination (100-prevalence of HBsAg+)		93%		
	Number of people	**Cost of vaccination**	**Cost of screening**	**Total cost**
1. Strategy One				
Screen employees before vaccinating				
Screen 1,000 employees	1,000		366	366,000
Vaccinate susceptible (93%)	930	75		69,750
Number of sero-positive employees not vaccinated	70			
Total Cost Strategy One		**Total**		**435,750**
2. Strategy Two				
Vaccinate employees without screening	1,000	75		75,000
Screen employees at time of needlestick	20		366	7,320
Total Costs Strategy Two		**Total**		**82,320**
Conclusion: Screening before vaccination is 5.3 times as expensive at this prevalence 435,750: 82320 = 5.3: 1		**Difference**		**353,430**

As progress toward institutionalization and proof of government commitment toward HBV control, the MOHSS introduced HBV (with separate funding) in a pentavalent vaccine for infants, which will protect future cohorts of workers.

Issues with HBV Vaccination

- There is no system to ensure that all staff exposed to blood and body fluids receive three doses of the vaccine. The team observed high staff dropout rates after the first dose. For example, one facility reported that 99% of the staff had been vaccinated, but five of six employees queried were behind schedule and had received fewer than three doses necessary for protection. The nurses unnecessarily restart vaccination if a person falls behind receipt of the second and third dose. Facilities do not have lists of current staff by name and position and thus have no system that indicates who needs vaccine or to measure coverage. There is no standardized recording system in use to issue reminders or provide information about vaccine status after a needlestick. Log books are not efficient.
- Vaccination of preservice students also is problematic but improvement is a priority of the nursing faculty at UNAM. It is available in principle but coverage of preservice health students neither is systematic nor complete. Data in many countries report nursing and medical students with rates of needlestick injuries that surpass those of experienced workers.

To conclude, URC and the MOHSS together have taken important steps to reduce HBV transmission. Efforts have proceeded separately for infants in the Expanded Programme for Immunization and for adults through the DQA.

Recommendations for Objective 2: Implementing HB Vaccination

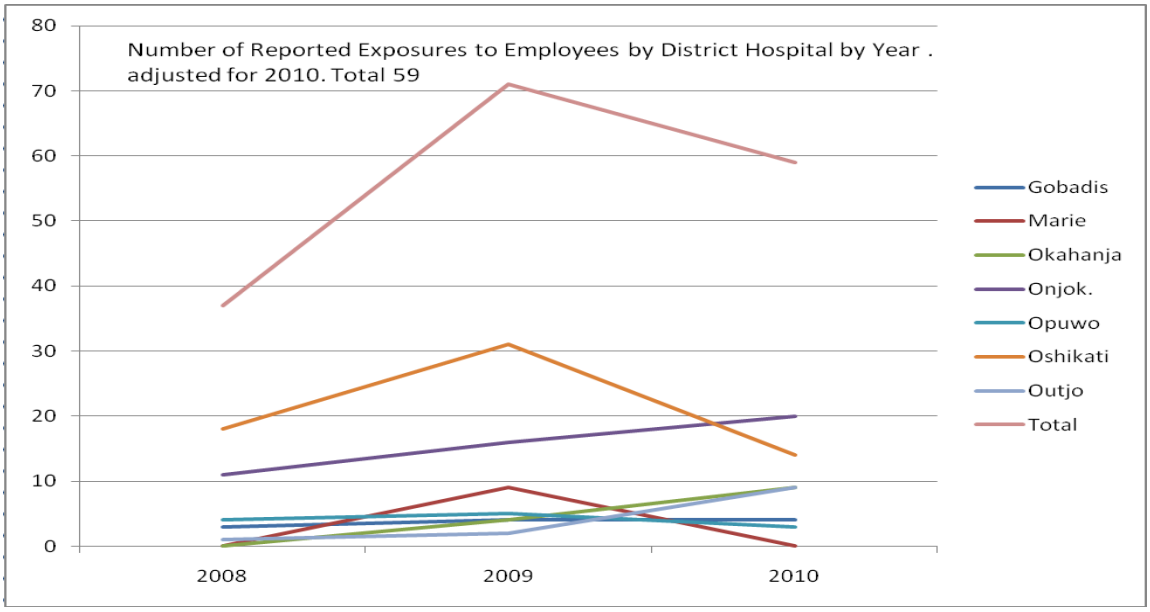
- URC could help the country develop a comprehensive strategy for the control of HBV.
- URC should aim in the next two years to increase completed vaccination rates of 95% for health care workers in positions exposed to blood and body fluids. Facilities should publically report their coverage levels and be held accountable.
- URC can help the MOHSS issue a directive on the appropriate use of HBV immunization and prophylaxis for adults with occupational exposure. The directive should include a schedule for administration, and the "catch up" schedule. It should eliminate prescreening tests and the routine use of booster dose.
- URC will need to help develop an efficient (not a log book) documentation system of employee and student vaccination that can send reminders for immunization, track defaulters, and verify completion of three doses in the event of exposures.

Progress Toward Objective 2c: Reducing Needlesticks and Exposures

The evaluators gathered available information on 185 exposures to blood and body fluids reported in 2005-2010 in eight facilities (seven hospitals and one health center). Data reported to URC was added to other incidents known to the IC nurse, the ICC, the pharmacist and maternity wards that dispensed PEP to employees after hours. Because the facilities varied from large teaching hospitals with more than 1,000 staff to smaller facilities with approximately 40 staff, the data ideally should be analyzed by facility. However, they are combined here.

These data should be interpreted within their limitations, but were reviewed as an attempt to substantiate workers' impressions that needlesticks were greatly reduced and to verify the URC quarterly system that reports exposures. It was not possible to calculate rates, which are a more appropriate measure of improvement. Keeping those limitations in mind, the total number of needlesticks has declined in the last year but some facilities continue to show an increase in the number of reported exposures. The total number of reported exposures in the eight facilities from 2005-2010 is shown in Table 4 while the number of needlesticks in the last three years is shown by facility in Figure 1 below.

Figure 1. The Number of Occupational Needlesticks by Hospital by Year



The progress noted with the URC needlestick and exposure surveillance system includes:

- An increase the number of facilities reporting to URC and a larger number of facilities that are keeping exposure reports internally.
- Use of a common definition of a significant exposure.
- In 2005, URC added facilities to their reporting system so an increase in number reported in their quarterly reports is likely to be a function of more facilities reporting and better reporting of exposures. In 2009, several facilities visited had an increase in needlesticks. At the same time access to rapid HIV testing and PEP improved, which could have motivated more staff to report needlesticks. However, an true increase in needlesticks also is a possibility. However, Windhoek Central Hospital has had a needlestick surveillance system in place for more than 10 years, and did not have the rebound in 2009 reported in facilities with new emphasis on reporting system.
- Physicians, surgeons, dentists, cleaners, and incinerator operators are reporting exposures.
- Reports have become more complete over time, and increasingly include information about the device and the procedure related to the injury, which helps direct prevention efforts.

Table 4. Frequency of Occupational Exposures by Facility 2005–2010

Location	Frequency	Percent
Gobabis Hospital	12	6.5%
Mariental Hospital	9	4.9%
Okahandja Hospital	13	7.0%
Onandjokwe Hospital	61	33.0%
Opuwo Hospital	14	7.6%
Oshakati Hospital	60	32.4%
Outjo Hospital	14	7.6%
Stampriet Clinic	2	1.1%
Total	185	100.0%

Source: Information compiled during site visits to facilities

Table 5 shows the total number of incidents by procedure. When the portion of injuries associated with needlesticks is compared by year, the percentage of incidents related to IM injections decreased from 43% (9 of 21) in 2005 to 24% (11 of 45) in 2010. The number of injuries related to waste disposal also decreased. In the first three quarters of 2010 there were no injuries reported from needles in the regular waste or red bags; only one injury in 2010 related to a safety box (2% of all injuries), and one injury during incinerator operation in 2010. The waste handlers confirmed that they rarely see sharp objects outside of safety boxes and consider this to be an improvement that makes their jobs safer.

Table 5. Procedures Associated with Exposures in Eight Facilities 2005–2010		
Procedure resulting in injury	**Frequency**	**Percent**
Dental procedure	7	3.78%
Drawing venous blood	25	13.51%
Drawing capillary blood	15	8.11%
Dumping waste bins	11	5.95%
IM injection	16	8.65%
Incinerator-related	1	0.54%
IV-related	16	8.65%
Not stated	29	15.68%
Other: surgery, I+D	22	11.89%
Safety box-related	10	5.41%
Shaving surgical patient	1	0.54%
Episiotomy	24	12.97%
Suturing	8	4.32%
Total	**185**	**100.00%**

Recapping, typically the most common risk factor for needlesticks, was reported in only 2 of the 185 exposures. Staff say they practice one-handed recapping for blood draws as they undertake the dangerous disassembly of the vacuum tube blood collection systems.

Issues for Objective 2c: Reducing Needlesticks

- It was not possible to calculate the rates of needlesticks per 100 employee full-time equivalents because the evaluators did not have access to the number of employees per facility. Facilities had not reported this number of employees to URC, nor could they provide this to the evaluators during the site visit. (A USAID staff member later commented that the principal medical officer of the district hospital should have those numbers.)
- The forms and log books involved in incident reports and medical management are numerous, duplicative, and varied. The system is not confidential. The official national incident reporting form used to calculate workman's compensation is held by the Social Security Commission and data are not shared. Some public sector employees have their PEP and follow-up completed in the private sector, which makes it difficult for ICC or P&TC to evaluate appropriate use of PEP or gain knowledge if employees are sero-converting after occupational exposure.
- Given the prevalence of HIV, 15% to 30% of the employees tested after needlesticks would be expected to be HIV-positive. In contrast, 2% of employees were HIV-positive in the 185 incident reports reviewed (see Table 6). HIV-positive employees may not be reporting incidents nor given the stated concerns about confidentiality; perhaps test results are left blank or marked as not tested for HIV-positive employees, making it difficult to assess if PEP was given appropriately.

Table 6. Frequency of HIV+ in Employees Reporting Needlesticks and Exposures		
Test Status	**Frequency**	**Percent**
HIV-negative	114	62%
Not stated	42	23%
Not tested	24	13%
HIV-positive	3	2%
Refused to be tested	2	1%
Total	185	101*%

**Results greater than 100% due to rounding error.*

- Based on the incident reports reviewed, the majority of sharp object injuries now result from lancets, phlebotomy equipment, scalpels, suture needles, IV cannulas, and IV influsion sets. New prevention strategies such as use of safety lancets and efforts to reduce inappropriate episiotomies and infusions will be needed.
- Centers for Disease Control and Prevention (CDC) is reporting outbreaks of HBV in U.S. facilities that reuse glucometers and insulin pens on multiple patients. One private hospital (not included in the eight facilities above) did report six needlesticks assocated with an insulin pen use, so advice for newer devices also should be developed and communicated.
- The evaluators did not see evidence that either URC or facilities were using their needlestick injury data to try to prevent injuries or review appropriate use of PEP.
- URC has recommended that the MOHSS should purchase auto disable (AD) syringes "to prevent reuse and to reduce needlesticks." Namibia has never reported having a systemic problem with the reuse of syringes. AD syringes do not prevent needlesticks, although other designs of safety syringes do. Many facilities complained about having to use AD syringes, which are not designed for curative tasks other than injections. The benefit of buying a device twice as expensive for a nonexistent problem is unclear.

Recommendations for Reducing Needlesticks and Exposures

To transition, URC increasingly should support the MOHSS QA and coordinate technical assistance to the districts and regions via a coordinated plan led by QA.

- MOHSS should continue independently to work on waste segregation, use safety boxes at point of use, and ban recapping.
- MOHSS QA should encourage a focal person to orient new staff to these expected practices through on-the-job training rather than relying on multiday courses.
- The country should assess the cost effectiveness of AD syringes for the curative sector. If the country continues to buy AD syringes for the curative sector, URC should encourage MOHSS to also buy non-AD syringes for therapeutic procedures for which AD syringes are neither safe nor effective.
- URC should encourage MOHSS to standardize the data collection for injury surveillance to include the device, procedure, and timing of the injury (before, during, after use, or during or after disposal) to target prevention measures.
- MOHSS QA/URC should assist ICCs to use their injury data and target problem issues. URC could develop case studies to help demonstrate to ICCs how to synthesize information, analyze problems, set priorities, and devise action plans with measurable

outcomes. ICC can be encouraged to use its minutes as a management tool that specifies the problem, action, indicator for measure progress, persons responsible, and timeline.

- URC can provide information to QA and the national advisory committee and provide guidance how to prevent sharp object exposures from devices other than syringes.

OBJECTIVE 3: POST EXPOSURE PROPHYLAXIS WITH IC AS AN OVERALL OBJECTIVE, INCLUDING TB IC

Progress Toward Objectives

This section will discuss progress toward:

3a: Appropriate use of PEP for HIV;

3b: Improved IC efforts; and

3c: TB IC.

3a: Progress Toward Improved Availability and Utilization of PEP for HIV

PEP for HIV is now widely available onsite at the hospitals visited and at some of the clinics. The other clinics seek PEP from local hospitals. On the site visits, an impressive 100% of persons interviewed, from cleaners to directors, was aware of the availability of PEP and how and when to access it. This is consistent with information in URC quarterly reports for the facilities that reported. The HIV PEP guidelines or a treatment algorithm were available at all clinical facilities and in use.

To minimize the risks, PEP should only be used when the source patient is positive and the employee is negative. The testing of employees and source patients did improve some over time in the 185 incident reports reviewed (see Table 7). In 2005, for example, the employee was not tested or employee test results for HIV were not noted in half (50%) of the 22 incidents reported. In 2010, this improved to 28% (13 of 45) incidents.

Table 7. HIV Test Status for Employees by Year of Incident for Eight Facilities

Employee HIV Status	2005	2006	2007	2008	2009	2010	TOTAL
Negative	11	0	3	26	44	30	114
Not stated	3	2	1	7	18	11	42
Not tested	8	0	0	5	9	2	24
Positive	0	0	0	1	1	1	3
Refused to be tested	0	0	1	0	0	1	2
TOTAL	**22**	**2**	**5**	**39**	**72**	**45**	**185**

Records for 2006 and 2007 are incomplete for some facilities.

HIV PEP was considered to have been used appropriately if it was given to a HIV-negative employee after a significant exposure when the source patient was HIV-positive or the source of the blood was unknown. In the records reviewed during the site visits, PEP was given in 65% (121 of 185) of the exposures; 33% of the time (40 of 121), the use of PEP was not appropriate because the known source patient was negative; and in a few cases the exposed employee was never tested, although testing was available. PEP was given appropriately in 49% (59 of 121) of the incidents and it cannot be determined if it was appropriate in 18% (22 of 121) of the incidents, due to missing information.

Compared to incidents in 2005, more source patients were tested in 2010: 8 of 16 or 50% of the known sources were tested in 2005, compared to 28 of 42 or 67% in 2010. This improvement may be due to the improved availability of HIV rapid tests and an increased willingness of patients to be tested.

Table 8. Showing the Portion of Exposures from Eight Facilities with Appropriate Use of PEP 2005–2010

	PEP Given Appropriately?			
PEP given?	**No #**	**Not enough info #**	**Yes #**	**TOTAL**
No	24	0	6	30
Unknown	7	23	4	34
Yes	40	22	59	121
TOTAL	**71**	**45**	**69**	**185**

**(Source patient HIV+ or source patient not known, and employee HIV-)*

Issues in Objective 3a: Appropriate Use of PEP

- The requirements to provide rapid HIV testing include a need for a separate counseling room and completion of a five-day training course and submission of results from 50 samples. Unfortunately, this is a barrier for small facilities that wish to make rapid HIV testing available for occupational exposures occurring after hours and on weekends. The facility requirements to provide rapid HIV testing are more stringent than for emergency deliveries and the course design is very expensive for staff trained to do rapid diagnostic tests with capillary blood.
- The use of PEP for HBV, including vaccination, is not documented even when the source patient is HBsAg+ and the status of the employee is known.
- Many Namibians erroneously believe that PEP for HIV is appropriate when the source patient is HIV negative: This is reinforced by the draft of the Waste Management Guidelines, which discusses the use of PEP when "the negative source patient can be in the window period, and may be infectious." The risk of PEP during this period outweighs the very, very low risk of disease, and neither UNAIDS, the MOHSS, nor the CDC recommend the administration of HIV PEP when the source patient is negative.

Recommendations for Objective 3a: Appropriate Use of PEP

- MOHSS QA/URC should advocate with NHTC for some flexibility for the training in the use of HIV rapid tests to better serve rural areas and exposed employees. A five-day course for HIV rapid testing for nurses is excessive and a barrier for inclusion of the private sector.
- URC should support the MOHSS to establish a better system for the documentation of HBV test results and use of PEP for HBV in accordance with the guidelines when they are finalized.
- URC should encourage monitoring of the appropriate use of PEP for occupational exposures and communicate that PEP should not be used for HIV-negative source patients. Feedback on compliance should be given to providers and facilities.
- The Waste Management Guidelines do not need to include information on the clinical management of exposures, and those who do prescribe PEP should follow guidance consistent with the National Guidelines for Antiretroviral Therapy from the Directorate of Special Programmes.

Objective 3b: Progress Toward Improved IC

As significant progress has been achieved in injection safety, the URC and the MOHSS began to assess the need for broader IC efforts.

Signs of Progress in IC

There have been URC-funded activities to increase the capacity of MOHSS staff in IC. This was done by funding workshops in Namibia, and funding four international attendees at the Infection Prevention and Control Africa Network (IPCAN) and the World Health Organization (WHO) Safe Injection Global Network (SIGN) meetings. URC supported workshops to train 300 persons in basic IC, and supported the University of Stellenbosch to train 90 managers in a three-day IC course. In 2010, URC sponsored a national review workshop with MOHSS/(MSH) to train IC focal persons to use an IC self assessment tool. Staff from eight districts attended.

URC supported ICCs in 34 districts and have provided input to help them develop IC plans. Focal persons have been assigned at all facilities and all regions. A national injection safety committee also continues to meet on occasion.

In the 2009 MIS evaluation visit, the facilities identified two priority topics: TB IC and improved reprocessing of instruments.[2] In the site visits for this evaluation, IC focal persons identified the need for construction plan review, noting, for example, a proposed maternity facility to be built without hand washing facilities or a sluice room. This is evidence of increased awareness of the role of facilities needed for IC by health care workers if not by the architect.

Issues for Objective 3b: IC

- External technical assistance in IC will be needed periodically for the foreseeable future.
- The University (UNAM) School of Nursing has requested training for faculty so they can be more familiar with the scientific literature behind the national policies and training modules.
- At the local level, the capacity of ICCs has improved to detect and report problems, but they still struggle to identify root causes and implement solutions. "Training" was frequently cited exclusively and reflexively as the solution for any problem including, in one set of minutes, for an epidemic of 1,400 dog bites and seven deaths from rabies. Based on the minutes of the ICCs, there is a missed opportunity to implement the URC QA training and document the plan in the minutes in support of systematic problem-solving.
- New facilities are being built with unsafe designs that could be prevented if plans were reviewed for infection prevention requirement. Example of unsafe construction included:
  - Inside waiting rooms and patients waiting in corridors with no ventilation
  - Maternity wards without sinks, sluice rooms, or central reprocessing.
  - Patients without hand washing/hand hygiene or toilets in rooms or corridors.
  - Appropriate facilities for isolation of patients requiring contact or respiratory isolation.
- There is a need to improve Standard Precautions and TB Infection Control in the facilities. Staff are not aware that Standard Precautions refer to a defined set of interventions, which includes:
  - Hand hygiene;
  - Immunization (including HBV immunization for staff);
  - Reprocessing (cleaning, sterilization, and disinfection) of equipment used on multiple patients;

[2] Reprocessing refers to the decontamination, cleaning, and sterilization or disinfection done on used instruments to prepare them for use on a subsequent patient.

- Patient placement;
- Environmental cleaning;
- Injection safety;
- Management of infectious waste;
- Use of personal protective equipment and barrier precautions for clean, aseptic, and sterile technique;
- Management of laundry;
- Respiratory etiquette.

- There are several important IC responsibilities typically assigned to the central level, which have that have not been assigned in Namibia.
  - The abovementioned review of construction plans for IC requirements prior to tender.
  - Selection of national IC priorities.
  - Review of new medical devices prior to procurement to ensure they are safe for use in Namibia facilities and sterilizable by the means of sterilization/disinfection available in the facility.
  - Establishment of criteria for disinfectants and ensure that products imported for medical use meet their stated label claims and have the active ingredient and the concentration listed on the label. (Currently disinfectants are to be selected at the local level.)
  - The conduct or participation in nosocomial outbreak investigation.
  - Reporting defective devices that results in injury and infection to procurement and manufacturers, and having a recall and advisory system.
  - Development of guidance on the (PEP), level of hand hygiene, barriers, and other measures to be taken by type of category or procedures so other directorates can develop consistent procedures.

Recommendations for Objective 3: IC

- In the next two years, URC should focus on mentoring trainees to implement past training rather than training more people. ICC staff and focal persons will benefit from the support with implementing IC plans, and data analysis support.
- URC could help Namibia advocate for workshops that address UNAM faculty request for IC training in 2011 when the WHO Safe Injection Global Network (SIGN) meeting and (Infection Prevention and Control Africa Network (IPCAN) meetings will be held in Namibia. Both meetings are in the planning phase.
- URC should help MOHSS implementation of Standard Precautions and prevent nosocomial transmission of TB as priority issues. If ICCs are left to select their own issues and invent their own strategies, they are less likely to be successful. Local creativity can address the barriers to intervention of measures of proven efficacy.
- It is not a foregone conclusion that a full-time IC staff at the regional level or in facilities will improve performance. Some additional staff time is needed for these activities but activities should be clearly structured and staff held accountable by reporting measurable progress.

Progress Toward Objective 3: TB Control

Health care workers in Namibia increasingly are concerned about occupational exposure to TB, with much of the risk occurring outside of TB wards. However, actions to prevent exposure to TB on regular wards were not widely observed. Facilities are being encouraged to test all HIV-positive patients for TB and vice versa. Some high-efficiency particulate air filtration respirators were seen on the wards. Indoor waiting areas in corridors and enclosed rooms without

adequate ventilation were common. Some staff were aware of cough hygiene/respiratory etiquette programs and some posters were seen but the survey team did not consistently see surgical masks offered to coughing patients or visitors. Windows often were closed.

Issues for Objective 3: TB Control

- While TB control is in the scope of work of the project, the USAID project manager explained that they instructed URC not to address TB IC, so URC should not be held accountable for TB-related shortcomings.
- The larger organization of URC has extensive experience instituting QA programs in large scale TB programs and could contribute in this area. Attention to TB IC was a priority request of staff. On this evaluation visit, rudimentary TB IC measures were not in evidence. One facility with approximately 1,000 employees (Oshakati Hospital) commented that 30 employees developed TB disease since 2008, and three have died. If roughly 10 cases a year are occurring, this is slightly more than the expected community incidence of 6 or 7 TB cases per 1,000 persons. However, 19 of those who developed disease were nurses and student nurses, who may be acquiring the disease at twice the expected rates as the regular population. There is a need for the date of diagnosis and accurate numbers of employees at risk to be sure.

Recommendations for Objective 3: TB Control

- Protecting staff from TB disease is a high priority and employee concern. MOHSS/Royal Netherlands Tuberculosis Foundation (KNCV) could set the technical direction and URC could promote implementation of protective measures. KNCV staff said they do not have people in the regions or districts and focus on identified TB patients; URC could aid with case finding and respiratory etiquette.

OBJECTIVE 4: TO CONTINUE TO SUPPORT COMMODITY MANAGEMENT ON A VERY SMALL SCALE

Progress Toward Objective 4

URC initially funded and distributed a variety of products for the MOHSS including safety boxes, bin liners, paper towels, and personal protective equipment for incinerators operators. To the URC and the MOHSS' credit, these items have been incorporated into the procurement system of the MOHSS either through central medical stores or pharmacy ordering systems and are procured and distributed by the MOHSS.

All districts now were ordering through CMS or pharmacy, which represents a successful handover. All levels of the MOHSS are satisfied with the quality and supply of the current yellow safety boxes, although some facilities said they have experienced occasional stockouts of the 10-liter size. One large facility commented that they needed a larger container to discard surgical trocars.

Progress has been made, as shown by the indicators in the URC quarterly reporting system in Table 9.

Table 9. Status of Commodity Indicators from URC Quarterly Reports Baseline MIS through June 30, 2010

	B: Indicator	C: Baseline Assessment Tool C conducted in 32 hospitals 2004 interviewing approx 117 HCW2	D: Initial facility assessments, 5 regions, 2005 (2008 report)1	E: Jan–Mar 2009: % of facilities reporting (N=167)	G: Apr–June 2010: 56% of all facilities midterm HCIP
B	**Commodity management**			**HCIP**	**(N= 200)**
1	Sufficient needles and syringes in stock	100%	100%	95%	98%
2	Protective clothing for waste handlers			71%	83%
3	Stock cards used to manage supplies			85%	93%
4	Stockouts on one or more oral antibiotics			29%	13%

Issues for Objective 4: Commodity Management

- The Oshana Directorate Therapeutic Committee (May 2010) reported that they have only one of their original three autoclaves functioning. The Tender Board approved the purchase of one of the two autoclaves requested; the one supplied had only half the capacity needed. This is a high priority for safe patient care. Large facilities must have multiple sterilizers available to promote central sterilization and avoid dangerous reprocessing on the wards. Excess capacity is necessary, including during preventive maintenance and repair. With one sterilizer, the facility will have to purchase many, many more sets of instruments to meet the demand for sterile instruments for all invasive procedures; alternatively the facility will risk performing procedures without sterile instruments when there are periods of high patient volumes.
- URC has provided technical assistance for six years on stock management for garbage bin liners, yet the problem still occurs. The solution, teaching how to forecast demand, is not addressing the variety of underlying causes.
- Injuries resulted each time when a new safety box was introduced. While the problem was identified and corrected, expert review of the procurement specifications, issuing an advisory and a recall might have prevented injuries.
- Workers, including labor and delivery staff; cleaners; and incinerator operators had important feedback about their need for modified Personal Protection Equipment PPE and for other products to improve their safety. There was no forum for considering or evaluating the comments; supervisors just complained that they would not use the PPE.
- More facilities had alcohol hand rub for hand hygiene that is being promoted by MSH. The IC guidelines specifically state that spray bottles should not be used because they cannot be reprocessed; however, they were in widespread use.

Recommendations for Objective 4: Commodity Management

- Procurement assistance could standardize the purchase of sterilizers, which also would simplify training and repair.
- URC should bring in QA expertise from other offices to teach ICC how to investigate root causes and test new solutions because the past training on stock management has not resolved the problem underlying the shortage of bin liners.
- URC/MOHSS should encourage staff and facilities to report issues with products and discuss these with procurement to adjust specifications and respond to request for tenders for new products. Listening to the end user is key. URC can work with MOHSS to have a post marketing surveillance, recall, and advisory system to communicate about medical devices that are associated with exposures, injuries, and deaths. URC should introduce a system for technical review of major new hospital products and devices to ensure that they can be cleaned and disinfected or sterilized by the facility.

III. ADDITIONAL RECOMMENDATIONS

RECOMMENDATIONS FOR GOVERNMENT STRUCTURES TO TAKE OWNERSHIP

- QA should retain responsibility for IC assuming they can fill the QA posts at national level. They also should identify qualified person/s to provide periodic technical assistance on IC.
- URC should support the central MOHSS to assume direction on IC efforts and work under their request to support the districts over this transition period and possibly beyond.
- UNAM should provide pre-service training on IC for all health professionals. (Note the nurses' curriculum is being revised in 2011 and it is a priority to incorporate IC topics into the new curriculum.)
- The NHTCs should continue to provide training pre-service and in-service training, including accredited courses for professional development necessary for nurse licensing.
- P&TCs should incorporate and monitor use of injections, prescriptions by diagnosis, and IV fluids with ICC members represented.
- Occupational Health should provide guidance on specifications for protective clothing for workers and technical support on occupational issues. They also should receive incident reports on worker illness/injury.
- DQA should lobby Social Security Commission reports to MOHSS/National ICC on the reports of worker' exposures and occupational illnesses, including HIV, HBV, and TB, among health care workers.
- Central medical stores and pharmacies should continue to issue tenders and procure and distribute commodities.
- Workplace program should take full responsibility for Care of Caregiver Program.
- The PEH Division should retain responsibility for implementing the National Waste Management policy. URC and DQA can support management of medical waste.

RECOMMENDATIONS FOR EXTERNAL SUPPORT BEYOND 2012

- The threat to a successful transition is the retirement of the dedicated champion in QA in less than two years while other QA positions remain unfilled, including the physician director and four or five other posts. The Deputy Permanent Secretary requested one to three years of additional HCIP support beyond 2012 to cement the transfer and institution building for the DQA as the new staff are oriented, and we concur with this need.
- It is recommended that the future HCIP support be categorized as "health system strengthening" rather than "prevention as additional improvement is needed are general management strengthening, e.g. ICC ability to solve identified problems, manage by objective, define results and measure progress toward them."

IV. OVERALL CONCLUSION

URC did help the MOHSS in the prevention and control of blood-borne disease. In the next two years, management skills related to IC need to be strengthened.

URC did an excellent job addressing most HCIP objectives, with their strengths being implementation, supportive supervision, training, and dissemination of information to the lowest levels. Facility audits were helpful, and from the information available to evaluators, it appears that the portion of needlesticks associated with injections was reduced; appropriate use of PEP, access to PEP, and HBV vaccine use for staff also increased.

The MOHSS staff were uniformly positive about their collaboration with URC and the many achievements of the project. The remaining challenge is to develop a source of technical expertise in-country team on this specialized subject matter (waste destruction, construction review, disinfection and sterilization, and surveillance of health care-associated infections). However, URC did an excellent job using the information they had, and both the MOHSS staff and URC gained additional expertise during the project as they implemented globally defined recommendations. The success at reducing unnecessary injections was less, with a need to improve both the strategy and monitoring. The URC data system was cumbersome and not useful at the facility and national level. Trainees' abilities to apply QA methods on their own were weak.

USAID, URC, and the MOHSS are to be congratulated. Dr. Mehtar, professor of the Infection Control Unit at the University of Stellenbosch, commented that Namibia has achieved the most IC progress of any of the many countries she has visited. The site visits of the evaluation team confirmed this remarkable progress.

APPENDIX A. SCOPE OF WORK

Global Health Technical Assistance Project (GH Tech)
Contract No. GHS-I-00-05-00005-00
SCOPE OF WORK

Title: USAID/Namibia: Mid-Term Evaluation for the Health Care Improvement Project

Performance period: Including time for preparation and completion of report on/about September 22, 2010, to November 19, 2010. In-country work to be on/about October 4 through on/about October 23, 2010.

Purpose and objectives: USAID awarded URC a Field Support (Contract) Agreement Number: GHN-1-00-07-00003 for HCIP on September 30, 2007, with an end date of September 30, 2012, for a planned life of project of $1,076,233. The agreement focused on prevention in the technical area of Prevention OP for safe injection and waste management. The prime partner was URC, with subpartners, EnCompass LLC, Family Health International, Initiatives Inc, Johns Hopkins University (JHU) Center for Communication Programs (CCP) and Management Systems International (MSI).

The HCIP project was a follow-up on to a much larger program, Making Medical Injections Safe TRACK 1, which was implemented by URC with a total expenditure of $5,146,725 from February 2004 to September 2009. The initial Making Medical Injections Safe project made significant progress both regionally and nationally; it trained more than 3,000 health care practitioners in injection safety and waste management and documented significant reductions in sharps injuries and in the average number of injections prescribed per patient per treatment. The project widely disseminated Standard Treatment and PEP Guidelines and distributed 70,000 safety containers nationally to reach more than 70% of all health facilities.

The objectives for HCIP are very similar to the initial Making Medical Injections Safe project but, owing to the reduced budget, the scope has been limited to 30% of previous commitments. They are:

- To assist the GRN MOHSS to develop and implement policies and guidelines for safe injection and waste management practices.
- To prevent transmission of blood-borne infectious diseases (HIV, HBV, and HCV) by reducing unsafe and unnecessary injections.
- To support PEP with IC as an overall focus, including TB IC.
- To continue to support commodity management on very small scale.
- To achieve these objectives, HCIP has conducted activities at the national level and in all 13 regions. HCIP activities include:

Policy and guidelines: Development of an MIS training manual, training MOHSS staff to be MIS trainers, and support to the MOHSS with the finalization of the Infection Prevention and Control Guidelines and National Waste Management Policy.

Reducing unsafe and unnecessary injections: Training of professionals and non-professionals in injection safety and waste management; establishment of 34 District Implementation Teams and ICC, and integration of IC and waste management in the NHTC curricula.

PEP: Health worker sensitization and surveillance on of PEP.

Commodity management: Support MOHSS with transitioning for procurement of essential injection safety and waste management commodities (e.g., injection safety boxes); support Directorate of Primary Health Care (PHC) during national immunization days with injection safety boxes; financial assistance for emergency procurement for essential supplies, and technical assistance for tender specification for the procurement of personal protective equipment for incinerator operators.

Goal of the evaluation: This midterm evaluation seeks to assist USAID to ensure that the remainder of the HCIP is on track in ensuring a successful transition of GRN MOHSS to full ownership and sustained implementation of the national safe injection and waste management program.

Objectives of the Evaluation Include:

1. To assess progress toward stated program objectives.
2. To identify critical injection and waste management issues still in need of internal and/or external support.
3. To recommend appropriate cost-effective actions to address the identified issues, using either internal or external resources during the remainder of the project.
4. To assess whether external support still will be required beyond the lifespan of the current mechanism; if so, determine type of support required.
5. To identify appropriate government structures that are most effective to take full ownership of the injection and waste management program beyond current external support.
6. To examine the project as cross-cutting strategy for HIV prevention and, if follow-up technical assistance is required, determine the best focus area mechanism for follow-up support: health system strengthening or prevention.
7. To provide recommendations based on the findings of the evaluation for a successful transition over the remainder of the project toward full GRN ownership and implementation of key activities on a sustainable basis.

Key implementation issues: The evaluation should be informed in part by an organizational development perspective to examine progress toward improved program management and increased systems strengthening. The evaluation requires the concurrence of GRN counterpart Ministries, especially the MOHSS. USAID/Namibia will inform/provide this concurrence to GH Tech if team members need it for work in-country. In addition, per a recent audit by the Office of Inspector General, (See "Audit of USAID/Namibia's efforts to address crucial shortages of trained HIV/AIDS Health Workers," Audit Report No. 9-000-10-00X-P, July 1, 2010), this evaluation will be required to define the HCIP project's contribution to health systems strengthening through investments as well as identify HCIP's contribution to subpartners or to the GRN in the area of organizational capacity.

Period under review for the evaluation: From start of project (September 2007) through the Semi-Annual Progress Report for 2010 (March 31, 2010) and the third Quarter Report for COP09/FY 2010 (June 30, 2010).

Illustrative Key Questions to be addressed by the team:

Guiding Evaluation Questions:

- What progress has HCIP made toward stated program objectives?
- Why has HCIP's progress toward planned objectives been positive or negative?
- What critical injection and waste management issues still are in need of internal and/or external support?

- What are appropriate cost-effective actions to address the above-identified issues, using either internal or external resources during the remainder of the project?
- Will external support still be required beyond the lifespan of the current mechanism? If so, what type(s) of support will be required?
- Which government structures are most appropriate and effective to take full ownership of the injection and waste management program?
- Have HCIP's investments in human resources had a long-term impact and are they sustainable?
- Specific to human resources for health, have HCIP's interventions adequately addressed recruitment, training, supervision, and attrition of technical specialists and community health volunteers?
- What has been HCIP's contribution to health systems strengthening through investments in human resources for health?
- What has been HCIP's contribution to subpartners and/or to GRN in the area of organizational capacity?
- Has HCIP built capacity of civil society agencies and private sector?
- Viewing the HCIP as a cross-cutting strategy for HIV prevention, under which focus area mechanism it would perform best: would it do better under health systems strengthening or continue under a prevention focus area?
- Based on the findings of the evaluation, what are the recommendations for a successful transition over the remainder of the project toward full GRN ownership and implementation of key activities on a sustainable basis?

Performance information sources: Items 1–6 to be sent to GH Tech as soon as possible before in-country work begins.

1. Baseline assessments for program implementation (See National Injection Safety Project, Report on Rapid Assessment of Current Injection Practices in Namibia 31-May-09 July 2004, MOHSS, URC, and UNAM).
2. Country Operational Plan FY 2007, FY 2008, and FY 2009 narratives.
3. Work plans and PMPs.
4. Quarterly, semi-annual, and annual progress reports.
5. Financial report and pipelines.
6. Key line ministries, the MOHSS, and reports on URC HCIP activities.
7. Any signed agreement with local partners.
8. Key informants interviews.
9. Field visits and direct observations.

METHODOLOGY

The evaluation team will use a variety of methods for collecting and analyzing qualitative and quantitative information and data. The methods to be used in completing this evaluation will include but not limited to: reviewing documentation, interviews, site visits, stakeholder meetings, etc. Drawing on experiences in other PEPFAR countries, the U.S. Government in Namibia will seek the assistance of external consultants, headquarters, host country, and local U.S. Government counterparts to conduct the assessment. The following essential elements should be included in the methodology as well as any additional methods proposed by the team:

Prior to arriving in-country and conducting field work, the team will review various project documents and reports. Prior reports will be reviewed; as part of the in-country evaluation work, the centrally reported data from the quarterly facility reports may be checked against primary source documents. A list of key documents is included in Section XIII. As stated previously, the USAID/Namibia team will provide the relevant documents for review as soon as possible.

Team Planning Meeting

A two-day TPM will be held during the evaluation team's first two days in-country with USAID staff. This time will be used to clarify team roles and responsibilities, deliverables, development, and finalization of tools and the approach to the evaluation, and refinement of agenda. In the TPM the team will:

1. Share background, experience, and expectations for the assignment
2. Formulate a common understanding of the assignment, clarifying team members' roles and responsibilities.
3. Agree on the objectives and desired outcomes of the assignment
4. Establish a team atmosphere, share individual working styles, and agree on procedures for resolving differences of opinion.
5. Develop and finalize data collection methods, instruments, tools and guidelines, and methodology and develop an assessment timeline and strategy for achieving deliverables.
6. Develop a draft report outline for Mission review and approval.

In-depth Discussions with USAID/Namibia and Project Staff

Key Informant Interviews

The team will conduct structured interviews with the project staff, and key partners including the MOHSS and NGOs, other donors, implementing partners, and other key U.S. Government-funded and non-U.S. Government-funded stakeholders. Interviews also will be conducted with pertinent offices of the MOHSS (EPI, Logistics, Occupational Health, the National TB Program, and QA). URC's regional coordinators may need to be contacted to clarify conflicting data. Representatives of implementing partners also will be interviewed (EnCompass LLC, Family Health International, Initiatives Inc, Johns Hopkins University Center for Communication Programs (CCP), and Management Systems International (MSI)). To ensure that comparable information is collected during interviews, the team will develop standard guides reflecting the questions posed by the evaluation scope of work.

Field Site Visits

To evaluate the project based on objective criteria, URC HCIP will be asked to help identify facilities for site visits from the better performing regions, the worst performing regions, and some in the middle. A minimum of 12 facilities will be visited in at least four regions (three sites in each region); currently six regions, Omahake, Hardap, Oshikoto, Oshana, Kunene, Otjizondjupo, and Khomas, are under consideration. Interviews will be conducted with staff from Regional Directorate offices, including senior management (Regional Directors) and those regional directorate staff in charge of IC, hospital supervision (control nurses), and waste management. Staff encountered during facility tours also will be asked about the project and their practices observed.

The team will coordinate with USAID/Namibia to prepare for and conduct site visits while in-country, and to interview key informants at these sites. Over eight days, a three-person team (two GH Tech Consultants and one USAID/Namibia staff member) will conduct site visits in up to six regions, including site visits in the Windhoek area. USAID/Namibia will arrange for all

required in-country transport from Windhoek to site visit locations. USAID/Namibia will make arrangements for accommodations as needed.

Profile of Evaluation Team

Team leader: Senior expert in IC, injection safety, and medical waste management with proven track record as team leader for midterm and end-of-project evaluations in sub-Saharan Africa. Should have experience supporting capacity building for national government programs for injection safety and medical waste management. Should have proven ability to synthesize findings into high-quality final report within a short time frame.

Team member: In-depth expertise and experience in organizational development to strengthen the capacity of government agencies; experience with PEPFAR-funded IC, injection safety, and medical waste management a plus. Should be knowledgeable in capacity building for increased capacity of government organizations to provide and sustain HIV/AIDS services. Minimum Masters, preferably a management-related area (e.g. MBA). Must have proven track record participating in evaluations with ability to assist in the synthesis of findings within a short timeframe.

Local team: The local team members (which may include USAID/Namibia activity managers, Ms. Rosalia Indongo, and staff from CDC (Mr. John Pitman)) will participate with the two external evaluators as needed to accompany them on site visits, introduce them to national and local informants and collect data, but they will not be responsible for the drafting of the evaluation report. The roles of the local team will be determined in collaboration with the team leader during the TPM. All assignment-related costs for local team members will be covered by USAID/Namibia.

Key contacts include: Ms. Gordon, Head, DQA, MOHSS; Dr. Azizi Abdallah, URC; Mr. John Pitman, CDC; and USAID/Namibia activity manager: Ms. Rosalia Indongo.

Estimated Level of Effort (LOE): A six-day workweek will be approved when the consultants are working in-country.

Task/Deliverable	Team Leader LOE	Second team member LOE
Read background documents	3 days	3 days
Travel to Namibia	2 days	1 day (logistics work if needed)
Team planning meeting	2 days	2 days
Assessment work	15 days	15 days
In-briefing with USAID HIV/AIDS team (and partner(s) as needed)	(1 day)	(1 day)
Conduct site visits and key informant interviews (includes in-country travel days)	(9 days)	(9 days)
Discussion, analysis, and draft report preparation	(3 day)	(3 day)
Mission (and partner debriefing)	(1 day)	(1 day)
Complete report draft—revise report and incorporate debriefing comments into draft report	(1 day)	(1 day)
Return travel	2 days	

Task/Deliverable	Team Leader LOE	Second team member LOE
Mission sends technical feedback/comments on draft report to GH Tech (within 10 days of submission)	0	0
Consultants revise/finalize report	5 days	3 days
Mission reviews/signs off on final report (within 5 days of receipt)	0	0
GH Tech edits and finalizes report – approx. 30 days after mission approval	0	0
Total LOE	29 Days	24 Days

LOGISTICS

GH Tech will provide:

- International travel to and from the consultant's point of origin and Namibia. GH Tech will provide full-fare economy.
- GH Tech consultant per diem and lodging expenses.
- Country cable clearance. For clarification, please confirm a formal electronic country clearance request is not necessary; instead, an informal e-mail request directly to the mission will suffice.

USAID/Namibia will provide:

- Visitors will not have an EA and therefore will need to work out of their hotel/lodging or a designated work space (tbd). They will need prior approval to bring any laptop into the USAID office for any meetings or briefings.
- Cell phone, but consultant(s) will purchase airtime
- SFH will submit a list of all stakeholders and beneficiaries for field visits and USAID will provide logistical support for the team in-country assessment.
- Arrangements/logistics for in-country site visits.
- Reserve hotel and guest house accommodations in-country.
- Most local costs and travel expenses, but not per diem and lodging for GH Tech consultants.
- USAID/Namibia will provide a USAID/Namibia car and driver for use by GH Tech consultants only when other U.S. Government staff members accompany them. When no U.S. Government staff members accompany consultants, they will use taxis.

During In-country Work

USAID/Namibia will undertake the following while the team is in-country:

Mission Point of Contact: Ensure constant availability of the Mission Point of Contact person(s) to provide technical leadership and direction for the consultant team's work.

- Meeting Space. Provide guidance on the team's selection of a meeting space for interviews and/or focus group discussions (i.e., USAID space if available or other known office/hotel meeting space).

- Meeting Arrangements. While consultants typically will arrange meetings for contacts outside the mission, support the consultants in coordinating meetings with stakeholders.
- Formal and Official Meetings. Arrange key appointments with national and local government officials and accompany the team on these introductory interviews (especially important in high-level meetings).
- Other Meetings. If appropriate, assist in identifying and helping to set up meetings with local professionals relevant to the assignment.
- Facilitate Contacts with Partners. Introduce the team to project partners, local government officials and other stakeholders, and when applicable and appropriate, prepare and send out an introduction letter for team's arrival and/or anticipated meetings.

Following In-country Work

USAID/Namibia will undertake the following once the in-country work is completed:

Timely reviews: Provide timely review of draft/final draft reports and approval of the deliverables.

DELIVERABLES AND PRODUCTS

- A written methodology/work plan (Evaluation design/operational work plan) prepared during the TPM and submitted to the Mission for review and approval before fieldwork and key informant interviews begin.
- A draft report outline prepared during the TPM.
- A Mission and partner debrief meeting that will be held before the team's departure and prior to the submission of the draft report. The team will prepare a PowerPoint presentation for this event.
- Prior to departing Namibia, a draft report addressing key performance findings, conclusions, recommendations and lessons learned will be submitted. The Mission will have 10 days following the submission of the draft report to respond and provide written comments and feedback to GH Tech.
- Conditional on receipt of comments from USAID/Namibia five days beforehand, the final report will be due November 15, 2010. It will be the property of USAID. Dissemination of relevant findings will occur through official channels at local (Mission, U.S. Government, and stakeholders) as well as Washington level. Some of the findings may be used for country operational planning. The report shall not exceed 30 pages, excluding the annexes.
- The revised final unedited report will be provided to the mission five days after the comments are received.
- Once the mission signs off on the final unedited report, GH Tech will have the documents edited and formatted and will provide the final report to USAID/Namibia for distribution (five hard copies and CD ROM). It will take approximately 30 days for GH Tech to edit/format and print the final document. This will be a public document and will be posted on the USAID/DEC and the GH Tech websites.

MISSION CONTACT PEOPLE/PERSONS

Ms. Rosalia Indongo
TB/HIV Advisor
USAID/Namibia
Tel: + 264 61 273700 / 273742 (dir.)
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Ms. Melissa Jones
Director, HIV/AIDS and Health Office
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e-mail: mejones@usaid.gov

APPENDIX B. PERSONS CONTACTED

UNIVERSITY RESEARCH CORPORATION, NAMIBIA (URC)

Azizi O. Abdullah, MD: Chief of Party
Jean-Paul Ngandu-Mbanga, Regional Coordinator, URC Namibia
Ida Bruwer, Administrator

MINISTRY OF HEALTH AND SOCIAL SERVICES (MOHSS)

National Level

Dr. Norbert Forster, Deputy Permanent Secretary
Ms. Ella Shihepo, Director: Special Programmes
Ms. Christine S. Gordon, Senior Control Registered Nurse, QA
Dr. Ali El Sherif, Chief Medical Officer, Public Hygiene, MOHSS
Mr. Pentrick Gowaseb, CPH, Public Hygiene, MOHSS
Ms. Ellis Ngaringombe, Child Health, Primary Health Care
Ms. Tina Allies, EPI–Contacted by phone
Ms. Aina Kuutondokwa, Lecturer: Enrolled Nursing, NHTC
Dr. Elpha Ballisfin, Lecturer: Environmental Health, NHTC

Khomas Region

Mr. Augustinus Kasterrody, IHK, IC&DS, Katutura Hospital
Sister Joyce Namuhuja, Chief Control Nurse, IPC nurse, Central Hospital

Gobabis Region

Ms. C. Bussel, Chief Control Nurse, Administration, Gobabis Region
Mr. Norbert Iyambo, Infection Prevention Nurse, Gobabis District
Ms. Shivolo Faustina, Enrolled Nurse, Omitara Clinic

Hardap Region

Regional Management Team:
Ms. Iyaloo Mwaningange, Chief Health Programme Administrator, DSP: HIV/AIDS, TB (Acting Regional Director)
Mrs. Mina Gaeb, Control Registered Nurse, IC focal point
Nursing Services, CCO; Chair of ICC
E. Eiwein, SHPA MIS
Anna Marime, Chief Environmental Health Officer, Hardap Region, Sec ICC
Augustine Tangwadzana, Regional Pharmacist
Ms. Patemshela Hamunjela, SHPA-SP

Mariental District Hospital

John Jora, Matron, Mariental Hospital
Yvonne Eichas, Secretary, Mariental District Infection Control Committee
Henry Mungeyi, Infection Control Nurse

Stampriet Clinic

Sr. Eva Mopel, RN
Sr. Theresia Meyer, EN
Amanda Nero, Community Counselor

Penehafo Namholo, Community Counselor

Isak Plaaitjies, Field promoter, COHENA

Oshikoto Region

Onandjokwe Lutheran Hospital

Dr. Reginal Petrov, Medical Superintendent
Martin Amulungu, Chief Environmental Health Officer

Oshana Region

Dr. N. Hamata, Regional Director
Dr. Shannon Kakungulu, Medical Superintendent, Intermediate Hospital Oshakati
Hilma Nangula Kashupi, CCRN, Matron, Intermediate Hospital Oshakati,
Rogers Manyeruke, Acting in Charge, Pharmacist, Intermediate Hospital Oshakati
Julia Stephanus, Infection Control Office, Intermediate Hospital Oshakati
Hilma Constantia, Infection Control Office, Intermediate Hospital Oshakati
Selma Hileni Alugodhi, Principal Registered Nurse, Ondangwa Health Centre
Ms. Maria Kandiwapa Kalumbu, Nurse in-charge, Uukwiyuushona Clinic

Omusati Region

Lorne Shiguedha, Acting Matron, Tsandi Hospital
Mrs. Karel, ICN, Tsandi Hospital

Kunene Region

Ms. L. Nambudunga, Regional Director, Kunene Regional Directorate
Mr. Ashivudhi, Nurse Manager, Opuwo Hospital
Helene Mukeya, Regional Pharmacist
Ronnie Zaahl, Pharmacy Assistant, Opuwo Hospital
Johanna Sofia Dausas, Principal RN, Outjo Hospital, Kunene Region

Otjozondjupa Region

Dr. Tumba Lutumba, Principal Medical Officer, Okahandja Hospital
Mr. Jumus Mireze, Acting Control Officer,
Margarette Gaoses A/PHCS

KNCV TB Foundation

Dr. Omer Ahmed Omer, Technical Advisor

Dr. N. Ruswa, Drug-resistant TB Clinical Coordinator

Dr. Abbas Zezai, monitoring and evalution officer

U.S. Centers for Disease Control and Prevention (CDC)

John Pitman, Technical Advisor, Health Communications and Blood Safety

Nick DeLuca, Prevention Advisor

The Synergos Institute

Len le Roux, Director, Partnerships, Southern Africa

University of Namibia (UNAM)

Dr. L. Haoses-Gorases, Dean: School of Nursing and Public Health (on personal leave)

Dr. Mvd Vyver, Deputy Dean

Kristofina Amakali, General Nursing Science, medical and surgical nursing care

Dr. L. Pretorius, Head of the Clinical Unit (point of contact for curriculum change)

M.J.J. Ackerman, General Nursing Services

Dr. H.J. Amukugo, Lecturer, Midwifery

Namibia Institute of Pathology (NIP)

Sacharias Eden Shuuya, TIC Katutura Laboratory

Tygerberg Hospital and Stellenbosch University

Prof. Shaheen Mehtar, Head of Academic Unit for Infection Prevention and Control (conducting instrument sterilization course for MOHSS)

USAID/Namibia

Ms. Rosalia Indongo, TB/HIV Advisor

APPENDIX C. DOCUMENTS REVIEWED

Original RFP/RFA

Original contract/agreement

Namibia Partnership Framework Agreement

MOHSS. *National Infection Prevention and Control Guidelines*, Date.

MOHSS. *National Waste Management Policy*, 2010.

MOHSS. *Draft National Prevention Strategy.* XXX

Ministry of Health and Social Services (MoHSS) [Namibia] and Macro International Inc. *Namibia Demographic and Health Survey 2006–07.* Windhoek, Namibia and Calverton, Maryland, USA: MoHSS and Macro International Inc., 2008.

MOHSS. *Report on the 2008 National HIV Sentinel Survey*, 2008.

MOHSS. *National Treatment Guidelines for Anti Retroviral Therapy.*

OTHER KEY NATIONAL POLICY DOCUMENTS

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MOHSS Logistics. "Request for Advertisement of Tender for Supply, Delivery & Commissioning of Incinerators at Various Hospitals." Letter to Tender Board from MOHSS Logistics, August 2009.

MOHSS. "Stock Levels of Safety Injection Boxes at CMS." Letter from Deputy PS to URC, April 2010.

MOHSS. *Memorandum of Understanding between MOHSS and URC, LLC for HCIP*. February 2010.

MOHSS. *National Guidelines on Post-Exposure Prophylaxis for HIV, HBV and Tetanus After Workplace Exposures and Sexual Assault*, Revised August 2010.

MOHSS/Republic of Namibia. *National Strategic Framework for HIV and AIDS 2010/11–2015/16*, October 2010 (Final draft).

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VARIOUS REPORTS FROM MOHSS HEALTH DISTRICTS RELATING TO HCIP

MOHSS Oshana Region. *Minutes of the Directorate Therapeutic Committee Meeting*, May 2010.

Khorixas District MOHSS. *Quarterly Report of Injection Safety*, June 2009.

Andara District. *Report on Training TCE Field Officers*, July 2010.

MOHSS Regional IC team. *Supervisory Visit of Okongo District*, June 2010.

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URC WORKPLANS

URC, LLC. *Namibia FY11Workplan_29 September 2010*. Revised. HCIP, Namibia.

URC, LLC.*PEPFAR Medical Injection Safety Program: 2005-2006 Workplan*, 2005.

URC, LLC.PEP*FAR Medical Injection Safety Program: 2007-2008 Workplan*, 2007.

URC, LLC.PEP*FAR Medical Injection Safety Program: 2008-2009 Workplan*, 2009.

URC, LLC. *Initial Workplan for Field Support Under Task Orders: HCIP*. Namibia.

URC Namibia. *HCI Task Order 1 Third Year Workplan, October 2009-Sept 2010URC Namibia, Aug 2009 (Final).*

URC, LLC. *COP 09 URC HCI Scope of Work*, 2009.

URC PROGRESS REPORTS

Progress Report for FY08 Quarter 4 (Jul 2008–Sep 2008) & Annual Program Results (APR) (Oct 2007–Sep 2008). URC Namibia LLC.

Progress Report for FY09 Quarter 4 (Jul 2009–Sep 2009) & Annual Program Results (APR) (2008–Sep 2009). URC Namibia LLC, November 2009.

Progress Report for FY10 Quarter 2 (Jan 2010–Mar 2010) & Semi-Annual Program Results (APR) (Oct 2009–Mar 2010). URC Namibia LLC, April 2010.

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URC, LLC, *What Are We Trying to Accomplish and at What Scale?.* QRM 13, January 2010.

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Munkonze, Ellah. *URC–Namibia Monthly Report: Kavango and Caprivi Regions*, October–December 2009.

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USAID: *HCI IQC Contract between URC, LLC and USAID, Between URC, LLC and USAID*, signed September 2007.

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USAID PEPFAR. *Namibia COP10 Target-setting Template_URC.* (for 2011 and 2012), URC_29_9_2010.

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APPENDIX D. SITES VISITED

Appendix: Sites Visited by URC HCIP Midterm Evaluation Team 2010—Week 1						
Monday am	**Tuesday am**	**Wednesday am**	**Thursday am**	**Friday am**	**Saturday**	**Sunday**
Oct 4 **9:15–10:15 In-Brief** with Office of HIV/AIDS and Health at USAID/Namibia **10:30–13:00** Team planning meetings at meeting space at Ms. Ashby's office	**Oct 5** Team planning meetings/document review	**Oct 6** **8:00 Sister Joyce Namuhuja**, Chief Control Nurse, Central Hospital, 061 203 3035 sshalongo@mhss.gov.na **9:30 Dr. Ali Sheriff** Occupational Health Services 061-203-2764 elsherif@mhss.gov.na	**Oct 7** **6:30** Driver will take team to Omahake **8:30 Regional Management, Omaheke Region, 062563489** **9:30–1:30 Gababis Hospital** Mr. Norbert Iyambo, IPC Nurse **12:30 Omitara Clinic** Ms. Shivolo Faustina, Enrolled Nurse, 062-560300	**Oct 8** **6:30** Driver will take team to Hardap **8:45 Regional Management** team, Hardap Region, 063-245528/9 **11:00 Mariental Hospital** Matron Joba, ICN, 063-245250 **14:00–14:30 Stampriet Clinic** Sr. Mopel, Nurse Manager 063-260083	**Oct 9** Team Synthesis of notes	**Oct 10** Rest
Lunch 1–2 pm	**Lunch 1–2 pm**	**Lunch 1–2 pm**	**Lunch 1–2 pm**	**Lunch 1–2 pm**	**Lunch**	**Lunch**
Monday pm	**Tuesday pm**	**Wednesday pm**	**Thursday pm**	**Friday pm**	**Saturday**	**Sunday**
Oct 4 **14:00–16:00 Dr. Azizi O. Abdullah**, Chief of Party, URC **16:00–18:00** Document review	**Oct 5** **14:00 Ms. Aina Kuutondokwa** NHTC (split of the consultants) **14:30 Ms. Ella**	**Oct 6** **14:30 Dr. Norbert Forster, Dep. PS,** MoHSS, Tel: 203 2032/4 [Secr: smaakjou@yahoo.com]	**Oct 7** **13:30 Return to Windhoek by car** **13:30 UNAM** **Deputy Dean and Lecturers,** Nursing	**Oct 8** **15:00 Return with car and driver to Windhoek before dark.**	**Oct 9** Team Synthesis of notes	**Oct 10** Rest USAID Car and Driver depart for

	Shihepo, Director Special Programs 061-203 2832/2273 [Secr: hauholop@nacop.net] **16:00** Ms Ellis Ngaringombe, PHC office 061-203 2716	**15:30 Dr. John Pitman, CDC** **16.00 KNCV, TB Control Program, MOHSS** Dr. Omer Ahmed Omer, Dr. N. Ruswa, Dr. Abbas Zezai	Services			Ondangwa

Appendix: Sites Visited by URC HCIP Midterm Evaluation Team 2010—Week 2						
Monday am	**Tuesday am**	**Wednesday am**	**Thursday am**	**Friday am**	**Saturday**	**Sunday**
Oct 11 **07.00 Flight to Ondangwa** **10:00–11:30 Onandjokwe Lutheran Hospital** Dr. Dr Reginal Petrov, Medical Superintendent Mrs. M. Iipito, IPC Nurse	**Oct 12** **8:00–11:00 Oshakati Hospital** Dr. S. Kakungulu, Medical Superintendent Hilma Nangula Kashupi, Matron Infection Control Office Pharmacy 12:30 Travel by car to Omusati Region	**Oct 13** **8:00 Ms. L. Nambudunga** **Regional Director, Kunene Region** **9:00–10:30 Opuwo Hospital** 10:30 Travel by car to Otjozondjupa Region	**Oct 14** 07:45 Departure by car **9:00** Okahandja Hospital Dr. Tumba Lutumba, PMO Mr. Jumus Mireze, Acting Control Officer, Margarette !Gaoses A/PHCS Sr. Kalipi Principal Registered Nurse 062-503039	**Oct 15** **9:00 Katutura Hospital** Mr. Kasterodhy, IPC Nurse **Data Analysis and Report Writing**	**Oct 16** **Data Analysis and Report Writing**	**Oct 17** **Rest**

			12:00 Depart by car for Windheok			
Lunch 1–2 pm	**Lunch 1–2 pm**	**Lunch 1–2 pm**	**Lunch 1–2 pm**	**Lunch 1–2 pm**	**Lunch**	**Lunch**
Monday pm	**Tuesday pm**	**Wednesday pm**	**Thursday pm**	**Friday pm**	**Saturday**	**Sunday**
Oct 11 **14:00 Dr. Hamata, Regional Director,** Oshana Regional Directorate **15.30 Ondangwa HC** Ms.S. H. Alughodhi, Nurse Manager (PRN), 0812424579 **16.15 Uukwiyu ushona clinic** Ms. Maria Kandiwapa Kalumbu, Nurse in-charge **19.30 Prof. Shaheen Mehtar,** University of Stellenbosch	**Oct 12** **14.30 Tsandi Hospital** Mrs. Karel, ICN 15.30 – 18.00 Travel by car for Kunene	**Oct 13** **16:00–16:30 Outjo Hospital** Mrs. J. Dausas, Nurse Manager, 067-313250, 0812791388 16:30- 19:00 Travel to Windhoek	**Oct 14** **14:00 Dr. Taapopi, Regional Director, Khomas Region, (Out)**	**Oct 15** **Data Analysis and Report Writing**	**Oct 16** **Data Analysis and Report Writing**	**Oct 17** **rest**

Appendix: Sites Visited by URC HCIP Midterm Evaluation Team 2010—Week 3						
Monday am	**Tuesday am**	**Wednesday am**	**Thursday am**	**Friday am**	**Saturday**	**Sunday**
Oct 18 **Report Writing**	**Oct 19** **10:30:** Mr. Pentrick Gowaseb; Public and Environmental Health Services Division, Tel: 203 2755 081-295 1158; **Report Writing**	**Oct 20** **8:00 Ms. C.S. Gordon, QA** Division **9:45 Dr Azizi O. Abdullah**, Chief of Party, URC **11:00 Sister Joyce Namuhuja**, Chief Control Nurse, Central Hospital	**Oct 21** **Report Writing** **12:30–15:00: Out-brief** with Office of HIV/AIDS and Health at USAID/Namibia **Draft Report delivered to USAID/Namibia**	**Oct 22** **4:15: Team Leader departure Flight**	**Oct 23**	**Oct 24**
Lunch 12:00–13:00 pm	**Lunch 1–2 pm**	**Lunch 1–2 pm**	**Lunch 1–2 pm**	**Lunch 1–2 pm**	**Lunch**	**Lunch**
Monday pm	**Tuesday pm**	**Wednesday pm**	**Thursday pm**	**Friday pm**	**Saturday**	**Sunday**
Oct 18 **Report Writing**	**Oct 19** **Preparing Presentation for Out-brief**	**Oct 20**	**Oct 21**			

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