

INFECTION CONTROL PROGRAM IMPLEMENTATION IN EGYPT: A PROCESS ASSESSMENT HEALTH SYSTEMS 20/20 EGYPT

September 2012

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The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development (USAID) or the United States Government.

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ACRONYMS

EDHS	Egyptian Demographic and Health Survey
ETS	Expenditure Tracking Study
FHM	Family Health Model
FP	Family Planning
HSRP	Health Sector Reform Program
IC	Infection Control
MCH	Maternal and Child Health
M&E	Monitoring and Evaluation
MOHP	Ministry of Health and Population
NAMRU	Naval Medical Research Unit
PSA	Preventive Sector Assessment
USAID	United States Agency for International Development
UNFPA	United Nations Population Fund
WHO	World Health Association

EXECUTIVE SUMMARY

Egypt's Ministry of Health and Population (MOHP) is leading a decades-long (1997–2018) Health Sector Reform Program that has five guiding principles: universality, quality, equity, efficiency, and sustainability. A major part of the reform is to move service delivery from a vertical model of independent health care programs to an integrated Family Health Model (FHM). The transition entails changing the manner in which services are contracted and financed and making the social insurance system more sustainable. At the same time, there is diminished donor assistance to Egypt, which could affect program performance. It is within this context that this Preventive Health Sector Assessment (PSA) was undertaken.

BACKGROUND

In consultation with the MOHP, three major programs (Family Planning, Maternal and Child Health, and Infection Control [IC]) were selected for study. IC, once a stand-alone program, remains an important component for accreditation under the FHM. In 2001, the MOHP, in collaboration with the U.S. Naval Medical Research Unit No. 3 and the World Health Organization (WHO) and with financing from the U.S. Agency for International Development, developed a national strategic plan to reform IC with the objectives of improving quality of care and reducing transmission of hospital-acquired infections. The plan included setting up an organizational structure and IC guidelines, training health care workers, promoting occupational safety, and establishing a system for monitoring and evaluation.

The purpose of the current PSA is to evaluate the processes and performance of all three of the above programs to understand how well the program structures and processes have worked to achieve program objectives, and to assess program needs going forward. This report focuses on IC.

The study methodology did qualitative and quantitative data collection at both the central level and in six governorates, as well as a literature review. The qualitative research consisted of interviews with respondents (central-level MOHP stakeholders and governorate-level program staff) who work directly for or somehow deal with all three programs. The quantitative component of the study consisted of interviews with IC providers in MOHP health facilities in all six governorates and exit interviews with patients. Finally, a desk review was conducted to review program documents, working papers, and research related to the IC program.

FINDINGS

The PSA identified achievements that had been made in setting up IC structures, implementing WHO international IC standards, and expanding IC training. It also identified the following shortcomings:

- **Supplies:** Essential supplies for conducting and sustaining an effective IC program are inadequate or absent and there does not appear to be a reliable logistics monitoring system in place. Supply stock-outs limit the capacity of health providers to comply with IC standards.
- **Training:** While training expansion has been an important achievement, the quality of practical application needs further attention. Many respondents commented favorably on the training opportunities available but also asked for sessions with less theoretical content and more hands-on practice time under supervision. The program expects IC nurses to conduct most of the trainings in their facilities. This is challenging given their lack of authority and resistance from senior staff, especially physicians, to receiving training from nurses. Lines of authority between IC and other technical areas are not well aligned resulting in confusion and conflicting instruction regarding policies and procedures.

- **Supervision:** The transition from vertical programs to the integrated FHM has resulted in a single supervisory system and more, and more complex, IC demands on providers who may have felt comfortable in a more narrowly focused program. Also, some funding previously allocated to supervision has been reprogrammed. Budget constraints have had an impact on the availability and maintenance of vehicles, telephones, and other equipment that supported supervisory visits in the past, especially to rural sites.
- **Quality of care:** Client observations regarding staff's hand washing and use of gloves and clean syringes for procedures are an important measure of quality of care. Where staff do not, or cannot comply with IC standards, helps determine quality of care and whether or not clients have confidence in the health system.

The key recommendations in this report are directed at the issues above.

Despite these shortcomings, it should be noted that Egypt has a strong overall health program and has made significant strides in transitioning to an integrated model of care. This is a tall order for any country even without economic and management constraints. The Government of Egypt and its implementing partners deserve considerable credit for a bold approach that is committed to moving health access for all from theory to reality.

I. INTRODUCTION

Egypt's Ministry of Health and Population (MOHP) is leading a decades-long (1997–2018) Health Sector Reform Program that has five guiding principles: universality, quality, equity, efficiency, and sustainability. A major part of the reform is to move service delivery from a vertical model of independent health care programs to an integrated Family Health Model (FHM). The transition entails changing the manner in which services are contracted and financed and making the social insurance system more sustainable.

The MOHP in collaboration with the U.S. Naval Medical Research Unit No. 3 (NAMRU), and the World Health Organization (WHO), developed a national plan to initiate an infection control (IC) program with the objectives of improving quality of care and reducing transmission of hospital-acquired infections. The strategic plan for this program included setting up an organizational structure, IC guidelines, training health care workers, promoting occupational safety, and establishing a system for monitoring and evaluation. Implementation of the program started in 2001 (Talaat et al. 2006). By 2006, a national organizational structure, IC guidelines, and a comprehensive IC training program had been developed. Examples of ongoing attention to patient safety and infection control include the work of Ain Shams professionals.¹

While overall progress has been noteworthy, quality is inconsistent and issues remain regarding how health workers are trained and deployed. In addition, much of the reform work has taken place with the collaboration of international partners, including the U.S. Agency for International Development (USAID). Now, there is diminished donor assistance to Egypt, which could affect program performance. It is within this context that USAID asked its Health Systems 20/20 project to undertake this Preventive Health Sector Assessment (PSA).

The issue of IC in public sector facilities is important, because public sector hospitals are the only option available to most low-income groups, who constitute the majority of Egypt's population. Public sector hospitals are generally hampered by the huge demand and the government's failure to keep up with escalating costs, financial shortages, inefficient use of available resources, and ineffective management.

Within the context of health systems issues, Health Systems 20/20 and the MOHP have collaborated on an assessment of three of Egypt's preventive health programs: family planning (FP); maternal and child health (MCH); and infection control (IC). This report focuses on the IC program. The purpose of the PSA was to review the sustainability and institutionalization of USAID's investment in Egypt's health sector and provide recommendations for the future technical assistance of USAID in the three study areas.

The specific PSA assessment objectives included:

- Understand how well program structures and processes work
- Assess program needs going forward
- Make actionable recommendations to ensure the sustainability of the program

¹ U.S. Naval Medical Research Unit 3, Cairo, Arab Republic of Egypt, March 2012.
<http://www.med.navy.mil/sites/nmrc/Pages/namru3.htm>

2. METHODOLOGY

A core team of MOHP staff led the PSA and did field coordination. Health Systems 20/20 provided technical assistance from the project. The PSA began in June 2010.

Because this assessment was a process rather than impact evaluation, it focused on whether the program appears to be “doing things right” rather than on whether the current portfolio of activities is having a measurable impact on program goals.

The study methodology used a combination of qualitative and quantitative data collection, in addition to a literature review. The qualitative portion of the research consisted of interviews with 32 respondents from three programs – FP, MCH, and IC. A first round of in-depth interviews were conducted with key stakeholders from the central-level MOHP. These interviews informed semi-structured interviews conducted with stakeholders from the three preventive health programs in five governorates: Alexandria, Ben Seuf, Dhakalia, Qaliobia, Qena, and the Red Sea. Fifteen of the governorate-level respondents were senior program (FP, MCH, IC) officials; the other two were mid-level program officials. Nearly all the interviews took place at the MOHP governorate headquarters. The interviews included open-ended questions that allowed the participants to express themselves freely and to describe the program situation as they perceive it. Questions included “Are you benefiting from supervisory visits?,” “What suggestions do you have for improving IC training?,” “What recommendations do you have to solve the challenges that the IC program faces?”

Most of the participants interviewed preferred not to be identified by name or official position in the report. Even though the MOHP is striving to build an environment of trust and transparency, the reluctance of most participants to be identified by name indicates that work remains to be done in order to build such environment in the ministry.

The quantitative component of the study consisted of conducting patient exit interviews at public health facilities in all six governorates. The team also conducted 180 interviews with randomly selected IC providers in all the governorates (15 interviews per hospital in 12 hospitals). Finally, a desk review was conducted to review program documents, working papers, and research conducted about the IC program in Egypt.

The IC Team Questionnaire focused on gathering information from the providers who implement IC services and covered: (1) human resources/workload, (2) availability of equipment and supplies, and (3) training and supervision.

3. FINDINGS

3.1 POLICY ENVIRONMENT

Egypt maintains a national system for surveillance of 26 communicable and endemic diseases; it operates in all districts in the country. For non-communicable diseases, a WHO-Egypt Country Cooperation Strategy that uses a STEPwise approach for surveillance of risk factors is in development.

The HSRP makes IC a priority, and the MOHP has an active program for IC in hospitals and other health care facilities. The MOHP Epidemiological Surveillance Unit, established in 1999, is responsible for coordination of surveillance activities for communicable and non-communicable diseases (WHO 2010). Despite existence of this unit, comprehensive reporting of data remains a problem, especially from the private sector and from facilities maintained by non-MOHP organizations, such as the Health Insurance Organization and the armed forces.

Several factors hamper roll-out of the IC program. As has been noted, the HSRP is integrating what once were standalone programs; facilities must meet stringent IC standards to be qualified under the FHM, yet without IC having the focus and resources of a standalone program. This has created tension between pressure to roll out the HSRP more rapidly and the more complex demands an integrated system can place on front-line providers.

For example, the government has not yet been able to catch up on training the health workforce so that they can efficiently and effectively execute an integrated model. In addition, IC is a newer, smaller program area. While organizational structure and lines of technical and administrative reporting are technically in place, technical and administrative reporting schemes are not well aligned. IC team members report administratively to their respective administration managers and technically to their IC program directors. This arrangement creates conflicting demands on IC team members. Occasionally the IC team leader who is responsible for achieving the facility IC score is not allowed by the facility director (the team leader's direct supervisor) to take necessary steps to achieve the scores. This is further complicated in governorates where the undersecretary is not fully committed to the IC program. This lack of support makes it more difficult for the IC team leader to advocate for his/her program in the facility.

The hierarchical nature of hospitals also presents impediments for IC staff. More-senior physicians are not generally receptive to training by IC staff who are often less-senior physicians. In public health facilities, nurses who are expected to train all staff including physicians. To remove this obstacle, it is being addressed to some extent by training IC staff how to overcome resistance and conduct both initial training as well as refresher trainings.

The IC interviews cited the IC program database where all IC hospital safety and quality scores, based on the WHO guidelines for infection prevention and control, are supposed to be kept and updated regularly. The program uses this information to rank hospitals of more than 50 beds in size according to their score levels and monthly progress. It makes this information publicly available on the MOHP website, which can be effective at motivating hospitals to achieve better rankings and increase competitiveness to achieve improved outcomes. However, there are neither sufficient numbers of trained staff to use and maintain the data nor is there yet a simplified reporting system which can facilitate collecting information from both rural and urban facilities in a timely way.

Finally, additional resources are needed to cover all governorates and to provide the necessary consumable supplies of good quality to hospitals.

3.2 FUNDING SOURCES AND EXPENDITURES

External support to the health sector constitutes approximately 2 percent of the total national expenditure on health. The principal providers of bilateral support to the health sector in fiscal years 2006/07 and 2007/08 are the African Development Fund, the European Commission, the Japanese Development Fund, the World Bank, and USAID. USAID is reducing its assistance to the MOH. Bilateral support comes from the Governments of Finland, Italy, Netherlands, Spain, and Switzerland. Among the United Nations agencies represented in Egypt, technical and modest financial support to the health sector is provided by WHO, and UNFPA works in the field of family planning/reproductive health. UNICEF continues to support efforts to maintain Egypt's polio free status, micronutrient program, and MCH. Other funders are UNAIDS, UNDP, and ILO (WHO 2010).

When this PSA began, no system was in place to collect IC (or other program)-related financial data, nor had there been any effort to train managers in the use of financial information (both resources and expenditures) to improve and sustain program performance. Therefore, it is not known where IC financing comes from, or how much the government spends on overall IC, let alone how much is spent by facility level (national, governorate, district, and facilities), activity, and function.

To gain such knowledge, Health Systems 20/20 designed an Expenditure Tracking System (ETS), which the MOHP began to implement. Implementation at the governorate level faced several problems. The core MOHP and governorate teams, although trained, still lacked the technical capacity and expertise to oversee this activity. Pilot governorates suffered from both incompleteness and poor data quality and required more skills and time for data validation. Therefore, no financial data regarding IC were available for this assessment.

3.3 COMMODITIES AND LOGISTICS

The IC qualitative assessment revealed that facilities often lack basic commodities essential for IC, such as disinfectant soap and other cleaning supplies, gloves, masks, clean syringes, and appropriate waste disposal. The Governorate Medical Supplies Storage Facility (*Tamween Tibee*) stores medical supplies for an entire governorate. It is not clear where the responsibility lies for ensuring that a comprehensive logistics plan for commodities is in place. While other aspects of IC, such as training, follow-up, and support supervision are important, without a basic threshold of supplies and infrastructure, it is not possible for staff and facilities to meet IC standards or to provide an acceptable level of care.

As shown in Table 1, more than half (60 percent) of assessed clinics indicated that, in general, medical supplies are available, with 36 percent indicating that supplies are somewhat available. Beni Seuf clinics were the most likely to report that supplies are not available, with 8 percent providing this answer.

TABLE 1: AVAILABILITY AND ADEQUACY OF NEEDED MEDICAL SUPPLIES

Governorate	Available	Somewhat Available	Not Available	Don't Know
Alexandria	58.3%	41.7%	0.0%	0.0%
Dakahlia	77.5%	22.5%	0.0%	0.0%
Qaliobia	62.5%	35.0%	2.5%	0.0%
Qena	47.6%	47.6%	4.8%	0.0%
Beni Seuf	52.1%	37.5%	8.3%	2.1%
Red Sea	62.5%	37.5%	0.0%	0.0%
Total (n=205)	60.5%	36.1%	2.9%	0.5%

When clinics were asked to specify which supply was the most constantly unavailable (Table 2), 59 percent reported that gloves were unavailable, followed by registration forms (14 percent) and medical instruments (12 percent).²

The fact that more than one third of assessed clinics do not have all needed medical supplies (even gloves, a basic item) demonstrates serious weaknesses in Egypt's medical supply logistics system, and it reinforces the UNFPA study findings that many improvements are needed in the commodities and logistics systems (UNFPA 2010). In short the system functions, but not well.

TABLE 2: AMONG CLINICS WHERE SUPPLIES ARE NOT ALWAYS AVAILABLE, WHAT MEDICAL SUPPLIES ARE CONSTANTLY UNAVAILABLE?

Governorate	Gloves	Registration Forms	Cotton	Medical Instruments	Syringes	Detergents
Alexandria	60.0%	10.0%	15.0%	15.0%	0.0%	0.0%
Dakahlia	40.0%	10.0%	0.0%	20.0%	10.0%	20.0%
Qaliobia	50.0%	16.7%	0.0%	25.0%	8.3%	0.0%
Qena	63.6%	9.1%	18.2%	9.1%	0.0%	0.0%
Beni Seuf	63.6%	22.7%	0.0%	4.5%	9.1%	0.0%
Red Sea	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	59.0%	14.1%	6.4%	12.8%	5.1%	2.6%

² This question was asked only of those clinics that indicated that supplies were "somewhat available," "not available," or "don't know."

Some assessment respondents indicated that facility staff sometimes purchase IC supplies out-of-pocket if they anticipate that a facility IC evaluation is imminent, to avoid the facility receiving a low IC score. According to respondents substandard IC scores can result in significant penalties being imposed on the facility.

They also cited insufficient cleaning staff as a high priority for attention. Lack of cleaning staff may result in negative task shifting in which health workers are obliged to take on these responsibilities.

3.4 ORGANIZATION AND DELIVERY OF SERVICES

3.4.1 HUMAN RESOURCES

Staff shortages, especially nursing shortages, are widespread in Egypt. Nurses play a central role in service delivery and quality of care, including IC. Their role is especially important in peri-urban and rural areas given health care worker shortages. Nurses, who bear much of the burden of implementing IC procedures, may not be able to follow through consistently and correctly either because their workloads are too overwhelming or because they lack the necessary authority.

Despite their importance and presence in the health sector, nurses and the nursing profession overall are not yet highly valued. This results in tensions within the system and difficulties in expanding IC training where nurses are expected to provide it to staff facility-wide but, as noted above, do not have sufficient authority to carry through with more-senior staff. Conflicting lines of authority and others who control decision making may also impede the extent to which nurses can meet the required IC standards of care. Assessment respondents stated that salary incentives are generally in place; however, given the inadequacy of current reporting and tracking systems this is an area that merits further attention to determine how effective incentives are in sustaining high performance and quality.

As also noted above, there is a need to address the shortage of cleaning staff that currently results in either substandard conditions for IC or additional workloads for health providers who must take this on in addition to a heavy patient care load. Cleaning staff are currently not included in training opportunities though, given their potential role in improving IC through proper cleaning, disinfecting, and disposal of contaminated waste, more attention should be given to including them in some way.

The high demand for IC trained staff is a sign of program success. The IC program requires anyone attending training to remain with the program for at least three years after completion of training in part because the MOHP investment in this training is significant. IC is a relatively new technical area in the Middle East and North Africa region, and only a few institutions offering training comparable to that in Egypt. Those who complete the MOHP training may find increasing opportunities in the private sector or outside of the country. Currently systems for tracking how many trained staff complete the three-year continuation requirement are either not in place or are insufficient in doing so.

In the context of these shortages, the assessment results reflected in Table 3 below highlight lack of nurses and physicians as an important issue for IC, especially in the governorates of Alexandria, Red Sea, Qena and Qaliobia. Lack of cleaning staff was reported as a problem in several governorates, especially in Beni Seuf.

TABLE 3: HUMAN RESOURCE PROBLEMS FACING IC

	Alex	Dakahlia	Beni Seuf	Qaliobia	Red Sea	Qena
Not enough nurses/physicians	36%	7%	0%	19%	20%	20%
Not enough cleaning staff	6%	29%	42%	27%	0%	0%

3.4.2 SUPERVISION

The integrated approach of the FHM, while important in the long run, has placed more complex demands on supervisors as well as direct health care providers. Interviewees indicated that the frequency and quality of supervision, no longer a specific task of a stand-alone program, has slipped as IC supervision is subsumed into overall FHM supervision. Budget constraints have cut allowances for supervisory visits, program vehicles for supervisory visits are old and unreliable, and this has led to neglect of supervision in facilities in remote areas. IC staff occasionally use their personal vehicles or public transportation to conduct supervisory visits despite the fact that they receive only limited cost reimbursements. Telephone service, which might support more regular communication with facilities' staff, is generally not available or reliable. The preventive health programs, as newer additions, often find themselves competing with other programs that offer more attractive incentives.

Also, supervisory visits, as currently organized, focus on giving feedback to managers only. When asked to articulate reasons for not benefiting from supervisory visits, more than 90 percent of the respondents overall provided no answer (Table 4).

TABLE 4: REASON FOR NOT BENEFITTING FROM SUPERVISORY VISITS

	Alex	Dakahlia	Beni Seuf	Qaliobia	Red Sea	Qena
No feedback from supervisors	0%	10%	10%	13%	0%	0%
No answer	100%	90%	90%	87%	100%	100%

It is noteworthy that there is a recognition that more attention is needed to improve supervision; however, both human and financial resource constraints are current impediments.

3.4.3 TRAINING

Egypt has placed significant emphasis on IC training and this PSA confirms that many health workers have received both an initial training as well as follow-up trainings. Based on the qualitative responses collected by the PSA team, the current IC program is doing a good job of offering frequent trainings to health workers. The Egyptian program provided theoretical training for IC teams followed by practical training to about 3,467 providers (physicians and nurses). As of 2009 the IC program had trained a total number of 13,814 physicians, 19,903 nurses, and 1,230 technicians.³ Most respondents had received an initial IC training within the past year: Alexandria (47 percent), Beni Seuf (58 percent), Dakahlia (46 percent), Qaliobia (57 percent), Qena (91 percent), and Red Sea (33 percent). This seems to reinforce the importance of the IC program.

However, few if any of the training opportunities appear to be cross cutting, e.g., FP and MCH program trainees do not receive IC training. This results in frequent confusion. Also, although the IC program oversight committees at the central and governorate levels include all relevant stakeholders, primary health care facility staff are being trained by the IC program to follow certain policies and procedures while their district and directorate technical program supervisors are not aware of the training and thus provide facility staff with conflicting instructions regarding IC.

At the hospital level, most respondents were satisfied with the availability and quality of IC training opportunities, but many felt that more sessions were needed (60 percent in Beni Seuf, 54 percent in Dakahlia, 75 percent in Qaliobia, and 47 percent in Qena) as well as more follow-up time to practice and apply the technical skills and information.

³ IC program document: "Memorandum submitted to H.E. the Minister," 2009, p.1.

While linking participation in IC training to a requirement that participants commit to at least three years of service is an valuable feature of the program, currently there does not appear to be a reliable system in place to track what percentage of staff completing IC training actually remains in the system for the “required” three years. This area merits more attention to determine what incentives are most effective in retaining IC staff. As IC becomes a more “in demand” skill set, the system will need to examine how best to cross-link and integrate this training with other programs such as FP and MCH.

3.4.4 QUALITY OF CARE

IC impacts quality of care across numerous programs. For example, an important indicator of the quality of care is the use of gloves by providers while inserting IUDs as well as ensuring that a new syringe is used for each injection. As Table 5 shows, it is troubling that some clients reported that the provider did not use gloves for IUD insertion or did not use a sterile syringe for an injection. The problems seem most pronounced in Red Sea, where 30 percent of clients reported that the provider did not use gloves for IUD insertion and 26 percent reported that the provider did not use a sterile syringe for an injection. In Alexandria, 13 percent of clients reported no gloves were used, and sterile syringes were reportedly not used in 6 percent of cases. Gloves are a lesser problem in Dhakalia, where 3 percent of clients reported they were not used. According to respondents in Qaliobia and Qena, neither type of shortage existed in those governorates.

TABLE 5: PROVIDER USE OF GLOVES AND STERILE SYRINGE (PERCENT OF CLIENTS)

Governorate	Provider Used Gloves for IUD Insertion		Provider Used Sterile Syringe for Injection	
	Yes	No	Yes	No
Alexandria	86.9%	13.1%	94.4%	5.6%
Dhakalia	97.4%	2.6%	100.0%	0.0%
Qaliobia	100.0%	0.0%	100.0%	0.0%
Qena	100.0%	0.0%	100.0%	0.0%
Beni Seuf	100.0%	0.0%	100.0%	0.0%
Red Sea	70.0%	30.0%	74.4%	25.6%
Total	91.8%	8.2%	97.5%	2.5%

Cleanliness in facilities was also cited as a problem affecting quality of care. The PSA team members were asked if labs visited were clean. An alarming 80.8 percent said that those visited in Alexandria were not. In Red Sea, 74.4 percent were not. Those identified as cleanest were in Qena (14.0 percent) and in Beni Seuf (15.6 percent).

Cleanliness of bathrooms in Alexandria was high, 93.6 percent; in Dakahlia it was 50.0 percent, in in Beni Seuf 91.7 percent, in Qaliobia 71.0 percent, and in Qena 60.5 percent. In Red Sea only 34.4 percent of bathrooms were considered clean. Availability of soap, another key issue to ensure consistent hand washing, was also variable, ranging from least available in Red Sea (5.5 percent) to most available in Beni Seuf (62.2 percent). Water was generally available in all of the sites visited.

4. RECOMMENDATIONS

The following recommendations are based on the key findings from the PSA for IC. While the IC program is moving forward positively, some areas merit additional attention and resources.

4.1 SUPPLIES AND COMMODITIES

Address the absence or inadequacy of essential supplies – gloves, masks, disinfectant, hand soap, etc. – as well as vehicles, since the latter was identified as a major challenge in all six governorates.

- Improve the monitoring system and turnaround time between requesting and receiving supplies and equipment to reduce/eliminate stock-outs. This must include logistics training and improved monitoring/reporting systems.
- Ensure that there are funds for both purchasing essential supplies and equipment as well as maintaining them. Since frequent and adequate hand washing is a critical activity in infection prevention and control, this should be a very high priority. This is also a high priority to ensure equity. Without a clean environment in which to provide direct care as well as laboratory and other linked services, much of the impact of training programs will be lost or greatly diminished.

4.2 STAFFING/HUMAN RESOURCES

Since IC is both relatively new as a technical area and increasing in importance to reduce infection-related morbidity and mortality, more closely examining how to use current human resources more strategically is essential along with competency-based training, to ensure that IC expertise is available where it can make the most impact.

- Address the allocation of health workers to ensure that those with IC capacity are as fully integrated into broader key health care programs as possible; i.e. in obstetrics/MCH, high-volume hospitals and health care sites, and other health facilities where IC is most critical in reducing morbidity and mortality.
- Ensure that those tasked with major responsibilities for application of IC procedures, e.g., nurses, have the authority and support to do so.
- Improve tracking systems for following human resources allocations and IC competencies in strategic geographic sites.

4.3 SUPERVISION

Supportive supervision is essential to sustain quality of care and technical competency.

- Ensure that supervisory issues such as funding for visits, and availability and maintenance of vehicles, are addressed through budget review.
- Ensure that supervisors across programs are included in IC training so that they can more effectively support deployed staff.
- Advocate for a more reasonable budget line item for supervision.

4.4 TRAINING

One of the most important recommendations based on the PSA findings is to shift more of the training focus from theory to hands-on practice. Training to improve IC must also extend beyond front-line health care workers.

- Examine more closely the selection criteria for participation in IC trainings and ensure that a broad cross-section of facilities and health workers are included.
- Ensure that sufficient time is allocated for both the classroom trainings and supervised application of training skills.
- Include in training budgets the cost of both in class training and on-the-job supervised practice.
- Include cleaning staff and other auxiliary staff in trainings to ensure that equipment and supplies and medical waste are treated according to universal/WHO IC standards. This can also increase ownership for quality standards sustainability beyond front-line health care workers.
- Address the current lack of cleaning staff.
- In concert with addressing essential supplies, augment the public information campaigns by ensuring that all facilities, regardless of size, and have clearly posted signs regarding hand washing, and water and soap available.

4.5 QUALITY OF CARE

Quality of care must be addressed from both the provider and client perspectives.

- Explore mechanisms for acknowledging provider IC performance not only through pay incentives but also public recognition of outstanding performance by providers.
- Include the community in monitoring quality of care issues to both improve their awareness and their expectations of provider behaviors. This has successfully been implemented in various international contexts, though, for example, publishing supply allocations of facilities via newspaper, radio, or mosques; and establishing options for citizens to comment on service delivery to local, regional, and national managers.

ANNEX: REFERENCES

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