Report

Evaluation Visit to Health Facilities and Nursing Schools in Libya

28 December 2012-4 January 2013

Benghazi Medical Center

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Summary

The Johns Hopkins University team of two faculty from the School of Nursing and one from the School of Public Health visited hospitals, schools of nursing, and offices of the Ministry of Health in Benghazi, Tripoli and Zawia.

The team's overall impression was one of immense human capacity, but many challenges which Libya will need to address to bring its health services up to international standards.

Among the **key observations** from this short evaluation visit concerning hospital activities are

1. The need to strengthen Baccalaureate nursing training in Libya, which will require an investment in building nursing school faculty
2. Build management capacity across hospital departments to support improved quality and patient safety.
3. Institute protocols and guidelines for patient care across the hospital services in work to ensure compliance
4. Expand involvement of the hospital in primary health care and community outreach
5. Develop a plan to fully utilize hospital data being generated.

Some of the key **nursing recommendations** include:

1. Make the baccalaureate degree in nursing the entry into professional nursing practice.
2. Have planned growth of the BSN programs, planned incorporation of the diploma programs into the university programs.
3. Have designated permanent space (new building, renovated building) for the nursing programs at all the universities.
4. Create a nursing syndicate, have certification for nursing with eventually licensure through examination. Promote a Council of Nursing
5. Have a nurses appointed to the Ministry of Health with a nursing division.
6. Train midwives also as nurses to provide better comprehensive and holistic care.

A number of potential areas were identified where the Johns Hopkins University schools could provide assistance. In both public health and nursing, there are opportunities for short and long term training which could strengthen hospital and nursing capacity in Libya. In the area of nursing there are opportunities to place full and part time JHSoN nursing faculty and graduate students in the Faculty of nursing in Benghazi and other schools. From that position JHU faculty and graduate students could contribute to strengthening nursing services and standards throughout the country, working with other faculties of nursing and the Ministry of Health.

Key public health areas where JHU could contribute would be in areas of strengthening primary health care services, building the understanding of community health needs, and helping to develop hospital outreach services to address identified needs.

Additionally, the team can provide guidance and consulting with technology infrastructure to support primary, secondary and tertiary care facilities.

These are other potential areas of cooperation and collaboration depends on adequate security for visiting faculty from Johns Hopkins University.

Foreword

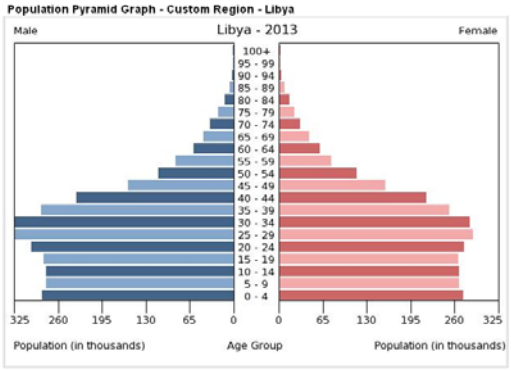
The Johns Hopkins team would like to thank the Benghazi Medical Center (BMC) headed by Dr. Fathi Al-Jehani for the kind invitation to visit Benghazi and to his Excellency Deputy Minister of Health Dr Omran Turbi for facilitating this visit. The team very much appreciates the kind welcome to Tripoli by Dr. Mahdi Alamen, Deputy Health Minister and Dr Osama Al-Shareif, director of Primary Health Care.

Special gratitude for Dr Fathi Al Jehani Director of the Benghazi Medical Center and Dr. Omran Turbi for making so much of their time available. Special thanks to Mr. Fathi Omar Turbi, Expert on U.S Libya relations for his sponsorship, time and valuable contributions. Without his vision in improving the Libyan healthcare sector, and economic development, this assessment would not have been possible.

The team was composed of Dr Sara Groves and Dr Lori Edwards from the School of Nursing, and Professor Gilbert Burnham from the School of Public Health.

Background

Libya with a population of 6.4 million has about 6.4 nurses and 1.75 doctors per 1000 population. Of the principal cities 20% of the population lives in Tripoli and 12% in Benghazi (2006). Of the population 27.3% are under age 15; 56.0% under 30 yrs; 82.4% under 45 years, and 96.1% under age 65. By 2030 (17 years) the over age 45 population will increase from its present level of 17.5% to 33.6% of Libya's population. Given the heavy smoking patterns now and the lack of exercise, this portends a heavy demand for treatment of non communicable disease.



Population Pyramid, Libya

The public health sector functions in three tiers, the secondary and tertiary levels being a well-developed hospital sector, and the first level being a primary health care system which has largely collapsed. Private doctors run their own clinics, and some private hospitals exist which are generally small. There are selected specialty hospitals, mental health and psychiatry, OB GYN, etc. The country does not have a national strategic health plan. Health care from the public sector facilities is largely free. There is no social/ health insurance scheme.

The education process for health professionals produces more medical doctors than Libya requires, and fewer nurses than it needs. Training of nurses at the baccalaureate level is still in its early stages, the bulk of nursing training is still at the diploma level or below. There is a general perception that the educational of nursing training must rise in the future. Most doctors receive their specialty training abroad. Although there are many general practitioners in Libya, few have been trained as family medicine specialists.

Scope of work

The Johns Hopkins team working with the medical leadership in Benghazi had in advance identified a scope of work which is set out below.

1. Review of the current situation for nursing and nursing education, including the existing nursing educational capacity, infrastructure, and solicit views of national nursing organizations, major hospital nursing directors, directors of nursing schools in Libya, and nurses in Libya with advanced academic degrees;
2. Using a "Gap Analysis" approach, identify specific needs for nursing education, including continuing education, which needs to be addressed; potentially using assistance from Johns Hopkins or from others to implement;
3. Identify potential local academic and hospital partners for nursing education, pre-service, in-service and other educational activities with which international educational organizations such as Johns Hopkins might work;
4. Review the public health situation and immediate challenges, gaps, and needs;
5. Identify key public health priorities of the Ministry of Health for which Johns Hopkins or other groups could provide assistance;
6. Establish contacts and an agenda for continuing discussions;
7. Make written recommendations to the Ministry of Health in the form of a roadmap for next steps in Johns Hopkins or others to following in moving these areas of the health sector forward.

The Johns Hopkins University team

The Johns Hopkins Team consisted of Sara Groves, BSN, DrPH, and Lori Edwards, BSN, DrPH from the Johns Hopkins University School of Nursing, and Professor Gilbert Burnham, MD, PhD from the Johns Hopkins Bloomberg School of Public Health. Also part of the team was Mr Omar Turbi whose knowledge of the needs of Libya was instrumental in forming the team and arranging its scope of work.

Activities

The team arrived on Friday 28 December.. On Wednesday 2 January the team left for Tripoli and on Friday 4 January left Libya. During time in Benghazi, the activities listed below were carried out.

1. Received in Benghazi by Dr. Omran Turbi, Deputy Minister of Health and Dr Fathi Al Jehani Director of BMC
2. Attended the official opening of the new Maternity Center at Jumhri and toured the center.
3. Attended session of the Libya Oncology group
4. Attended hospital morning report and hospital leadership team biweekly report
5. Attended opening of the Infection Control Awareness Week
6. Visited Benghazi School of Nursing faculty and nursing students
7. Toured the Libyan International Medical University
8. Attended hospital executives committee meeting
9. Met with Benghazi Medical Group of hospital leaders and medical directors
10. Visited a ready to be commissioned state of the art infertility treatment center
11. Received in Tripoli by Dr Alamand, Deputy Health Minister, and Dr Osama, director of PHC, MoH
12. Visited the College of Nursing, University of Tripoli
13. Visited Zawia tertiary hospital
14. Visited Red Crescent PHC clinic Zawia

Observations

The team had a relatively short time in Benghazi and even a shorter time in Tripoli and Zawia, so could not visit all the persons or sites which would have been ideal, so these observations are not as thorough as would have been preferred.
However, with intense discussions at each location and with health leadership we feel that they are broadly representative of the challenges faced by the healthcare system in Libya.
However, with intense discussions at each location and with health leadership we feel that they are broadly representative. The team tended to spend more on hospital and less on nursing education and public health issues because of factors such as access, so these latter important areas are not as well documented as the team would have liked. The observations by the team are divided into two sections, one for the *hospitals and public health* observations and a second section for the *nursing and nursing education* observations. In reality, these divisions are arbitrary and the observations are overlapping.

PART 1 *Hospitals and public health observations*

1. Benghazi Medical Center and public health observations

Hospital leadership and governance. The Benghazi Medical Center (BMC) is located in new and expanding facilities. It is extremely fortunate to have visionary leadership, a well-trained medical staff and many very positive activities in place. The leadership and key positions are filled by medical doctors who have achieved specialist consultant qualification, and many have had successful clinical careers elsewhere before returning to Libya. This high level of dedication is obvious in their work. As they have transitioned to spending much of their time with planning and management issues, it would be very helpful for them to obtain hospital management educations. With expansion of the hospital services, management demands will grow in size and complexity. Further skills will be needed to handle these. Further, as BMC is starting to play a leadership among regional health facilities. Building further capacity in health planning could help the hospital sector in Benghazi to expand in a coordinated and integrated manner, avoiding duplication and redundancies. At some point, consideration of adding a full time assistant administrator with a masters level degree in hospital administration could disperse some management tasks and allow the hospital administrator to concentrate on clinical and strategic issues.

Fig1 Dr. Fathi Al-Jehani, Director of the Benghazi Medical Center with Dr. Groves, and Dr. Edwards

Elsewhere in the hospital a similar pattern of increasing complexity and sophistication has not been matched by increasing qualifications of those in positions of management responsibilities. The hospital is asking those still with basic qualifications to now function at levels of greater responsibilities. With time, the management of the hospital will need an increasing level of decentralization to manage this increased complexity. Now is the time to start preparing staff for these internal management positions by providing training to build their capacities for evolving needs.

Accreditation and credentials. Absent in the Libyan health care system is any licensing, accreditation, or credentialing activities. While a syndicate or association for doctors exists, it does not perform licensing procedures as they are commonly known in developed countries, and does not

oversee continuing education requirements, as is done elsewhere. No similar body or organization exists for
nursing, but one has been discussed. No similar body exists for nursing, but one has been discussed.

This makes the enforcement of professional standards difficult. The absence of continuing education requirements removes incentives for keeping up to date on current professional developments. However, the MoH has created a body for in-service training in Tripoli. Guidelines for provision of reproductive health services are being developed, and their importance was very eloquently presented to the team. It was not clear in what other areas in-service modules were being developed. The nursing director and the nurse manager of the ICU outlined continuing education needs of the nursing staff, but currently there are no plans to provide this level of training.

Fig 2. Infection control awareness week promotion

The absence of hospital accreditation means that there are no uniform performance standards across Libyan hospitals. This is a serious deficit, and is likely to have a direct impact on the patient safety and the quality of hospital care.

Guidelines, standards, and policies. A related observation is the absence of guidelines, either for professional processes or administrative activities. Where they exist compliance seems to be optional, with no enforcement compliance requirements as would be required elsewhere. During the team's visit the Benghazi Medical Center launched its infection control aware
ness activity. Many good illustrations, presentations and handbooks had been prepared, some of which are illustrated in figure 2 and 5. However, there seems no incentive or regulatory system in place to require all health workers, including cleaners, to attend or monitor infection control behaviors. A major area for policy and protocols is in the area of human resources. A system that ensures employees know the requirements of the job, and are rated for their compliance with these specified requirements has still not been fully put into place, although starts have been made. Such an approach could help deal with attendance problems among a few of the staff.

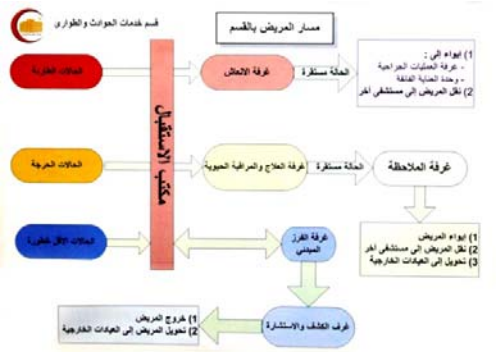


Fig 3. Flow Chart for patients in the Emergency Ward.

On the clinical side at the BMC there was a first effort at creating guidelines for the casualty ward in their work with Massachusetts General Hospital. An example of a very small (but very important) component of that, a patient flow chart for the casualty ward is shown in figure 3. A similar flow chart for the central sterile supplies service is seen in figure 4. Detailed guidelines, protocols and standards need to be formulated for the rest of the hospital activities, and these could be reviewed as a possible template for activities on various hospital

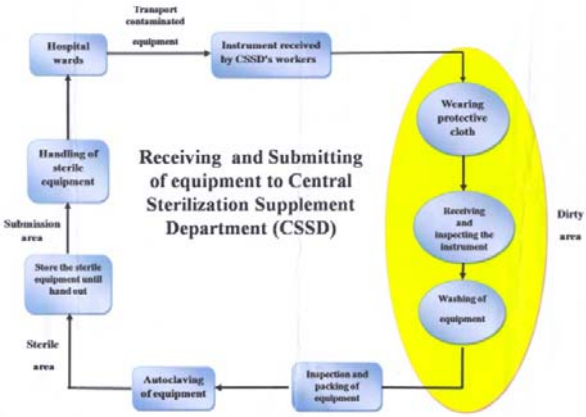


Fig 4 flow of items through CSSD

units. Clinical case management guidelines, such as the approaches used in the Clinical Audit system of the NHS (UK) to ensure quality and patient safety could be a possible approach for the hospital's clinical care.[1]

For administrative procedures there are other variations, including locally created standards, but using standard process indicators, such as ISO 9001 for health care.[2]

It is understood that in the post revolution atmosphere it is hard to promote observance to policies and regulations. This should be viewed as a temporary circumstance, and plans should be moved ahead for the creation and implementation of these anyway, as patient safety and quality of services cannot be implemented without them.

Patient safety. Quality Assurance, Quality Improvement or Patient Safety has emerged as a central theme in hospital care. As such it has become a major hospital management focus. The BMC's infection awareness campaign is one of the components of this type of program (figure 5). The extensive posters and leaflets and meetings are an important component. This can be extended to individual unit infection control activities. Other areas which could be early candidates for patient safety work could be reduction in medication errors as a joint activity between the hospital nursing service and the hospital pharmacy. This effort could also promote rational prescribing practices, reducing the use of unnecessary or potentially harmful drug prescribing. A safe surgery check list has been established by the WHO, as well as many major medical centers. Adapting this for use by the BMC and indeed other members of the (Benghazi Medical Group (BMG) would require minimal effort. The resources exist at BMC to create a technologically driven system for medication administration to reduce the risk of errors and improve patient safety

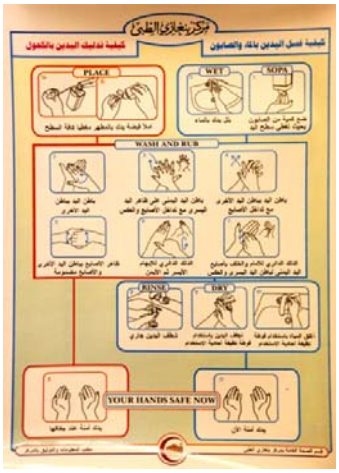


Fig 5 Hand washing Protocol Poster

Although there have not been major resource constraints on BMC, the wise and efficient use of resources will allow the hospital to develop other activities, which might not otherwise be possible. Many tools have been developed to help hospitals reduce the amount of waste and "rework" in their daily operations. The Institute for Healthcare Improvement has developed a number of such tools which can be used by nursing staff on hospital wards to identify waste and dangerous procedures.[3] The IHI "trigger tool" is a tool which could be used to review patient records to look for possible adverse events in patient care.[4] The BMC could consider some of these as they strive to improve patient care. The "trigger tool" and other quality or patient safety monitoring tools will become easier to use with the implementation of digital or electronic medical records.

[1] http://www.nhsdirect.nhs.uk/commissioners/whatweoffer/researchserviceevaluationclinicalaudit/clinicalaudit
[2] http://www.ncbi.nlm.nih.gov/pubmed/10538970
[3] Institute for Health Care Improvement. Hospital Inpatient Waste Identification Tool. http://www.ihi.org/knowledge/Pages/IHIWhitePapers/HospitalInpatientWasteIDToolWhitePaper.aspx
[4] Institute for Health Care Improvement. IHI global trigger tool for detecting adverse events. http://www.ihi.org/knowledge/Pages/IHIWhitePapers/IHIGlobalTriggerToolWhitePaper.aspx

Hospital data. The hospital generates a large amount of patient and service data. These type of data are widely used elsewhere for monitoring outcomes, patient care processes and quality assurance monitoring. In addition, these data, year-to-year trends and measures of unmet needs from the community are vital data for planning purposes. As BMC is now preparing for electronic hospital data systems, these data would be readily accessible. However, attention should be given by BMC to developing a data analysis protocol, so key indicators are tabulated and analyzed on a daily, weekly or monthly basis in addition to creating comprehensive annual summaries. These data could be used to track performance from year to year. Further, these data could be linked to cost centers, infection rates and mortality and other outcome measures by unit, and even by doctor, and track trends. In the box are listed some patient safety/quality assurance indicators which could be monitored through a robust hospital information system.

Patient safety monitoring with data

- Tracking medical errors
- Monitoring medication administration and errors
- Track hospital injuries and deaths
- Track hospital acquired infections-and other quality indicators – (i.e. hospital acquired decubitus ulcers, hospital falls, etc.)
- Hospital re-admission and reoperation rates
- Patient complaints
- Patient satisfaction surveys

To do this, BMC could consider training an epidemiologist who could handle large hospital data sets

. Having this capacity would give BMC a great advantage in its tracking of services and planning. Further it would benchmark BMC as a leader in utilizing data for efficient and effective provision of health services.

The availability of these data and data management capacity would allow BMC to develop its own research capacity. At the present time there is little documented about health needs and the provision of health care in Libya. BMC could take the lead in developing this research agenda for Libya if it had additional data analysis capacity.

Fig 6. Record keeping at the Polyclinic in Benghazi

The Benghazi Hospital Group generates a large array of data about health care in the second largest area of Libya. Pooling these data for large scale analysis of health care utilization and disease treatment patterns for this area would be of great value. Development of this would require time and coordination of data capture, but could be an important medium to long term goal.

The Hospitals and Primary Health Care (figure 6 &7). In the reconstruction phase post revolution, much emphasis has gone to the reconstruction of Libya's hospitals. This is an important step and it creates a sense of post-revolution legitimacy and stability while meeting pent-up health demands. However, the bulk of health needs of any population are met through primary health care services, which is the responsibility of the MoH, separate from hospital sector activities. Where these services are not functioning, as in Libya, the tertiary hospitals are forced to carry out primary care. This is an inefficient and ineffective approach, unnecessarily using up hospital resources. To the credit of BMC, they had established a relationship with the only functioning polyclinic in Benghazi and very recently appointed Dr. Nasir to head the efforts to strengthen the function of this polyclinic.

Fig 7. Pharmaceutical stores in the Polyclinic in Benghazi

On a visit to the polyclinic, the team found a well-functioning patient management and recording system in place. Specialists from the hospital were visiting regularly for clinics. A dermatology clinic was functioning the day we visited as was a diabetes clinic. The diabetes clinic pro-

vided medical as well as nutritional counseling. The dental clinic was problematic as there were no resources for anything other than dental extractions, frustrating the dentists.

The options of this link with the polyclinic are extensive. The ability to put into place a functioning up-referral as well as down-referral system can be of great benefit to patients as well both the hospital and the polyclinic. The benefit to the patients would be services closer to home and the potential of maintaining a "medical home" an emerging initiative in many countries to ensure continuity of care. Having outpatient consulting days for the primary specialties as well as for follow up of routine surgical, orthopedic and medical procedures would be of great benefit to the community especially for patients with chronic conditions such as diabetes, asthma, hypertension, cardiovascular, conditions and help strengthen compliance with long-term treatment. Identifying these services as an activity of BMC would offer the confidence often associated with tertiary care.

This link with the polyclinic could also provide an opportunity for upgrading the clinical skills and capacities of clinic staff to improve care provided, and also to make the up/down referral system work more effectively.

Many guidelines and protocols exist for treatment of common outpatient conditions such as those being seen in the polyclinic. One of the most common is the Integrated Management of Childhood Illness (IMCI). These and others could be easily readily implemented in the polyclinic. When other PHC units are reopened, the polyclinic could assist these other sites in implementing use of such protocols to ensure a high standard of treatment.

A potential opportunity exists to development an "mHealth" system which is integrated between the polyclinic and the hospital. These use SMS text messages to remind patients of their appointments, the need to take medications, prenatal health care tips, or appropriate times for immunizations are all examples. These have been quite successful in a number of middle income countries, but negotiations with cell phone carriers would be needed.

Links with the College of Nursing. A closer BMC link with the College of Nursing could help orient the training of nursing staff more closely to hospital nursing needs, and identify potential candidates of specific hospital positions and in specialty areas. The hospital could help develop curricular components focused on building nurse-manager skills. This is discussed further below. This focus could also apply to the needs of the BMG, as the BMC serves as the flagship hospital for the group.

Employee Health and Occupational Health Programs Employees are injured or potentially infected on the job related to the nature of their work. An Occupational Health program can provide immediate care for such events as needle sticks or exposures to toxic and potentially harmful substances in hospital wards, laboratories or elsewhere. Additionally, given the risk for TB infection, recommend TB screening programs for hospital personnel are usually part of a comprehensive occupational health program. The information from an occupational health clinic can be then fed back to the hospital administration and especially the patient safety services as an additional hospital monitoring function.

Additionally, the health of the employees is described as an employee health service. Comprehensive occupational health programs were lacking, where protocols or regulations for health care workers would address the health and safety of the hospital staff. Protocols for managing such issues as occupational injuries or blood borne pathogen exposures would be important to promote and protect employees, including doctors and nurses. While gloves were observed in the clinical areas, it was not clear if there are policies for the use of any personal protective equipment or other health care worker protective measures.

Community outreach. Libya is now well into a serious situation with non-communicable or chronic diseases and injuries. There are urgent needs on two fronts: one from improving the awareness and control of these conditions, and a second from prevention—the preventive medicine approach. BMC has an excellent opportunity to address these for the wider population. During travels around the hospital, the JHU team did not see many prevention or health promo-

tion posters or announcements, with the exception of one rather mild WHO anti-smoking poster. The BMC, and in fact the BMG could use their very large and respected position to mount an important health promotion campaign for the Benghazi area. Media openings are usually plentiful and available freely for public service health messages. The various flat screen TVs around the hospitals could be used for locally produced messages targeted to local populations. The BMC, perhaps supporting the BMG could employ someone with health education/communications experience or training to develop this type of program. This could be linked to weight loss programs, stop smoking campaigns, or diabetes control clinics or groups, again which could use the polyclinic and the hospital as venues. These types of outreach activities would build the reputation of BMC and create respect and credibility.

As part of the school health program run by the clinics, injury prevention messages could be incorporated. While the urgently needed road traffic accident (RTA) initiative may be beyond the scope of the hospital activities, this is an area which the hospital could support through community outreach activities.

2. Zawia teaching hospital and Red Crescent Primary Health Care Clinic

On 3 January the JHU team visited Zawia hospital, and were graciously received by the hospital administrative team, including the director of the hospital quality assurance, who was also in charge of the hospital pharmacy. The hospital was badly affected during the revolution as some of the most intense fighting occurred in this area. The hospital functions as a tertiary care center and is linked to Zawia Medical University as a teaching hospital, and to a diploma school of nursing, some 20km distant. The hospital also is part of a nursing high school training program during which the nursing students spend 9 months in training, much of it at the hospital (fig 8). There have been problems with the quantity and the quality of nursing services, and among the local nursing staff there currently exists language challenges with nurses who do not speak or write in English, the language used in the hospital care delivery. The educational and understanding gaps between the doctors and nurses is a recognized problem. The hospital depends heavily on nurses from the Philippines for its specialized nu rsing care. Some have been in Zawia for many years. Presently there were 50 who had just arrived. It has sophisticated services including a hemodialysis unit, CT scan and an MRI. Although an angiography and ultrasound unit are present, these are not or not fully being utilized.

Fig 8 nursing aids in training at Zawia hospital

Fig 9 basic life support training at Zawia hospital

The hospital has just now started a continuous quality improvement program, and the JHU team had a chance to visit one educational session in progress on basic life support (fig 9).. Based on our brief visit, there seemed to be an extensive series of lectures planned, stretching from first aid to more complex nursing issues. The office of quality control is functioning and has several initial activities planned including developing job descriptions and writing monthly reports of hospital activities. The hospital leadership did not know if a formal infection control campaign had been undertaken.

Collection and use of hospital data were discussed. The hospital management readily could see the importance of this data once analyzed and patterns and trends assessed. However no analysis of the raw data is currently being done, and the capacity to do so was limited. The Zawia hospital gave the team a very complete tour of the hospital and openly discussed areas of success and areas where problems existed. The nursery/neonatal intensive care unit was in excellent condition and well equipped with busy staff, one nurse having responsibility for four newborns. The maternity unit was very busy, and often had to close to new admission as its capacity was exceeded. The Filipina nurse had worked there for many years and kept good statistics for the use of the maternity unit. Likewise the intensive care units were well equipped and managed.

The PHC system in Zawia was discussed. Of the 40 PHC clinics in the area only 10 or 15 are actually functioning. The staff for the others are receiving pay, though they do not actually work in the clinic, a situation common in many parts of Libya at the moment. As a result the hospital's causality ward serves as the point of primary care for the community, in addition to what is done by the private doctors in their clinics. Most of the PHC clinics do not have qualified doctors, and hence do not have the trust of the community. The hospital does not have any direct relationships with the PHC clinics, and no polyclinic exists in Zawia.

Fig10. Doctor and staff at the Red Crescent clinic

A visit to the *Red Crescent PHC clinic in Zawia* found both doctors and nurses on duty in the late afternoon, figure 10. The clinic was very well maintained and very clean. On average about 13-15 children a day were brought to the clinic for care or treatment and about the same number of adults. The staff estimated that 20 women a day came for antenatal services, but there were no facilities for delivery in the clinic. The staff believed that almost all pregnant women came to the antenatal clinic in their first trimester and continued a regular pattern of checkups. They receive folic acid and checks for anemia and urinalysis in the clinic laboratory. The clinic also provides treatment for diabetics, but did not have a nutritionist to provide counseling.

The clinic frequently refers patients to the hospital for further treatment with written notes. However, the clinic never sees these patients back through any back-referral process following hospital treatment. The clinic staff never receives any written notes from the hospitals from the referral visit.

PART 2 *Nursing and Nursing Education*

1. Nursing services BMC:

Benghazi Medical Center's interest, investment and emphasis on advancing nursing services and increasing the level of professionalism for nurses in Libya is commendable. There is a very strong recognition that this is of utmost importance and a critical need for BMC. By increasing not only the numbers of baccalaureate prepared nurses in hospitals but also by promoting professional nursing there will be significant improvement in health care for Libyans. Baccalaureate educated nurses are essential to this process.

In that regard, baccalaureate education emphasizes critical thinking, evidence based practice and leadership. Nurses with this level of education are now in leadership positions at BMC indicative of this commitment of BMC to advance nursing. Libyan nurse leaders are in positions such as the Chief Nursing Officer and the director of nursing for the Intensive Care Unit. The inclusion of these nurse leaders in BMC's organizational structure and in key leadership meetings

is remarkable. When we met with the nurses they provided thoughtful perspectives about nursing at BMC and offered several suggestions regarding ways to improve nursing care. The provided a comprehensive list of continuing education needs, all which address efforts to increase the level of competency for nurses to complete their jobs more effectively. A majority of these topics were focused on basic life support training and advanced skills when working in critical care or emergency care areas. [see attached list in appendix]. The fact that these nurses have already reviewed their learning needs is a strength of this staff and indicates their motivation and interest in continued learning and professional growth.

In September 2011, a France-based consulting firm, DENOS, conducted an assessment of nursing at BMC. They made several recommendations regarding establishing protocols and in-service training programs but reportedly these were not sustained after their departure.[5] reference below] At this point in time, it was unclear to what extent nurses at BMC are following protocols, standards of practice, and or evidence based practice, or to what extent this is feasible to implement. When we inquired about required educational sessions or even infection control and prevention training, there were many who expressed their desire for nurses to obtain knowledge in this area in order to be more effective at minimizing the spread of infection. However infection control education or any other in-service education activities are not required.

At BMC, there are limited numbers of Libyan nurses who are educated at the baccalaureate level. To fill the shortage of nurses in the hospital, BMC successfully hired nurses from several other countries, including the Philippines, India, Jordan, Bangladesh, Tunisia, Egypt, Ukraine, Serbia, and Bosnia. In both the BMC and in the Zawia Hospital, nurses and administrators agree that there are significant nursing shortages. It was unclear, however, the nature of the shortage. Questions remain about whether insufficient staffing is related to sheer numbers of nursing personnel, or limitations on the skills of the existing nurses, or possibly the burden of inadequate nurse to patient ratios. While everyone stated they needed more nurses, there seems to be limited data to quantify this information. In one neonate intensive care unit that we visited in Zawia Hospital, we were informed that one nurse managed 5 to 6 neonatal intensive care patients or newborns, when previously there were ratios of 1 nurse to 1 to 2 NICU neonates. Additional information about the shortage and about the actual numbers of baccalaureate nurses and nurses prepared in other educational systems would be extremely useful. Secondly additional data would be important in order to determine the level of practice for nurses with different educational levels. It was unclear if there are nursing techs, or assistants, although we were informed they existed, the actual practice leveling for nurses was not specific. Additionally, more information about the actual practice experience and functions of nurses would be useful.

Current strategies used to manage the nursing shortage by bringing in baccalaureate educated nurses from other countries has helped the support nursing services. While this may be a short term solution, a long term plan to increase the numbers of Libyan nurses with a baccalaureate education has been initiated and should be continued. However, there are only a few schools that offer this and the numbers of BSN graduates has not yet met the workforce capacity that is required. Continuing with this plan will be important to meet the high demands from hospitals to have a highly competent work force. Overall, this important need for Libyan nurses to be educated at the baccalaureate and masters level is recognized, imperative, and still needs significant development towards this goal.

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[5] Denos Health Management Report, "Raising the Standards of Nursing Care in Benghazi", September 8, 2011. http://www.denos.fr/specific-case-studies/raising-the-standard-of-nurs-ing.htmlhttp://www.denos.fr/IMG/pdf/1_specific_case_studies_for_dhm_website_september_2011.pdfhttp://www.denos.fr/specific-case-studies/raising-the-standard-of-nursing.html http://www.denos.fr/IMG/pdf/1_specific_case_studies_for_dhm_website_september_2011.pdf

Language:

Based on discussions with practicing nurses and nursing faculty and physicians, language is a challenge for communication, education, professionalization, and the delivery of quality patient care. While the English language is the standard for communication in patient care delivery, both verbally and written, nurses are often unable to speak English. There are several challenges that arise due to these language barriers. Nurses are limited in their ability to understand physician's orders. Additionally, nurses who speak only Arabic and ones who speak only English are unable to communicate with one another. Nurses who do not speak Arabic may be limited in their ability to communicate effectively with patients. According to the report by Denos and based on discussions with the medical director, most Libyan nurses speak, write, or read Arabic which is thought to compromise health care delivery and patient care. Several groups are advocating for improving the language proficiency of nurses. In the baccalaureate nursing curriculum, English language courses are placed in each semester. This intentional effort would greatly improve Libyan nurses in their proficiency with using a common language in their work, and in their ability to work also effectively with other members of the health care team. Because of these language barriers, team work was said to be compromised. Teamwork is now widely recommended as an essential component to improve patient safety and quality, Increasing language proficiency and the promotion of teamwork between nurses, and between nurses and doctors would greatly contribute to quality and safety. Additionally nurses who speak English proficiently would greatly improve leadership roles for nurses in the hospitals and health care systems.

Continuing Education

At this point, there are no requirements or recommendations for continuing education for all health providers including nurses. Certification, credentialing, or licensure for practice is nonexistent in the system. While some nurses, such as the Filipino nurses have been licensed in their countries, it is not required in Libya for practice. Many nurses expressed interest in receiving continuing education training, hoping to advance their skills and ability to practice at higher levels or in specialty areas. One recommendation would be to provide this type of training as part of hiring criteria and continued employment.

Nurses as patient educators

In the clinical areas, the nurses serving in the role of patient educators appeared to be missing. In the diabetic clinic as part of the polyclinic , there were diabetes educators, but there were no nurses in this role or visible in the clinic. One polyclinic in Zawia reportedly had 2 nurses employed at this site. Emphasizing and developing nurses as patient educators within hospitals and in primary care clinics would enhance the services currently provided. For example, having nurses as diabetes educators, or nurses who educate about anticipatory guidance with pregnant women and young children are all needed roles in the health care system.

Further clarification about the varying functions and roles of nurses would be helpful in order to determine additional places where nurses could fulfill gaps and meet the needs in the health care delivery system.

2. Nursing education

Nursing has a very low social ranking in Libya with few women and men selecting the profession, creating a severe shortage in the country. Most nurses and all with BSN degrees are imported from other countries. Development of the nursing workforce is one of the most pressing needs in the Libyan health care system and the establishment of university programs with potential for post-graduate education and career development is essential.[6] Many of the skilled foreign

[6] Consulting Firm Journal retrieved from http://www.dowton.com/journal/2011/09/health-reconstruction-after-the-arab-spring-libya-an-emerging-opportunity-2/

nurses left 2 years ago at the time of the revolution dramatically increasing the shortage. With the current increase in salaries for hospital nurses, based on education and years of practice, the profession has recently increased in its social value. Many nurses from other countries are once again being solicited to work in Libya.

Nursing education in Libya has always been disjointed with no overall framework for the different levels of nursing skill. There is no national nursing organization to oversee nursing education, to determine needs for different levels of nursing, or to assess quality and consistency of the education. At the moment there are no nurses or nursing officers in the Ministry of Health wh could add to policies, encourage data collection and analysis, or participate in decision making for health services in the country. There is no national certification by examination or licensure. Nurses are considered competent to practice if they have an educational degree from one of the Libyan schools with little differentiation of skills based on the type of school they attended.

Currently baccalaureate education in the universities is a new concept, but recognized as providing a more highly skilled nurse to work in the modern well-equipped hospitals. Denos, the French consulting firm, stated from their assessment that the models of training for students in the universities and new graduates in the hospitals deserve modernizing and upgrading.

The first university program was established in Tripoli at the Tripoli University. They have graduated two classes of BSN nurses and soon will graduate their third class, although the numbers are small per class, less than fifty. The University in Benghazi has graduated one class and soon will graduate their second class of baccalaureate educate nurses. It was not possible to ascertain how many BSN programs exist. Some faculty in Tripoli suggested that several diploma schools have sought out a university to change their diploma status to a university program, and there may be currently as many as nine BSN programs. The Ministry of Health did not have any information about the exact number and we were unable to meet with the Ministry of Education who may have this data.

Nursing education, University of Benghazi, College of Nursing

While the Libyan nurses in the Benghazi hospitals were experienced and committed to their profession, none have a baccalaureate degree or have had advanced training in specialty area. This situation leads to a total dependency on nurses from other countries to be the nurse educators in the university settings. The nursing faculty at Benghazi University are mostly from outside Libya. They are very dedicated and quite proud of their work as nursing educators (fig 10). The majority of them are from nearby geographical regions, specifically Egypt and Jordan. They are working closely together under the direction of the Dean Dr. Ahmed Hassi and Deputy Dean Husein Alffindairi. These deans are both medical doctors but have a commitment to nursing and consult frequently with the nursing faculty. The rules of the University state that no foreigner may serve as Dean and currently there are no Libyan nurses who have the necessary qualifications to be Dean of the School of Nursing. The faculty at Benghazi have not had any communication with other faculties of nursing in Libya. They did mention that the curriculum of the other 4 schools was not based on the Egyptian model as theirs was, but rather on the Filipino model taught by nurse educators from the Philippines. It was not clear what the differences were or if they thought one curriculum was better that the other.

The faculty have recognized the need to modernize their nursing curriculum and several highly skilled foreign nurse educators, some with their doctorates, are updating syllabi and overall curriculum for a beginning nurse generalist. The course of study is four years with an additional one-year internship. The course objectives are stated as outcomes and the material in the syllabi seems appropriate for modern nursing care. The faculty mentioned the need to also update the lecture content and could use additional technical help in this area. Another positive aspect of the program is their use of the Internet, and they have a website under construction to both advertise their program and help with administration of the program

www.facebook.com/FacultyOfNursingBenghaziUniversity/info). The faculty member responsible for web development is from the Philippines, but fluent in English. Although she is not a nurse, she is enthusiastic about the use of technology, computers, the web site, and potential internet education endeavors. All courses are taught in English plus there are also English language courses taught beginning in the freshman year. Although they are addressing the problem of limited English among the student body, it still seems to persist. In our conversations, it was apparent that the faculty had many different levels of English fluency and only a few of the students felt comfortable speaking English with us. In interviewing the students they all seemed very interested in their new profession and eager to practice in the hospital. Each mentioned their own special area of interest in clinical practice, most of them wanted to work in the intensive care units or units of specialized care. All of the faculty and students are fluent in Arabic.

Fig10. Faculty at the Benghazi College of Nursing

The Nursing University program is currently borrowing space from the medical school at the University having moved from a site several miles outside Benghazi, and they are looking forward to their own building. They see this to be essential and important to have enough space to adequately teach, have their library, labs, and committed office space. They also see their own building and space as essential in establishing the profession of nursing as an important component of the university and of society. The University has a total of 83,000 students and the School of Nursing currently has about 200 students. The school has an excellent working relationship with Benghazi Medical Center located within easy walking distance of the school. They can temporarily use the state of the art lecture rooms and the clinical labs with multiple models at the Medical Center to supplement their teaching space.

A few of the faculty in the School of Nursing have BSN degrees and the majority of the foreign faculty have Masters degrees with specialization in a specific area of nursing. There are some Libyan nurses working with the faculty but their highest degree is a BSN. It was not entirely clear how the students are supervised in their clinical rotations. The faculty go to the clinical site with the students, but they mentioned the ratio could be as high as 1 to 20 or 24 students. We were unable to clarify what the faculty did in the way of clinical teaching on site with such a large number of students in the clinical area. The students do have clinical experiences in every clinically focused course except Community Health. For this course, the faculty did not feel the country is secure enough for students to make home visits or practice in community settings. They clearly valued the use of home visits and said this experience and approach could have a real impact on the health of the population. However, they are not using the hospital clinics, the schools, or the primary care sites as an alternative for community health practice. From our observations it is clear that health teaching, a very important component of nursing care, is not being provided and students are not educated about this role.

Working at the polyclinic or other primary care sites could be an excellent opportunity for students to learn new skills that are currently not being practiced. Additionally, if nursing students and medical students worked collaboratively in polyclinics it may be an opportunity to build interprofessional educational initiatives and build the infrastructure to support expansion and utilization of polyclinics for primary care delivery.

Two other areas we would like to explore with the faculty in more depth are leadership and critical thinking. We did not have an opportunity to see all the course syllabi or the whole curriculum. We are waiting to receive a copy of the school's comprehensive curriculum. It is unclear if the curriculum addresses critical thinking and leadership or if it is part of courses or even thread throughout their education. Based on our review, it appears that the curriculum is primarily based on a medical model but this may be an unfair assessment without further discussion with the faculty or through direct observation of what is taught.

Nursing education, University of Tripoli, College of Nursing

The University program in Tripoli was very similar to the one in Benghazi. It is two years older and all the nurse educators are from the Philippines. They all have a Masters Degrees in Nursing and a few have earned doctorates with several in the process of completing their doctoral degrees. Again physicians are assigned in the Deanship role because the faculty are all foreigners. They are using a curriculum from the Philippines similar to the one in Benghazi. The faculty reported that their deans were very supportive of them and the nursing program. In Tripoli's school, one difference was noted. The head of the nursing school has reportedly insisted that the curriculum requires students to specialize in an area of nursing by completing one 4 credit course during both semesters in their final year. Students select from the following specializations: Surgery and operating theater; Critical care and anesthesia; and Midwifery and Neonatology. Students can also select general nursing if they don't want one of these three specialty areas.

Fig11 Class at the University of Tripoli, College of Nursing

This school borrows space from the School of Medicine on the 5th floor of a university building. The nursing faculty also want their own space for the very same reasons that the school of nursing in Benghazi University wanted their own facilities and building. They have some simulation models for skills labs and training but they do not have the same relationship with the medical center that Benghazi does. They have much of their equipment at another site and cannot bring it to the current location until they have more space that is truly their own. Clinical supervision is highly valued and the student to faculty ratios can vary from 1 to 6 students to as low as 1 to 3 or 1 to 4 students per faculty.

The faculty agree that English is a problem for the students, but the faculty are all fluent in English and not in Arabic. They teach English courses in all four years to help students to become more fluent. They noted that there are about 20% males in each class and although this isn't the chosen or preferred major by many of their students, they still have low attrition rates for the nursing program.

They do not have any control over who is admitted to the nursing program and this can sometimes be troublesome. Admission to the program is decided based on grades in secondary school and the expressed interests of students. Nursing is frequently far from students' first choice but the students are limited by their previous performance. There continues to be a low perception of the nursing profession and the actual skills needed by nurses. They reported that this societal perception will need to change before they can get better student applicants.

Currently there is no research going on in the nursing department at the Tripoli University and they would like to see that change. Several are looking for dissertation topics and mentors to help them with their dissertations. They reported that there are poor role models of nurses in the clinical area, especially Libyan nurses due to a variety of issues and lack of leadership or baccalaureate educated nurses.

For the country as a whole, it is unclear if cultural and religious practices impact the role and functions of nurses and what nurses are allowed to do when providing care for patients. All of the faculty agreed that there is a strong need for more interdisciplinary practice and further education using simulation.

Recommendations from hospital and public health observations

1. Management training for senior management and administrative staff, plans should be started for this now. With time department and division managers should receive training to help with expanded roles
2. CPE. Rather than wait for a national policy, this could be started at any time. An obvious start would be for nursing and support staff, but medical staff should be included and participation tracked, even though not enforceable.
3. Some protocols have been started such as in EM, for handwashing and central sterilization. With these starts, this can be extended to other areas. As they expand, a compliance scheme can gradually be developed.
4. Patient safety or quality assurance and quality improvement have been initiated , but this could become a much more dominant, with a full time director and staff. This is now the central theme of most hospital operations in developed countries. A wide array of tools exist, ready for adaptation elsewhere.
5. The wealth of hospital data being generated should be fully exploited for patient management, outcomes tracking and hospital administration and planning. Consideration should be given to training and adding a full time statistician or epidemiologist for the BMC.
6. Using the BMC to directly provide primary health care is inefficient use of resources, both of the medical center and for patients. Expanding its role with the polyclinics and PHC facilities can improve patient follow-up, strengthen quality of care, and build strong links with the community.
7. Strengthening links with the College of Nursing, will not only enhance teaching but can help shape nurses with the special system needs that BMC is now facing, and will need in the future. This is also considered in the Nursing Recommendations.
8. Occupational health services is an integral part of providing a safe occupational environment for BMC staff, and facilitates a safety monitoring mechanism for hospital management to track the health of its workforce and protect the health of its workers.
9. Community health outreach is a major opportunity for the hospital to affect the health status of Libyans though areas such as good nutrition, healthy lifestyles, control of smoking and activities to reduce violent injuries, to consider a few.

Where Johns Hopkins School of Public Health can play a role in support of BMC

1. JHSPH can assist with training key staff from BMC and the University of Benghazi medical and nursing faculties in public health, either in full-length degree courses or through the annual summer institute courses in Baltimore. http://www.jhsph.edu/academics/continuing-education/institutes/summer-institutes/index.html
2. For other educational initiatives JHSPH could work with BMC to identify key areas of interest that would match online courses offered by the school and develop a practical not-for-academic credit option.
3. As BMC looks to take leadership roles in health in Benghazi, faculty and others from JHU can assist in looking at helping to develop specific areas of expertise in areas such as primary health care design and programming, health communications, quality improvement/patient safety, injury control and information on attitudes and health seeking behaviors. This last area could be linked to a hospital-based applied research agenda, which could be expanded to include interested individuals or hospitals from the Benghazi Hospital Group.

4. With BMC develop the design and specifications for an mHealth program for at risk populations using hospital and PHC services.
5. For the MoH, JHU with its extensive history in the development and research in Primary Health Care, would be happy to participate in helping develop national policy governing PHC services for Libya.
6. Additional connections to hospital management and administration could be facilitated.

Recommendations by the JHU School of Nursing faculty

7. Make the baccalaureate degree in nursing the entry into professional nursing practice.
8. Have planned growth of the BSN programs, planned incorporation of the diploma programs into the university programs.
9. Have designated permanent space (new building, renovated building) for the nursing programs at all the universities.
10. Create a nursing syndicate, have certification for nursing with eventually licensure through examination. Promote a Council of Nursing
11. Have a nurses appointed to the Ministry of Health with a nursing division.
12. Train all Midwives as nurses to provide better comprehensive and holistic care.

Where Johns Hopkins School of Nursing can play a role in support of BMC

1. Assist with curriculum development, course content, teaching methods, and handout materials for educational programs at the College of Nursing, University of Benghazi. Add critical thinking and leadership focused areas to curriculum.
2. Provide on-line resources for teaching. Facilitate teaching strategies for the faculty.
3. Provide books and journals in English. Set priorities for which are most needed.
4. Review clinical instruction process and discuss better student/teacher ratios.
5. Use the polyclinics or the primary care clinics as a place to teach community health.
6. Emphasize the role of nurses as health educators, in hospitals and clinics.
7. Think of a research agenda with the B.U. faculty to plan for JHUSON graduate students to work with the faculty. Also opportunities for JHUSON faculty to with work local faculty on research initiatives.
8. Provide educational opportunities/exchange between the two Universities, especially for Libyan new graduates. BSN in nursing for one or two student. Possibly faculty or students complete short courses at JHU SON or on-line courses. Recommendations for eventually DNP or PhD programs.
9. Provide mentoring for faculty in the area of writing for publication and research.
10. Help organize a meeting of all university faculties of nursing in Libya to discuss universal curriculum. To approach a similar use of the internship, organization of the profession and promotion of licensure or certification, and possibility of graduate programs.
11. As a follow-up invite the chief nursing officers to share their concerns about the practice preparation and their needs for nurses to fulfill hospital positions.
12. Provide some in-service content or actually provide the in-service (train the trainer) for the staff nurses at Benghazi Hospital.
13. Work with the MoH and an appointed chief nurse in the MOH to have a unified plan of nursing education with data.
14. Introduce Mobile/e-health to the nursing curriculum and to the staff nurses in the hospital and primary care settings. Use m-health for both primary prevention and for treatment modalities.
15. Make recommendations for areas of research, health care research, public health research, and nursing research.

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