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Medical Education and the Practice of Medicine in the Muslim countries of the Middle East ..... page 28

Early Persian tapestry of working physicians.

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From the Editor

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This issue of the journal is a special Educational Feature with a special editorial on regional concerns and Continuous Medical Education and papers on a National model, in addition to various other papers from the region

In the CME Needs Assessment: National Model. This CME Needs Assessment paper was written to provide analysis on a particular regional country's <<the country>> proposed CME in Primary Care program. It has been provided as a National Model that other countries may wish to replicate. The vision of <<the country>> is "To Provide World Class Healthcare." One of the first steps to achieve this vision is to start comprehensive educational programs to improve the skills of the primary health care team as Primary Health Care is essentially the first level of contact of the patient with the health care system. The suggested programs include the following: o Interdisciplinary Primary Care Training Program. To assist medical centers in organizing their delivery of care around the of primary care principals.o Primary Care Physician Education Initiative (PCPEI). The goals of the educational intervention are to better prepare current physicians to deliver care under this new paradigm.

A paper from UAE studied the impact of a 6-month Team- based Educational and Refill Monitoring (TERM) intervention in improving BP control among UAE adult citizens diagnosed with hypertension. In This is a clinical trial, where, 214 hypertensive UAE citizens ?18 years participated in a 6 months TERM intervention compared with 214 hypertensive UAE citizens receiving a usual care. At baseline there was no significant difference between both groups in regard to occupation, education, smoking, blood lipids, body mass index (BMI), SBP, DBP and MRA. Meanwhile, at baseline, only 35% of TERM patients compared to 34.9% of usual care patients had controlled blood pressure (defined as BP< 140/90 mmHg). At 6 months, TERM participants achieved greater improvements compared to usual care group in regard to SBP (139.3 ± 14.2 mmHg vs. 152± 13.4 mm Hg, P<0.001), DBP (85.3± 9.3 vs. 92.4± 6.8 mm Hg, P<0.001), BP control (50% vs. 36%, P = 0.01) and medication refill adherence (92% vs.86%, P<0.001), The authors concluded that a team-based educational intervention for both staff and patients led to significant improvement in SBP, DBP, MRA and BP control in adult hypertensive patients, primary health care setting, Sharjah Medical District, UAE.

A cross sectional study from Sultanate of Oman explored the stress sources, prevalence of anxiety and depression and coping strategies among preclinical and clinical under graduate medical students. Data was collected using Medical Student Stressor Questionnaire (MSSQ), Hospital Anxiety and Depression scale (HAD) and COPE questionnaire. A total of 288 participants were enrolled in which 123 were pre-clinical and 165 were clinical medical students. Nearly two third (78.1%) of students were aged between 20-24 years. Among all 87.5% (252) were females and 12.5% (36) were males. Collective score of academic stress factors in the pre-clinical group was not statistically different (p = 0.865) to the clinical group. No significant difference (P: 0.826; 95% CI: -3.511-2.804) in the mean score of preclinical and clinical group regarding Social Stress factors. Coping strategies to control stress score in the pre-clinical group was statistically significantly (p < 0.001) higher than the clinical group.

The authors concluded that the higher level of stress is associated with poor academic performance large content of study material, exam and time constrain. Coping strategies in students mainly better time management, emotional support, talking to family members/ friends helps and good sleep relaxes them to control stress.

Ertimeh T et al, report a case of Herlyn-Werner- wunderlich syndrome with recurrent lower abdominal pain. Congenital anomalies of the Mullerian duct system can result in various urogenital anomalies. Herlyn -Werner- Wunderlich (HWW) syndrome is a rare anomaly characterized by uterus didelphys with blind hemivagina and ipsilateral renal agenesis. This syndrome was described for the first time in 1922, and was suspected in a young woman with regular menstruation and gradually increasing pelvic pain and a pelvic mass formation, usually noticed after menarche .

In the Educational Feature two further papers look at the glorious past of medical education in the region and education generally and then look at the current issues besetting students and academia in the region, with recommendations on how the system can be improved to restore science, medicine and education in the Middle East to its past position and status as world leader in these disciplines.

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Special Editorial - Honour

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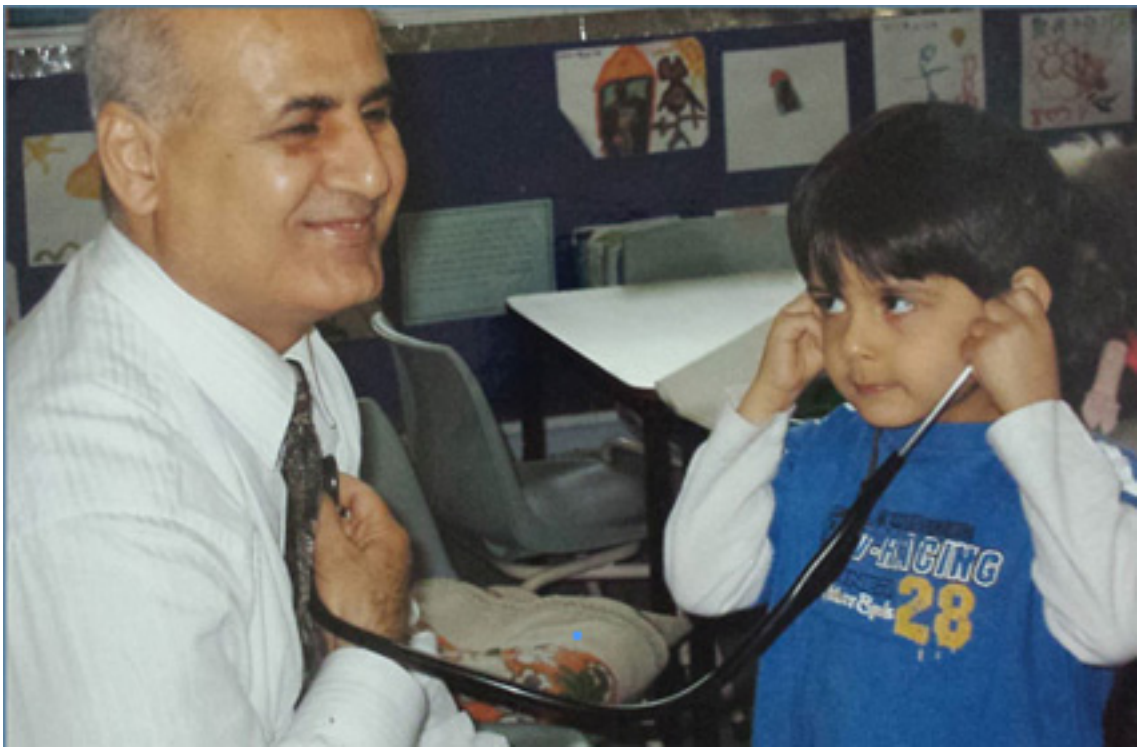

The late Dr Noori Abdulla Khider, Erbil, Kurdistan, Iraq. MEJFM Doctor of the Year for 2014

As the publisher of MEJFM for quite some time now and with a background as a postgraduate medical educator I have been in a position to observe changes in, particularly, primary care medicine in the region. Generally not only have standards greatly improved in that time, the Middle East may be leading the world in some endeavours. This comes down to the skills, dedication, endeavour and honour of Middle East doctors, academics and medical students.

As well as the plight of the ordinary people of the Middle East who reside in conflict zones there are still some obvious concerns regarding medical education and the practice of medicine; most of this, I observe, is out of the scope of those groups mentioned above.

Rarely, as it is not my position or right, I have been moved to make comment on some of the extreme difficulties faced by some of the most honourable people in the Middle East. I count such people, certainly as colleagues, but many as personal friends.

The first aspect is wages and (ongoing) tertiary funding. While conflict and economic sanctions can make these aspects of tertiary education beyond the control of some governments and funding organisations there are some difficulties which can be removed, given proper focus.

Another aspect is adequate funding of the tertiary education sector, and maybe even prior to that, recognition of the value of tertiary educated populations. Of course for this aspect to provide proper value to the country and students alike, the curricula must match and meet world standards. There is also argument for creating higher than current standards and the Middle East leading the world in some endeavours.

The third aspect is equal funding for quality educational institutions in all regions, within a country. I have come across such anomalies. An example is Hawler University, Erbil, Iraq. I am well acquainted with the University mainly as one of our MEJFM Middle East Doctors of the Year, the late Dr Noori Abdulla Khider, an exemplary man who unfortunately died in 2014, was an academic there. He has two daughters still studying at the University.

The academic staff through a variety of measures over a period of time, including no wages paid, only 25% of wages paid, no payment for postgraduate supervisions, extra lectures, MSc and PhD discussions, article evaluation and other issues, since 2013, has resulted in a situation where they have not been paid their due salaries for the equivalent of the past 10 months. During one year they received only 25% of wages paid for six months, the equivalent to having received just one and a half salary out of 12. I believe other Universities in Kurdistan are in the same position. I draw

Syrian 'war' child victim, (Omran, taken August 19, 2016)

this to the attention of the Kurdistan Ministry of Health who can hopefully remedy this situation.

The most important aspect of this is that all such non paid academics at Hawler University turn up to work every day to allow their students to complete their degrees, which are the medical student's own investment in time and money to serve their country and the Iraqi population as future doctors. We honour those committed academics at Hawler and hope this can be swiftly remedied.

The fourth aspect is obvious to those who watch the news – conflict and war. This editorial is not to judge who is right or who is wrong in any conflict – most people on all sides of wars are usually fighting for their own convictions. What is a concern however is the doctors in warzones who not only face constant danger caring for the injured or those suffering from resulting extreme conditions such as malnutrition – and who so often are children and babies. There is a horrific tendency of late for doctors and hospitals to be deliberately targeted. Presumably this is a new strategy, implemented to demoralise populations and further weaken those already weakened. While Syria is only one such horror story for such doctors and innocent populations, I will use this situation as my example. .

As of April 2016, there have been 365 attacks on medical facilities in Syria and 738 healthcare workers have been killed, according to data from the global non-profit Physicians for Human Rights (PHR).

Roughly 95 percent of the once-thriving city's doctors have fled, been killed or detained. This has led to an extreme shortage of staff – particularly specialized physicians. General surgeons, are said to be forced to do the work of neurosurgeons, oncologists, endocrinologists and vascular surgeons.

A known physician (whose name is withheld for security reasons) working in Eastern Aleppo, said his facility receives between 15 and 20 war injuries a day, mostly civilians, and often children. But without a paediatrician on staff, children have to be treated by non-specialized physicians.

In April, an airstrike on the eastern al-Quds hospital killed one of the rebel-held Aleppo's last pediatricians, Dr. Muhammad Waseem Maaz. The hospital was supported by Medecins Sans Frontieres (MSF) and was one of the few left in Syria with a functioning emergency room, intensive care unit and operating room.

A report by Amnesty International called out against the systematic targeting of hospitals and medical facilities in Aleppo, a violation of international humanitarian law.

An additional example of national devastation is in places where no official war has been declared, but civilians and doctors face the same circumstances as those in war. Medical friends and colleagues in Libya for example, where there is no acknowledged war occurring, but due to factional fighting and insurrection, work without power, water, access to their bank accounts, rubbish piling up uncollected and even blockage of roads making it difficult to even get to work to save lives – and the hospitals are without basic necessities.

The fifth aspect is those graduating from many of the medical schools in the Middle East are finding it difficult to obtain employment in the region. It seems 'overseas educated' doctors are being preferentially employed. The reasons for this may or may not be valid and as with all things in life it should really come down to the qualities and qualifications of each individual. I did some research on hiring organisations and while there seems to be no overt policy among such, there are some requirements listed such as candidates for the positions must be undertaking annual CME. The academics and administrators of regional universities will need to address any deficiencies in their curricula and postgraduate institutions but one thing I can personally help those in the region without a CME/CPD program is to provide one via the MEJFM which we will start to do as from the November issue.

As a postgraduate medical educator I have provided QA&CPD programs to Australian family/primary care doctors and some Australian specialist colleges. Having spoken at international conferences and venues on this topic I find Australia is a leading purveyor of Quality Assurance (QA) /Quality Improvement (QI), and CME/CPD.

Additional to providing programs for Australian Doctors I have provided global medical education strategies sponsored by major NGOs including those that are available to every country, with a view to provide parity of medical education resources for all countries of the world. This opened my eyes to the major deficiencies in some countries and the major needs of many, mostly developing countries. I therefore started to make it available to individual doctors and students globally but also to developing countries as national strategic and remedial CME programs (including Indonesia and Nepal).

These same programs have been modified and added to for use in a range of countries where we have made them available.

Australia has a mix of urban based doctors as well as doctors in rural and remote areas so the original QA/QI&CME/CPD already addresses issues of remoteness and lack of nearby facilities. However working in developing and low income nations has shown there is up to 30% missing medical education if medical education is to suit the needs of ALL doctors and patient populations in the world. These issues include socioeconomic issues (where doctors and hospitals may not be able to afford modern diagnostic equipment – therefore other means of diagnosis have to be found), and issues of poverty such as malnutrition, Vitamin D deficiency and old diseases such as leprosy that have not been eliminated. It also includes issues of lack of vaccination and screening facilities. Another problem is longterm sequelae of untreated chronic diseases that almost become unrecognisable, as well as climatological issues, and prevalence of rare and tropical diseases. The inability of a patient to afford the therapeutics or tests prescribed adds another level of complexity.

Our education has grown to cover many of these additional attributes and is perhaps the only body of postgraduate medical education that does attempt to cover 'all presentations anywhere in the world'. Of course with increased global tourism, travel and migratory workforces, all doctors, everywhere need to know everything. This is just as relevant to first world doctors as third world doctors.

For easier dissemination and better educational quality, an interactive ICT platform is used. The Interactive Case based modules cover all presentations on all topics (e.g. renal disease) and interactive questions with answers and feedback (on correct and incorrect selections) cover diagnosis, tests as required, and patient management and ongoing patient care. The doctor/user tests themselves/their answers interactively against the author's answer – university based experts in each topic. Videos, animations, test results, X-rays, scans, ECGs charts, lists of Normal Values etc are supplied surrounding each topic.

The QA and QI aspects require the education providers to show that the doctors have learned from the programs (Quality Assurance/QA) and that they have implemented what they have learned (Quality Improvement/QI) into their practice. Each program we will supply has an assessment sheet to be filled in by the users to ensure the programs meet their needs. A pre and post test in each program shows both doctor and education provider if knowledge has increased. Education also covers psycho-social issues of both doctors and patients as well as Behaviours, Attitudes, Skills and Knowledge (BASK questions).

Another strategy has to been to make the educational process 'enjoyable'. Data shows that if the process is enjoyable, knowledge is better retained.

The CME/CPD will be presented as a full national program covering full population health over a three - five year period. This way it also serves as strategic CME to bring doctors prior trained in all places and all periods of time, up to date. The ICT based, interactive (the doctor-student pits themselves against the author/educator as does all professional education) will be provided online within each issue of the MEJFM. The education is free to air, but we ask all users to register with us so that we can log your participation.

For those individuals or countries wishing to use this as a formal CME/CPD program there is an examination module available on completion of each of the nine educational programs (see list following), on DVD, which we will need to cover costs of posting and reporting (the module itself awards the Certificate of Successful Completion, which can be printed out, once all required work is completed). A copy can be emailed to any governing body.

The exam requires a pass mark of 80% but users can attempt it as many times as they wish until they have

achieved that pass mark. All questions are based on the online education on MEJFM, archived for access at any time. Universities are not only welcome to use the education for undergraduates and postgraduates, (some universities in Australia also use the cases for final year medical students) they are also welcome to comment on or submit case presentations for sharing with the region.

The Middle East Quality Improvement Program (CME and CPD) Outline:

Modules
Emergency Medicine
Child Health Emergencies
Obstetrics and Gynaecology
Chronic Medical Disease
Mental Health
Dermatology
Infectious Disease
Geriatrics
Surgery

The program will be provided within the MEJFM commencing with the November 2016 issue.

CPD for each of the above topic areas will be provided over a 6 month period. The exam for the above modules will be taken from all education provided within those 6 months, and will be available at the end of each 6 months.

Free online resources, e.g. educational videos connected to each topic area will also be provided online.

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World Family Medicine

Improving Hypertension Control via a Team-based Educational and Refill Monitoring (TERM) Intervention, Sharjah, United Arab Emirates

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Abstract

Background: There are insufficient blood pressure control rates even in high-performing health systems, and effective management of hypertension remains a challenge in a real-life general practice. This is because of many factors including unhealthy life style, improper prescribing and poor medication adherence. Cost effective and innovative interventions to improve BP control are therefore needed.

Aim: We aimed to study the impact of a 6-month Team- based Educational and Refill Monitoring (TERM) intervention in improving BP control among UAE adult citizens diagnosed with hypertension.

Methods: This is a clinical trial, where, 214 hypertensive UAE citizens ≥18 years participated in a 6 months TERM intervention compared with 214 hypertensive UAE citizens receiving usual care, Primary Health Care Department, Sharjah Medical District (SMD), United Arab Emirates (UAE). Before the intervention, all physicians, pharmacists and nurses of the TERM group were enrolled in a one week medical education three sessions. These sessions provided information in two domains: practice guidelines based on guidelines of the Joint National Committee (JNC 7) (13) and principles of health education and communication. As well, a monthly health education session, telephone calls and SMS messages have been used to intensify medication adherence and hypertension self-management of TERM patients. The primary outcomes were changes in systolic blood pressure (SBP), diastolic blood pressure (DBP), medication refill adherence (MRA) and blood pressure (BP) control.

Results: Participants had a mean age of 57.4± 11 years (TERM) and 57.5± 11.1 years (control). 57.1% were males (TERM) and 57.9% were females (control). At baseline there was no significant difference between both groups in regard to occupation, education, smoking, blood lipids, body mass index (BMI), SBP, DBP and MRA. Meanwhile, at baseline, only 35% of TERM patients compared to 34.9% of usual care patients had controlled blood pressure (defined as BP< 140/90 mmHg). At 6 months, TERM participants achieved greater improvements compared to usual care group in regard to SBP (139.3 ± 14.2 mmHg vs. 152± 13.4 mm Hg, P<0.001), DBP (85.3± 9.3 vs. 92.4± 6.8 mm Hg, P<0.001), BP control (50% vs. 36%, P = 0.01) and medication refill adherence (92% vs.86%, P<0.001).

Conclusion: A team-based educational intervention for both staff and patients led to significant improvement in SBP, DBP, MRA and BP control in adult hypertensive patients, primary health care setting, Sharjah Medical District, UAE.

Key words: Blood pressure control, health education, medication adherence, team-based care

Background

Hypertension is the single most important modifiable risk factor for the development of cardiovascular diseases, accounting for 13% of mortality worldwide (54% for stroke and 47% for ischemic heart disease). (1,3,4) A systematic review reporting data from studies in 35 different countries between the years 2003 and 2008 demonstrated an overall hypertension prevalence of 37.8% for men and 32.1% for women.(2)

It is striking that blood pressure goals continue to be achieved in only 25–40% of the patients who take antihypertensive drug treatment, a statistic that has remained unchanged for the past 40 years.(3,10,11) Fortunately, adequate blood pressure (BP) control can reduce mortality and produce significant cardiovascular benefits in all patients.(4,5,21) However, translation into clinical practice of advances in management of HTN is suboptimal, largely because of barriers that exist at the levels of the patient, the health care provider, and the health care system. One of the main existing barriers to optimal BP control is poor adherence to timely medication refill and other issues contributing to lack of provider intensification of this adherence.(6,21)

Because hypertension is almost entirely managed by the primary care team, primary health care tools like health education can create opportunities for patients to better understand their conditions and the role of therapies, as well as, to heighten awareness about disease progression and complications. Educational intervention can also positively modify patients' beliefs and misconceptions, which in turn can lead to a change in patient's behavior, such as improvement in medication adherence and healthy lifestyle, therefore, potentially leading to improved blood pressure control and the related complications.(7-20)

A Cochrane review of 72 randomized controlled trials compared various interventions for controlling blood pressure and concluded that a complex intervention aiming at improving patient recall systems to intensify medication refill, education of doctors to improve medication prescribing skills and patients education to improve healthy life styles and self-management, were the best strategies to improve hypertension control.(7)

Owing to the high morbidity and mortality caused by hypertension, and the global scale of this important public health issue, we found an urgent need to continue to investigate suitable interventions that can improve blood pressure control in a community like primary health care, where many opportunities for improvement are available mainly with the provision of free health care. Our study tests the impact of a team based educational and medication intensification intervention in improving blood pressure control.

Methods

This is a controlled clinical trial where 214 known hypertensive UAE citizens, registered in Sharjah Family Health Center , Sharjah Medical District, UAE, participated in a 6 months (January 2013 to June 2013) culturally tailored team-based educational intervention.

This intervention group was compared with 214 hypertensive citizens receiving usual care in another urban family health center of the same district (Riqa FHC). Before the intervention, all physicians, pharmacists and nurses of the TERM group were enrolled in a one week medical education three sessions. These sessions provided information in two domains: core hypertension knowledge and practice guidelines based on guidelines of the Joint National Committee (JNC 7) (13) and principles of health education and communication.

These sessions were conducted by a consultant family doctor who was also working among TERM researchers. As well, TERM patients attended doctor-led once-weekly 2 –hour educational sessions for one month including: definitions of high BP, symptoms and complications of HTN, BP home monitoring, BP control goals, follow up intervals, MRA as well as nutritional and exercise advice.

Intensification of medications adherence was done through scheduled appointments, SMS messages and phone calls to remind patients of refill due dates. The patient was considered unreachable after 3 unsuccessful phone calls, one of them at the same refill due date. Non adherence to medication refill was considered immediately after the due date. Nurses were responsible for sending SMS, while pharmacists were responsible for scheduling refill appointments and phone calls. All TERM members were involved in continuous patient education and assessment of medication adherence when the patients attended the PHC center monthly to refill their medications (as per local drug dispensing regulations). At base line, both groups were compared regarding sociodemographic characteristics (age, sex, marital status, occupation, and education), smoking status, resting BP, BMI, and ECG to diagnose left ventricular hypertrophy and blood samples were collected after a 10-12-hour fasting for assessment of glycated haemoglobin (HbA1c), serum lipid profile (SLP) and kidney function tests (KFT). Patients under dialysis or who had mental disability were excluded from the study. Office BP was measured by trained nurses using an automated BP monitor with the patient seated comfortably for 5 minutes before each measurement, following JNC7 guidelines(13). Blood pressure was defined as uncontrolled if SBP ≥140 mm Hg or DBP ≥90 mmHg. Height and weight were measured without shoes and measurements were recorded to the nearest 1 cm and 0.1 kg respectively. These data were used to compute body mass index. All the above tests and measures were obtained at baseline and after 6 months in both intervention and control groups. Meanwhile comparison was done within the same group to compare any change between baseline and end of the study results. Ethical approval was obtained from the Ethics Commission of the Sharjah Medical District (reference number: 13-5537-BO, date of approval: 7 September 2012) and verbal informed consent was taken from all TERM patients.

Results

Statistical analysis:
Data were analyzed using Statistical Program for Social Science (SPSS) version 18.0. Quantitative data were expressed as mean± standard deviation (SD). Qualitative data were expressed as frequency and percentage. Independent-samples t-test of significance was used when comparing between two means, paired sample t-test of significance was used when comparing between related samples and P-value <0.05 was considered significant.

Base Line Characteristics

Table 1: Comparison between intervention and control groups as regards baseline characteristics.

		Intervention (n=214)		control (n=214)		χ^2	P value
		n	%	n	%		
Gender	Male	92	42.9	91	42.1	3.8	0.382
	Female	122	57.1	123	57.9		
Educational level	No Education	56	26.1	55	25.7	5.7	0.231
	Read and write	9	4.2	10	4.7		
	Primary	11	5.1	13	6.1		
	Secondary	72	33.6	71	33.1		
	university	66	30.8	65	30.4		
Smoking	Smokers	44	20.6	46	21.5	6.4	0.193
	Non-smokers	170	79.4	168	78.5		
BP control	Controlled	75	35	74	34.9	7.1	0.187
	Uncontrolled	139	65	140	65.1		
MRA	Adherent	86	40.2	84	39.3	2.6	0.481
	Non-adherent	128	59.8	130	60.7		
			Mean ± SD	intervention (n=214)	control (n=214)	t	P value
Age				57.36±10.97	57.55±11.11	3.1	0.113
BMI				29.02±6.2	29.25±6.3	1.9	0.197
SBP				152.36±12.93	151.34±14.74	1.1	0.274
DBP				91.61±6.92	90.43±7.97	1.9	0.061
A1C				7.2±0.87	7.1±0.95	1.4	0.171

BMI= body mass index, SBP= systolic blood pressure, DBP= diastolic blood pressure, BPC= blood pressure control, MRA= medication refill adherence

Table 1 shows no significant statistical difference in baseline characteristics of both intervention and control groups as regards age, sex, SBP, DBP, BP control, BMI and medication refill adherence.

Intervention Change Of Systolic And Diastolic Blood Pressure

Table 2: Comparison between intervention and control groups regarding systolic and diastolic BP.

Parameters		Mean	±SD	Paired Samples t-test	
				t	p-value
Systolic blood pressure	Systolic control	152	13.4	9.4	<0.001
	Systolic intervention	139.3	14.2		
Diastolic blood pressure	Diastolic control	90.5	6.8	9.5	<0.001
	Diastolic intervention	85.25	9.3		

Table 2 shows high statistically significant difference in DBP between control and TERM group after intervention as regards to both SBP and DBP

Figure 1: Comparison between control and TERM group at baseline and after intervention as regards to BP control

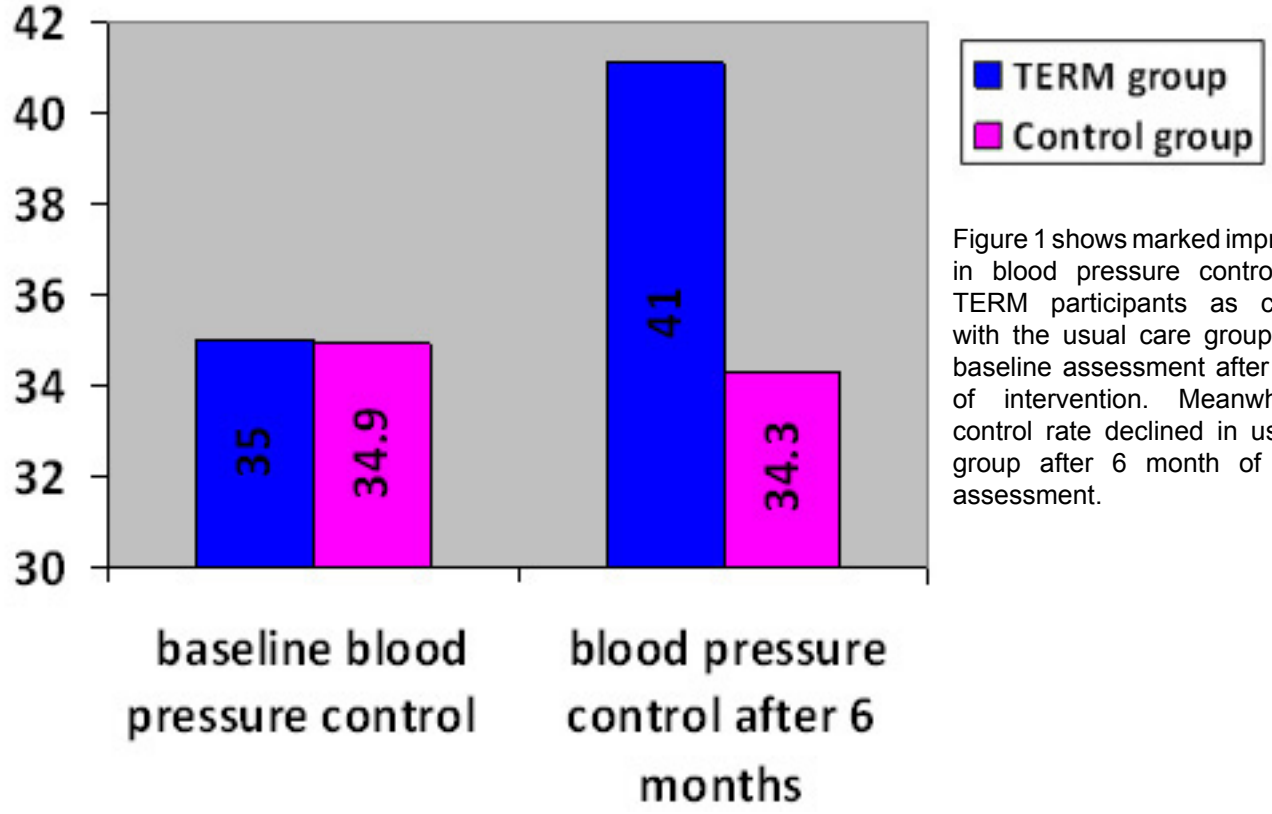

Figure 1 shows marked improvement in blood pressure control among TERM participants as compared with the usual care group and the baseline assessment after 6 month of intervention. Meanwhile, the control rate declined in usual care group after 6 month of baseline assessment.

Post Intervention Change of Medication Adherence

Figure 2: Percentage of refilling in TERM vs control group at base line and after 6 months

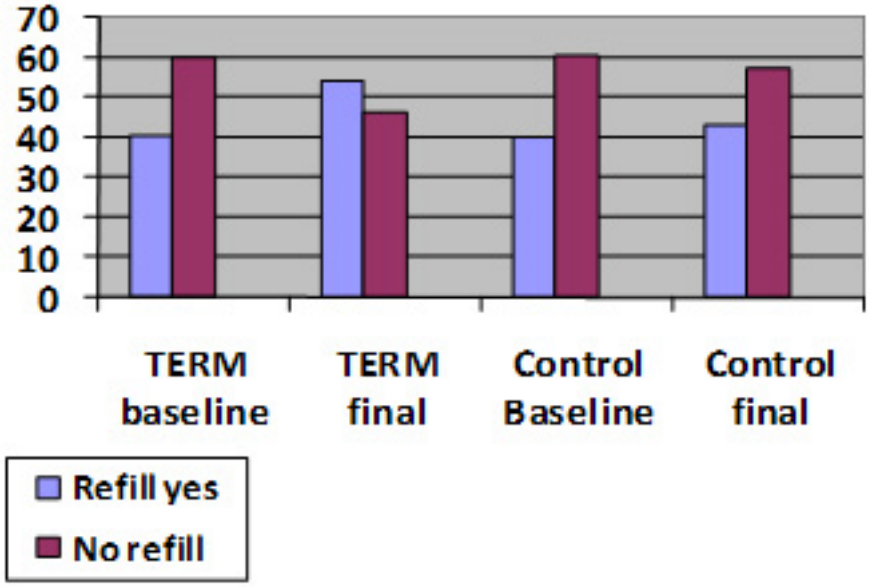

Figure 2 illustrates significant improvements in refill adherence among TERM participants compared to usual care group (54% vs. 43%, P =<0.001). There was also significant improvement within the TERM group in regard to refill adherence after 6 months of intervention compared to usual care group (54% vs. 40.2%, P =<0.001).

Post Intervention Changes of Smoking Habit

Figure 3: Smoking status in TERM and control groups at baseline and final

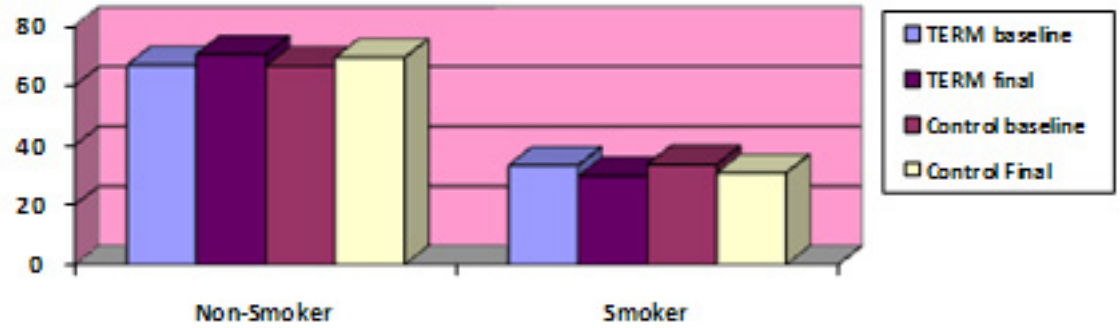

Figure 3 shows more improvement in smoking quit rate among TERM participants(3.9%) compared to usual care group (0.2%). Similarly there was improvement in smoking cessation within the TERM participants after 6 months of intervention (3.6%) compared to baseline, the case which was not found among the usual care group.

Post Intervention Changes Of Cholesterol, Triglycerides, BMI and HbA1c

Table 3: Comparison between intervention and control groups regarding total cholesterol, triglycerides, BMI and HbA1c.

Parameters		Mean	±SD	Paired Samples t-test	
				t	p-value
HbA1c	HbA1c control	7.2	0.87	1.37	0.171
	HbA1c intervention	7.1	1.1		
BMI	BMI control	29.26	6.26	1.91	0.058
	BMI intervention	29.02	6.16		
Total cholesterol	TC control	216.51	32.32	1.44	0.153
	TC intervention	213.93	27.05		
Triglycerides	TG control	147.71	29.52	1.36	0.174
	TG intervention	146.61	27.97		

Table 3 shows insignificant difference between TERM and control group as regards to mean HbA1c, BMI, total cholesterol and triglycerides.

Discussion

Fortunately, adequate blood pressure (BP) control can reduce mortality and produce significant cardiovascular benefits in all patients.(4,5) It is striking that blood pressure goals continue to be achieved in only 25–40% of the patients who take antihypertensive drug treatment, which is a statistic that has remained unchanged for the past 40 years.(2,6,8) In our study BP was found largely uncontrolled (65% and 65.1%) in base line assessment of intervention and control groups respectively, despite the fact that all UAE citizens have free access and utilization of all health care services. Unsurprisingly, many other studies found, like ours, high rates of uncontrolled HTN among patients with free access to health care. (6–8,18) This indicates the presence of multiple determinants of hypertension control other than availability and utilization of free services.

Many cluster randomized trials from different countries evaluated various educational and organizational approaches to improve blood pressure control rates in primary care (22-36). Most of these studies applied educational sessions for physicians and/or patients in combination with newly designed external support structures (24-31). Two types of external support structures can be differentiated. The first category comprises electronic reminders on self-care (26) and the second category used physician-support structures, either by external study/audit centers or clinical pharmacists.(28-31) The effects of these interventions vary from a mean group difference of - 0.2 mmHg (31) to −10.3 mmHg in systolic blood pressure(29)

and from - 0.4 mmHg(31) to −4.6 mmHg in diastolic blood pressure.(28)

Interventions aimed at changing regular care need to be based on an in-depth understanding of the health care system that they are addressing (15). We designed the present study for the Sharjah primary health care system, which is based mainly on primary health care centers that are regionally distributed in the various neighbourhoods close to their patients. These practices typically serve both UAE citizens and expatriates with free services offered only to UAE citizens. Imbibing the important milestones set by the above referenced studies, we tried to conceptualize a study which was based only on team performance without any external support system addressing the team-based care as the master of the practice.

Our study revealed significant improvement in medication refill adherence in TERM patients compared to the usual care group after 6 months of intervention (54% versus 43%, P =<0.001) with significant improvement in SBP (139.3 ± 14.2 versus 152±13.4), DBP (85.25 ±9.3 versus 90.5 ±6.8) and overall blood pressure control (41 % versus 34.9%). In a similar study, at 6 months, intervention participants achieved greater improvements in refill adherence (60% versus 34%, P < 0.001), SBP (-12.62 versus -5.31 mm Hg, P < 0.001), and blood pressure control (50% versus 36%, P = 0.01) compared to a usual care group in primary health care settings. (22) A similar study reported comparable differences where the intervention group had a mean reduction in systolic BP at 6 months of 18.3±1.2 compared with 11.8±1.9 mm Hg in the usual care group. (17) In contrast to these findings, another study showed no difference in SBP after a 14-month intervention compared to usual care group (-8.9 mm Hg in the intervention group in comparison with -9.0 mmHg in usual care group). (12)

In another study, the proportion of adherent participants to medication refill increased in both intervention and control groups compared to base line assessment but with insignificant difference between the two groups [57•2% to 63•6% (control) versus 60•0% to 73•5% (intervention), P = 0•23]. The mean reduction in systolic BP was significantly greater in the intervention group (10•0 mmHg versus 4•6 mmHg; P = 0•05). (23) These findings show the importance of evaluating the effectiveness of different trials in real-life clinical settings before widespread adoption in all settings.

In the present study, there was also significant reduction of smoking (3.9 % in TERM participants versus 0.2% in control group P< 0.001); however, there was no significant difference in the HbA1C, lipid profile or BMI amongst the two groups. These results were expected as most of the studies revealed effectiveness of any motivational intervention even to the level of simple advice on the overall cigarette quit rates.(37) However, blood lipids and weight control need more specific interventions that may require a more sophisticated approach that combines diet, exercise and drug treatment. In addition studies of short duration like the present one are unlikely to yield enough health-related outcome information to permit interpretation of intervention effects.

In our study, the significant reduction difference after 6 months from baseline between TERM and usual care group, in not only the systolic but also the diastolic blood pressures) and overall blood pressure control has proven that an overall management package of physician education, patient education, nutritional and exercise advice, intensification of medication adherence, has definitely proven its mettle.

The limitation of this study lies in the fact of lacking a randomization factor, as well as a few shortcomings of data collection variables namely the appropriate classification of period of hypertension, current medications for hypertension or any comorbidities as well as the dosages, lack of quality of life assessment (EQ5D questionnaires), and mental status assessment. Furthermore, there could be a Hawthorne effect, where there is a tendency of some people to work harder and perform better when they participate in an experiment. One of the most frequently occurring barriers against medication refill adherence was that local drug dispensing regulations allow UAE citizens to collect their medication from any PHC center whenever they are overdue. Finally, lack of staff and crowded practice posed the biggest challenge to implementation of the study. Future randomized studies incorporating these factors shall pave a more scientific proof for this TERM initiative.

Conclusion

A team-based 6 months educational intervention involving doctors, pharmacists and nurses combined with simple medication intensification tools like monthly SMS and follow up phone calls led to significant improvement in medication refill adherence, SBP, DBP and hypertension control among adult hypertensive citizens, in a primary health care setting, Sharjah Medical District, UAE. This trial can be considered fruitful in lieu of the significant results obtained as hypothesized.

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Perception of stress, anxiety, depression and coping strategies among medical students at Oman Medical College

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Abstract

Objective: To explore the stress sources, prevalence of anxiety and depression and coping strategies among preclinical and clinical under graduate medical students.

Methods: A cross sectional study was conducted on Oman Medical College Students of pre-clinical and clinical years. Data was collected using Medical Student Stressor Questionnaire (MSSQ), Hospital Anxiety and Depression scale (HAD) and COPE questionnaire. Statistical analysis was performed using SPSS (IBM SPSS Statistics 20.0).

Results: A total of 288 participants were enrolled in which 123 were pre-clinical and 165 were clinical medical students. Nearly two thirds (78.1%) of students were aged between 20-24 years. Among all 87.5% (252) were females and 12.5% (36) were males. Collective score of academic stress factors in the pre-clinical group was not statistically different ($p = 0.865$) to the clinical group. There was no significant difference (P: 0.826; 95% CI: -3.511-2.804) in the mean score of pre-clinical and clinical group regarding Social Stress factors. Coping strategies to control stress score in the pre-clinical group was statistically significantly ($p < 0.001$) higher than the clinical group.

Conclusion: The higher level of stress is associated with poor academic performance, large content of study material, exam and time constraints. Coping strategies in students were mainly better time management, emotional support, talking to family members/friends helps and good sleep relaxes them to control stress.

Key words: Stress, coping stress, medical students, anxiety, depression

Background

The goal of medical education and curriculum is to produce knowledgeable, skillful, competent, safe and professional physicians. Some aspects of medical education training and burden of curriculum may cause some negative effects on medical students' mental and emotional health[1]. Mental health wellbeing plays a significant role in medical student's career development during study and has a significant impact on the long-term health of doctors practicing in different fields of the health care system[2].

Medical education is stressful and demanding. Overwhelming burden of information, and lots of competition to excel makes students anxious, and nervous and with minimal opportunity to relax and recreate [3]. Most students become more active, creative, and productive because of stress as it enables concentration for better performance and energizes the person for hard work. However, stress can cause significant problems in student's careers; prolonged, uninterrupted, unexpected and unmanageable stress is damaging [4]. Stress results when pressure exceeds one's perceived ability to cope; it does not necessarily follow the presence of a potential stressor. Academic stress is a normal, desirable, and beneficial part of our lives that can help one learn and grow. However , stress is associated with depression, drug abuse, anxiety and suicide [5-6]. Studies suggest that student distress subsequently may affect students' care of patients, relationship with faculty and family members, and ultimately it can cause damage to the culture of the medical profession[7-8].

Coping strategies are specific efforts that individuals employ to manage stress, both behavioral and psychological, so they can tolerate, reduce, or minimize stressful events. Previous studies show that coping plays a central role in adaptation to stressful life events[9]. Literature has reported the high incidence of stress in medical students in different parts of the world. The most common stressors among medical students are high parental expectations, frequency of examinations, vastness of academic curriculum, sleeping difficulties, performance in periodic examinations, and worries about the future[10] . Stressors of medical students are generally academic related stressors, interpersonal related stressors, teaching and learning-related stressors, and social related stressors. Therefore, early detection of stressors among medical students may prevent unwanted consequences on their health[11].

Oman Medical College (OMC) offers a seven-year curriculum, leading to the degree of Doctor of Medicine (MD). The College admits students directly after their graduation from secondary school. Students enter a one year General Foundation Program. After successful completion of the General Foundation Program, OMC students enter a six-year MD Program. The MD Program entails two years of premedical science studies, followed by two years of basic biomedical science studies, and culminates in two years of clinical training.

We conducted a study on medical students at Oman Medical College regarding their perception and recognition of stress and coping strategies.

Methodology

A cross sectional study was carried out at Oman Medical College in 2014 -15. Students of pre-clinical and clinical years who consented to participate in the study are included in this survey.

Data Collection Tool/Survey Questionnaire:
Self-administered Questionnaire has 6 Sections:
I. Demography including age, gender, current residence, family residence, family income, family size, father and mothers' education.
II. Academic stress factors :
0 no stress to 4 causing severe stress
III. Social stress factors:
0 no stress to 4 causing severe stress
IV. Coping strategies to control stress :
0= Never done 1=I have not been doing this, 2 = I've been doing this a little bit, 3 = I've been doing this a medium amount, 4 = I've been doing this a lot
V. Physical well being factors including somatic, agitation, habits and chronicity :
from 1-4 Strongly disagree to Strongly agree
VI. Hospital Anxiety and Depression scale (HAD)

Data was collected using Medical Student Stressor Questionnaire (MSSQ) for academic and social stress. This is a validated and reliable questionnaire adopted with permission of the author. A number of studies reported that reliability of six constructs of the Medical Student Stressor Questionnaire (MSSQ) ranged between 0.64 and 0.92, indicating acceptable to high level of internal consistency. Its validity and reliability was established among medical students in different Malaysian medical schools [12-14].
Hospital Anxiety and Depression scale (HAD); the cut-off point of a score of 8 or more for either the anxiety or depression components denote possible anxiety and depression [14]. This cut-off point had a sensitivity of 0.89 and a specificity of 0.75 for the anxiety component and a sensitivity of 0.80 and specificity of 0.88 for the depression component [15].

Coping strategies were assessed using the abbreviated version of the COPE Inventory, a validated and reliable instrument available online [16-17]. It is used to assess a broad range of coping behaviors among adults with or without clinical conditions. It consists of 19 items, and each item is rated on a 4-point Likert scale ranging from "I have not been doing this at all (score 1)" to "I have been doing this a lot (score 4)". The higher score indicates greater coping by the respondents. The items are scored to produce different dimensions of coping each reflecting the use of a coping strategy: active coping, planning, acceptance, denial, self-distraction, use of smoking, use of emotional support, use of instrumental support, behavioral disengagement, venting, positive reframing, humor, religion, and self-blame.

The study protocol was approved by the ethical review committee. All students in pre-clinical and clinical years were invited to participate. Participants were enrolled after taking written informed consent. The principal investigator ensured uniformity and two research assistants trained participants how to fill it out. Validation of the questionnaire on small pilot group was also completed. Questionnaires were brought back after being filled out and entered in the database. All questionnaires were included in the study, and there were no missing responses.

Data Analysis

Statistical analysis was performed using SPSS (IBM SPSS Statistics 20.0). Data were expressed in frequencies, mean and percentages. Cross tabulation was performed to determine if there was a relationship between subgroups. The chi-square test for categorical data, t-test and Mann-Whitney test were used to compare differences between the two groups with parametric and non-parametric continuous data for hypothesis testing.

Results

A total of 288 participants were enrolled in which 123 /180 (68%) were pre-clinical and 165/185(89%) were clinical medical students. Nearly two thirds (78.1%) of students were aged between 20-24 years. Among all 87.5% (252) were females and 12.5% (36) were males. Majority of students' family (75.6%) were urban residents and 78.8 % currently resided in the campus accommodation (Table 1).

Table 1: Characteristics of Study Participants

	Total (n=210)	Pre-Clinical (n=123)	Clinical (n= 165)	X^2	*P*-Value
Age				6.826	0.033
<20	50(17.4)	22 (7.6)	28 (9.7)		
20-24	225 (78.1)	100 (34.7)	125 (43.4)		
>25	13 (4.5)	1 (0.3)	12 (4.2)		
Gender				0.894	0.0.344
Male	36 (12.5)	18 (6.2)	18 (6.2)		
Female	252 (87.5)	105 (36.5)	147 (51)		
Family Residence				1.121	0.29
Urban	214 (75.6)	93 (32.9)	121 (42.8)		
Rural	69 (24.4)	25 (8.8)	44 (15.5)		
Current Residence				10.953	0.004
With family	23(8)	16 (5.6)	7 (2.4)		
In campus	227 (78.8)	97 (33.7)	130 (45.1)		
Outside campus	38 (13.2)	10 (3.5)	28 (9.7)		
Father's Education				1.286	0.732
Primary	70(24.3)	27 (9.4)	43 (14.9)		
Secondary	67(23.3)	31 (10.8)	36 (12.5)		
Graduate	58 (20.1)	23 (8)	35 (12.2)		
Post-graduate	93 (32.3)	42 (14.6)	51 (17.7)		
Mother's Education				4.179	0.243
Primary	90 (31.2)	39 (13.5)	21 (10)		
Secondary	90 (31.2)	40 (13.9)	35 (16.7)		
Graduate	73 (25.3)	25 (8.7)	25 (12)		
Post-graduate	35 (12.2)	19 (6.6)	6 (2.9)		
Anxiety	225 (78.1)	99 (34.4)	126 (43.8)	0.701	0.402
Depression	236 (81.9)	98 (34)	138 (47.9)	0.747	0.387

Participants were asked multiple questions regarding academic stress factors. Their answers were coded from 1 to 5 where 1 is not stress and 5 is severe stress. The most frequent responses were high and severe stress (74.3%) during tests/examinations and more than half experienced high or severe stress due to heavy workload (Table 2). Collective score of academic stress factors in the pre-clinical group was not statistically different (p = 0.865) to the clinical group.

Table 2. Student's response on Academic Stress Factors

	No stress	Mild stress	Moderate stress	High stress	Severe stress
Tests/examinations	3(1)	19 (6.6)	52 (18.1)	111 (38.5)	103 (35.8)
Falling behind in reading schedule	12 (4.2)	27 (9.4)	88 (30.6)	86 (29.9)	75 (26)
Large amount of content to be learnt	2 (0.7)	15 (5.2)	58 (20.1)	103 (35.8)	110 (38.2)
Lack of time to review what has been learnt	8 (2.8)	28 (9.7)	54 (18.8)	95 (33)	103 (35.8)
Heavy workload	8 (2.8)	39 (13.5)	83 (28.8)	91 (31.6)	67 (23.3)
Difficulty understanding the content	25 (8.7)	73 (25.3)	90 (31.3)	63 (21.9)	37 (12.8)
Learning context full of competition	17 (5.9)	58 (20.1)	111 (38.5)	69 (24)	33 (11.5)
Unable to answer the questions from the teachers	22 (7.6)	62 (21.5)	92 (31.9)	64 (22.2)	48 (16.7)
Unjustified grading process	36 (12.5)	65 (22.6)	72 (25)	70 (24.3)	45 (15.6)
Getting poor marks	14 (4.9)	43 (14.9)	46 (16)	72 (25)	113 (39.2)
Participation in class presentation/discussion	67 (23.3)	88 (30.6)	64 (22.2)	47 (16.3)	22 (7.6)
Need to do well (imposed by others)	56 (19.4)	74 (25.7)	71 (24.7)	53 (18.4)	34 (11.8)
Feeling of incompetence	60 (20.8)	66 (22.9)	75 (26)	52 (18.1)	35 (12.2)
Unwillingness to study medicine	109 (37.8)	58 (20.1)	58 (20.1)	35 (12.2)	28 (9.7)
Parental wish for you to study medicine	104 (36.1)	57 (19.8)	59 (20.5)	39 (13.5)	29 (10.1)
Not enough feedback/guidance/encouragement from teacher (s)	55 (19.1)	86 (29.9)	85 (29.5)	37 (12.8)	25 (8.7)
Uncertainty of what is expected of me	44 (15.3)	67 (23.3)	94 (32.6)	54 (18.8)	29 (10.1)
Lack of recognition for work done	42 (14.6)	71 (24.7)	87 (30.2)	56 (19.4)	32 (11.1)
Inappropriate assignments	53 (18.4)	76 (26.4)	79 (27.4)	55 (19.1)	25 (8.7)
Lack of teaching skill in teacher	48 (16.7)	76 (26.4)	77 (26.7)	49 (17)	38 (13.2)
Not enough study material	55 (19.1)	83 (28.8)	76 (26.4)	49 (17)	25 (8.7)
Lack of Relevancy of the course to real life	55 (19.1)	55 (19.1)	88 (30.6)	55 (19.1)	35 (12.2)
Language barrier	65 (22.6)	74 (25.7)	67 (23.3)	48 (16.7)	34 (11.8)
Lack of self-assessment	44 (15.3)	74 (25.7)	66 (22.9)	71 (24.7)	33 (11.5)
Education System	35 (12.2)	55 (19.1)	91 (31.6)	64 (22.2)	43 (14.9)

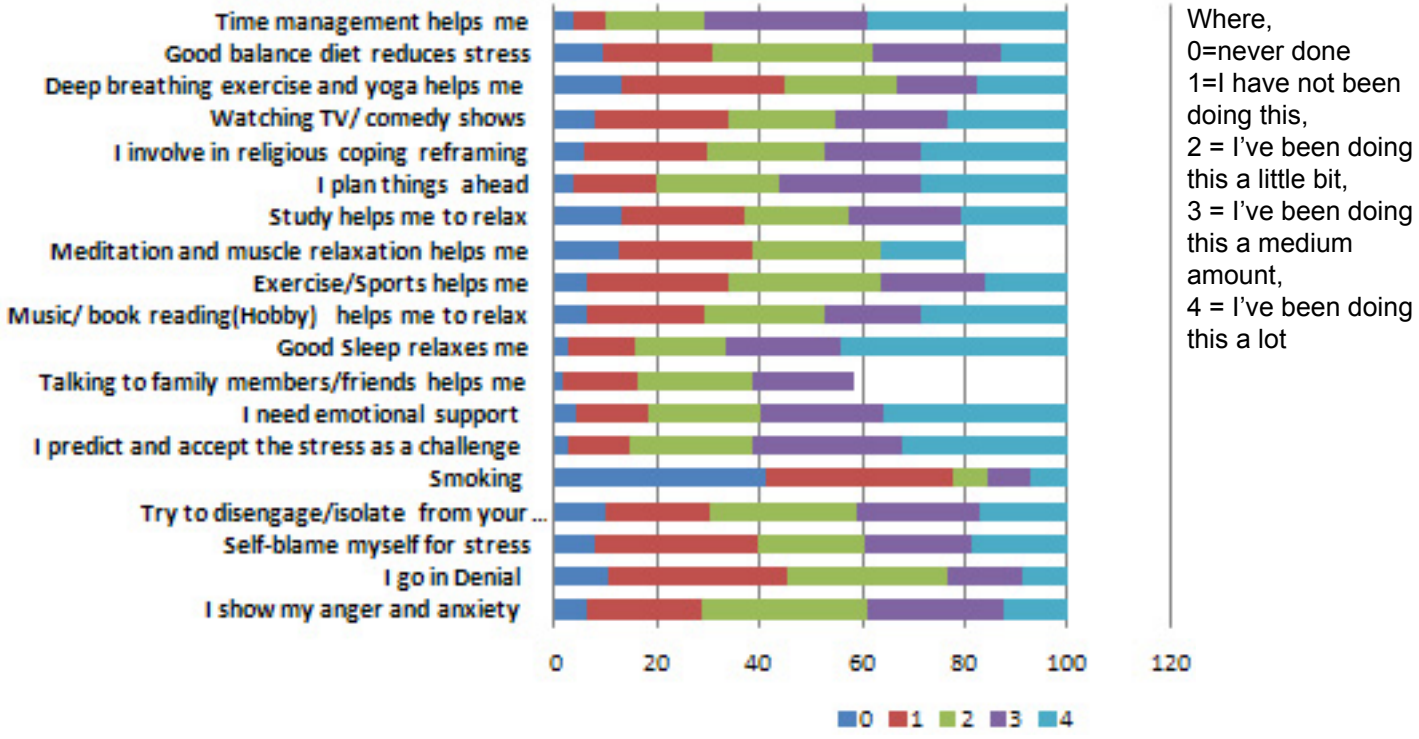
Nearly one third of participants feel mild stress when they need to talk to patients about personal problems and due to lack of time for socialization with friends. More than a quarter (29%) of the participants feel no stress secondary to verbal or physical abuse by other student(s), and 26.2% experienced severe stress due to insufficient time for family (Table 3). There was no significant difference (P: 0.826; 95% CI: -3.511-2.804) in the mean score of preclinical and clinical group regarding Social Stress factors.

Table 3: Student's response on Social Stress factors

	No stress	Mild stress	Moderate stress	High stress	Severe stress
Unable to answer questions from patients	42 (14.6)	56 (19.4)	83 (28.8)	67 (23.3)	40 (13.9)
Talking to patients about personal problems	61 (21.2)	93 (32.3)	81 (28.1)	40 (13.9)	13 (4.5)
Facing illness or death of the patients	47 (16.3)	53 (18.4)	59 (20.5)	67 (23.3)	62 (21.5)
Frequent interruption of my work by others	38 (13.2)	70 (24.3)	74 (25.7)	66 (22.9)	40 (13.9)
Verbal or physical abuse by other student(s)	86(29.9)	60 (20.8)	67 (23.3)	44 (15.3)	31 (10.8)
Verbal or physical abuse by teacher(s)	65 (22.6)	53 (18.4)	67 (23.3)	57 (19.8)	46 (16)
Verbal or physical abuse by personnel	71 (24.7)	61 (21.2)	57 (19.8)	55 (19.1)	44 (15.3)
Conflict with teacher(s) and students	59 (20.5)	73 (25.3)	64 (22.2)	55 (19.1)	37 (12.8)
Lack of time for family	28 (9.7)	56 (19.4)	63 (21.9)	61 (21.2)	80 (27.8)
Lack of time for friends	47 (16.3)	85 (29.5)	68 (23.6)	47 (16.3)	41 (14.2)
Peer pressure	71 (24.7)	61 (21.2)	73 (25.3)	54 (18.8)	29 (10.1)
Problems with friends	99 (34.4)	62 (21.5)	58 (20.1)	48 (16.7)	21 (7.3)
Poor motivation to learn	69 (24)	64 (22.2)	64 (22.2)	51 (17.7)	40 (13.9)
Working with computer	143 (49.7)	58 (20.1)	47 (16.3)	27 (9.4)	13 (4.5)
Financial issues	110 (38.2)	67 (23.3)	49 (17)	36 (12.5)	26 (9)
Health issues	105 (36.5)	52 (18.1)	60 (20.8)	34 (11.8)	37 (12.8)
Challenges of living alone	80 (27.8)	50 (17.4)	52 (18.1)	63 (21.9)	43 (14.9)
Transportation issues	94 (32.6)	50 (17.4)	70 (24.3)	37 (12.8)	37 (12.8)

More than one third of students 38.9%, 36.1%, 41.3% and 44.1% pick out better time management, emotional support, talking to family members/friends helps and good sleep relaxes them to control stress, respectively. Nearly one third of students think plan things ahead (28.8%) and involve in religious coping reframing (28.8%) helped them a lot to cope with stress (Figure 1). Coping strategies to control stress score in the pre-clinical group was statistically significantly ($p < 0.001$) higher than the clinical group.

Figure 1: Coping Strategies to Control Stress



Students were asked multiple questions regarding health problem descriptions in the past year. Their answers were coded into strongly disagree, disagree, agree and strongly agree. The most frequent health issues are headache, backache, bodyache and lack of appetite. There was not significant difference (p-0.878; 95% CI-1.787-1.529) observed between pre-clinical (Mean-30.66±6.48) and clinical (Mean-20.79±7.79) group score regarding health issues.

Table 4: Health Problems descriptions in the Past Year

Statement		Strongly disagree	Disagree	Agree	Strongly agree
Somatic	Skin rash	161 (55.9)	64 (22.2)	41 (14.2)	22 (7.6)
	Back pain	67 (23.3)	46 (16)	116 (40.3)	59 (20.5)
	Allergic illness (Asthma, rhinitis, etc)	173 (60.1)	59 (20.5)	37 (12.8)	19 (6.6)
	Infectious diseases	146 (50.7)	64 (22.2)	56 (19.4)	22 (7.6)
	Frequent colds	82 (28.5)	79 (27.4)	90 (31.3)	37 (12.8)
	Generalized bodily pains	66 (22.9)	52 (18.1)	109 (37.8)	61 (21.2)
Agitation	Sleep problems	35 (12.2)	46 (16)	104 (36.1)	103 (35.8)
	Headache	35 (12.2)	47 (16.3)	125 (43.4)	81 (28.1)
	Nausea	92 (31.9)	94 (32.6)	69 (24)	33 (11.5)
	Lack of appetite	80 (27.8)	75 (26)	92 (31.9)	41 (14.2)
Habits	Overeating	106 (36.8)	76 (26.4)	72 (25)	34 (11.8)
	Drinking alcohol	241 (83.7)	32 (11.1)	10 (3.5)	5 (1.7)
	Smoking tobacco	235 (81.6)	38 (13.2)	7 (2.4)	8 (2.8)
Chronicity	Chronic illness	208 (72.2)	49 917)	17 (5.9)	14 (4.9)
	Disability that interferes with daily activities	167 (58)	62 (21.5)	36 (12.5)	23 (8)

In the questionnaire, students were asked multiple questions regarding how they have been feeling in the past week (Table 5). Their answers were coded into most of time, a lot of time, occasionally and not at all. The most frequent response was most of time 147 (51%), 106 (36.8%) and 101 (35.1%) for laugh and see the funny side of things, look forward with enjoyment to things and enjoy a good book or program respectively. No significant difference was found between the preclinical and clinical groups on the anxiety and depression scores.)

Table 5: HAD scale

	Most of the time	A lot of time	Occasionally	Not at all
I feel tense or wound up	44 (15.3)	55 (19.1)	150 (52.1)	39 (13.5)
I still enjoy the things I used to enjoy	77 (26.7)	123 (42.7)	63 (21.9)	25 (8.7)
I get a sort of frightened feeling as if something awful is about to happen	54 (18.8)	77 (26.7)	120 (41.7)	37 (12.8)
I can laugh and see the funny side of things	147 (51)	84 (29.2)	46 (16)	11 (3.8)
Worrying thoughts go through my mind	52 (18.1)	72 925)	127 (44.1)	37 (12.8)
I feel cheerful	19 (6.6)	72 (25)	145 950.3)	52 (18.1)
I can sit at ease and feel relaxed	41(14.2)	150 (52.1)	87 (30.2)	10 (3.5)
I feel as if I am slowed down	26 (9)	84 (29.2)	149 (51.7)	29 (10.1)
I get a sort of frightened feeling like butterflies in the stomach	92 (31.9)	113 (39.2)	64 (22.2)	19 (6.6)
I have lost interest in my appearance	31 (10.8)	82 (28.5)	90 (31.3)	85 (29.5)
I feel restless as if I have to be on the move	31 (10.8)	89 (30.9)	138 (47.9)	30 (10.4)
I look forward with enjoyment to things	106 (36.8)	92 (31.9)	79 (27.4)	11 (3.8)
I get sudden feelings of panic	35 (12.2)	88 (30.6)	106 (36.8)	59 (20.5)
I can enjoy a good book or program	101 (35.1)	94 (32.6)	61 (21.2)	32 (11.1)

Discussion

The main goal and objective of medical curriculum is to provide competent and safe doctors to the community however, there are few aspects of medical training which may effect medical students' mental and emotional health . In our study the majority are female students and their families are living in urban areas. More than two thirds of participants are living in a campus hostel. Many studies in the western countries have demonstrated the vulnerability of the medical students to psychiatric disorders [18]. Nearly one third of participants of our study feel mild stress when they need to talk to patients about personal problems and due to lack of time for socialization with friends. They feel stressed due to insufficient time for family as well as facing illness or death of the patient. The majority of studies on stress in medical education focus on the documentation of stress and information on the correlates of stress [19]. (Table I)

Stress and health issues may affect medical students' academic performance. Student's stress may affect care of patients, relationship with faculty, as well as their future learning. Coping strategies are specific efforts that individuals employ to manage stress [20]. Stress among medical students is a great concern as it may effect on behavior of students, inhibition of learning, and ultimately affect patient care in the future [21-22]. (Table 2)

The negative effects of long and tiring medical education on the psychological status of students have been shown in several studies[23-24]. Students in this study have academic stress mainly getting poor marks, large content of study material, exam and time constraints. Similar results are reported in literature, that emotional distress and academic stress is the top most finding in students [25]. Appropriate levels of stress may enhance learning in medical students, however, excessive stress might cause physical and mental health problems, reduced self-esteem, and may affect academic achievement, personal and professional development [26-27]. (Table 3)

In Arab countries, epidemiological research about psychiatric morbidity in medical students is uncommon. Recently performed studies showed high rate of anxiety and depression in undergraduate medical students which is consistent with our findings in this study[28].

Nearly one third of students think plan things a head (28.8%) and involve in religious coping reframing (28.8%) helped them a lot to cope with stress (Figure 1). Coping strategies to control stress score in the pre-clinical group was statistically significantly ($p < 0.001$), higher than the clinical group. Literature shows respecting one's limits, setting priorities, avoiding comparisons and participating in leisure activities are main coping strategies [29-30].

Coping strategies in this study showed that one third of students pick out better time management, emotional support, talking to family members/friends helps and good sleep relaxes them to control stress respectively. As reported in literature the stress management and best active coping strategies are to maintain a well-balanced academic environment for improved learning experience[31]. (Fig I)

Stress can lead to disruptions in both physical and mental health. Self-reported health issues in our studies were headache, backache, body ache and lack of appetite. Stress induced health problems if excessive, might affect academic performance and professionalism of medical students [31-33]. (Table 4)

Stress reduction and adopting a healthier life style have been major concerns of the students that may affect their learning ability and academic performance [34-35]. In our study HAD scale shows significant anxiety level in medical students however, there is no difference in preclinical and clinical students.(Table 5)

Stress can be best managed by regular exercise, meditation or other relaxation techniques, structured time outs and learning new coping strategies to handle stress in medical students [36]. Identifying stress in medical students early in their pre-clinical years and managing appropriately help them in coping with stress in clinical years. This is imperative to get academic achievement by students as well as future doctors' professional development controlling their stress and anxiety [37].

Oman Medical College recognized the importance of students' mental health and emotional integrity. A new service "Counselling Center" managed by the department of Psychiatry and Behavioral Science for students has been established by Oman Medical College in year 2016.

Limitations of the study: This is a cross-sectional study and findings of this study are based on self-reported information provided by students which can have some bias because of respondents' interpretation of the questions.

Conclusion

The study showed a diversity of stress sources and stress in the medical students. The higher level of stress is associated with poor academic performance, large content of study material, exam and time constraints. Coping strategies in students are mainly better time management, emotional support, talking to family members/friends helps and good sleep relaxes them to control stress.

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A case of Herlyn-Werner- Wunderlic syndrome with recurrent lower abdominal pain

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Introduction

Congenital anomalies of the Mullerian duct system can result in various urogenital anomalies. Herlyn - Werner- Wunderlich (HWW) syndrome is a rare anomaly characterized by uterus didelphys with blind hemivagina and ipsilateral renal agenesis (1).

Mullerian duct anomalies have an incidence of 2–3%. While obstructed hemivagina and ipsilateral renal agenesis (OHVIRA) also known as Herlyn Werner Wunderlich syndrome, constitutes 0.16–10% of these Mullerian duct anomalies (11).

This syndrome was described for the first time in 1922, and was suspected in a young woman with regular menstruation and gradually increasing pelvic pain and a pelvic mass formation, usually noticed after menarche (2).

This anomaly is generally observed in post-menarche adolescents and young women presenting as irregular menstrual cycle, dysmenorrhea, abdominal pain, and pelvic mass (3,4). It may also present with urgency, frequency and vaginal discharge (12).

It is really difficult to achieve an accurate diagnosis because menstruation is often regular and when the patient complains of cyclic dysmenorrhea, they are usually given anti-inflammatory drugs and oral-contraceptives, thus causing a delay in the diagnosis as they reduce or eliminate menstrual blood. Also it may be attributed to lack of understanding of this condition by radiologists, gynecologists, and pediatricians.This may lead to pelvic adhesions, endometriosis or infertility.

The experience with HWW syndrome was definitely limited, consisting of case reports. It was reported that laparoscopy is needed for accurate diagnosis and treatment (5).

For diagnosis, ultra sonography usually gives an accurate picture, by showing uterovaginal duplication, hematocolpos or hematometrocolpos along with the absence of ipsilateral kidney (4). However MRI has been considered as the imaging modality of choice by various authors (6).

Case history

A 15-year-old girl presented with chief complaint of lower abdominal pain during menses for last 6 months. Her menstrual history suggested no abnormality except dysmenorrhea, she denied any past medical or surgical history. One month ago she presented to the emergency room complaining of lower abdominal pain mainly on the right iliac fossa with history of anorexia, nausea and vomiting.

On examination secondary sexual characters were normal for age. Abdominal examination showed localized tenderness on the right iliac fossa; rebound tenderness was positive. She was suspected to have acute appendicitis versus ovarian torsion. Appendectomy was performed and the histopathology came back as normal appendix, the ovaries were inspected intra-operatively; they were reported as normal.

Two weeks later she has another attack of lower abdominal pain. Ultrasound examination revealed ovarian cyst (as reported by the radiologist) and absent right kidney. She was referred to the gynecologist for further assessment.

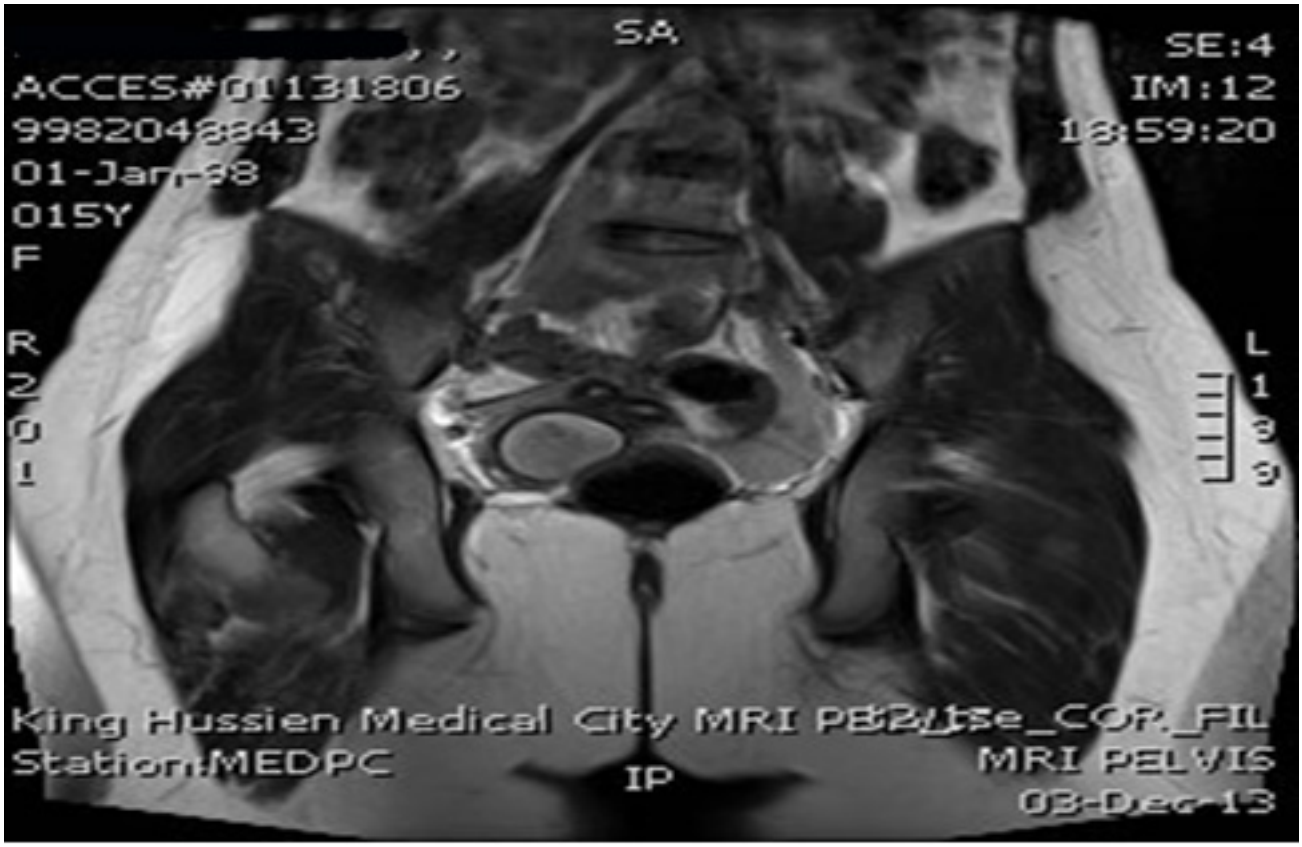
The patient was a virgin, thus vaginal examination was not possible.

Ultrasonography was done which revealed double uterus with hematocolpos and absent right kidney with marked dilatation of the lower part of the left ureter, while the left kidney was enlarged.

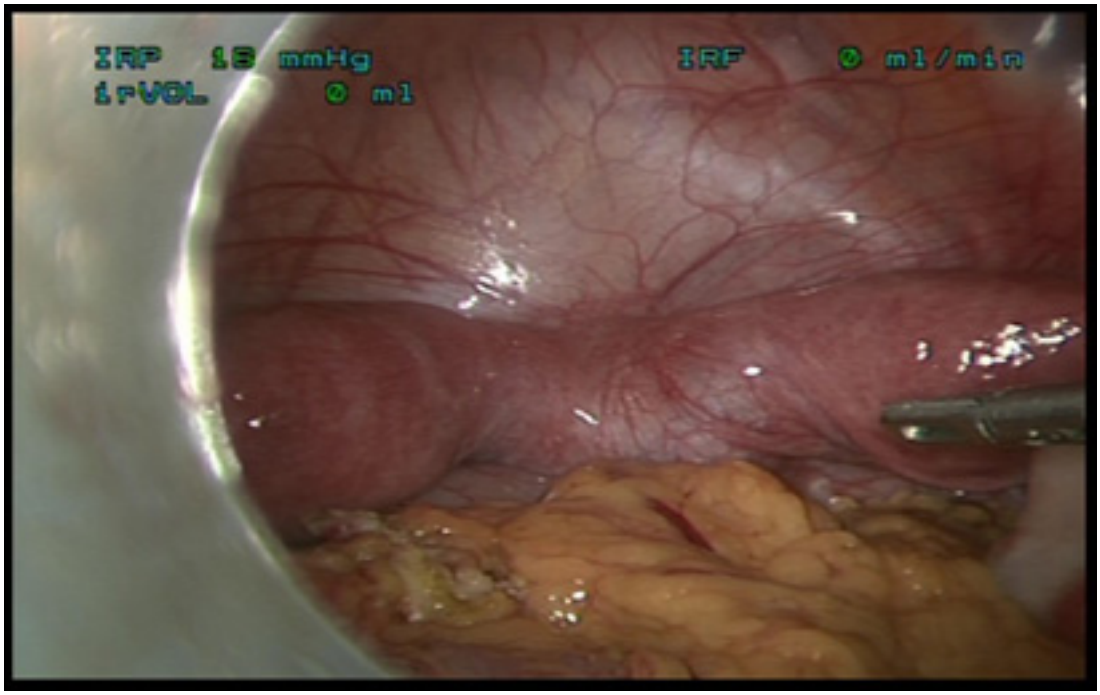
Congenital anomalies of the Mullerian duct system can result in various urogenital anomalies and Herlyn- Werner-Wunderlich syndrome is a rare anomaly characterized by uterus didelphys and blind hemivagina associated with ipsilateral renal agenesis.

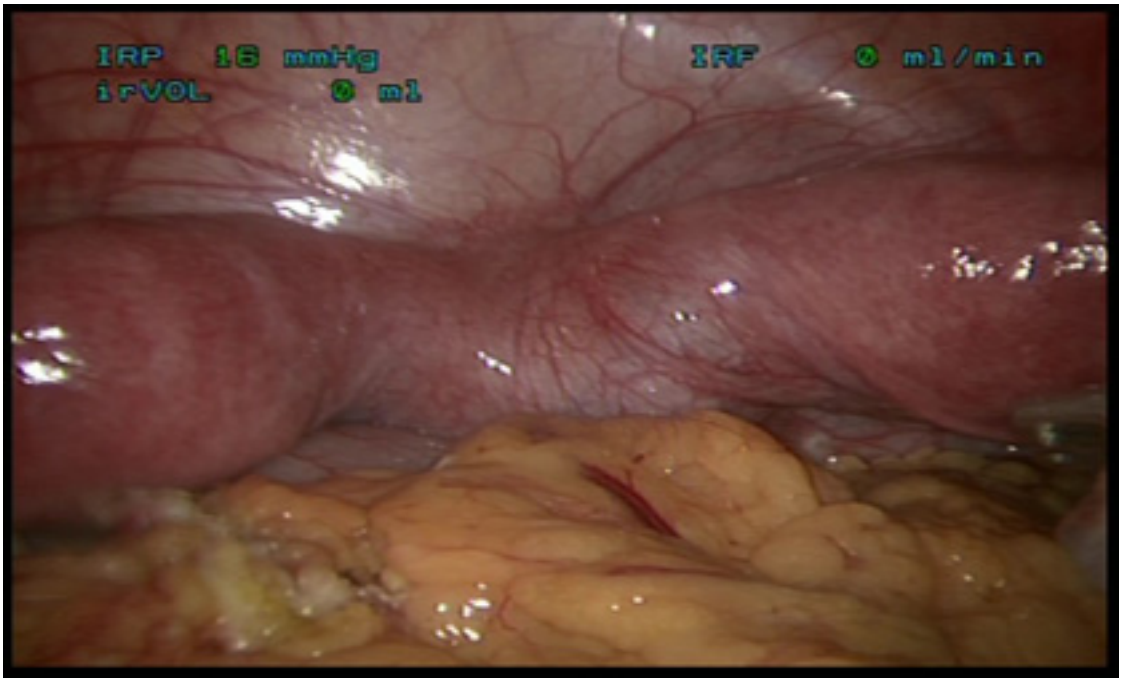
MRI imaging showed a utero-vaginal anomaly consisting of didelphys uterus and double vagina, one of which is obstructed and distended.,

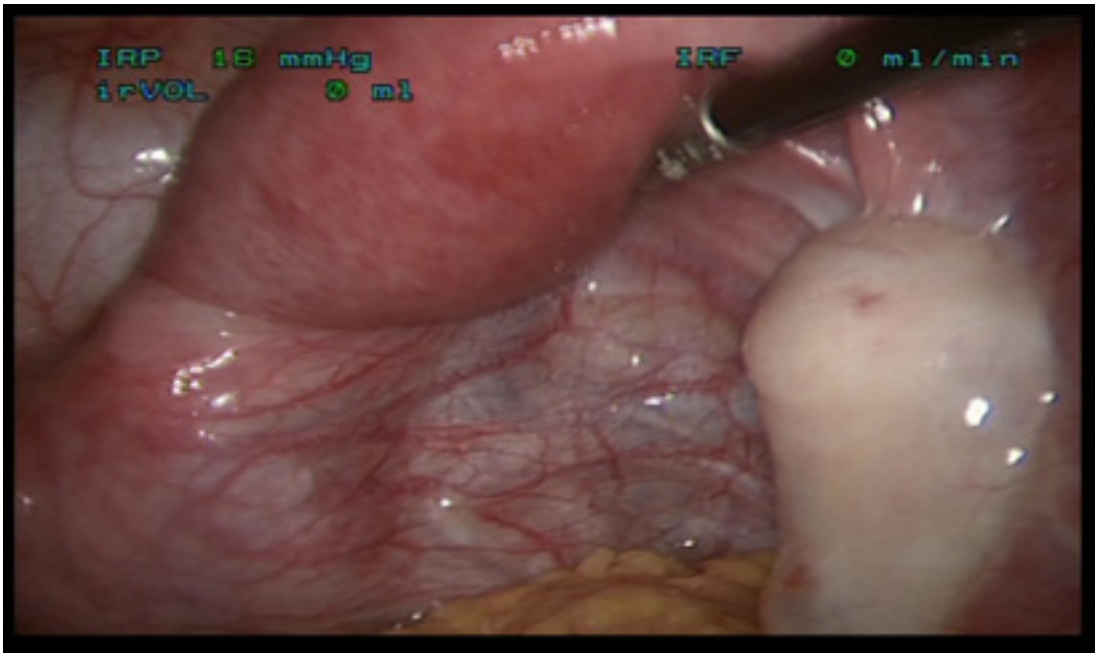
Figure 1: This MRI reveals double uterus cavities, double cervix and absent right kidney



A few months later, diagnostic laparoscopy was done for this patient which confirmed the diagnosis.







Discussion

This patient shows how it is difficult to diagnose and treat such uterine malformations. The presence of acute abdominal pain with symptoms like those of acute appendicitis without having proper ultrasound done by experienced radiologist and depending only on clinical picture lead to unnecessary surgical intervention.

Our patient's chief complaint was pelvis and lower abdominal pain with dysmenorrhea.

The symptoms usually begin after the menarche. Patients with this syndrome usually menstruate normally and may have no specific symptoms, except dysmenorreha. Thus 20% of these patients are diagnosed in their 20s and 10% are diagnosed beyond age 30 years (7).

Since the patient presented with an acute abdomen, appendicitis and ovarian torsion were a likely possibility following trans-abdominal ultrasound. The patient was taken to the theater, unnecessary laparotomy was performed.

Could more accurate diagnostic imaging have prevented the emergency intervention? Transvaginal ultrasound might have revealed the underlying disease in our patient which was hindered by her virginity.

The clinical manifestations and physical findings are very helpful to diagnose this syndrome. In addition, ultrasonography, computed tomography, MRI, and exploratory laparoscopy are used. MRI is the most effective method and helps to prevent unnecessary surgery (8).

Ultrasonography and MRI are widely and effectively used in the diagnosis of genitourinary anomalies, a 100% accuracy being reported for MRI because of its high accuracy and detailed elaboration of utero-vaginal anatomy (9, 10).

Transvaginal excision of the septum, large enough to allow a permanent drainage of the menstrual blood from the hemi-uterus is the appropriate mode of treatment as soon as the condition is diagnosed. The family of our patient did not accept doing transvaginal procedure as she is yet single.

Regarding their concern about her future fertility, they were reassured that women with uterus didelphys have a high likelihood of becoming pregnant (13), 80% are able to conceive (14).

At last, as a medical clue for the medical team if a young patient has renal anomaly look for associated vaginal and uterine anomaly this may help an early diagnosis

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Medical Education and the Practice of Medicine in the Muslim countries of the Middle East

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Abstract & Overview

Recorded history shows the ancient countries and populations of the Middle East were among the first in the world to teach and practice the science of medicine, and from the region, it spread to the rest of the known world.

This paper provides firstly a history of the regional development of the science of medicine followed by a brief snapshot of current regional medical education and research, to see if it is matching the needs of the people of the region, and reaching and setting the same high standards as it did centuries ago.

Introduction and History

The Middle East region was not just the *cradle of civilisation*, the place where humans stopped their nomadic hunting and gathering, and started to form towns and cities and complex cultures, it was also where some of the more complex sciences and arts were first practised and recorded.

Historical records show that the practice of medicine occurred in the early history of Egypt, Persia, Mesopotamia, China, India, Greece and the city of Rome, before the third century AD (1).

In the history of the Middle East the practice of medicine was first recorded in Persia (Iran). The Vendidad, a surviving collection of texts, devotes many chapters to the practice of medicine. One of these texts describes three kinds of medicine: medicine by the knife (surgery), medicine by herbs (pharmacology), and medicine by divine words (counselling or placebo) (1, 2).

An encyclopaedia of medicine in Pahlavi literature listed 4,333 diseases (1, 2).

The city of Gondi-Shapur in Persia (226 to 652 AD) had the first institution we would recognise as a modern day hospital and academic centre of learning. These institutions were called *bimarestan*, a Persian word for 'a place for the sick,' and as well as providing medical services they also retained patients' medical records (1-6).

The academy of Gondi-Shapur was established between 309 to 379 AD and consisted of a university, a library and a teaching hospital. Similar to modern academic medicine the bimarestan of Gondi-Shapur were a place where medical students worked in the hospital under the supervision of a medical faculty. There is evidence that the graduates had to then pass an examination in order to practice as accredited physicians (1).

After the Arabs conquered Persia in 638 AD, Gondi-Shapur became the Arabian School of Medicine. The entire system was gradually transferred to Baghdad, where it became known as the 'Golden Age of Islamic Medicine' (1).

The philosophy behind this Golden Age of universal healthcare was the Islamic belief in the Qur'an and Hadiths, which stated that Muslims had a duty to care for the sick (3-6). In the Islamic Age such hospitals were paid for through charitable donations. They were founded as early as the 8th Century and eventually were set up across the entire Islamic world (3-6). The hospitals also provided free medical services to the poor and sent physicians and midwives into rural areas. Some hospitals provided early 'specialist services' such as midwifery and care for lepers and the disabled (3-6).

Al-Razi, (850 - 923), of Persia, was an early medical researcher. He produced over 200 books about medicine and philosophy, including a book where he compiled all known medical knowledge in the Islamic world. This book was translated into Latin and was the basis of the early western medical education system (4).

Al-Razi, also initiated scientific methods promoting experimentation and observation. He wrote on the relationship between doctor and patient, believed in a holistic approach to medicine and was instrumental in early 'history taking,' not just of the medical background of the patient but also the patients' family members. He advanced medical diagnosis through looking for the cause of the symptoms (4-6) and described human physiology and understood how the brain and nervous system worked (4-6).

In 14th century Persia, the book *Tashrih al-badan* (Anatomy of the body), was written by Mansur ibn Ilyas (c. 1390), and contained an early Atlas of Anatomy with diagrams of the body's structural, nervous and circulatory systems (4-6).

Current situation

Human history has seen the rise and fall of many Empires, Kingdoms and regions. The entropy that pervades matter on the micro scale seems to also work on the macro scale and while we will not look at the philosophical or psychosocial reasons for these cycles in this article, the glorious past of the Middle East region is now undergoing some needed revival in these scholarly disciplines.

The Islamic religion fostered early the view of medicine as a science to be learned and understood, as well as the concept of parity of healthcare for all members of society, (universal healthcare) irrespective of the patient's ability to afford it.

This spirit lives on in the universal health systems most Middle Eastern countries have adopted, particularly in Iran, which the WHO describes as one of the most robust health systems worldwide, drawing its strength from its pioneering and well established primary health care system, which emphasizes equity, community and intersectoral participation, as well as government financing of essential and other services (7).

As well as University based medical schools most regional countries now have postgraduate colleges to focus on standards and ongoing medical education to support and address the needs of practising doctors and specialists. The region hosts many international medical conferences and quite a few overseas universities have set up campuses in the region. Some Universities that have recently re-appraised their focus and customs are high in the list of the top universities in the world, (e.g. Aga Khan University and Hospital in Karachi, Lahore University of Management Sciences, and Sharif University in Iran) (2).

Many countries have ongoing medical education programs, in the form of Continuing Medical Education (CME) and Continuing Professional Development (CPD) e.g. UAE, Jordan, Turkey and Lebanon.

Generally however, and additional to the march of time from the glorious days of the past, a multitude of factors has led to various problems in most countries of the region. Before discussing these factors, the following provides a snapshot of the main features of the health and medical education status of each major Middle East country compared with some non-regional Muslim countries, Malaysia and Indonesia.

Health and Education data of major Muslim Countries of the Middle East and the World (7, 8)

Afghanistan	
General information and indicators	
Density of physicians per 1000 population (2010)	0.194
Total expenditure on health as % of GDP (2011)	9.6
General government expenditure on health as % of total government expenditure (2011)	3

Health Systems
Afghanistan's health system has been steadily progressing over the last 13 years, with an increasing coverage of primary health care services throughout the country.
Postgraduate Family Medicine
Afghan Family Medicine Association (AFMA)

(United) Arab Emirates	
General information and indicators	
Density of physicians per 1000 population (2007)	1.93
Total expenditure on health as % of GDP (2011)	3
General government expenditure on health as % of total government expenditure (2011)	8.8

Health Systems
The health sector in the United Arab Emirates (UAE) is administered by two authorities, the Ministry of Health for regulating the public health sector and the Emirates health authorities responsible for service delivery at state level (in Dubai and Abu Dhabi). Health care is provided for all nationals and health insurance is mandatory for non-nationals. Total expenditure on health was on average per capita expenditure of US$ 1078. However, the there is an increasing demand on the health care services due to the increasing level of ageing population estimated to be over 15% of the population, by 2020.
Postgraduate Family Medicine
Emirates Medical Association, The Family Medicine Section

Bahrain	
General information and indicators	
Density of physicians per 1000 population	UA
Total expenditure on health as % of GDP	4.7
General government expenditure on health as % of total government expenditure	11.4

Health Systems
Comprehensive health services are provided to the citizens in Bahrain free of charge. The Ministry of Health offers most services through primary health care which is the cornerstone of the health system. The accessibility and coverage are almost 100%. Bahrain's national health strategy for the period 2002–2010 is the action framework for long term development of the health system. The government provides the major source of health service funding in Bahrain, and non-Bahrainis are also heavily subsidized by the government. A health insurance scheme with extensive deliberations by all stakeholders was introduced in 2006. Bahrain has achieved success in human resources development: the College of Health Sciences has graduated nurses and allied health professionals and has helped in training of personnel from other countries.
Postgraduate Family Medicine
Bahrain Family Physicians Association

UA = Unavailable

Egypt
General information and indicators

Density of physicians per 1000 population (2010)	UA
Total expenditure on health as % of GDP (2009)	4.8
General government expenditure on health as % of total government expenditure (2009)	5.6

Health Systems
The health care system in Egypt is quite complex with a large number of public entities involved in the management, financing and provision of care. Egypt's wide network of public (several ministries beside the military and police), NGO, faith based charity organizations and private health facilities allow good geographic accessibility and coverage. The Ministry of Health and Population is responsible for overall health and population policy as well as the provision of public health services, and is responsible for health insurance organization that provides services too. The Ministry of Higher education is however responsible for health profession education (medical, nursing, dentistry and pharmacy etc.) and also runs university teaching hospitals.
Postgraduate Family Medicine
Egyptian Family Medicine Association

Indonesia
General information and indicators

Density of physicians per 1000 population (2012)	0.204
Total expenditure on health as % of GDP (2011)	2.7
General government expenditure on health as % of total government expenditure (2011)	5.3

Health Systems
Indonesia is engaged in the process of ensuring effective decentralization and functioning of the health system while at the same time responding to urgent health needs brought about by natural disasters as well as emerging and re-emerging communicable and non-communicable diseases. Implementation of universal health coverage (UHC) through national health insurance system (SJSN) is in place since January 2014 with the aim of reaching the entire population of Indonesia by 2019.
Postgraduate Family Medicine
Perhimpunan Dokter Keluarga Indonesia (PDKI)

Iraq
General information and indicators

Density of physicians per 1000 population (2010)	0.607
Total expenditure on health as % of GDP (2011)	8.3
General government expenditure on health as % of total government expenditure (2011)	10.2

Health Systems
The Iraqi health sector faces considerable and complex challenges. These challenges primarily relate to improving access to quality health services by transforming the hospital oriented system to a primary health care model, overcoming recurring shortages of essential medicines, dealing with budget deficits, rehabilitation of infrastructure, training and deployment of human resources. In 2013 a number of policy documents have been finalized in Iraq. These include the National Health Policy (2014-2023), the National Development Plan (2014 – 2017) and the UNDAF. The Ministry of Health is working on developing a three year health strategy linked with a program-based budget. The Ministry of Health is the main provider of health care, both curative and preventive.
Postgraduate Family Medicine
Iraqi Family Physicians Society

Iran	
General information and indicators	
Density of physicians per 1000 population	UA
Total expenditure on health as % of GDP (2009)	5.7
General government expenditure on health as % of total government expenditure (2009)	10.5

Health Systems
The health system has been cited in all WHO and global health literature as one of the most robust health systems worldwide, drawing its strength from its pioneering and well established primary health care system, which emphasizes equity, community and intersectoral participation, as well as government financing of essential and other services. Without doubt, the primary health care system is at the basis of the good national health indicators, but the main challenge remains for out-of-pocket health expenditure, which is 58%. The Ministry of Health and Medical Education finances and delivers directly primary health care while public secondary and tertiary care are financed through public insurance schemes.
Postgraduate Family Medicine
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Jordan	
General information and indicators	
Density of physicians per 1000 population	UA
Total expenditure on health as % of GDP (2009)	9.6
General government expenditure on health as % of total government expenditure (2009)	11.3

Health Systems
Primary health care has nationwide coverage; 2.4 centers per 10 000 population (2010) are available, with an average patient travel time of 30 minutes to the nearest centre. This represents a high density system by international standards, with 99.0% access (2010).
Postgraduate Family Medicine
Jordan Society of Family Medicine (JSFM)

Kuwait	
General information and indicators	
Density of physicians per 1000 population	1.716
Total expenditure on health as % of GDP (2011)	10.7
General government expenditure on health as % of total government expenditure (2011)	5.9

Health Systems
The national health plan, 2010-14, for Kuwait focused on a major expansion of the health sector. Kuwait has one of the most modern health care infrastructures in the region. An overwhelming share of health services is provided by the public sector, but there is a growing private sector involvement in health services. The public health system is built on the primary health care principles with three levels of health care delivery: primary, secondary and tertiary. A robust primary health care infrastructure has been developed, with a clear vision and the integration of noncommunicable diseases and mental health within the system. Adequate hospitals, health centers and clinics manned by skilled health staff provide safe and effective health care to people.
Postgraduate Family Medicine
Kuwaiti Association of Family Physicians and General Practitioners

Lebanon	
General information and indicators	
Density of physicians per 1000 population (2007)	3.062
Total expenditure on health as % of GDP (2011)	6.3
General government expenditure on health as % of total government expenditure (2011)	5.8
Health Systems	
The past decade has witnessed significant efforts of the Lebanese government to address the detrimental effects on the health system structure caused by the long lasting civil war that ravaged the country in the 1970s and 1980s.	
Postgraduate Family Medicine	
Lebanese Society of Family Medicine	

Malaysia	
General information and indicators	
Density of physicians per 1000 population (2012)	UA
Total expenditure on health as % of GDP (2010)	4.4
General government expenditure on health as % of total government expenditure (2010)	9.2
Health Systems	
UA	
Postgraduate Family Medicine	
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Morocco	
General information and indicators	
Density of physicians per 1000 population	UA
Total expenditure on health as % of GDP (2009)	5.2
General government expenditure on health as % of total government expenditure (2009)	7.2
Health Systems	
Morocco currently has 2,689 (2011) basic health care facilities. Despite this increase in basic infrastructure, access to care remains difficult, mainly for populations with low resources. 25% of the Moroccan population lives more than 10 km away from a basic health facility. The GP Sector is poorly organized, Continuing Medical Education is expensive and not appropriate, hence the need for a new dynamic in the medical profession, it is then in 2003 in Casablanca was born the association MG Morocco, with the slogan: General Practitioner, Doctor First Action and Community Health Workforce Actor	
Postgraduate Family Medicine	
National Collective of General Practitioners of Marocco (MG Maroc)	

Oman	
General information and indicators	
Density of physicians per 1000 population (2010)	2.048
Total expenditure on health as % of GDP (2011)	2.3
General government expenditure on health as % of total government expenditure (2011)	4.9
Health Systems	
The majority of the health services are provided by the MOH; however, there is a growing private sector. Primary health care is the basic building block of the health system with provision of near free-of-charge service in the public sector and near universal access.	
Postgraduate Family Medicine	
Oman Family and Community Medicine Society	

Pakistan	
General information and indicators	
Density of physicians per 1000 population	UA
Total expenditure on health as % of GDP (2009)	2.2
General government expenditure on health as % of total government expenditure (2009)	3.3

Health Systems
Pakistan has a multi-tiered and mixed health care delivery system that has grown exponentially during the past three decades, with an increasing number of programs, projects, interventions and facilities, many of them on a fragmented and time bound basis
Postgraduate Family Medicine
Pakistan Society of Family Physicians, Lahore

Saudi Arabia	
General information and indicators	
Density of physicians per 1000 population	UA
Total expenditure on health as % of GDP	5.3
General government expenditure on health as % of total government expenditure	6.9

Health Systems
The Ministry of Health is the main provider of health care services. Health has featured in the national five-year development plans since 1970, and is seen as a key part of overall development in the country. The ninth national development plan (2009–2013) addressed a number of public health issues. The number of primary health care centres was increased by 9.5% in the last five years, with 150 new centres planned each year until 2016 as part of the ten-year Ministry of Health strategy.
Postgraduate Family Medicine
Saudi Society of Family and Community Medicine

Syria	
General information and indicators	
Density of physicians per 1000 population	UA
Total expenditure on health as % of GDP	3.4
General government expenditure on health as % of total government expenditure	5.6

Health Systems
The disruption of the health system throughout the Syrian Arab Republic has had a direct impact on the provision of primary, secondary and tertiary health care (preventive and curative), including support for referral of patients with injuries, treatment of chronic diseases, maternal and child health services, vaccination and nutrition programmes as well as communicable disease control and other urgent conditions. The health situation is exacerbated by a disrupted health care delivery system: 57% of public hospitals have been damaged or are out of service, as well as a major loss of medical staff who have been killed, kidnapped, injured or displaced. Lack of fuel and electricity has forced many hospitals to operate with limited capacity as the number of patients grows.
Postgraduate Family Medicine
Syrian Family Medicine Association

Turkey	
General information and indicators	
Density of physicians per 1000 population	UA
Total expenditure on health as % of GDP	6.1
General government expenditure on health as % of total government expenditure	12.8

Health Systems
The health status of people in Turkey has significantly improved in recent years. Improvements in the health status are mostly attributable to the successes of health reform, the so-called Health Transformation Program (HTP) with the tag line "People First". The Government of Turkey is implementing the second phase of a major health sector reform that aims to improve the governance, efficiency, and quality of the health sector. A serial legal change was enacted within the frame of health reform with the new legislation re-structuring the Ministry of Health (MoH) and re-organizing functions of her units and affiliates. Re-structuring aims at strengthening the steward-ship function of the Ministry and enhancing its role in health system policy development, planning, supervision of implementation, monitoring and evaluation.
Postgraduate Family Medicine
Turkey Qualification Board of Family Medicine (Turkish Board of Family Medicine)

Yemen	
General information and indicators	
Density of physicians per 1000 population	UA
Total expenditure on health as % of GDP	5.2
General government expenditure on health as % of total government expenditure	4.3

Health Systems
The Ministry of Public Health and Population is responsible for the health sector and is one of the largest public employers in the country. Health units provide the most basic curative and preventive care within a catchment area of 3,000 to 5,000 people. Coverage with health services, although improving, does not cover more than 30% of the rural population nor more than 45% of the total population.
Postgraduate Family Medicine
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The practice of medicine is to ultimately address the current health needs of a population, through medical education and training, research and public health policies, along with affordable healthcare.

The people of the Middle East now face much the same disease states as the rest of the developed world and medical education and health policy must now meet these changing needs.

The change of lifestyles in the Middle East and elsewhere has introduced a new range of disease states, particularly those of a cardiovascular nature (e.g. diabetes and heart disease). This in turn has necessitated a change of both health priorities and educational focus. In the Middle East and North Africa region, incidence of non-communicable diseases such as heart disease are up by 44%, stroke up by 35%, and diabetes up 87% since 1990 and these diseases are causing more premature death and disability than they did in the past (9). The region has succeeded in reducing disease burden from many communicable, newborn, nutritional, and maternal conditions. However, lower respiratory infections, remain the second leading cause of healthy years lost in the region (9). Aging populations and longevity add another dimension to economic burden, and new diagnostic equipment, techniques and therapeutics have created higher expectations of successful medical outcomes in patient populations. At the same time these innovations have greatly increased the cost of both medical education and delivery of universal health care. This also applies to the cost of medicines, particularly highly priced pharmaceutical products, with many nations of the world now having to subsidise their high costs to make them available to their patient populations.

At the same time, poorer countries in the region, including Yemen, Djibouti, and Iraq, continue to struggle with a high burden from infectious diseases (9).

Among the Muslim countries in the region, the leading causes of disease burden range from preterm birth complications in Algeria and Palestine, depression in Jordan, and ischemic heart disease, or coronary artery disease, in Egypt, Iran and Lebanon (9).

When comparing rates of diseases and injuries across countries in the Middle East and North Africa and taking into account differences in population growth and ages, Lebanon, Syria, and Tunisia performed best relative to other countries in the region while Iraq, Yemen, and Djibouti performed the worst (9).

In places such as Palestine (and currently Syria, Iraq, and Libya) even greater burdens of war are placed on health systems that are being destroyed and made ineffective. It seems it may even now be policy to deliberately target doctors and hospitals to demoralise such communities.

Climate change and environmental problems, often exacerbated by war or government dysfunction, (e.g. no collecting of waste, scarcity and quality of clean drinking water, air pollution) contribute to the picture as does an upsurge in road accidents.

There is need for specific public health promotion to limit lifestyle disease and poor health habits such as cigarette smoking and drug taking as well as addressing mental health issues such as the rising incidence or diagnosis of depression.

Refugees within the region bring their own set of problems – not just in additional healthcare needs but sequelae of war: malnutrition, injuries, mental health issues, overcrowded conditions and disease risk.

Medical Education Needs

Current regional Medical Education does not always match or meet the high principle of universal healthcare. Varying standards of education within the region often result in new regional graduates unable to find employment, or even qualify for employment in the region. At the same time well educated doctors are often poached by overseas employers who can offer greater financial returns.

Conversely some Middle East countries preferentially hire overseas doctors and nurses to meet their own internal needs putting a greater burden on health systems.

The opportunities for higher levels of research and publication can also be lacking in the region.

Most countries of the Middle East, and Muslim countries generally do now endeavour to provide universal healthcare but with varying success. It must be said that most countries of the world have now also adopted the principle of universal healthcare but with some notable exceptions, even among developed countries.

Curricula Needs

The reasons why the Universities are not providing adequately trained doctors to meet the needs of the regions' medical hiring organisations are complex and may differ from country to country. Governments, academics and administrators of regional universities will need to address any deficiencies in their curricula and postgraduate institutions.

The Organisation of Islamic Cooperation (OIC) in its Report of 29 October 2015 recommended that governments must give universities more autonomy. Professors need to be free to teach topics that are not tightly regulated by ministries (2).

Universities need to also be free from political or religious opinion or influence. There is precedent. In Pakistan, two private universities established in the 1980s, the Aga Khan University and Hospital in Karachi and Lahore University of Management Sciences, revolutionized medical and business education within a decade of their creation. Students elsewhere began demanding the standard set by these educational pioneers (2).

The OIC report found that the Muslim countries on average invest less than 0.5% of their gross domestic product (GDP) on research and development (R&D). Students in the Muslim world who participate in standardized international science tests perform below the standards of their peers worldwide, and the situation seems to be worsening (2). An obvious reason for this however may be a non-standardised curriculum.

The OIC recommend that Universities in OIC nations need to be granted more autonomy to transform themselves (2).

University science programmes are often found to be using restricted content and outdated teaching methods. The OIC report also stated scientific research must be relevant and responsive to society's intellectual and practical needs and students must receive a broad, liberal education. Some basic scientific facts are still seen as controversial, and marginalized e.g. evolution (2).

Another problem is that faculty members rarely receive any training or evaluation in pedagogy. In many OIC universities, didactic teaching methods persist (2).

In many universities, curriculum changes, faculty appointments and promotions are dictated by governments Ministries of Health and other agents.

Research

The 57 countries of the Muslim world that are a part of the Organisation of Islamic Cooperation (OIC) are inhabited by nearly 25% of the world's people. But as of 2012, they had contributed only 1.6% of the world's patents, 6% of its academic publications, and 2.4% of the global research expenditure (2). The number of scientific papers they produce remains below the average of countries with similar GDP per capita.

A few institutions attempt to relate their students' learning to their cultural backgrounds and contemporary knowledge. The Times Higher Education world university rankings named Sharif University as the top Iranian university and number eight in the OIC (10). Habib University, in Pakistan, also follows the same model.

Textbooks are often imported from outside the region. Although of a high standard, they assume a Western undergraduate experience and are written in English or French (2). Having English as the standard international medical and scientific language disadvantages students from all countries that are not native English speakers.

The heavy requirements on academics to publish whether there is research of any importance or repute occurring in their institution or if there is anything of significant merit to report or not, can also cause problems. There should be less emphasis on meeting quotas, and more on quality and the merit of publishing particular research or study (11). This also applies worldwide.

While it is necessary to acknowledge the workload and academic pressure during medical training there should also be time and budgets allocated for meaningful research and publication (10, 11). Quality academics themselves need to be properly salaried and remunerated.

Regional medical journals are assisting young researchers and academics (10, 11).

Postgraduate Needs

A healthy national medical education consists of both tertiary and postgraduate medical education institutions. It is well recognised these days, especially in times of great change, that education does not stop once the graduate goes into practice (lifelong learning). Not only are there new developments and techniques, new therapeutics and new diagnostic equipment at the primary care population level, we have seen the emergence of quite a few new diseases (e.g. Ebola) and mutations of existing diseases (e.g. Zika). There is also place and requirement for the practising doctor to contribute to ongoing knowledge regarding emergence and epidemiology of emerging and mutating viral diseases (15).

Socio-economic and psychosocial issues affecting the practice and delivery of medicine can and do vary from nation to nation.

It is no longer good enough to 'keep your eye' on the medical journals; doctors need a consistent approach to ongoing medical education. Many postgraduate medical colleges have brought in firstly, Continuing Medical Education (CME), then Continuing Professional Development (CPD), with the latter a step ahead in that it is no longer good enough to know 'what's new', doctors need to evaluate new information and know if, when and why they should introduce it into practice. It is not acceptable to put patients on a new therapy unless doctors are sure it works in all patients and all situations and if its trials have been sufficient in time, enrolled numbers and efficacy and with no longterm adverse effects on patients. QA&CPD (Quality Assurance and Continuing Professional Development) was brought in to provide a level of science (and mathematics) to CME/CPD. Postgraduate Education Providers need to know and be able to show that the doctor-student has indeed learned something (accurate) from their post graduate education and that the education they provide to the doctors has done its job at the level of patient care. There also needs to be someone to ensure the quality of postgraduate continuing education and this is usually done by the Postgraduate College or Academy testing and training and evaluating postgraduate education providers, be they tertiary colleges, universities, a medical society, or independent providers.

Finally Quality Improvement (QI) has become the current norm. The doctor undergoing postgraduate CME/CPD has to now show that the postgraduate education has brought Quality Improvement into their practice. There are many ways to go about this – even though they require a bit of subjective evaluation on the part of the practising doctor.

To enforce Quality Assurance (QA) and Lifelong learning as part of regular practice, it has become a requirement for maintaining ongoing Professional Vocational Registration (VR) in some countries.

The Vocational Registration requirement approach can however be punitive to the patient populations if there are not enough doctors practising (quality assured or not) - on the assumption that those practising have some basic skills. In countries greatly lacking in doctors another aim of CME should be to improve the skills of doctors already in practice.

Some of the first family medicine programs in the region occurred in Turkey in 1961, in Bahrain in 1978, in Lebanon in 1979, in Jordan in 1981, and in Kuwait in 1983. Family medicine programs have also been established in Qatar, the United Arab Emirates, Libya, and Iraq. In most programs, family medicine training occurs mostly in hospitals, even though few Middle Eastern family physicians practice in hospitals on completion of residency training. Thus, there is a need for better outpatient training, but resistance from those responsible for traditional medical education can make it difficult to change the current model. There is need for better opportunities for professional development after graduation and for establishing research activities in family medicine (12).

Financial Needs

Financing the medical education and health sector is an increasing national burden and involves major and obvious considerations – good coordinated governance across all sectors, national wealth and development being the most obvious.

Some Middle East countries have a 'patronage' system whereby institutions need to continually apply for separate items of funding preventing them to some degree from being able to plan ahead and invest in necessary infrastructure.

Overseas universities have also set up in the region and thus provide their own curricula and own education and their graduates often then proceed to practice overseas. It does however allow those employers seeking 'western trained doctors' to employ graduates from the region.

Regular and ongoing funding and sufficient levels of funding are needed to ensure that each country produces sufficient numbers of doctors to adequately care for population health. Political will and allocation of government budgets is tied together.

Of course investing in tertiary education facilities and professional staffing, needs to also be weighted against the potential student population. Small populations on a pro rata basis require heavier financial commitments.

The Way Forward

While the principles and practice of 'universal healthcare for all' is well championed in the Middle East region there seems to be need for improvement in the quality and availability of undergraduate and ongoing medical education to meet the ongoing needs and expectations of the populations of each country. This may need a review of numbers entering the education system as well as the curriculum in medical schools, to ensure they meet all population health needs.

There is discrepancy between health planning and the application in practice (14). In most countries the medical education system is not producing enough primary care doctors, or to the standards now required by the region and the world.

The health care system still tends to be specialist orientated. It is well accepted globally that primary care is the optimum approach for cost effective healthcare for all (14). Keeping patients out of the hospital system and the more expensive specialist system reduces national health costs and saves those services for the patients who really need them.

There needs to be a coordinated governance system looking at all sectors and making sure they work together in an efficient and complementary fashion.

Medical schools should meet three criteria, i.e. educating medical students in sufficient numbers to quality international standards to meet national requirements and needs, conducting research, and being a community advocate for national and regional health and medical issues and ensuring curriculum meets these, and thirdly, providing, via suitably educated graduates, health and medical care to all members of society based on ethical guidelines. Medical schools should consider the needs of the communities which they serve and deliver their services based on socially and culturally acceptable criteria (13).

It is incumbent on governments to make the necessary financial allocations to the education sector and to secure ongoing budgets to allow them to plan for the future. The more money spent on ensuring a fit and proper medical education and health delivery system, the less money spent later on public health needs.

In turn, universities and medical schools must seek to contain the costs of education and educate students on cost effective treatment and processes of care. A socially accountable medical school provides its services based on the criteria of cost-effectiveness, relevance, equity and high quality (13).

One process however may not necessarily meet the specific needs of all communities or nations, and it is incumbent on, firstly, governments and health administrators to plan national needs and then have the education systems capable of producing the trained medical professionals to meet those needs. Universities and medical schools need to meet these challenges with the appropriate curriculum and processes if they are to remain viable and relevant to community needs.

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Muslim world's universities: Past, present and future

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Abstract

Muslims account for 1.7 billion of the world's population and Islam is now considered as the fastest growing religion. Since Islam hugely supports science, the Muslim world's universities and scholars especially during the Islamic Golden Age (IGA) have contributed to a large extent to the progress of different branches of science. Despite this Golden History, the present situation of universities in the Muslim world is not as it should be. If universities within the Muslim world wish to reach the position which they deserve they should take into account a number of strategic initiatives. Some of these strategic initiatives are discussed within the present paper.

Key words: Islam, Universities, Higher Education, Scholars

Introduction

Muslims account for 1.7 billion (23.4%) of the world's population; a preponderance of them live in the Middle Eastern countries (1). Furthermore, Islam is considered as the fastest growing religion which makes it the second most prevalent religion after Christianity (2). At the moment there are 57 countries with a Muslim-majority population which form the Organisation of Islamic Cooperation (OIC) (3 & 4) (See below).

Since Islam hugely supports science, the Muslim world's scholars and then universities, especially during the Islamic Golden Age (IGA), have contributed in a large extent to the progress of different branches of science. Despite this Golden History, the present situation of universities and scientific productivities within the Muslim world are not as it should be (5-8).

The chief aim of the present article is therefore, to take a look at the past and the present situation of the Muslim world's universities. The article then goes on to provide some strategic initiatives in order to promote the current situations of these universities. However, let us start by taking a fresh look at the geographical distribution of the OIC countries.

The geographical distribution of the OIC countries

The countries that shape the OIC are In Africa: Algeria, Benin, Burkina Faso, Cameroon, Comoros, Chad, Djibouti, Egypt, Gabon, Gambia, Guinea-Bissau, Guinea, Ivory Coast, Libya, Mali, Mauritania, Morocco, Mozambique, Niger, Nigeria, Senegal, Sierra Leone, Somalia, Sudan, Togo, Tunisia and Uganda. In Asia: Afghanistan, Azerbaijan, Bahrain, Bangladesh, Brunei, Indonesia, Iran, Iraq, Jordan, Kazakhstan, Kuwait, Kyrgyzstan, Lebanon, Malaysia, Maldives, Oman, Pakistan, Palestine, Qatar, Saudi Arabia, Syria, Tajikistan, Turkey, Turkmenistan, the United Arab Emirates, Uzbekistan and Yemen. In Europe: Albania. In South America: Guyana and Suriname (3 & 4).

Past situation of the Muslim world's universities

It is worth emphasizing that the very first word of the Quranic revelation to Prophet Muhammad was an order to read. Furthermore, the word "'Ilm", which is equivalent to "knowledge", and its derivatives takes place 880 times in the Quran (9).

As a result, Prophet Muhammad by stating that: "Seek knowledge, even as far as China" has established a strong mandate for Muslims. This mandate has two vital components: firstly, the responsibility of Muslims to look for knowledge in diverse fields, and secondly to seek knowledge as far as they can reach (10).

Based on this mandate, gradually Muslim scholars and then the established Muslim world's universities, especially during the IGA, have contributed to a large extent to the progress of sciences. Muslim scholars established empirical inquiry, by precise observation, measurement and experiment, and before drawing any conclusions they learnt how to take into account contradictory views (11).

It is no surprise that at the beginning of the IGA in 859 AD the University of Qarawiyyin i.e. the "world's oldest continually operational university" was established in Morocco (8). And even 500 years earlier than that and during the reign of Shapur II (309 to 379 AD) the academy of Gondi-Shapur was founded in Iran which was then called Persia. This academy consisted of a university, a library with more than 400,000 books and a teaching hospital. By the Islam conquest of Iran in 638 AD the academy supports the foundation of the Islamic School of Medicine (12).

This clearly explains why even nowadays the works of top Muslim scholars especially within the field of medicine such as Zakariya Razi or Rhazes (865 to 925 AD) and Avicenna or Ibn-Sina (980 to 1037 AD) are still remembered and respected (12).

Present situation of the Muslim world's universities

If everything had gone based on the established mandate the Muslim world's universities and scholars should now stand on top of today's academic ranking. However, it seems that after the IGA and by the birth of dictator governments, wars and armed conflicts, social unrest and even poverty etc. the critical-minded scholarship gradually has been restrained (10 & 13).

Therefore, it is no surprise that as of 2012 whilst the OIC countries have nearly a quarter of the world's population they have only 2.4% of its research expenditure, 6% of its publications, and 1.6% of its patents (7).

It is also not astonishing to realize that there are only three Nobel laureates in the sciences from OIC countries. Furthermore, OIC countries host no university in the top 100 of the many world rankings (8).

One of these academic rankings is called Academic Ranking of World Universities (ARWU) or Shanghai ranking. Within the 2013 released of ARWU, there are only 8 universities from OIC countries on the list of world top 500 universities with the best position i.e. 160th, achieved by King Saud University (KSU) (14).

The recent "Report of Zakri Task Force on Science at Universities of the Muslim World" has also revealed that during the recent 20 years and among 57 OIC countries there are only 20 countries that together have produced more than 90% of OIC scientific outputs. From the period 1996-2005 to 2006-2015 some of these 20 countries have increased their scientific productions significantly with Qatar and Iran on top. However, for 2006-15 the average citations per paper were 5.7 for OIC countries, clearly much less than comparable countries such as South Africa, with 9.7 citations per paper (15).

Strategic initiatives for the future of the Muslim world's universities

If universities within the Muslim world wish to reach the position which they deserve there are a number of strategic initiatives that they should take into account. The most important of them may include:

1. There is no doubt that Muslim countries should shift their policy on to increase the quality of the existing universities.
2. One way to fulfill the first point is to increase universities' budgets especially research budgets and take extreme caution that the budget is spent in a proper way (16).
3. The other way to fulfill the first point is to revise universities' curricula to make teaching more up to date and relevant. Continuing education plus life learning initiatives should seriously be taken into account (8 & 17).
4. Paying more attention to female scientists considering their abilities and their wishes. It has been estimated that throughout the IGA there were more than 8,000 female scholars (18).
5. Collaboration with other universities in the Muslim world and beyond to carry out ground breaking research projects. Similarly, opening the door of the universities to other universities in the Muslim world and beyond by exchanging students and scholars at the very least for a short period of time.
6. Opening the door of the universities to the people, especially to high school pupils. This helps the public at large better understand how science is taught in universities and also high school pupils will make more informed decisions on what subjects they are going to pursue in the universities (19).
7. Similar to the previous point, universities in the Muslim world should take on a more socially accountable mission (20).
8. Paying more attention to English language as the official language of science in the current world (16).
9. Since research productivities are increasing in some Muslim countries and in order to avoid any type of research misconduct (21) paying more attention to the ethics of

research and publications are extremely needed.

10. Last but not least, Muslim countries should take a critical view towards their primary and secondary educational systems. They do need to revise primary and high school curricula to allow the intake of their universities, more fresh and open-minded students.

All this may not happen if the universities within the Muslim world are not managed in a meritocratic way (8). More importantly having meritocratic universities does not entirely fulfill the needs unless more democratic governments and peaceful circumstances will roll over the Islamic world (13).

Conclusion

Despite the Islamic Golden Age, the present situation of universities within the Muslim world in not as it should be. If universities within the Muslim world wish to reach the position which they deserve. they should take into account a number of strategic initiatives. The present article has articulated some of the most important of these initiatives.

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CME Needs Assessment: National Model

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Introduction

This CME Needs Assessment paper was written to provide analysis on a particular regional country's <<the country>> proposed CME in Primary Care program. It has been provided as a National Model that other countries may wish to replicate

The vision of <<the country>> is "To Provide World Class Healthcare." One of the first steps to achieve this vision is to start comprehensive educational programs to improve the skills of the primary health care team as Primary Health Care is essentially the first level of contact of the patient with the health care system. The suggested programs include the following:

• **Interdisciplinary Primary Care Training Program.** To assist medical centers in organizing their delivery of care around the of primary care principals.
• **Primary Care Physician Education Initiative (PCPEI)**. The goals of the educational intervention are to better prepare current physicians to deliver care under this new paradigm.

The aim of the above programs is to create Family Medicine Model of Care at the primary health care centers in <<the country>> through a focus on excellence in health, wellness and education; in a barrier free environment that inspires interdisciplinary team approach, accountability, trust, enthusiasm and pride. In addition pave the way to excellence by challenging the practitioner, maximizing professional fulfillment, promoting research and creating an environment of learning centering the focus of the program on the patient, our clients.

Need Assessment

Continuing Medical Education (CME) consists of educational activities which serve to maintain, develop or increase the knowledge, skills, and professional performance and relationships that a physician or dentist uses to provide services for patients, the public and the profession. CME ultimately manifests as better patient care and better patient outcomes.

A number of CME activities in primary health care are active within the regions through the country's CME department consisting of lectures, workshops, activities in the centers as well as regional and international conferences. A lot of effort has been done to encourage the health care providers to obtain CME through the official requirement of 50 CME credit per physician per year in order to keep his license valid. However there is a need for establishing structured CME programs.

Quality Health Care requires considerable knowledge and skills from the practitioners combined with best professional attitudes. Understanding the science of Medicine and its clinical effectiveness are moving forward rapidly along with the advancement of delivering the services. The knowledge and skills of the practitioners along with good professional attitudes requires updating through the process of Continuing Professional Development. It is now well accepted that a multi-disciplinary team approach is the best way forwards for providing quality health care

Need Assessment Survey

Need Assessment
In order to develop a comprehensive educational program for the health care team there is a need to carry extensive need assessment, the first step in planning an educational activity. In an attempt to assess the needs for professional development of the medical, dental practitioners and nursing staff a survey was conducted by means of a Questionnaire (APPENDIX 1) by the Department of Health for <<the country>>. The report takes into account a wide section of the various staff. The wide range of topics that were covered in the survey is also well elaborated in the report included the following

Part I-Demographic Data
465 questionnaires were included in the study out of 600 hundreds distributed. The exclusion criteria were that either the questionnaire was not returned or was incomplete.

The response rate was 77 percent.

The mean age of the study population was 42years (SD 9.70) with the minimum age being 23 years and maximum being 74years. 72% of the study populations were below 50 years. The mean of the number of years since graduation was 18 years (mean =8.46, SD=9.16). Whereas the mean of the number of years in practice was 17 years (Mean=17.18, SD=9.16). As for gender distribution 35% of the samples were males vs 65% who were females.

CME Topics for Physicians

The response to the various topics in medicine is presented in the Tables in the report.

The topics that received the highest rating were:
1. Doctor patient relationship
2. How to order diagnostic tests
3. Diabetes mellitus, thyroid disorders, Obesity, Hyperlipidemia, chest pain, hypertension, abdominal pains, asthma, dyspnoea, cerebrovascular accidents, epilepsy, arthritis, back pain, anxiety, UTI, fever of unknown origin, infection control, anaemias, vertigo & dizziness, red eye, medical problems & drugs in pregnancy, skin infections, ECG, evaluation of breasts lumps, sprains, Basic & advanced life support,
4. Pediatrics- growth & developmental disorders, nutrition, otitis media, immunization schedule

Format of CME
The response rate for the monthly activity was the highest with Hands – workshops.

Recommendations

In <<the country>> it is clear that there is a definite need for improvement. All current physicians within the primary health care setting will participate in the PCPEI and DCPEI project to upgrade their skills. In addition there is a need to improve and train people responsible for CME and CPD activities and faculty development is necessary to ensure effective team teaching approaches, interdisciplinary collaboration, integration of material across disciplines and courses, and focus on patient health outcomes. The integration of these concepts needs to be across the curriculum and in every course rather than adding additional curricular time. Faculty development for role modeling and mentoring techniques should be considered.

The response rate from the survey was relatively high, reflecting the interest of the primary health care team in CME and CPD. There are a number of Barriers to obtaining optimal CME including lack of time and type of activities which include: Lack of time, Motivation and fatigue, Distance, availability and cost.

It is clear that looking at tables in the report that the respondents rated the importance of topics according to their level of knowledge. It is an important concept that revealed that the less knowledge they have about a topic was reflected by less score on rate of importance. Therefore in planning CME programs this should be taken into account.

Assessment Strategies
In the implementation of any CME activities assessment strategies is critical to judge the success of such a program. For example communication skills learning must be both formative and summative. The knowledge, skills, and attitudes to be assessed must be made explicit to both learners and teachers alike. Potential evaluators include local experts, course faculty, simulated and real patients, peers, and the learners themselves. Formative assessment should occur throughout the communication skills curriculum and is intended to shape and improve future behaviors. Assessment of communication skills must include direct observation of performance. Evaluation of setting a therapeutic environment, gathering data and providing information and closure must be included. Evaluation of advanced skills, including use of interpreters, providing bad news and promoting behavior change should be done as well. Criteria should match the novice level of the end of second year student, who should be able to identify the critical issues for effective communication and perform the skills under straightforward circumstances.

It will be as well a good idea to create a department of Family Medicine under the umbrella of <<the country>> that helps coordinate the implementation of the different educational program, in addition to conducting a number of ongoing research and academic activities.

Conclusions

Quality CME can enhance the knowledge base and practice skills of the participating health care provider and is increasingly used as part of the credentialing and reappointment process. Continuing Medical Education is important not only as a requirement for practice, but as means for the profession to achieve one of its primary goals: QUALITY PATIENT CARE. To our patients CME requirements are a commitment made by the medical and dental practitioner to keep our knowledge and skills current.

CME really is about changing behavior through education– about doing something different, doing it better." It is critical to look at CME and CPD in the mentality of 21st century. We attempted to clearly present: that the patient's concerns, values and outcomes must be the center of care; that partnering with an activated patient is essential; that self-awareness is essential in being an effective physician; that improving the process of care and health outcomes is the physician's responsibility and requires a systems approach.

Quality CME can enhance the knowledge base and practice skills of the participating health care provider and is increasingly used as part of the credentialing and reappointment process. Continuing Medical Education is important not only as a requirement for practice, but as means for the profession to achieve one of its primary goals: QUALITY PATIENT CARE. To our patients CME requirements are a commitment made by the medical practitioner to keep our knowledge and skills current.

Introduction

In this new millennium most nations, both developed and developing are actively reviewing national health policies and strategies as well as health delivery systems. The over-riding imperative in all cases is to deliver quality health care in a cost efficient manner while addressing issues of access and equity.

The provision of health services in <<the country>> is divided into federal, local and private sectors. The Health Authority, and the local government agency is responsible for the provision of integrated, comprehensive, and quality of health services for its population.

Primary Health Care

Primary Health Care is essentially the first level of contact with the health care system. This could mean seeing the family doctor, health unit, pharmacy, or clinic. Or it could mean phoning an advice line staffed by health professionals, or even attending a self-care workshop to learn how to take a more active role in ones' own health. Primary health care involves treating short-term health problems, managing long-term health conditions such as diabetes, and even helping to learn how to prevent injury and illness. Prevention is the key objective of primary health care.

When properly organized and coordinated, primary health care has enormous potential to introduce improvements in the health system leading to better care, shorter waiting lists, improved access to health care services, and a more sustainable health care system.

The definition of Primary Care in terms of its functions:
• Integrated and accessible healthcare
• Services provided by primary care clinicians, generally considered to be physicians and nurse practitioners, but involving a broader array of individuals in a primary care team (nurses, social workers, clinical pharmacists, dieticians)
• Accountability of clinicians and systems for quality of care, patient satisfaction, efficient use of resources, and ethical behaviour
• The majority of personal healthcare needs, which include physical, mental, emotional, and social concerns
• A sustained partnership between patients and clinicians
• Primary care in the context of family and community

At the time a primary care program is first established and routinely thereafter, a system for measuring primary care needs has to be operational. Indicators of how well primary care is being delivered are critical to guide program development, implementation and refinement and must be regularly communicated to providers and managers.

Primary Health Care Program

The vision is "To Provide World Class Healthcare." One of the first steps to achieve this vision is to start comprehensive educational program to improve the skills of the primary health care team. The suggested programs include the following:

In order to achieve the above vision number of large-scale primary health care projects need to be conducted and planned under Primary Health Care Section. One important aspect of the program will be comprehensive educational program to improve the skills of the primary health care team. The suggested programs include the following:

• **Interdisciplinary Primary Care Training Program.** To assist medical centers in organizing their delivery of care around the of primary care principals.
• **Primary Care Physician Education Initiative (PCPEI).** The goals of the educational intervention are to better prepare current physicians to deliver care under this new paradigm.

By centering the focus of the program on the patient, rather than who provides the functions and services, we are best able to define our primary care program as the provision of integrated, accessible, cost-effective health care, wellness and preventative services through interdisciplinary teams. These teams are accountable for addressing the healthcare needs of their patients; developing a sustained partnership with their patients and practicing in the larger context of family and community.

Medical education is true learning where those who attend gain knowledge, apply it to their profession, and then continue to practice it. It is reinforced by various programs that they participate in, or reminder systems that are put in place, so that their behavior changes for the better, which ultimately manifests as better patient care and better patient outcomes. Continuing Medical Education consists of educational activities which serve to maintain, develop or increase the knowledge, skills, and professional performance and relationships that a physician or dentist uses to provide services for patients, the public and the profession.

A number of CME activities in primary health care are active within the regions through the CME department and include lectures, workshops, activities in the centers as well as regional and international conferences. A lot of effort has been done to encourage the health care providers to obtain CME through the official requirement of 50 CME credit per physician per year in order to keep his license valid. However there is a need for establishing structured CME programs.

Quality Health Care requires considerable knowledge and skills from the practitioners combined with best professional attitudes. Understanding the science of both Medicine & Dentistry and their clinical effectiveness are moving forward rapidly along with the advancement

of delivering the services. The knowledge and skills of the practitioners along with good professional attitudes requires updating through the process of Continuing Professional Development. It is now well accepted that a multi-disciplinary team approach is the best way forwards for providing quality health care.

Physicians - Clinically Deficient

A physician is believed to be clinically deficient when the following factors are evidenced by the inability to exercise prudent medical judgment and the inability to practice with reasonable skills and safety without jeopardy to patient care:

(a) unethical practices, and/or
(b) incompetent (clinical ineptitude)

These factors may be substantially alleviated through education and/or behavioral modification.

Need Assessment
All health care disciplines share a common and primary commitment to serving the patient and working toward the ideal of health for all. While each discipline has its own focus, the scope of health care mandates that health professionals work collaboratively and with other related disciplines. Collaboration emanates from an understanding and appreciation of the roles and contributions that each discipline brings to the 'delivery of care experience'. Such professional socialization and ability to work together is the result of shared educational and practice experiences.

In order to develop a comprehensive educational program for physicians, dentists, nurses and the rest of the health care team there is a need to carry extensive need assessment. Needs assessment is the first step in planning an educational activity. Identification of needs provides the basis for writing activity objectives. Many sources may be used to establish needs. Physician needs may be determined through prior activity evaluations and/or surveys of individual needs. New advances in a clinical treatment may be identified as an area in which further education is needed. Needs assessment data may be drawn from surveys (on-site, email, Web site), focus groups, expert consensus, faculty perception, formal or informal requests from physicians, analyses of previous evaluations, epidemiological data, environmental scans including literature search/review, and quality assurance/ improvement data (e.g., gaps between practice guidelines and practice performance, patient safety/institutional error data, and information from external entities such as licensing boards or certifying agencies, etc.).

It might seem self evident that the need to learn should underpin any educational system. Indeed, the literature suggests that, at least in relation to continuing professional development, learning is more likely to lead to change in practice when needs assessment has been conducted, the education is linked to practice, personal incentive drives the educational effort, and there is some reinforcement of the learning. On the other hand, basing learning in a profession entirely on the assessment of needs is a dangerous and limiting tactic. So a balance must be struck.

The integration of needs assessment, education, and quality assurance of the service is stressed . Clinical audit, would identify practices in need of improvement and ensure that educational and organizational interventions were made to address these needs. Accordingly, audit was described as "essentially educational" and the educational process surrounding it described.

In adult learning principles we assume that learners needed to feel a necessity to learn and that identifying one's own learning needs was an essential part of self directed learning. In medicine a doctor's motivation to learn would therefore derive from needs identified during his or her experience of clinical practice.

The definition of Need
As in most areas of education, for many years there has been intense debate about the definition, purpose, validity, and methods of learning needs assessment. It might be to help curriculum planning, diagnose individual problems, assess student learning, demonstrate accountability, improve practice and safety, or offer individual feedback and educational intervention. Published classifications include felt needs (what people say they need), expressed needs (expressed in action) normative needs (defined by experts), and comparative needs (group comparison). Other distinctions include individual versus organizational or group needs, clinical versus administrative needs, and subjective versus objectively measured needs. The defined purpose of the needs assessment should determine the methods used and the use made of the findings.
Exclusive reliance on formal needs assessment in educational planning could render education an instrumental and narrow process rather than a creative, professional one.

Methods of needs assessment
Although the literature generally reports only on the more formal methods of needs assessment, doctors use a wide range of informal ways of identifying learning needs as part of their ordinary practice. These should not be undervalued simply because they do not resemble research. Questionnaires and structured interviews seem to be the most commonly reported methods of needs assessment, but such methods are also used for evaluation, assessment, management, education, and now appraisal and revalidation.

Learning for needs
The main purpose of needs assessment must be to help educational planning, but this must not lead to too narrow a vision of learning. Learning in a profession is unlike any other kind of learning. Doctors live in a rich learning environment, constantly involved in and surrounded by professional interaction and conversation, educational events, information, and feedback. The search for the one best or "right" way of learning is a hopeless task, especially

if this is combined with attempting to "measure" observable learning. Research papers show, at best, the complexity of the process.

Multiple interventions targeted at specific behavior result in positive change in that behavior. Exactly what those interventions are is less important than their multiplicity and targeted nature. On the other hand, different doctors use different learning methods to meet their individual needs. For example, in a study of 366 primary care doctors who identified recent clinical problems for which they needed more knowledge or skill to solve, 55 different learning methods were selected. The type of problem turned out to be the major determinant of the learning method chosen, so there may not be one educational solution to the identified needs.

Much of a doctors' learning is integrated with their practice and arises from it. The style of integrated practice and learning ("situated learning") develops during the successive stages of medical education. The components of apprenticeship learning in postgraduate training are made up of many activities that may be regarded as part of practice (13). Senior doctors might also recognize much of their learning in some of these elements and could certainly add more—such as conversations with colleagues.

Thus, educational planning on the basis of identified needs faces real challenges in making learning appropriate to and integrated with professional style and practice. The first step is to recognize the need of learning that are a part of daily professional life in medicine and to formalize, highlight, and use these as the basis of future recorded needs assessment and subsequent planning and action, as well as integrating them with more formal methods of needs assessment to form a routine part of training, learning, and improving practice.

Methodology

Quality health care for patients is supported by maintenance and enhancement of clinical, management and personal skills. The knowledge and skills of practitioners require refreshment, and good professional attitudes need to be fostered through the process of continuing professional development. In an attempt to assess the needs for professional development of the medical, dental practitioners and nursing staff a survey was conducted by means of a Questionnaire (APPENDIX 1) by the Department of Primary Health Care. This report takes into account a wide section of the various medical, dental and nursing staff. The purposes of the review, therefore were to:

- Determine the area of professional development
- Help the primary care physician, meet the challenge of changes in the structure and delivery of patient care.
- Encourage more reflection on practice & learning needs, including more forward planning; and
- Make the educational methods used in practice more effective

The topics that were covered in the survey included the following

CME TOPICS FOR PHYSICIANS

.Family Medicine Concepts
.Patient Management Skills
.Critical Appraisal
.Internal Medicine
- Endocrinology & Metabolic
- Cardiovascular
- Gastroenterology
- Pulmonary
- Nephrology
- Neurology
- Rheumatology
- Psychiatry
- Genito Urinary
- Infections Diseases
- Hematology

.Pediatrics
.Otorhinolaryngology
.Ophthalmology
.Maternal Health
.Dermatology
.Gerontology
.Health Promotion and Disease Prevention
.Diagnostic Procedures
.Therapeutic Procedures
.Special Topics
.Surgery
.Emergency Care

Format of CME

Timing of the CME
Type of Activities
Self Study

Results

The tables following represent a summary of the data collected.

Part I-Demographic data

465 questionnaires were included in the study out of 600 hundreds distributed. The exclusion criteria were that either the questionnaire was not returned or was incomplete. The response rate was 77 percent.

The mean age of the study population was 42 years (SD 9.70) with the minimum age being 23 years and maximum being 74years. However 72% of the sample were below 50 years. The mean of the number of years since graduation was 18 years (mean =8.46, SD=9.16). Whereas the mean of the number of years in practice was 17 years (Mean=17.18, SD=9.16). As for gender distribution 35% of the sample were males vs 65% who were females. Looking at years since graduation 78 % of sample had graduated for more than ten years, 42% of sample more than twenty years ago while 12% of sample had graduated since more than 30 years. Looking specifically at different professions of the study population and specialty only 3.4 percent were family physicians

Table 1: Current Specialty among Physicians

Specialty	Frequency	Percent
Family	12	3.4
GP	48	13.6
PED	38	10.8
OBS	3	0.8
Total	101	

Part II: CME Topics for Physicians

The response to the various topics in medicine is presented in Tables 4 to Tables 29.

The rating for each topic were:

(a) In order of importance for having CME on the topic (1 = least important to 5 = most important)

(b) Current level of knowledge of the topic. (1 = basic to 5 = highly skilled)

(c) Recommend CME activity on level of priority. (1=least to 5 = highest priority)

Table 2: Family Medicine Concepts

	Topics	Rating of Importance		Knowledge Level		Recommended CME	
		Mean	SD	Mean	SD	Mean	SD
1	Development of Family Medicine	3.31	1.35	2.82	1.05	3.16	1.42
2	Family structure and dynamics	3.17	1.32	2.80	1.08	3.13	1.29
3	Role of the Family in illness management	4.03	1.118	3.46	.95	3.86	1.16
4	Assessment of Family Function	3.47	1.18	2.99	1.09	3.35	1.24
5	The Family and the social environment	3.72	1.16	3.27	1.02	3.52	1.22

Table 3: Patient Management Skills

	Topics	Rating of Importance		Knowledge Level		Recommended CME	
		Mean	SD	Mean	SD	Mean	SD
1	Interviewing skills	4.18	1.05	3.88	.90	3.83	1.20
2	Doctor – patient relationship	4.42	.95	4.12	.78	3.85	1.25
3	Patient compliance	4.29	.94	3.71	.97	3.75	1.20
4	Genetic Counseling	4.12	1.0	3.12	1.0	3.95	1.13
5	Nutritional Counseling	4.27	.91	3.66	.85	4.04	1.10
6	Sexual Counseling	3.87	1.04	3.31	.97	3.69	1.20
7	Premarital – Marital Counseling	4.20	.95	3.31	.95	3.72	1.18
8	The critically ill and dying patient	3.94	1.23	3.08	1.03	3.58	1.39

Table 4: Critical Appraisal

	Topics	Rating of Importance		Knowledge Level		Recommended CME	
		Mean	SD	Mean	SD	Mean	SD
1	How to read papers	3.87	1.27	3.63	.96	3.60	1.30
2	How to order diagnostics tests	4.27	1.091	3.98	.76	3.92	1.18
3	How to write papers	3.83	1.256	3.33	1.07	3.69	1.26
4	How to design research	3.75	1.25	2.83	1.13	3.64	1.35
5	Computer skills	4.16	1.06	3.05	1.07	3.91	1.20
6	Internet skills	4.22	1.05	3.11	1.17	3.91	1.26
7	Statistics	3.60	1.20	2.59	1.0	3.53	1.35
8	Quality Indicators	3.89	1.02	2.64	1.0	3.63	1.27

Internal Medicine

Table 5: Endocrinology & Metabolic

	Topics	Rating of Importance		Knowledge Level		Recommended CME	
		Mean	SD	Mean	SD	Mean	SD
1	Diabetes Mellitus	4.72	.63	4.14	.60	4.38	.96
2	Goiter	4.08	.95	3.77	.736	3.85	1.04
3	Thyroid disorders	4.45	4.64	3.69	.77	3.83	1.07
4	Obesity	4.53	.82	4.01	.62	4.44	.86
5	Osteoporosis	4.14	1.0	3.57	.82	4.08	1.04
6	Hyperlipidemia	4.46	.89	3.90	.89	4.12	1.15

Table 6: Cardiovascular

	Topics	Rating of Importance		Knowledge Level		Recommended CME	
		Mean	SD	Mean	SD	Mean	SD
1	Chest pain – CAD	4.64	.76	3.94	.79	4.28	1.07
2	Hypertension	4.68	.71	4.17	.64	4.32	1.02
3	Arrhythmias	4.38	.86	3.59	.80	4.19	1.00
4	Congestive heart failure	4.25	.89	3.75	.73	4.01	1.04
5	Heart murmurs	4.30	.91	3.78	.79	4.12	1.06
6	Rheumatic fever	4.17	.99	4.03	.76	3.86	1.10
7	Congenital heart disease	4.17	.93	3.59	.82	3.99	.97
8	Peripheral vascular disease	3.94	.96	3.29	.88	3.84	1.09
9	Cardiac Rehabilitation	3.82	1.09	2.90	.88	3.73	1.11

Table 7: Gastroenterology

	Topics	Rating of Importance		Knowledge Level		Recommended CME	
		Mean	SD	Mean	SD	Mean	SD
1	Abdominal pain	4.55	.75	4.08	.61	4.23	1.01
2	Jaundice	4.24	.87	3.90	.72	4.04	1.02
3	Diarrhea	4.19	.93	4.12	.61	3.91	1.09
4	Peptic ulcer and hyperacidity	4.18	.92	3.94	.70	4.00	1.0
5	Intestinal parasites	3.83	1.07	3.92	.72	3.53	1.20
6	Irritable bowel disease	3.99	.97	3.90	.76	3.77	1.13

Table 8: Pulmonary

	Topics	Rating of Importance		Knowledge Level		Recommended CME	
		Mean	SD	Mean	SD	Mean	SD
1	C. O. P. D	4.29	.87	3.86	.66	4.00	1.07
2	Acute Bronchitis	4.22	.94	4.19	.59	3.75	1.17
3	Asthma	4.71	.65	4.33	.57	4.29	1.05
4	Pneumonia	4.39	.75	4.06	.62	4.05	1.07
5	Hemoptysis	3.94	1.05	3.60	.79	3.75	1.12
6	Dyspnea	4.38	.84	3.87	.76	4.08	1.04
7	Tuberculosis	4.03	.98	3.81	.80	3.79	1.16

Table 9- Nephrology

	Topics	Rating of Importance		Knowledge Level		Recommended CME	
		Mean	SD	Mean	SD	Mean	SD
1	Renal Failure	4.05	1.06	3.41	.77	4.06	.98
2	Hematuria and Proteinuria	4.45	.87	3.64	.78	4.35	.88

Table 10 - Neurology

	Topics	Rating of Importance		Knowledge Level		Recommended CME	
		Mean	SD	Mean	SD	Mean	SD
1	Cerebrovascular accidents.	4.20	1.05	3.34	.81	4.02	1.11
2	Rehabilitation following stroke	3.72	1.15	2.77	.93	3.54	1.20
3	Convulsions/Epilepsy	4.34	.90	3.56	.78	4.29	.87
4	CNS infections.	4.16	.97	3.50	.80	4.00	1.02
5	Movement disorders	3.78	1.03	3.03	.78	3.62	1.10
6	Headache	4.62	.78	3.86	.77	4.36	.92

Table 11: Rheumatology

	Topics	Rating of Importance		Knowledge Level		Recommended CME	
		Mean	SD	Mean	SD	Mean	SD
1	Arthritis – approach	4.33	.85	3.56	.81	4.12	.97
2	Rheumatoid arthritis	4.11	.91	3.56	.72	3.85	.97
3	Osteoarthritis	4.16	.95	3.61	.80	3.82	1.08
4	Back pain	4.34	.89	3.69	.67	4.02	1.07
5	Knee pain	4.13	.97	3.40	.73	3.89	1.04
6	Ankle pain	3.92	.95	3.35	.77	3.63	1.08
7	Shoulder pain	4.07	1.86	3.30	.76	3.66	1.14

Table 12 - Psychiatry

	Topics	Rating of Importance		Knowledge Level		Recommended CME	
		Mean	SD	Mean	SD	Mean	SD
1	Sleep disorders	3.99	1.02	2.95	.84	3.81	1.10
2	Anxiety	4.22	.93	3.32	.94	4.00	1.06
3	Affective disorders	3.80	1.06	2.89	1.0	3.70	1.17
4	Personality disorders	3.83	1.06	2.79	.95	3.67	1.09
5	Drug abuse	3.87	1.14	2.91	.89	3.83	1.15
6	Sexual dysfunction	3.76	1.12	2.90	1.0	3.64	1.20
7	Somatization disorders	3.81	1.13	2.82	1.15	3.67	1.21

Table 13 - Genitourinary

	Topics	Rating of Importance		Knowledge Level		Recommended CME	
		Mean	SD	Mean	SD	Mean	SD
1	Nephrolithiasis.	4.04	.94	3.47	.87	3.90	1.08
2	Infertility.	3.69	1.19	3.16	.86	3.61	1.18
3	Urinary tract infections	4.47	.84	4.03	.68	4.13	1.06
4	Enuresis.	4.26	1.0	3.72	.90	3.94	1.12
5	Incontinence.	3.81	1.16	3.15	.95	3.59	1.28
6	Prostate problems	3.53	1.24	2.82	1.0	3.35	1.31

Table 14: Infectious Diseases

	Topics	Rating of Importance		Knowledge Level		Recommended CME	
		Mean	SD	Mean	SD	Mean	SD
1	Fever without a focus	4.46	.84	3.72	.71	4.31	.91
2	Sexually transmitted diseases	4.18	.91	3.65	.75	3.99	1.04
3	Cellulitis	3.82	1.05	3.75	.80	3.65	1.12
4	Infection control	4.28	.92	3.60	.86	4.11	.98
5	Use and abuse of antibiotics	4.60	.79	3.93	.78	4.33	1.02

Table 15: Hematology

	Topics	Rating of Importance		Knowledge Level		Recommended CME	
		Mean	SD	Mean	SD	Mean	SD
1	Anemia	4.56	.83	4.12	.65	4.25	1.00
2	Lymphadenopathy	4.29	.89	3.76	.75	4.10	1.01
3	Bleeding disorders	4.15	.92	3.50	.77	4.02	1.0
4	Hemoglobinopathies	4.16	.95	3.67	.84	4.03	1.06

Table 16: Pediatrics

	Topics	Rating of Importance		Knowledge Level		Recommended CME	
		Mean	SD	Mean	SD	Mean	SD
1	Normal growth and development	4.42	.88	3.90	.81	4.10	1.13
2	Nutrition	4.42	.83	3.84	.87	4.04	1.09
3	Immunizations	4.39	1.04	4.16	.80	3.97	1.26
4	Development disorders	4.42	.85	3.57	.88	4.10	1.04
5	Learning disabilities	4.24	.87	3.20	.93	4.12	.93
6	Congenital orthopedic problems	4.02	1.11	3.10	.93	3.85	1.15
7	Diarrheas	4.40	.84	4.08	.70	3.99	1.19
8	Puberty and adolescence	4.20	.91	3.60	.88	3.93	1.09
9	Failure to thrive	4.27	.96	3.52	.97	3.96	1.13
10	Mental retardation – evaluation	4.13	.98	3.15	1.04	3.89	1.12

Table 17: Otorhinolaryngology

	Topics	Rating of Importance		Knowledge Level		Recommended CME	
		Mean	SD	Mean	SD	Mean	SD
1	Otitis Media	4.36	.94	4.0	.71	3.9	1.19
2	Otitis Externa	4.00	1.02	3.95	.76	3.51	1.27
3	Pharyngitis /tonsillitis	4.21	1.05	4.31	.67	3.50	1.36
4	Hearing loss	4.06	1.01	3.17	.87	3.79	1.11
5	Vertigo and dizziness	4.24	.91	3.43	.76	4.03	1.08
6	Rhinitis – Sinusitis	4.11	1.0	3.90	.75	3.71	1.21
7	Hoarseness	3.92	1.10	3.43	.92	3.72	1.22

Table 18: Ophthalmology

	Topics	Rating of Importance		Knowledge Level		Recommended CME	
		Mean	SD	Mean	SD	Mean	SD
1	Red eye	4.49	.84	3.51	.95	4.17	1.10
2	Glaucoma	3.91	1.17	2.84	.96	3.70	1.24

Table 19: Maternal Health

	Topics	Rating of Importance		Knowledge Level		Recommended CME	
		Mean	SD	Mean	SD	Mean	SD
1	Medical problems during pregnancy	4.30	1.02	3.55	.95	4.02	1.17
2	Antenatal care	4.15	1.15	3.63	1.12	3.66	1.31
3	Drugs in pregnancy	4.50	.85	3.56	.93	4.20	1.10
4	Abnormal vaginal bleeding	4.07	1.06	3.33	1.01	3.77	1.17
5	Family planning & contraception	3.87	1.07	3.43	1.10	3.48	1.24
6	Female genital tract infections	4.04	1.03	3.45	1.11	3.67	1.23
7	Contraception	3.78	1.19	3.38	1.08	3.42	1.27
8	Amenorrhea	3.85	1.16	3.23	1.02	3.60	1.29

Table 20: Dermatology

Topics		Rating of Importance		Knowledge Level		Recommended CME	
		Mean	SD	Mean	SD	Mean	SD
1	Skin infections	4.47	.84	3.77	.77	4.23	1.04
2	Evaluation of a rash	4.61	.76	3.65	.82	4.41	.85
3	Dermatitis	4.37	.87	3.58	.89	4.10	1.0
4	Acne	4.16	1.00	3.69	.90	3.84	1.15
5	Psoriasis	3.92	1.05	3.34	1.03	3.72	1.15
6	Skin exam for cancer	4.14	.96	2.85	1.08	3.93	1.09
7	Drug eruptions	4.35	.93	3.50	.977	4.12	1.09
8	Hair problem	4.17	.94	3.07	1.02	4.02	1.11

Table 21: Gerontology

Topics		Rating of Importance		Knowledge Level		Recommended CME	
		Mean	SD	Mean	SD	Mean	SD
1	Physiologic changes of aging	3.91	1.13	3.14	.93	3.70	1.19
2	Preventive care	4.12	1.06	3.16	.93	3.82	1.158
3	Drug therapy in the elderly	4.11	1.04	2.99	.92	3.95	1.14
4	Frailty	3.58	1.12	2.66	.97	3.46	1.21
5	Dementia and pseudodementia	3.64	1.15	2.77	.96	3.57	1.23
6	Special considerations in comprehensive care	3.76	1.20	2.72	.95	3.63	1.17

Table 22: Health Promotion and Disease Prevention

Topics		Rating of Importance		Knowledge Level		Recommended CME	
		Mean	SD	Mean	SD	Mean	SD
1	Immunization schedule, adult	3.88	1.13	3.31	.93	3.60	1.20
2	Immunization schedule, child*	4.47	1.02	4.25	.80	3.89	1.30
3	Screening schedule, infant*	4.23	1.10	3.61	1.03	3.84	1.22
4	Screening schedule, child*	4.24	1.01	3.54	1.02	3.91	1.18
5	Screening schedule, adolescent	4.12	1.06	3.36	.99	3.77	1.147
6	Screening schedule, young adult	3.94	1.10	3.20	.93	3.56	1.19
7	Screening schedule, older adult	3.93	1.10	3.20	.98	3.63	1.17
8	History and physical, infant*	4.27	1.04	3.66	.95	3.69	1.26
9	History and physical, child*	4.24	1.03	3.76	.93	3.68	1.21
10	History and physical, adolescent	4.13	1.05	3.75	.88	3.57	1.19
11	History and physical, young adult	4.02	1.15	3.62	.96	3.46	1.24
12	History and physical, older adult	3.96	1.18	3.49	1.05	3.44	1.21

Table 23: Diagnostic Procedures

	Topics	Rating of Importance		Knowledge Level		Recommended CME	
		Mean	SD	Mean	SD	Mean	SD
1	Pap smear	3.97	1.25	3.05	1.24	3.62	1.28
2	Electrocardiogram	4.57	.80	3.51	.95	4.40	.94
3	Ambulatory blood pressure	4.19	1.06	3.89	.89	3.68	1.34
4	Ultrasound	4.22	.96	2.39	1.09	3.95	1.17

Table 24: Therapeutic Procedures

	Topics	Rating of Importance		Knowledge Level		Recommended CME	
		Mean	SD	Mean	SD	Mean	SD
1	Intramuscular injection	3.53	1.45	4.30	.92	2.58	1.38
2	Subcutaneous injection	3.56	1.45	4.14	1.02	2.60	1.41

Table 25: Special Topics

	Topics	Rating of Importance		Knowledge Level		Recommended CME	
		Mean	SD	Mean	SD	Mean	SD
1	Home care	3.58	1.22	2.88	1.08	3.28	1.28
2	Fatigue	3.88	1.13	3.13	.97	3.64	1.28
3	Andropause and men's health	3.36	1.24	2.48	.98	3.18	1.31

Table 26: Surgery

	Topics	Rating of Importance		Knowledge Level		Recommended CME	
		Mean	SD	Mean	SD	Mean	SD
1	Evaluation of Breast lumps	4.25	1.14	3.53	1.11	3.82	1.27
2	Sprains	4.052	1.02	3.55	.92	3.67	1.20
3	Animal bites	3.97	1.05	3.29	.90	3.62	1.21
4	Office surgical procedures	4.03	1.13	2.98	.98	3.77	1.27

Table 27: Emergency Care

	Topics	Rating of Importance		Knowledge Level		Recommended CME	
		Mean	SD	Mean	SD	Mean	SD
1	Basic Life Support	4.64	.79	3.64	1.00	4.48	.93
2	Advanced Life Support	4.57	.85	3.09	1.0	4.34	1.01

Format of CME

Attempt was made to establish the most suitable timings and frequency of the CME activities.
The ratings adopted were :

1 being least appropriate, 5 most appropriate. The results are presented below and the need for a monthly activity was rated highest 3.95 with Hands- on Training

Table 28: Timing of CME

	Timing of the CME	Rating	
		Mean	SD
1	Weekly at night	2.42	1.52
2	Half day in the weekend on weekly basis	2.48	1.49
3	Bi-weekly	2.61	1.55
4	Monthly	3.95	1.38
5	Once yearly (Conference)	2.75	1.72
6	Others	2.03	1.60

Table 29: Type of Activities

	Type of activities	Rating	
		Mean	SD
1	Classic lectures	3.41	1.49
2	Workshops	3.91	1.38
3	Hand on Training	3.96	1.29
4	Conferences	3.55	1.32
5	Journal Club	2.82	1.48
6	Others	1.85	1.37

Table 30: Self Study Methods

	Self Study	Rating	
		Mean	SD
1	Videotapes	3.39	1.45
2	Monographs	2.52	1.26
3	Journals	3.64	1.38
4	Internet	3.58	1.43
5	CD	3.55	1.48
6	Others	2.03	1.49

Recommendation

There is little disagreement that medical education is a continuum, which begins prior to the professional school, continues through the four or five years of medical school, into graduate education, and proceeds throughout the physician's/dentists' lifespan as life-long learning. There is increasing consensus that the Accreditation Council for Graduate Medical Education's (ACGME) Outcome Project, with its defined competency structure, is driving significant changes in graduate medical education. Given the continuum of medical education and the remarkable congruency of all the broad-based calls for medical education reform with the ACGME competency structure. In the area of Primary health care it is clear that there is a definite need for improvement. All current physicians within the primary health care setting will participate in the project to upgrade their skills.

Overall Evaluation and Need for Improvement

As curricula and methodologies for the training of physicians approach the 100-year anniversary of the Flexner report (2010), it is important to recognize that medical education has been a constantly evolving process to address the training needs of physicians to serve society and its people. Understanding curricular reform is one of understanding its history

Many reports prior to 1990 (e.g. Rappleye, GPEP, Macy Foundation) comment on the process, as well as the content and structure of medical education. Several have noted the glacial progress of reform and the reasons behind this pace. More recently in the 1990s and the new century, the breadth of involved stakeholders in this process has widened, as many entities within and beyond medical schools have identified significant needs in the process of education of physicians for the 21st century. These defined challenges reflect not only the explosion of medical knowledge and technology and the changing demographics of the population, but also the broader societal and health care system changes that are significantly affecting the contextual environment in which medicine is practiced.

There is a need to improve and train people responsible for CME and CPD activities. Traditional educational practice in medical schools emphasize the organ systems and discipline-based approaches, but in Primary Health Care, faculty development is necessary to ensure effective

team teaching approaches, interdisciplinary collaboration, integration of material across disciplines and courses, and focus on patient health outcomes. The integration of these concepts needs to be across the curriculum and in every course rather than adding additional curricular time. Faculty development in adult education techniques may be necessary. Faculty development for role modeling and mentoring techniques should be considered.

The response rate from the survey was relatively high, reflecting the interest of the primary health care team in CME and CPD. There are a number of Barriers to obtaining optimal CME including lack of time and type of activities.

Lack of time

Lack of time was seen as the biggest barrier to obtaining optimal CME. All CME was carried out in personal time. GPs were perceived as working hard and long hours. Personal time is precious. 'It means night-time or weekends. CME activity has to fit in with on call and family. 'I am a working mother, time is the essence.' In our survey most health care members preferred CME activity on a monthly basis which reflects that time is precious for the busy primary health care team. (Table 31)

Table 31: Timing of CME

	Timing of the CME	Rating	
		Mean	SD
1	Weekly at night	2.42	1.52
2	Half day in the weekend on weekly basis	2.48	1.49
3	Bi-weekly	2.61	1.55
4	Monthly	3.95	1.38
5	Once yearly (Conference)	2.75	1.72
6	Others	2.03	1.60

Motivation and fatigue were other barriers to CME. Distance, availability and cost were seldom raised as issues for urban GPs. However, distance precluded attendance for many rural practitioners, as did difficulty obtaining locums, cover for single days, availability of CME and financial considerations. The perceived challenge was to increase the accessibility of personally-interactive CME.

Type of Activities

A number of studies have shown preference of GPs for personal interaction. Some studies have shown a preference amongst physicians for lectures but this may include interaction. Others have found journals the most popular source of information but interactive formats were still highly rated. Preference depends on the type and quality of personal experience of this type of format. Pendleton differentiated the academic and professional approach to CME. He postulated that the academic prefers the written medium and the clinician prefers face-to-face. In our survey the respondents preferred the most hand on training, workshop, and conferences.

Review of randomized controlled trials on CME interventions revealed that personal interaction to be central to effectiveness in change in practice. Several studies have reported that physicians seek confirmation and validation of current and new medical practices through their peers. Other studies have confirmed the importance of interaction in changing professional behavior. However, it has not been established which elements of the interactive process enable learning. Interaction allows for clarification, personalisation of information, exploration, feedback, and reflection. It can also address other needs of doctors that may not be recognized or quantified – the need for support, recognition, motivation and fulfillment, and the 'need' to belong to a professional community.

As for self study methods the respondent preferred mostly journals followed by the internet followed by CD-Table 33

Table 32 : Type of Activities

	Type of activities	Rating	
		Mean	SD
1	Classic lectures	3.41	1.49
2	Workshops	3.91	1.38
3	Hand on Training	3.96	1.29
4	Conferences	3.55	1.32
5	Journal Club	2.82	1.48
6	Others	1.85	1.37

Table 33: Self Study Methods

	Self Study	Rating	
		Mean	SD
1	Videotapes	3.39	1.45
2	Monographs	2.52	1.26
3	Journals	3.64	1.38
4	Internet	3.58	1.43
5	CD	3.55	1.48
6	Others	2.03	1.49

Interactive formats are not inherently beneficial nor always produce change. Some formats may be more conducive to specific changes in behavior and some to support. Group dynamics, facilitation, personal agendas, and internal and external influences contribute to the complexity of the format. In general, the focus was on choice of CME as opposed to other elements of the learning cycle. This approach has been documented previously and reflects the traditional approach to learning. It is well established that CME should follow the principles of androgogy – adult, self-directed learning. The term 'androgogy' has been coined to describe the learning culture appropriate to adult education . Whereas the term 'pedagogy' describes the teacher-centred approach to the education of children, androgogy 'recognises education to be a dynamic lifelong process' that 'is learner-orientated'. This is grounded in experiential learning – identifying and addressing needs and applying learning with continuing reflection. Although much has been written about the theory and benefits of this model. GPs do not appear to adopt it. This is not unique to GPs – a study of physicians' CME found that 'unstructured ad hoc reading and postgraduate activities predominate over methods based on specific, individual needs or on current patient problems'. Some GPs in our study did recognise that tailoring their CME to their identified, specific needs was better than the opportunistic approach, but few attempted this in any structured way. Discussions with colleagues one-to-one and in small groups may serve as an informal process of reflection, even though the benefits may not be easily quantifiable. The process of reflecting on issues, debating problem areas and formalising opinions may be helpful to the clinician, even where there has not been a specific updating of knowledge.

Lack of time may be one reason GPs have not embraced the adult learning model. Clinical experience is abundant in general practice, yet many may be too busy to learn from it. Lack of time has been well documented as a significant barrier to obtaining optimal CME, a finding borne out strongly in this study. Perceived high workload and stress lead not only to lack of time, but also de-motivation. Motivation is a complex issue, however one role of CME is to sustain motivation.

GPs may not be very good at identifying their needs unassisted. The current system of CME credits rewards application of the traditional model, one of updating knowledge and skills, with no focus on utilisation of the adult learning cycle. Without evaluation of CME undertaken, GPs are likely to be unaware of any failings of the current system. Few tools are available to facilitate this process of reflection and evaluation. Personal development plans and mentorship have been suggested but need to be evaluated. Practical, evidence-based, user-friendly ways of addressing this issue are awaited.

Most doctors want to improve the quality of their action as painlessly as possible. They wish to maximise the return on their investment of time and this becomes a matter of cost-benefit analysis based on the likely yield of the activity. Personally interactive formats are costly on time, especially when travelling is taken into consideration, yet most GPs prefer these formats. Clearly GPs consider time spent in this way to be beneficial. They may find that the scheduled nature of these events ensures their participation, whereas spending the equivalent time on their own reading or accessing the Internet may require more personal discipline.

CME and CPD for Physicians

Traditionally, GPs have obtained their CME through didactic lectures and written material. Although these mechanisms may increase their knowledge, there is no evidence that they change performance. Recently, there has been a move, in the literature at least, towards application of the Kolb adult learning cycle: identifying learning needs, addressing those needs and evaluating the outcome, with reflection inherent in the process. CME is undergoing change in many countries, in part because of this move. Obtaining views regarding CME from GPs may facilitate this change. Proposed changes are most likely to succeed when compatible with existing beliefs.

Most GPs do not direct their CME according to the adult learning model. The challenge for CME providers is to provide avenues to facilitate needs identification and self-directed learning.

It is clear that looking at table 4 and 7 showed that the general practitioners rated the importance of topics according to their level of knowledge. It is an important concept that revealed that the less knowledge they have about a topic was reflected by less score on rate of importance. Therefore in planning CME program this should be taken into account

We divided the level of importance of CME into three categories between 4.4 to 4.5, between 4.5 to 4.6 and above 4.6

CME that was rated between 4.4 to 4.5

1. Doctor Patient relationship
2. Hematuria and Proteinuria
3. Urinary Tract Infection
4. Fever without a focus
5. Normal Growth and development
6. Nutrition
7. Development Disorders
8. Diarrheas
9. Red Eyes
10. Skin Infection
11. Immunization schedule

CME that was rated between 4.5 to 4.6

1. Obesity
2. Abdominal Pain
3. Headache
4. Use and Abuse of Antibiotics
5. Anemia
6. Drugs in Pregnancy
7. Electrocardiogram
8. Advanced Life Support

Table 34: Family Medicine Concepts

Topics		Rating of Importance		Knowledge Level		Recommended CME	
		Mean	SD	Mean	SD	Mean	SD
1	Development of Family Medicine	3.31	1.35	2.82	1.05	3.16	1.42
2	Family structure and dynamics	3.17	1.32	2.80	1.08	3.13	1.29
3	Role of the Family in illness management	4.03	1.118	3.46	.95	3.86	1.16
4	Assessment of Family Function	3.47	1.18	2.99	1.09	3.35	1.24
5	The Family and the social environment	3.72	1.16	3.27	1.02	3.52	1.22

Table 35: Endocrinology & Metabolic

Topics		Rating of Importance		Knowledge Level		Recommended CME	
		Mean	SD	Mean	SD	Mean	SD
1	Diabetes Mellitus	4.72	.63	4.14	.60	4.38	.96
2	Goiter	4.08	.95	3.77	.736	3.85	1.04
3	Thyroid disorders	4.45	4.64	3.69	.77	3.83	1.07
4	Obesity	4.53	.82	4.01	.62	4.44	.86
5	Osteoporosis	4.14	1.0	3.57	.82	4.08	1.04
6	Hyperlipidemia	4.46	.89	3.90	.89	4.12	1.15

CME that was rated above 4.6

1. Diabetes Mellitus
2. Chest Pain
3. Hypertension
4. Asthma
5. Evaluation of Rash
6. Basic Life Support

Curriculum Guideline for Primary Care Physician Education Initiative

CME cannot be entirely focused on GP preference. However, it is clear from this study that interactive formats were generally preferred in accordance with evidence of what changes GP behaviour. More research is needed into which elements of interactive formats facilitate learning. Most GPs are not directing their CME according to the adult learning model. This situation needs to be addressed, bearing in mind the barriers of lack of time and motivation, in order to change the status quo.

This curriculum guideline drawn from existing family Medicine Curriculum, the need assessment, and clinical protocol being developed by the primary health care clinical guideline committee at the authority. This will help in preparing our current primary care physicians to understand and practice with family medicine spirit.

The CME program will include a matrix structure, including family medicine principles, family medicine themes, and the competency structure. The CME Curriculum will focuses on clinical competencies necessary. The competencies were identified through the consensus of experienced educators from the primary care disciplines and need assessment. The CCP has two components: an overall compendium of suggested competencies and a delineation of 6 priority areas

The PCPEI Matrix incorporates:

- Six ACGME competencies
- Five Family Medicine Principles - Values that define the profession, which should guide our educational activities.
  - Context of Care
  - Continuity of Care
  - Comprehensive Care
  - Coordination of Care
  - Biopsychosocial Approach

- Three Family Medicine Clerkship Themes - Contexts in which FM delivers care.
  - Prevention and Wellness
  - Acute and Chronic Illness
  - Community and Population Medicine
- Family Medicine Topic Areas- derived from the need assessment
- Clinical protocols developed for primary health care
- Special topics of interest
- End-of-life and palliative care
- Geriatrics
- Genetics

- Informatics
- Substance abuse
- Mental health
- Bioterrorism
- Oral Health

ACGME Competencies

Patient Care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health

Medical Knowledge about established and evolving biomedical, clinical, and cognate (e.g. epidemiological and social-behavioral) sciences and the application of this knowledge to patient care

Practice-Based Learning and Improvement that involves investigation and evaluation of their own patient care, appraisal and assimilation of scientific evidence, and improvements in patient care

Interpersonal and Communication Skills that result in effective information exchange and teaming with patients, their families, and other health professionals

Professionalism, as manifested through a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population

Systems-Based Practice, as manifested by actions that demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to effectively call on system resources to provide care that is of optimal value

CME topics rated above 4.4 by respondents

Diabetes Mellitus
Chest Pain
Hypertension
Asthma
Evaluation of Rash
Basic Life Support
Doctor Patient relationship
Hematuria and Proteinuria
Urinary Tract Infection
Fever without a focus
Normal Growth and development
Nutrition
Development Disorders
Diarrheas
Red Eyes
Skin Infection
Immunization schedule
Obesity
Abdominal Pain
Headache
Use and Abuse of Antibiotics
Anemia
Drugs in Pregnancy
Electrocardiogram
Advanced Life Support

The Alphabetical list of clinical guidelines

Acne, Management of
Acute Coronary Syndrome and Chest Pain; Diagnosis and Treatment of
Ankle Sprain
Anticoagulation Therapy Supplement
Asthma, Diagnosis and Outpatient Management of
Asthma, ER and Inpatient Management of
Atrial Fibrillation
Attention Deficit Hyperactivity Disorder in Primary Care for School Age Children and Adolescents, Diagnosis and Management of
Breast Cancer Treatment
Breast Disease, Diagnosis of
Cardiac Stress Test Supplement
Cervical Cancer Screening
Chronic Obstructive Pulmonary Disease
Colorectal Cancer Screening
Coronary Artery Disease, Stable
Degenerative Joint Disease of the Knee, Adult; Diagnosis and Treatment of
Depression, Major, in Adults for Mental Health Care Providers
Depression, Major, in Adults in Primary Care
Diabetes Mellitus, Type 2; Management of
Domestic Violence
Dyspepsia & GERD
Headache, Diagnosis and Treatment of
Heart Failure in Adults
Hypertension Diagnosis and Treatment
Immunizations
Infertility, Diagnosis and Management of
Labor, Management of
Lipid Management in Adults
Lipid Screening in Adults
Lipid Screening in Children and Adolescents
Low Back Pain, Adult
Menopause and Hormone Therapy (HT): Collaborative Decision-Making and Management
Obesity; Prevention and Management of (Mature Adolescents and Adults)
Osteoporosis, Diagnosis and Treatment of
Otitis Media in Children, Diagnosis and Treatment of
Pain, Acute, Assessment and Management of
Pain, Chronic, Assessment and Management of
Pap Smear, Initial Abnormal; Management of
Pharyngitis, Acute
Pneumonia, Community-Acquired
Prenatal Care, Routine Stroke, Ischemic, Diagnosis and Initial Treatment of
Tobacco Use Prevention and Cessation for Adults and Mature Adolescents
Tobacco Use Prevention and Cessation for Infants, Children and Adolescents
Urinary Tract Infection in Women, Uncomplicated
Venous Thromboembolism (formerly DVT)
Venous Thromboembolism Prophylaxis

Stroke, Ischemic, Diagnosis and Initial Treatment of
Tobacco Use Prevention and Cessation for Adults and Mature Adolescents
Tobacco Use Prevention and Cessation for Infants, Children and Adolescents
Urinary Tract Infection in Women, Uncomplicated
Venous Thromboembolism (formerly DVT)
Venous Thromboembolism Prophylaxis
Viral Upper Respiratory Infection (VURI) in Adults and Children

Clinical Protocols for Primary Health Care

	Clinical Protocols
1	Asthma, Diagnosis and Outpatient Management of
2	Diabetes Mellitus, Type 2; Management of
3	Hypertension Diagnosis and Treatment
4	Lipid Screening & Management in Adults & Children
5	Low Back Pain, Adult
6	Otitis Media in Children, Diagnosis and Treatment of
7	Depression, Major, in Adults in Primary Care
8	Breast Disease, Diagnosis of
9	Acne, Management of
10	Headache, Diagnosis and Treatment of
11	Prenatal Care, Routine
12	Obesity; Prevention and Management of (Mature Adolescents and Adults)

Building on the above resources mainly the need assessment, the Clinical protocols developed for primary health care, the six ACGME competencies , the five Family Medicine Principles , special topics of interest, and the Three Family Medicine Clerkship Themes, We recommend a CME, CPD program that cover the Topics below over a period of two years.

Protocols to be developed
Asthma, Diagnosis and Outpatient Management of
Diabetes Mellitus, Type 2; Management of
Hypertension Diagnosis and Treatment
Screening and Management of Dyslipidemia
Low Back Pain, Adult
Otitis Media in Children, Diagnosis and Treatment of
Depression, Major, in Adults in Primary Care
Breast Disease, Diagnosis of
Acne, Management of
Headache, Diagnosis and Treatment of
Prenatal Care, Routine
Obesity; Prevention and Management of (Mature Adolescents and Adults)
Ankle Sprain
Degenerative Joint Disease of the Knee,
Adult; Diagnosis and Treatment of
Sleep Apnea, Diagnosis and Treatment of Obstructive
Attention Deficit Hyperactivity Disorder in Primary Care
for School Age Children and Adolescents, Diagnosis and Management of
Immunizations
Stroke, Ischemic, Diagnosis and Initial Treatment of
Chronic Obstructive Pulmonary Disease
Coronary Artery Disease, Stable
Heart Failure in Adults
Atrial Fibrillation

Acute Coronary Syndrome and Chest Pain; Diagnosis and Treatment of
Dyspepsia & GERD
Domestic Violence
Menopause and Hormone Therapy (HT): Collaborative Decision-Making and Management
Pap Smear, Initial Abnormal; Management of Cervical Cancer Screening
Infertility, Diagnosis and Management of
Pain, Acute, Assessment and Management of
Pain, Chronic, Assessment and Management of
Preventive Counseling and Education
Preventive Risk Assessment Forms
Preventive Services for Adults
Preventive Services for Children and Adolescents
Colorectal Cancer Screening
Osteoporosis, Diagnosis and Treatment of
Rhinitis
Sinusitis in Adults, Acute
Urinary Tract Infection in Women, Uncomplicated
Viral Upper Respiratory Infection (VURI) in Adults and Children
Pharyngitis, Acute
Pneumonia, Community-Acquired
Preoperative Evaluation
Anticoagulation Therapy Supplement
Venous Thromboembolism (formerly DVT)
Venous Thromboembolism Prophylaxis
Sleep Apnea, Diagnosis and Treatment of Obstructive
Tobacco Use Prevention and Cessation for Adults and Mature Adolescents
Tobacco Use Prevention and Cessation for Infants, Children and Adolescents

Topics that of importance identified in the Need Assessment Survey and not matched to the clinical guidelines and protocols being developed

Evaluation of Rash
Basic Life Support
Doctor Patient relationship
Hematuria and Proteinuria
Fever without a focus
Normal Growth and development
Nutrition
Development Disorders
Diarrheas
Red Eyes
Skin Infection
Abdominal Pain
Use and Abuse of Antibiotics
Anemia
Drugs in Pregnancy
Electrocardiogram
Advanced Life Support

Other Topics from other sources

- Patient Care
- Practice-Based Learning and Improvement
- Interpersonal and Communication Skills
- Professionalism,
- Community and Population Medicine
- End-of-life and palliative care
- Geriatrics
- Genetics
- Informatics
- Substance abuse
- Mental health
- Bioterrorism
- Arthritis / Arthralgia
- Cancer Screening
- Cultural Competence
- Dementia
- Anxiety
- Fatigue
- Frailty
- Skin Problems
- Strains / Sprains
- Menstrual Disorders
- Nutrition

	Special Interest Topics
1	Interpersonal and Communication Skills
2	Professionalism
3	Community and Population Medicine
4	End-of-life and palliative care
5	Geriatrics
6	Genetics
7	Informatics
8	Substance abuse
9	Mental health
10	Bioterrorism

Conclusions

Quality CME can enhance the knowledge base and practice skills of the participating health care provider and is increasingly used as part of the credentialing and reappointment process. Continuing Medical Education is important not only as a requirement for practice, but as means for the profession to achieve one of its primary goals: QUALITY PATIENT CARE. To our patients CME requirements are a commitment made by the medical practitioner to keep our knowledge and skills current.

Implementation steps

Learning in medicine occurs across a continuum, from the life experience gained prior to beginning medical school, through the traditional four years of medical student education, through professional residency /fellowship training and continually through one's professional career.

Practice based learning is important within the context of primary health care. Each member of the team should be prepared to manage their learning about their patients' problems with minimal direction from the attending physician, residents, or other physicians on the rotation.

This self-directed learning will require a commitment to assessing one's own needs for learning, an ability to identify the types of information pertinent to the care of their patients (e.g., physical examination findings, diagnostic testing, treatment options, medication side-effects, diagnostic and therapeutic procedures), a listing of perceived gaps in knowledge in those areas, and a strategy for finding and assessing the necessary information. To search for information, the student will need to be able to identify up-to-date information through on-line resources. Assessing information will depend on an ability to assess the validity of evidence in clinical guidelines, reviews, and studies about diagnosis or treatment of disease.

The primary health care team must be committed and able to appraise and assimilate scientific evidence for improvement of patient care practices.

- Demonstrate commitment to personal role in providing healthcare outcomes.
- Effectively employ recursive strategy for life-long learning.
- Learn to direct own learning about patient's problems.
- Learn to locate, appraise, and assimilate evidence from clinical guidelines, systematic reviews, and articles related to patients' problems.
- Learn to apply knowledge of study designs and statistical methods to appraise information about diagnostic tests and therapeutic interventions.

Assessment Strategies

In the implementation of any CME activities assessment strategies is critical to judge the success of such a program. For example communication skills learning must be both formative and summative. The knowledge, skills, and attitudes to be assessed must be made explicit to both learners and teachers alike. Potential evaluators include local experts, course faculty, simulated and real patients, peers, and the learners themselves. Formative assessment should occur throughout the communication skills curriculum and is intended to shape and improve future behaviors. This requires direct observation (in person or videotaped) of the skills during role-play activities, with standardized patients, and with real patients. The feedback provided should be balanced and nonjudgmental. Self-assessment during the learning process should be encouraged.

Assessment of communication skills must include direct observation of performance. Evaluation of setting a therapeutic environment, gathering data and providing information and closure must be included. Evaluation of advanced skills, including use of interpreters, providing bad news and promoting behavior change should be done as well. Criteria should match the novice level of the end of second year student, who should be able to identify the critical issues for effective communication and perform the skills under straightforward circumstances.

Specific tools can be chosen from among the following:

- Standardized patients
- OSCE's
- Observed performance with patients and others
- Written reflections describing how a learner would approach a certain situation
- MCQ's

It is critical that some of the CME and CPD occur at the clinical setting. The characteristics of the ideal clinical teaching setting were described as follows:

- The care of patients should be continuous and not limited by the duration, severity, or type of illness, or by the patient's age or gender.
- The patient population should reflect the ethnic and socioeconomic mix of the community at large as closely as possible and should be sufficient in volume to provide diversity in patient encounters.
- The care provided should be community-based (that is, where care follows the need and the setting most suited to the patient, not just the practice) and should occur wherever most appropriate for the patient, including the home, office, nursing home, hospital, or extended care facility.
- The care of patients should include consideration of family, occupation, social support, resources, and ethnicity, and be customized according to the patient's needs and values.
- The faculty should be trained for, educated for, and involved in the practice of family medicine.

We need as well to apply the New Model of Family Medicine Care where, family medicine care (and teaching) will occur in a dramatically changed environment. Characteristics of the New Model of family medicine include:

- A patient-centered team approach;
- Elimination of barriers to access;
- Advanced information systems, including an
- Electronic health record;
- Redesigned, more functional offices;
- A focus on quality and outcomes;
- And enhanced practice finance.

In order to be able to achieve the above we need certain Characteristics of faculty to train physicians in this new environment:

- The faculty should be trained and current in use of technology at the point of care with patients. The setting should provide access to web-based learning resources with access to the Internet for all students.
- The faculty should be self-aware individuals who can demonstrate and role model life-long learning principles in their routine every-day care of patients.
- Faculty diversity will reflect the diversity in the patient population served at the setting where student clinical training occurs.

Community clinical teaching sites in the family medicine clerkship provide a unique learning experience for all medical students. Preserving and nurturing these teaching settings is the key to teaching a new generation of student physicians the "New Model" for family medicine.

Evaluation of Patient Care requires utilization of multiple techniques to address knowledge, skills and attitudes of future physicians. Direct observation is the key to evaluation of many of the skills outlined above. This is an area where faculty have decreased their involvement as pressures in other aspects of their roles have increased. Faculty must return to this foundational method of monitoring the growth and development of patient care skills. Videotaping of patient encounters and standardized patient evaluation are methods that enable assessment of patient care skills.

Structures within the curriculum must be developed that encourage systematic feedback to physicians about patient care knowledge, skills, and attitudes. All sources of input are viable, but the key is formative and summative evaluations by clinical preceptors.

Medical knowledge is of ultimate importance and assessment should be highly visible and very high stakes based on explicit expectations of students. Evaluation will require utilization of multiple techniques to address knowledge, skills and attitudes. Videotaping of patient encounters and standardized patient evaluations, participation in small group discussions, oral and written examinations, tests for specific examination skills, observations during patient care, Socratic questioning of individual physicians, and structured opportunities for individual and group reflection are all methods that can be used.

The knowledge, skills, and attitudes of Practice-Based Learning and Improvement are best learned in an interactive environment where a variety of teaching strategies are used to facilitate physicians learning. Basic knowledge can be transmitted through lectures, computer-assisted instruction (such as web-based curricula), or readings, but understanding and applying the material to actual patient care problems is best accomplished through problem-based methods using small group experiences and active participation and problem solving. The full application of Practice-Based Learning and Improvement requires an on-going clinical practice with information systems that allow retrieval of practice information and data from patient records.

Faculty development

Faculty development should be focused on increasing knowledge about evidence-based medicine, clinical epidemiology, and print and electronic sources for reviews and guidelines. However, often there is faculty resistance to application of the concepts of evidence-based medicine, clinical epidemiology, and quantitative approaches to decision-making, because they are sometimes viewed as counter-intuitive, impractical, and undermining the "art of medicine" as well as physician discretion to individualize patient care. Faculty skill development is critical in this area, especially skills in problem-based or case-based teaching strategies, small group instruction, and methods of quick access to information through the WWW or hand-held devices.

Faculty Members Teaching the Curriculum

Faculty members do not need to be expert in any of these special topic areas to be highly effective teachers. There may even be benefit in a teacher appearing to be a non-expert, yet a "champion" for the topic. Physicians need to understand that a basic level of mastery in such a topic is an essential component of every physician's practice. A teacher who shows expertise only in one specific area may represent an unattainable or even undesirable role model. A champion who demonstrates a broad range of competence with a variety of patient problems, and conveys both enthusiasm and a solid understanding of a topic, can serve as an ideal role model. A champion conveys an essential enthusiasm to students. Clearly, all teachers cannot be champions for all topics; rather, programs may want to identify faculty members with enthusiasm for one or more of the various topics areas and then support those champions in the development and implementation of these curricular topics.

Adult Learning Principles

In addition to being "champions," teachers need to employ principles of adult learning in their approach to teaching these topics. The knowledge base for any of these topics is changing every day with the information and technology explosion that has occurred in the last quarter-century. Genetics is a perfect example of a topic subject to rapid, ongoing revision based upon new research findings. Physicians must learn how to identify their own learning needs and address these needs effectively, in order to keep up with the ever-advancing knowledge base in most of these topic areas.

Self-Awareness

In addition to fostering an enthusiastic approach to lifelong learning, the instructional method must encourage physicians to reflect upon their own lives in relationship to the topic. The topic of geriatrics, for example, emphasizes many issues that every student will face, through the aging of parents and themselves. Substance abuse, end-of-life, and other topics often elicit strong emotions within students, as physicians remember past experiences or recognize ongoing struggles within their own lives. Teachers must create environments that are safe enough to foster trust and intimacy, and yet challenge physicians to reflect upon their own experience of life, as they develop a basic level of mastery in these special topic areas

Conclusion

CME really is about changing behavior through education–about doing something different, doing it better." The bottom line of CME in the past has been the activities we produced—how many, how much they cost, how many people came.

In essence, CME was more activity-oriented than learner-oriented. “Not only do you have to focus on the learner,” “you have to focus on the learner in the context in which they are learning, which is the healthcare environment where they practice medicine.” The aim of the proposal is to ‘to provide leadership in the delivery of high quality education, for the primary care team, in the context of a caring and vibrant academic environment’

It is critical to look at CME and CPD in the mentality of 21st century. We attempted to clearly present: that the patient’s concerns, values and outcomes must be the center of care; that partnering with an activated patient is essential; that self-awareness is essential in being an effective physician; that improving the process of care and health outcomes is the physician’s responsibility and requires a systems approach.

In conclusion, GPs in this study displayed a strong preference for personally interactive formats and non-interactive formats were viewed as adjunctive. What this demonstrates is the value GPs place on personal contact with their colleagues, despite the added demand this places on their time.

Quality CME can enhance the knowledge base and practice skills of the participating health care provider and is increasingly used as part of the credentialing and reappointment process. Continuing Medical Education is important not only as a requirement for practice, but as means for the profession to achieve one of its primary goals: QUALITY PATIENT CARE. To our patients CME requirements are a commitment made by the medical and dental practitioner to keep our knowledge and skills current.