

## Continuing medical education as a national strategy to improve access to primary care in Saudi Arabia

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## BRIEF REPORT

## Continuing medical education as a national strategy to improve access to primary care in Saudi Arabia

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### Abstract

The purpose of this study was to describe the development, implementation, and evaluation of an educational program in family medicine for general practitioners in Saudi Arabia from 2009 to 2011. A continuing medical education program called Family Medicine Education (FAME) was developed with 7 modules each consisting of 12-14 hours of teaching to be delivered in 3 day blocks, over 45 days. Twenty percent (2,761) of all general practitioners participated in the FAME program. Initial assessment of the program showed significant improvement of knowledge from scores of 49% on a pre-test to 89% on post-tests. FAME program in Saudi Arabia facilitated primary care physicians' knowledge.

**Key Words:** *Primary care; Family medicine; Continuing medical education; Implementation; Physician education*

Health care is free in the Kingdom of Saudi Arabia, with government-funded primary care centers being the first point of access for the citizens of Saudi Arabia, the large expatriate community, and to around 100,000 immigrants entering the country every year [1]. Rural areas, as well as urban areas, are equipped with primary care centers with patient loads of around 21.5 physicians per 10,000 patients [2]. Primary care physicians in Saudi Arabia, including general practitioners (GPs) and family physicians, have different postgraduate training and differ in their ability to provide primary healthcare services. The majority of primary care services in Saudi Arabia are provided by foreign-trained general practitioners with minimal to no training in family medicine. Family medicine as a career choice does not seem attractive to new doctors and only a small proportion of medical students are choosing family medicine as a career [3]. As such, the current shortage of adequately trained primary health care physicians in Saudi

Arabia will continue. In 1998, of 2,704 physicians in the Riyadh region, only 21.8% were from Saudi Arabia, with similar ratios across the country [4]. The lack of well-trained physicians in primary care is a major threat to health care access in Saudi Arabia. Providing all GPs with 1-2 years of family medicine training or replacing all GPs with family physicians are not feasible options. As such, providing regular continuing medical education (CME) for general practitioners to upgrade and maintain their knowledge, skills, and attitudes has been considered a feasible option to improve access to good quality health care. The Centre for Postgraduate Studies in Family Medicine developed a condensed educational course called Family Medicine Education (FAME) to train general practitioners in Saudi Arabia. This paper aims to introduce the development and the evaluation of the educational program in family medicine for general practitioners in Saudi Arabia.

The project proposal was developed by the authors in 2008 as a 6-month certificate program in Family Medicine for General Practitioners, as requested by the Ministry of Health of Saudi Arabia. Programs were based on published reports from the World Health Organization and discussions with both family physicians and general practitioners in Saudi Arabia.

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The FAME program has been offered free of charge to all GPs by the Ministry of Health of Saudi Arabia. All GPs working in Saudi Arabia were invited to participate in this course; it was not a mandatory requirement. The initial courses and many of the subsequent courses were taught by the number of family physicians including two of the authors (SAA, ZA). The number of teachers had to be increased as the program expanded, with 54 teachers being involved in teaching in 2012. All of the teachers attended a 'train the trainer' workshop to familiarize themselves with the content and format of teaching the FAME program. Two multiple choice examinations were conducted before and after the course to assess knowledge gain. There were 30 multiple choice items to test knowledge. The questions on knowledge testing were selected from the question bank from the Postgraduate Institute of Family Medicine and had been validated earlier for use in family medicine examinations. All of the questions were piloted with family physicians and modified as needed. Statistical analysis was carried out using SPSS ver. 20.0 (IBM, Armonk, NY, USA).

#### Module 1. Introduction to family medicine

Definition and basic concepts of family medicine, communication skills, PHE, Referrals, Consultations, Approach to common diseases

#### Module 2. General concepts in family medicine

Clinical method, Patient management, Screening, Malpractice, Ethical issues, Rational drug use, Medical records, Undifferentiated problems

#### Module 3. Common problems in family medicine: chronic disorders

CHD, Hypertension, Diabetes, Obesity, Smoking, Respiratory problems

#### Module 4. Common problems in family medicine: communicable diseases

Upper respiratory tract infections, Lower respiratory tract infections, Otitis media, Urinary tract infections, Childhood infections (MMR, Chickenpox...), Vaccination, Gastroenteritis, Parasitic diseases

#### Module 5. Common problems in family medicine: Neurologic, mental, and musculoskeletal problems

The management of Stroke, Headache, Musculoskeletal disorders, Depression, and Somatoform disorders in primary care

#### Module 6. Common problems in family medicine: Gynecologic and obstetric problems

Preconceptional care, Pregnancy follow-up, Abnormal uterine bleeding, Dysmenorrhea, Family planning, Safe, Motherhood

#### Module 7. Professional development in family medicine

Continuous professional development, Continuous quality improvement in family medicine, Team work, Motivation

**Fig. 1.** Diagram of 7 modules of Family Medicine Education (FAME) course opened from 2009-2012 in Saudi Arabia.

## Content of program

The following general and specific content was chosen [5]. The first 2 modules discussed an introduction to family medicine and the general concepts of family medicine, followed by 4 modules on common problems in family medicine: chronic illnesses; communicable diseases in adults and children; neurological, musculoskeletal, and mental health diseases; and gynecological diseases and obstetric care. The last module also covered professional development in family medicine (Fig. 1). The content and format were reviewed, edited, and approved by 23 family physicians. The details of the modules are described in Appendix 1. Each module of the course consists of 5 lectures, 6 small group sessions, and 4 practice cases taught over 3 full days. The course was designed to give theoretical information and practical skills on some of the main concepts of family medicine, and included the definition and scope of family medicine, communication skills, consultation and referral skills, and the clinical practice of family medicine. Each topic area starts with a lecture followed by group work, discussions, and other interactive learning activities. The small group learning sessions provided ample opportunity to give practical information that could be applied to patient care. The approximate division of the total learning time was as follows: 60% interactive small group sessions, 30% didactic lecturing, and 10% self-learning. The course was constructed to enable interactive learning with opportunities for peer learning, brainstorming, and small and large group discussions, as well as problem-based learning. Group discussions and role plays using cases were used to facilitate behavioral changes [6].

## Implementation

The FAME program was started in Riyadh, the capital and the largest city in Saudi Arabia, and expanded to other areas with a vision to reach GPs in all 13 regions of the Kingdom of Saudi Arabia. During the course period, 54 trainers have trained 2,761 GPs in Saudi Arabia (Table 1).

**Table 1.** Number of general practitioners (GPs) that finished Family Medicine Education (FAME) from 2009-2012 in Saudi Arabia

Year	No. of geographical regions covered	No. of GPs participating in FAME	No. of GPs completing all 7 modules (%)	Estimated direct costs incurred by Ministry of Health in millions
2009	3	221	157 (71)	SAR 1.45
2010	6	497	440 (88)	SAR 3.28
2011	6	986	924 (93.7)	SAR 6.5
2012	6	1,200 <sup>a)</sup>	Ongoing	<sup>a)</sup>

SAR, Saudi Arabian Riyals (1 US dollar = 3.76 SAR).

<sup>a)</sup>In progress.

## Learner evaluation

Analyzing the pre-test and post-test scores for the first 53 physicians who completed the program in 2009 showed significant improvement in knowledge, with scores improving from a mean of 49% (SD, 22%) for the pre-test results to a mean of 89% (SD, 13.5%) for the post-test results on a paired t-test ( $t = 15.75$ ,  $P < 0.001$ ).

FAME program in Saudai Arabia facilitated primary care physicians' knowledge acquisition. The teachers of the program attended focus group sessions in February 2012 to discuss the progress and future of the program. They discussed decentralizing the program; investing in trainers and other resources such as support staff, librarians, system administrators, textbooks, up-to-date journals and internet access; and implementing new teaching techniques with the conventional curriculum, such as practice-based small group learning and online learning. Funding to modify the program according to changing needs, offering the program for a small nominal fee, and securing research funding to evaluate the program and to analyze system changes were stressed as important considerations for the sustainability of the program. CME has been shown not only to improve physician knowledge but also to result practice changes and patient outcomes [7]. Therefore, we believe that the impact of the program on patient and population health will be the more meaningful outcome, and are in the process of evaluating these factors. Serious thought should be given to the creation of continuing medical education programs based on the health-care needs of the community to improve access to primary health care. We are hoping to measure the improvement of disease management and reduction of chronic disease complications, initially, to formulate measures of health and wellness for the community in the coming years.

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## CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

## SUPPLEMENTARY MATERIAL

Volunteer's audio recording of the abstract.

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## **Appendix 1.** Family Medicine Education (FAME) course with 7 modules each consisting of 12-14 hours of teaching to be delivered in 3 day blocks, over 45 days from 2009-2012 in Saudi Arabia

### **Module 1.** Introduction to family medicine

Day 1	
08:00-08:15	Warm up 1
08:15-08:30	Opening and Introduction
08:30-08:40	Needs assessment
08:40-08:45	Program presentation
08:45-09:15	Pre-test
09:15-09:45	Presentation 1: The Definition of family medicine
09:45-10:00	Break
10:00-10:45	Group work 1: How do we manage hypertension? (Guidelines) Diagnostic criteria-Non-pharmacologic therapy, pharmacotherapy, Follow up, Referral
10:45-11:30	Group work 2: What are the competencies of a family physician? (Brainstorming)
11:30-12:00	Presentation 2: Communication skills and patient interviewing
12:00-13:00	Break
13:00-14:00	Group work 3: Communication skills (Case: Bronchial asthma)
14:00-14:30	Summary of day 1 Home work: literature on periodic health examination to read
Day 2	
08:00-08:15	Warm up 2
08:15-08:45	Presentation 3: Referral and consultation in PC
08:45-09:45	Group work 4: Case discussion (PBL) (Case: Diabetes)
09:45-10:00	Break
10:30-11:00	Presentation 4: The biopsychosocial model
11:00-12:00	Group work 5: Sore throat scenario
12:00-12:45	Break
12:45-13:15	Presentation 5: PHE
13:15-14:00	Group work 6: Simulated case: PHE (Case: Hypertension)
14:00-14:30	Summary of day 2
Day 3	
	Case Practices
08:00-08:15	Warm up 3
08:15-10:00	Case practices 1 (Session 1-5)
10:00-10:30	Break
10:30-12:00	Case practices 2 (Session 6-9)
12:00-12:45	Break
12:45-14:00	Case practices 3 (Session 10-12)
14:00-14:30	Post-test
14:30-15:00	Course evaluation and closing remarks

## Module 2. General concepts in family medicine

### Day 1

08:00-08:15	<b>Warm up 1</b>
08:15-08:30	Opening and Introduction
08:30-08:40	<b>Needs assessment</b>
08:40-08:45	<b>Program presentation</b>
08:45-09:15	<b>Pre-test</b>
09:15-09:45	<b>Presentation 1:</b> The clinical method in family medicine
09:45-10:00	Break
10:00-10:45	<b>Group work 1:</b> Small group discussion - clinical method
10:45-11:30	<b>Group work 2:</b> Group presentations
11:30-12:00	<b>Presentation 2:</b> Patient management in family medicine
12:00-13:00	Break
13:00-14:00	<b>Group work 3:</b> Role playing - patient management
14:00-14:30	<b>Summary of day 1</b>

### Day 2

08:00-08:15	<b>Warming up 2</b>
08:15-08:45	<b>Presentation 3:</b> Ethics and shared decision making in family medicine
08:45-09:45	<b>Group work 4:</b> Panel - Ethics and shared decision making
09:45-10:00	Break
10:30-11:00	<b>Presentation 4:</b> Malpractice
11:00-12:00	<b>Group work 5:</b> Case discussions - malpractice
12:00-12:45	Break
12:45-13:15	<b>Presentation 5:</b> Undifferentiated problems in family medicine (missed diagnoses)
13:15-14:00	<b>Group work 6:</b> Case discussions on undifferentiated problems
14:00-14:30	<b>Summary of day 2</b>

### Day 3

08:00-08:15	<b>Warming up 3</b>
08:15-08:45	<b>Presentation 6:</b> Screening
08:45-09:45	<b>Group work 7:</b> Large group discussion - current screening recommendations
09:45-10:00	Break
10:30-11:00	<b>Presentation 7:</b> The personal drug list
11:00-12:00	<b>Group work 8:</b> p-drug list exercise
12:00-12:45	Break
12:45-13:15	<b>Presentation 8:</b> The Problem Oriented Medical Record (POMR)
13:15-14:00	<b>Group work 9:</b> Orientation to the existing HMIS of KSA
14:00-14:30	<b>Summary of day 3</b>
14:00-14:30	<b>Post-test</b>
14:30-15:00	Course evaluation and closing remarks

Additional topics suggested in case of any changes in the program: practice management.

### Module 3. Common problems in family medicine: chronic disorders

#### Day 1

08:00-08:15	Warm up 1
08:15-08:30	Opening and Introduction
08:30-08:40	Needs assessment
08:40-08:45	Program presentation
08:45-09:15	Pre-test
09:15-09:45	Presentation 1: Current diagnosis and management of diabetes
09:45-10:00	Break
10:00-10:45	Group work 1: Case scenarios - diabetes
10:45-11:30	Group work 2: Case scenarios - diabetes
11:30-12:00	Presentation 2: Asthma and COPD
12:00-13:00	Break
13:00-14:00	Group work 3: Asthma
14:00-14:30	Summary of day 1

#### Day 2

08:00-08:15	Warm up 2
08:15-08:45	Presentation 3: The diagnosis and management of hypertension
08:45-09:45	Group work 4: JNC7
09:45-10:00	Break
10:30-11:00	Presentation 4: Individualized therapy of hypertension
11:00-12:00	Group work 5: Hypertension case discussions
12:00-12:45	Break
12:45-13:15	Presentation 5: Obesity
13:15-14:00	Group work 6: Obesity group discussion
14:00-14:30	Summary of day 2

#### Day 3

08:00-08:15	Warm up 3
08:15-08:45	Presentation 6: Nutrition, exercise, tobacco and their relation to disease
08:45-09:45	Group work 7: Exercise and nutrition counseling practice
09:45-10:00	Break
10:30-11:00	Presentation 7: The burden of tobacco and how to help smokers
11:00-12:00	Group work 8: Tobacco cessation counseling practice
12:00-12:45	Break
12:45-13:15	Presentation 8: Ischemic heart disease
13:15-14:00	Group work 9: Case discussions IHD
14:00-14:30	Post-test
14:30-15:00	Course evaluation and closing remarks

Additional topics suggested in case of any changes in the program: anemia (esp. iron deficiency), heart failure.

#### Module 4. Common problems in family medicine: communicable diseases

##### Day 1

08:00-08:15	Warm up 1
08:15-08:30	Opening and Introduction
08:30-08:40	Needs assessment
08:40-08:45	Program presentation
08:45-09:15	Pre-test
09:15-09:45	Presentation 1: Respiratory tract infections
09:45-10:00	Break
10:00-10:45	Group work 1: Upper respiratory tract infections
10:45-11:30	Group work 2: Lower respiratory tract infections
11:30-12:00	Presentation 2: Otitis media
12:00-13:00	Break
13:00-14:00	Group work 3: Rational antibiotic use in upper respiratory tract infections and AOM
14:00-14:30	Summary of day 1

##### Day 2

08:00-08:15	Warm up 2
08:15-08:45	Presentation 3: Communicable childhood infections
08:45-09:45	Group work 4: Communicable childhood infections (mumps, measles...)
09:45-10:00	Break
10:30-11:00	Presentation 4: Vaccination
11:00-11:45	Presentation 5: Chest x-ray and lung function tests
11:45-12:30	Break
12:30-13:15	Group work 5: Chest x-ray interpretation
13:15-14:00	Group work 6: Chest x-ray interpretation
14:00-14:30	Summary of day 2

##### Day 3

08:00-08:15	Warm up 3
08:15-08:45	Presentation 6: Urinary tract infections
08:45-09:45	Group work 7: Infectious diseases of the skin
09:45-10:00	Break
10:30-11:00	Presentation 7: Parasitic infestations
11:00-12:00	Group work 8: Gastroenteritis: case discussions
12:00-12:45	Break
12:45-13:15	Presentation 8: Other common problems in primary care
13:15-14:00	Group work 9: Other common problems in primary care (according to the needs and priorities: enuresis nocturnal, renal colic, behavioral problems...)
14:00-14:30	Summary of day 3
14:00-14:30	Post-test
14:30-15:00	Course evaluation and closing remarks

Additional topics suggested in case of any changes in the program: taking swab cultures, visit to the health centers.



**Module 5.** Common problems in family medicine: neurologic, mental, and musculoskeletal problems

**Day 1**

08:00-08:15	<b>Warm up 1</b>
08:15-08:30	Opening and Introduction
08:30-08:40	<b>Needs assessment</b>
08:40-08:45	<b>Program presentation</b>
08:45-09:15	<b>Pre-test</b>
09:15-10:00	<b>Group work 1:</b> Neurological examination
10:00-10:15	Break
10:15-10:45	<b>Presentation 1:</b> Prevention and rehabilitation of Stroke
10:45-11:15	<b>Presentation 2:</b> Headache
11:15-12:00	<b>Group work 2:</b> Headache management: simulated cases
12:00-13:00	Break
13:00-14:00	<b>Group work 3:</b> Selective: convulsions/neuropathies
14:00-14:30	<b>Summary of day 1</b>

**Day 2**

08:00-08:15	<b>Warm up 2</b>
08:15-08:45	<b>Presentation 3:</b> Depression
08:45-09:45	<b>Group work 4:</b> Management of depression
09:45-10:00	Break
10:30-11:00	<b>Presentation 4:</b> Anxiety
11:00-12:00	<b>Group work 5:</b> Anxiety case discussion
12:00-12:45	Break
12:45-13:15	<b>Presentation 5:</b> Somatoform disorders
13:15-14:00	<b>Group work 6:</b> Somatoform disorders
14:00-14:30	<b>Summary of day 2</b>

**Day 3**

08:00-08:15	<b>Warm up 3</b>
08:15-09:15	<b>Group work 7:</b> Musculoskeletal exam
09:15-09:45	<b>Presentation 6:</b> Low back pain
09:45-10:00	Break
10:30-11:30	<b>Group work 8:</b> Case discussions low back pain
11:30-12:00	<b>Presentation 7:</b> Approach to joint pain
12:00-12:45	Break
12:45-13:30	<b>Group work 9:</b> Approach to joint pain
13:30-14:00	<b>Presentation 8:</b> Osteoporosis
14:00-14:30	<b>Summary of day 3</b>
14:00-14:30	<b>Post-test</b>
14:30-15:00	Course evaluation and closing remarks

Additional topics suggested: Rehabilitation.

**Module 6.** Common problems in family medicine: obstetrical and gynecological problems

**Day 1**

08:00-08:15	<b>Warm up 1</b>
08:15-08:30	Opening and Introduction
08:30-08:40	<b>Needs assessment</b>
08:40-08:45	<b>Program presentation</b>
08:45-09:15	<b>Pre-test</b>
09:15-09:45	<b>Presentation 1:</b> Preconceptional care
09:45-10:00	Break
10:00-10:45	<b>Group work 1:</b> Preconceptional counseling
10:45-11:15	<b>Presentation 2:</b> Safe motherhood
11:15-12:00	<b>Group work 2:</b> Safe motherhood
12:00-13:00	Break
13:00-14:00	<b>Group work 3:</b> Literature review
14:00-14:30	<b>Summary of day 1</b>

**Day 2**

08:00-08:15	<b>Warm up 2</b>
08:15-08:45	<b>Presentation 3:</b> Normal pregnancy and antenatal care
08:45-09:45	<b>Group work 4:</b> Normal pregnancy and antenatal care
09:45-10:00	Break
10:30-11:00	<b>Presentation 4:</b> Postnatal care
11:00-12:00	<b>Group work 5:</b> Postnatal care
12:00-12:45	Break
12:45-13:15	<b>Presentation 5:</b> Breastfeeding
13:15-14:00	<b>Group work 6:</b> Breastfeeding
14:00-14:30	<b>Summary of day 2</b>

**Day 3**

08:00-08:15	<b>Warm up 3</b>
08:15-08:45	<b>Presentation 6:</b> Abnormal uterine bleeding
08:45-09:45	<b>Group work 7:</b> Vaginal discharge
09:45-10:00	Break
10:30-11:00	<b>Presentation 7:</b> Dysmenorrhea
11:00-11:30	<b>Presentation 8:</b> Family planning
11:30-12:30	Break
12:30-13:15	<b>Group work 8:</b> Family planning counseling
13:15-14:00	<b>Group work 9:</b> Dealing with the perimenopausal patient
14:00-14:30	<b>Summary of day 3</b>
14:00-14:30	<b>Post-test</b>
14:30-15:00	Course evaluation and closing remarks

Additional topics suggested: breast and cervical cancer.

## Module 7. Professional development in family medicine

### Day 1

08:00-08:15	Warm up 1
08:15-08:30	Opening and Introduction
08:30-08:40	Needs assessment
08:40-08:45	Program presentation
08:45-09:15	Pre-test
09:15-09:45	Presentation 1: Adult education principles
09:45-10:00	Break
10:00-10:45	Group work 1: Small group work: How can we improve?
10:45-11:30	Group work 2: Group presentations
11:30-12:00	Presentation 2: Quality
12:00-13:00	Break
13:00-14:00	Group work 3: How can we improve the quality in primary care?
14:00-14:30	Summary of day 1

### Day 2

08:00-08:15	Warm up 2
08:15-08:45	Presentation 3: Conference: ISO (Given by: Saudi Standards Organization)
08:45-09:45	Group work 4: Quality circles and peer review groups in family medicine
09:45-10:00	Break
10:30-11:00	Presentation 4: Team work
11:00-12:00	Group work 5: Presentation skills
12:00-12:45	Break
12:45-13:15	Presentation 5: Evidence Based Medicine
13:15-14:00	Group work 6: Motivation
14:00-14:30	Summary of day 2

### Day 3

08:00-08:15	Warm up 3
08:15-08:45	Presentation 6: Practice management
08:45-09:45	Group work 7: Human relationships
09:45-10:00	Break
10:30-11:00	Presentation 7: Critical reading of medical articles
11:00-12:00	Group work 8: Journal club
12:00-12:45	Break
12:45-13:15	Presentation 8: Research in primary care
13:15-14:00	Group work 9: Planning a research
14:00-14:30	Summary of day 3
14:00-14:30	Post-test
14:30-15:00	Course evaluation and closing remarks

Other suggested topics: National and international professional organizations related with health care.