International Journal of Medicaland Health Sciences

Journal Home Page:http://www.ijmhs.netISSN:2277-4505

Original article

Working towards Universal Health Coverage through the Family Doctor Concept in Malaysia

Safurah J[1,2], Nor Asiah M[3*], Normi M[4], MuhamadIrfanYasin AU[5], Subashini A[6], Nazrila HN[7], Ruziaton H[8], Sarmiza S[9], Zaleha J[10], Norlizah P[11], Rokiah M[12], TP.Zaharah TB[1],Noor Aliza L[3], Noridah S[1]

[1,2] Family Health Division, Ministry of Health, Malaysia,[2]Department of Public Health, Faculty of Medicine, International Medical University, [3]Institute for Public Health, Ministry of Health, Malaysia, [4]Faculty of Science & Technology, Open University Malaysia, [5]KotaSamarahan Health Clinic, Sarawak State Health Department, Ministry of Health, Malaysia., [6]Buntong Health Clinic, Perak State Health Department, Ministry of Health, Malaysia., [7]Putrajaya Health Office, Ministry of Health, Malaysia., [8]Pandamaran Health Clinic, Selangor State Health Department, Ministry of Health, Malaysia., [9]Primary Health Unit, Kedah State Health Department, Ministry of Health, Malaysia., [10]Kuala Dungun Health Clinic,Terengganu State Health Department, Ministry of Health, Malaysia., [11]Kempas Health Clinic, Johor State Health Department, Ministry of Health, Malaysia.,[12]Pulau Pinang State Health Department, Ministry of Health, Malaysia.

ABSTRACT

Introduction: Health care transformation is crucial for developing nation like Malaysia to ensure a commensurate health system of higher quality and safety. Family Doctor Concept (FDC) was piloted to achieve Universal Health Coverage (UHC) in Malaysia. This concept is a way to strengthen primary healthcare service and a commitment of achieving 'One Family One Doctor' that provides comprehensive service throughout the life-course. FDC offers proactive approach to register members of the population with the purpose of capturing all members of the population within the operational service areas and providing personalized care. This article aims to describe the implementation of FDC, a model for delivery of Primary Health Care (PHC), and the initial results and experiences of this pilot implementation.**Methods:** Phase of implementation from two health clinics showed pre and post health performance indicators of FDC. The process of implementation involved motivating the staff, creating staff registry, mapping and rearranging, infrastructure reorganization, zoning, registration, engaging, profiling and provision of longitudinal and holistic care to the clients and population.**Results:** There were promising improvements in coverage and clinical performance of the doctor-team through the provision of a more holistic longitudinal care with greater ownership and ultimate mission of working towards universal health coverage. **Conclusion:** The FDC may be seen as a simplified approach towards achieving UHC but is certainly a definitive effort to ensure every member of the population within the operational area will be signed up to a doctor team.

KEYWORDS:family doctor, Malaysia, health care service, one family one doctor, universal health coverage.

INTRODUCTION

Ever since the Alma-Ata Declaration in 1978, it has been the goal of most countries including Malaysia to achieve [1]. This goal has been re-emphasized in World Health Organization (WHO) Reports of 2008[2], 2010 [3] and 2013 [4]. Malaysia has demonstrated her commitment since the First Malaysia Plan which was from1960 to1970 in Rural Health Services (RHS) to improve health delivery coverage

[5]. These delivery points were operated by midwives, the forbearer and foundation to the PHC that focused to reduce maternal and infant mortality. The successful results were reflected by the decline of the two mortality rates during those early years [6]. A big contributory factor was attributed to the wide access to these services close to the community which were mostly for the rural population.

Universal access was already alive and embedded in the various strategies that were developed. The key strategy was ensuring equity which was dominant in all policies. It has been a conscious effort by the government to ensure that health care reaches to the targeted population. This is evidenced by the home visits and traveling dispensaries that were provided even to the remote villages and Orang Asli (Aborigines of Malaysia) [7].

The concept of PHC and Family Medicine is more strategic and was further strengthened in the public sector. Vertical programs such as immunization, oral rehydration, smoking cessation and tuberculosis control were gradually integrated. The scope of services expanded to cover the whole life-course from "womb to tomb" vis-à-vis from fetal to elderly. Equipped with a wider range of professionals led by doctors and family medicine specialists, the mesh of network of services were redefined and bundled into a comprehensive package of services for the public primary health care clinic outlets.

Whilst the health improvements of the maternal and child health services and the provision of acute care management are reaping positive gains, the unprecedented increase of chronic diseases were causing a heavy toll on the limited public resources. PHC is now further challenged to cope the very real hurdles of ageing population [8], the high prevalence of the various non-communicable disease (NCD) [9], increasing and expensive medical technology as well as unexpected environmental and communicable threats. The consequential increase in demand for primary care services is seeing a high increase of attendances in the public health clinics while some members of the population are still unaware of their health conditions, continues to harbor progress of disease and complications.

The dual system in primary care with the availability of large numbers of private general practitioners has nonetheless been providing substantive doctor's services to those who have more disposable income and thus greater freedom of choice of the provider [10]. Conversely, individuals with low income must settle for the healthcare services provided by the public system which often has higher waiting time. For some members of the population, despite the availability, they do not avail themselves to seek care. Although equity is the fundamental principles in health services, disparities related to income, regions and even quality of services is still not fully addressed.

PHC teams address the needs of each individual and the communitywhen addressing social determinants of health. Therefore, there has been conscious efforts in the integration of primary health care with public health approaches under the New Public Health initiative in Malaysia in 2005 where the concept of social determinants surfaced as an important platform beyond the "traditional public health of disease prevention of diseases, infection and sanitation" [2,11,12]. The concept of family doctor has been initiated in phases since it is the most practical approach in most Organizationfor Economic Co-operation and Development (OECD) countries [13]. These challenges to health require a different approach in PHC on the need to realign service delivery to ensure better outcome by providing greater access to more effective care corresponding to the needs of Malaysians. Hence, this paper aims to describe a new policy for model delivery of FDC and report the initial experiences and results from the pilot implementation. This project was registered with National Medical Research Register (NMRR) with identification number NMRR-17-1606-37234. The program was funded by Ministry of Health (MOH), Malaysia operational budget.

Description of the new FDC concept

As a commitment to the global strategy of UHC [4,11], MOH initiated the FDC in 2013 to strengthen primary healthcare service in Malaysia and to achieve 'One Family One Doctor' [14]. This is a positive step for individuals and families in which a doctor will be assigned to take the responsibility of care from womb to tomb. On the other hand, it will encourage their participation in self-health care and promoteFDC deliveryas preventive care[15].Being followed and treated by the same provider or personalized care,will create a good patient-doctor relationship, provides the longitudinal care which can help prevent diseases, enhance the quality, continuity of care and client's compliance towards the treatment and management provided [16].

Under FDC, integrated primary healthcare teams [17] provide a multi-disciplinary approach and made available to the wider population. Services provided by the health provider includes more opportunity for early screening, risk identification, risk intervention packages and clinical management of chronic diseases. Eventually, FDC will also strengthen the gatekeeping role and will reduce inappropriate referrals to secondary care and unnecessary costs to the client.

MATERIALS AND METHODS

Only two health clinics namely Buntong Health Clinic and Kota Samarahan Health Clinic was used to show the health performance indicators pre and post implementation of FDC. In the first phase, one of the key steps undertaken was to engage with the various stakeholders. These two clinics were chosen due to the availability of doctors irrespective of numbers, which fairly reflect the distribution of the present inventory of health clinics. Doctor team is a group of doctors or just a doctor to a team of nurses and assistant medical officer, at the least. In clinics with many more spread of staff, will additionally have more categories to the team.

Generous information was shared including buntings and banners. Patients were also given pamphlets to inform them in advance regarding the implementation date.This method was carried out during the process of zoning, registration and profiling. Involvement of local community leaders including the Health Clinic Advisory Panel[1]for their assistance in spreading the information to the population was encouraged to increase awareness among the public. Majority of the local population were encouraged to share

[1]Appointed voluntary members of the community playing supportive role to improvements for the assigned Health Clinics

their sense of anticipation of having a 'dedicated doctor and health team' to look into their holistic health care needs. Imperatively, the population identified for the doctor team is manageable both in numbers and logistics. The population distribution within the operational area was rechecked with the local Department of Statistics. This included births both by the local population and the immigrants. Due to the highly mobile population in the urban area, they were assigned to special zone with tracking procedure to ease the follow-up cases.

The population was then divided based on the number of available doctor-team in the clinics. The distinct boundaries were either demarcated by streets, rivers or parks, by which each cluster of the population was grouped into "zones". The zones were allotted and labelled with either numbers or alphabets to facilitate better recognition and flow of patients across the new clinic system. Each zone was then assigned to a doctor team. The number of assignees per zones ranges from 3000 to 15000 population.

The population survey for clinics with Tele Primary Care (TPC)was done electronically. TPC is an electronic health information system which was introduced in phases since 2006. Each family that was registered were linked to their family folder and assigned zone using their registered addresses. Current problem facing TPC is the inability to link directly the records between family members and which has to be done manually through search and pairing since patient's records across family members are still kept separately. New requirements were incorporated in the new system and some short-term electronic system was locally produced by some clinics to ease their management of zoning and triaging of patients.

Once the population zoning was completed, the staff registries were mapped against each zone to assign dedicated groups of doctor/doctors-team. Although the principle of each family member is assigned to a doctor is the practice in many countries [18] that possibility is still remote in the public health clinics in Malaysia. The turnover rate for primary health care doctor in Malaysia averages every two yearly. The larger proportion of young lady doctors in the health clinic also pose higher rates of maternity leaves. Hence, for this early phaseuntil new policies are introduced to overcome those shortcomings, each zone may be equipped with more than one doctor, so that the team of doctors and allied health can attend to the same families within the designated zones. Whenever necessary, sub-zones are also created if the operational area is too large or too overly populated. Each team per zone, on average, is provided with 1-3 medical officers, 2-4 nurses, 1-3 community health nurses, 1-2 medical assistants. Specialty services such as the family medicine specialist, radiology, laboratory, physiotherapy and occupational therapy, nutrition and diet, pharmacy, medical social services, school and outreach or mobile services are common services shared by all zones.

The objective of each team is to provide "personalized care "whereby patients are to be seen by the same set of providers each time they visit the clinic, using existing standard guidelines for promotive and preventive services that have been developed for each life-course groups namely care for the antenatal, postnatal mothers, newborn and infant, toddlers and preschoolers, school children, teenager, adult men and women and elderly care [19].

For disease and condition-based complaints, staff areguided by the standard operating procedures and clinical practice guidelines issued by the Ministry of Health as a reference. These include medical emergencies, acute and chronic diseases, infectious or non-communicable. Specialty services subscribe to the prevailing guidelines and instructions. New administrative operational policies are introduced whenever any new processes across these services are created to ensure the compliance and smoother engagement among the providers.

Another aspect to consider in the piloting FDC is the infrastructure of the clinic that needed for integrated registration counter. This is to replace the existing several sub-counters that takeup many resources with duplicative services. Many of the participating clinics had to reorganize the whole floor set-up to allow for smooth patient and information flow. There are also health clinics where not all the services are provided under one roof. Hence constructing physically integrated counter remains a challenge.

Many of these clinics do not have enough space with limited staff, therefore the set-up may not be as comfortable and efficient as those clinics endowed with larger space or well-equipped human resources. The location of doctors and nurses with their vicinity are new weights that have to be identified in the reorganizing formula. Constant improvements need to be done continuously in order to sustain the FDC implementation.

FDC recognizes each patient as an individual with unique healthcare needs and provides an enhanced range of services. Numerous patient data have been collected and captured. The analysis and evaluations are important for developing key performance indicators (KPI) for primary and secondary outcomes to assess the performance of the health team and to evaluate the progress of the services and outcome of care to each member of the population.

The information generated and analyzed will help caregivers to use in planning for organizing the activities that will help the community under their care to have a better understanding of their health. It also helps people who want to set goals for their own care and understand the care proposed for them. The overarching goal is to create behavior change amongst the community to be proactive in taking care of their health slowly but definitively.

Some of the indicators which can be evaluated before and after FDC also being introduced such as numbers of patients with controlled health risks, new case detection especially for diabetes mellitus and hypertension, defaulter rate, and a total number of chronic cases such as diabetes mellitus, hypertension cases being registered. The existing Quality Assurance Program monitors the percentage of glycated hemoglobin (HbA1c) among registered Diabetes Mellitus patients and percentage controlled Hypertensive patient. These indicators were adopted and are also used to monitor the effectiveness of FDC.

The idea of the FDC is for health care provider to know the health status of their population so that intervention and prevention activities can be customized both at the community and family level. To initiate this exercise, all primary health care teams were instructed to perform

population survey. Amongst the data collected include: age, sex, job, address, family members and cursory health history. The person in charge of the family is identified and noted.

Table 1: Percentage of population registered in the chosen government clinics pre and post FDC

Indicators monitored	Pre-FDC Implementation 2014 (%)	Post-FDC implementation 2015 (%)	
		Buntong Health Clinic	Kota Samarahan Health Clinic
Percentage of patients registered in population area	NA	51%	56%
Percentage of patients screened in population area	NA	34%	42%

NA: Not available as registration of population was not an official task.

Table 1, showed the percentage of the population as registered with the health clinics. This being a new indicator will act as a base line. Buntong Health Clinic has an operational area of 100,000 population and hence has the greater challenge of achieving 100% compared to that of Samarahan with 50,000 population.One important element in cataloguing the cards is to group the scattered family member's health cards into one family folder. This exercise has initiated a family approach to consultation, in which attending physician can browse through the family folder while attending to any of the family members presenting with their present complaints.

RESULTS AND EXPERIENCE IN PILOTING FDC

The Maternal and Child Health and the life-course approach

The focus on Maternal and Child Health continue to stay prominent. The analysis uses current key performance index. The parameters for maternal health include, safe delivery, high-risk pregnancy mother, family planning and cancer screening. While for child health, key indicators involve immunization coverage, child health evaluation and growth, care of a child with health risk, under-five mortality and perinatal deaths as shown in Table 2.

Table 2: Maternal and child health performances at Buntong& Kota Samarahan Health Clinic pre and post FDC implementation

Indicators monitored	Pre-FDC Implementation 2014 (%)		Post-FDC implementation 2015 (%)	
	Buntong Health Clinic	Kota Samarahan Health Clinic	Buntong Health Clinic	Kota Samarahan Health Clinic
Percentage of antenatal patients with Hb> 11 g/dL at 36 weeks Period of Gestation (POG)	87.0%	89.4%	91.3%	92.2%
Indicator for percentage use of effective family planning	84/110 (76.4%)	323/596 (54.19%)	117/151 (77.5%)	471/673 69.99%
Mammogram screening	25	26	42	87
Registration for PPC (pre-pregnancy clinic)	189	235	207	573
Pap smear	392/564 (70.0%)	2110/3228 (65.37%)	586/564 (103.9%)	1840/3228 (57%)
Exclusivebreast feeding	118/311 (35.6%)	83/336 (24.7%)	75/170 (44.1%)	95/373 (25.8%)
Safe delivery	100%	1539/1550 (99.29%)	100%	1537/1544 (99.55%)
Immunization coverage for	462/435	(100.3 %)	435/415	(99.9%)

Mumps Measles Rubella (MMR)	(106.2%)	Using actual LB	(104.8%)	Using actual LB
Maternal Mortality Rate	Zero death	Zero death	Zero death	Zero death
Under Five Mortality Rate per 10,000 live births (LB)	0.26	9.08	0.0	6.51
Severe Neonatal Jaundice Rate (target < 50/10000)	28.7 (only 1 patient)	45.49	28.7 (only 1 patient)	45.49
Vertical transmission rate from infected mother to baby for HIV cases	Zero transmission	Zero transmission	Zero transmission	Zero transmission

The Chronic and Acute Diseases

Another big bulk of patients patronizing the health clinics are those with common chronic illnesses which have no known cure but for which continuing management by a personal physician is all the more necessary to maintain an optimal state of health for the patient.

Table 3: Health Performance Indicators for Chronic Diseases at Buntong& Kota Samarahan Health Clinic pre and post FDC implementation

Indicators monitored	Pre-FDC Implementation 2014 (%)		Post-FDC implementation 2015 (%)	
	Buntong Health Clinic	Kota Samarahan Health Clinic	Buntong Health Clinic	Kota Samarahan Health Clinic
Percentage of new Diabetes Mellitus patients registered	268/1888 (14.2%)	286/2424 (11.7%)	282/1574 (17.9%)	393/2818 (13.9%)
HbA1c< 6.5%	31.0%	7.6%	41.7%	22.7%
Number of new Hypertension patients registered	3110	511	4125	1558
Percentage of controlled Hypertension	87.9%	55.0%	86.3%	55.2%
Asthma control (ACT score)	63.9%	88.3%	65.2%	100%
Cardiovascular Disease Screening	64/80 (80.0%)	Data not computed	179/180 (99.4%)	Data not computed
Registered patients programs Stopped Smoking (Target 20%)	44.4%	Data not computed	53.8%	17/54 (31.5%)
No of cases screened for Depression Anxiety Stress Scales - DASS (Public)	85	Data not computed	240	1040
No of cases screened for Depression Anxiety Stress Scales - DASS (Staffs)	89/102 (87.3%)	Data not computed	126/126 (100.0%)	Data not computed

Table 4: Service Performance Indicators for Outpatient Care Services at Buntong Health Clinic& Kota Samarahan Health Clinic pre and post FDC implementation

Indicators Monitored	Pre-FDC Implementation 2014 (%)		Post-FDC Implementation2015 (%)	
	Buntong Health Clinic	Kota Samarahan Health Clinic	Buntong Health Clinic	Kota Samarahan Health Clinic
Facility divided into zones	NA	NA	2 (100%)	5 (100%)
Client satisfaction survey	90.0%	NA	92.0%	85.0%
Provider satisfaction survey	NA	NA	70.0%	79%
Waiting time for patients to see the first provider in the clinic (30 minutes)	99.0%	26209/36407 (71.9%)	95.2%	43078/47152 (91.3%)
Percentage of age-specific operational population Health Screening Survey in Primary Health Care	NA	NA	Elderly – 8.2% Adolescent – 8.5% Adult males – 4.4% Adult females – 4.2%	Elderly 556/270 (10.3%) Adolescent 1133/950 (5.96%) Adult male 1457/1485 (4.91%) Adult female 1734/1545 (5.61%)
Sputum screening for detection of Pulmonary Tuberculosis	2.58%	7%	3.34%	5.49%

The monitoring of Infectious Diseases uses existing indicators such as sputum for acid-fast tuberculosis bacillus, the cure rate for tuberculosis cases, zero vertical transmission from infected mother to baby for human immunodeficiency virus (HIV) cases and retention rate for a patient on methadone as measures to evaluate the effectiveness of FDC.

From the above health performance indicators on maternal and child health, chronic diseases and outpatient services which were measured and analyzed, it is clearly evident that with the implementation of FDC, although not all but almost all health indicators in Table 4, showed improvement. The closer scrutiny of performance by zones created greater ownership of zones PHC team to achieve their targets if not before.

Experiences during implementation

The daily census was collected and reported as "one whole clinic" in an aggregated return. This is further collated for the month to be submitted to the District Health Office following the Health Management Information System. Prior the introduction of FDC, all patients' cards are arranged according to their last 4 digits identification card number. In this new system, the cards are sorted and arranged similarly but according to the allocated zones. Many innovative ways were introduced to distinguish each zone by using colored tags, labelled stickers or printed stamps on these cards which were visible for easy retrievability.

There are also few health clinics that have been equipped with TPC. Over the last 10 years, 83 health clinics have this software running and collecting more than 8 million registered patients to date. TPC has the advantage of registering patients electronically using identification cards. In 2014, 8 health clinics with TPC has been chosen to pilot the FDC.With the introduction of FDC, two approaches have emerged. The first is maintaining the above mechanism of submission and analyses by the clinic as an entity. Another approach is a collection, analysis and submission are done by each zone. A staff in charge will be assigned to each zone to ensure completion and quality of data, before submitting to the headquarters as a clinic.Ongoing clinical audit of the poorly controlled Diabetes Mellitus books was initiated and conducted by the family medicine specialist (FMS) and a senior medical officer trained in Diabetes Mellitus management prior to the patient's clinic visit with a care plan clearly written for the junior doctors to follow in Buntong Health Clinic. This was initiated with the aim of getting more patients with HbA1c $\leq$ 6.5% (well controlled) as this will definitely reduce complication rates in future.

DISCUSSION

Training and retraining

The objective of family doctor concept is the provision of integrated, accessible health care services who are accountable for addressing a large majority of personal health care needs and to develop a sustained relationship between patients and the health care provider. Studies by McGlynn et al. showed that some 45 % of Americans general practitioners do not receive adequate training and meeting established standards [20].There is a need for health care provider to upgrade their knowledge continuously and adopt the life-course approach to care that is holistic with a comprehensive scope of services. A qualitative study done in Hong Kong revealed that family doctors were not adequately trained or skilled to deal with chronic disease [21]. It is thus essential that PHC team subscribe to continuous medical education (CME) in order to keep abreast with appropriate knowledge and skill to ensure quality performance and management of patients. This will greatly develop the provision of high-quality competitive services that will ensure proper realization and utilization the potential of family medicine in resolving common health problems at the community level [22].

Before the implementation of FDC in Malaysia, the doctors were assigned to attend only specific types or group of cases. This could either be in managing acute outpatient cases, chronic out-patient cases or maternal or child care. In Kota Samarahan Health Clinic, before FDC, doctors who were in charge of non-communicable diseases will only see patients with diabetes and their complications. The idea was to provide a 'specialized' care, where accumulated repeated experience in management improves performances. However, in this approach, a doctor will not be seeing the universal need of a client which is the hallmark of primary care and thus tempted to only address the presenting symptoms.

The introduction of FDC requires all doctors to be equipped with comprehensive medical knowledge in managing patient holistically [23]. All doctors are required to be trained to understand the various health needs and the manual on various programmes such as maternal, child, adult and elderly. They will be guided to understand the manuals and targets that need to be achieved in the primary health care setting. Continuous Medical Education (CME) was conducted monthly by FMS for all doctors in the clinic. Important topics related to latest Clinical Practice Guidelines (CPG) include Perinatal Care Manual, Neonatal Jaundice, Diabetes Mellitus, Hypertension, Dyslipidemia, Acute Coronary Syndrome, Asthma, Chronic Obstructive Airway Disease, Tuberculosis, Management of Sore Throat and Common Cold were discussed and presented. A doctor is assigned to monitor all the important indicators to enable the team to identify areas that need attention and to ensure the accuracy of the report. All the doctors and caregivers were briefed and trained in personalized patient care. Hence, each zone can identify and focus the current disease burden in their operational area and carry out relevant intervention programmes to improve their health status. Sharing of performances across the various zones will cultivate positive competitive work environment.

The implementation of FDC is a strategy to identify health risks as early as possible and prevent disease progression. According to MOH, five percent (5%) of each age group in the population are to be screened. Of these, 1,038,226 people were screened in 2013 which comprised 4.3% the estimated Malaysian population aged 10 years and above (24,194,147). In 2014, the population screened increased to 1,314,750 or 5.3% [24]. Among diseases that were screened include cancer screenings such as Pap smear, mammogram, stool for occult blood and prostate cancer in the community. According to Chetty et al. (2011) [25], there was an increment in the number of family physicians practicing in the community which is associated with a reduction in hospital readmissions and substantial cost savings.

Trailing the changes and progress

The FDC encompasses patient-centered, evidence-based, family-focused and problem-oriented care to the patients who are seen in primary care. In the implementation of FDC, one important indicator was also introduced to monitor the percentage of the zone population screened for health risks and to map the population health profile. The Health Status Screening Form or *BSSK (BorangSaringanStatusKesihatan) are* used and the target is to screen every member of their population. The screening activities in primary care setting enable specific patterns of co-morbidities and risk behaviors can be identified in a particular area or zone of that individual clinic. This process facilitates positive intervention to be carried out for the benefit of the people in the community.

In the early phase of implementation, waiting time for patients to see their physician were inevitably increased due to the steep learning curve of new process and procedure. The urban clinics also had to saddle with higher rates of complaints from patients while trying to organize them into their respective zones. This was clearly reflected by the poor scores obtained in the client satisfaction survey. It was with time and better learning curve by both the patients and provider supported by the local stakeholders and policymakers addressing administrative issues that these challenges were gradually overcome.

Buntong Health Clinic reported long waiting time in the initial period. It took 2 to 3 hours for patients to see their doctors and drew 2 newspaper complaints within the first month of implementation. However currently, about 95% of patients are seen less than 30 minutes from the time of registration and 92% of patients have scored extremely satisfied with all services rendered. About 70% of staffs agreed to continue FDC in the clinic and another 76% staffs feel that this new programme is a more holistic approach to patient care and can improve continuity of care, identify illnesses early, and reduce defaulters as well as reduce morbidity and mortality. These two local findings are also similar with a study done elsewhere that a good doctor-patient interaction can lead to health improvement and resolution of health problem [26].

A study done by A Ratsep et at al. (2007) [27]showed that by implementing FDC, the doctor will create a good rapport with patients and motivate them through better health education services and hence improve awareness of diabetes self-management by patients with the potentially better outcome to the control.

CONCLUSIONS

UHC is an aspiration that many countries have embraced as one of their main social agenda, notwithstanding the fact that it is a complex mechanism to achieve. The FDC approach that is shared here may be seen as a simplified approach towards achieving UHC but is certainly a definitive effort to ensure every member of the population within the operational area will be signed up to a doctor team. There is no perfect moment to reform, nor a perfect methodology to adopt. The FDC has taken the position that the end justifies the means. The promising improvements not only the coverage but also clinical performance of the doctor team to provide more holistic care through greater ownership is a step in the right direction in this effort towards attaining the UHC.

ABBREVIATIONS

UHC: Universal Health Coverage FDC: Family Doctor Concept NMRR: National Medical Research Register WHO: World Health Organization RHS:Rural Health Services PHC: Primary Health Care NCD: Non communicable disease OECD: Organisation for Economic Co-operation and Development KPI: Key performance Indicator TPC: Teleprimary care CME: Continuous Medical Education HbA1c:Glycated hemoglobin HIV:Human Immunodeficiency Virus FMS:Family Medicine Specialist

ACKNOWLEDGEMENTS

The authors would like to thank the Director General of Health Malaysia for the permission to publish this report. We would like to express our gratitude to the Deputy Director General of Health (Public Health) for his technical advice and support. Our special thanks to all state directors who have given their full support in making the FDC approach to be initiated in the states. Lastly many thanks to those involved in preparing this report.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

The Malaysian Medical Research and Ethics Committee (MREC) permits the use of official and secondary data from registries without consent if the data are anonymous. Hence, the requirement for informed consent was not obtained because all data were de-identified prior to the analysis.

COMPETING INTERESTS

The authors declare that they have no competing interests.

AVAILABILITY OF DATA AND MATERIALS

The data can be available from the authors upon request.

REFERENCES

1. WHO. World Health Statistics 2016: Monitoring health for the Sustainable Development Goals (SDGs). WHO; 2016.Available: http://www.who.int/gho/publications/world_health_statistics/2016/en/

2. WHO. The global burden of disease: 2004 update.WHO;2008. Available: http://www.who.int/healthinfo/global_burden_disease/2004_report_update/en

3. WHO. The world health report: health systems financing: the path to universal coverage. WHO; 2010. Available: http://www.who.int/whr/2010/en/

4.WHO. World health statistics 2013. WHO; 2013.Available: http://www.who.int/gho/publications/world_health_statistics/2013/en/

5. Malaysia. Chapter XII: Health and Family Planning" in First Malaysia Plan 1966-1970 (Kuala Lumpur: Government Press, 1965).

6. Yadav, H. A Review of maternal mortality in Malaysia. IMU e journal. 2012; 142-151.

7. Kamil Mohamed Ariff, T.C. Rural health care in Malaysia. Australian Journal of Rural Health. 2002; 99-103.

8. Tengku-Azian H, Chai S, Jariah M, Nurizan Y. Socioeconomic Status and Health of Older Women in Malaysia. Asia-Pacific Journal of Public Health. 2006; 18 (S3): 42-51.

9. Letchuman GR, Wan Nazaimoon WM, Wan Mohamad WB, Chandran LR, Tee GH, Jamaiyah H, Isa MR, Zanariah H, Fatanah I, Ahmad Faudzi Y. Prevalence of Diabetes in the Malaysian National Health Morbidity Srvey III 2006. Med J Malaysia. 2010 Sep;65(3):180-6.

10. Hwee Sing Khoo, Yee Wei Lim and Hubertus JM Vrijhoef. Primary healthcare system and practice characteristics in Singapore. Asia Pacific Family Medicine. 2014;13: 8; doi: 10.1186/s12930-014-0008-x.

11. Marmot, M. Universal health coverage and social determinants of health. Lancet. 2013 Oct 12; 382(9900):1227-8; doi: 10.1016/S0140-6736(13)61791-2.

12. Gupta V, Kerry VB, Goosby E, Yates R. Politics and Universal Health Coverage -The Post-2015 Global Health Agenda. N Engl J Med. 2015 Sep 24; 373(13):1189-92. doi: 10.1056/NEJMp1508807. Epub 2015 Sep 16.

13. James Macinko, Barbara Starfield, and Leiyu Shi. The contribution of primary care systems to health outcomes within Organization for Economic Cooperation and Development (OECD) countries, 1970–1998. Health Serv Res. 2003 Jun; 38(3): 831–865. doi: 10.1111/1475-6773.00149.

14.Lee A, Siu S, Lam A, Tsang C, Kung K, Li PK. The concepts of family doctor and factors affecting choice of family doctors among Hong Kong people. Hong Kong Med J. 2010 Apr; 16(2):106-15.

15.William R. Phillips & Deborah G. Haynes. The Domain of Family Practice: Scope, Role, and Function. The Keystone Papers: Formal Discussion Papers from Keystone III. Fam Med 2001; 33(4):273-7.

16. WONCA EUROPE. The European Definition of General Practice / Family Medicine - Edition 2011. Available: http://www.woncaeurope.org/content/european-definition-general-practice-family-medicine-edition-2011

17. Stigler FL, Macinko J, Pettigrew LM, Kumar R, van Weel C. No universal health coverage without primary

health care. Lancet. 2016 Apr 30; 387(10030):1811. doi: 10.1016/S0140-6736(16)30315-4. Epub 2016 Apr 28.
18. ShabirMoosa, Bob Mash, AnselmeDerese and WimPeersman.The Views of key leaders in South Africa on implementation of family medicine: critical role in the district health system. BMC Family Practice2014;15:125. doi: 10.1186/1471-2296-15-125.
19. N. C. H. Stott and R. H. Davis. The exceptional potential in each primary care consultation. J R Coll Gen Pract. 1979 Apr; 29(201): 201–205.
20.McGlynn EA, Asch SM, Adams J, Keesey J, Hicks J, DeCristofaro A, Kerr EA. The quality of health care delivered to adults in the United States. N Engl J Med. 2003; 348:2635-45.
21. Stewart W Mercer, Judy Y Siu, Sheila M Hillier, Cindy LK Lam, Yvonne YC Lo, Tai Pong Lam and Sian M Griffiths. A qualitative study of the views of patients with long-term conditions on family doctors in Hong Kong. BMC Family Practice. 2010; 11: 46. doi: 10.1186/1471-2296-11-46
22. WarisQidwai, John W. Beasley, Francisco J. Gomez-Clavelina. The present status and future role of family doctors: a perspective from the International Federation of Primary Care Research Networks. Primary Health Care Research & Development. 2008*;* 9 (3): 172-82. DOI: https://doi.org/10.1017/S1463423608000741.
23. Lathrop, B., Hodnicki, D. The Affordable Care Act: Primary Care and the Doctor of Nursing Practice Nurse. OJIN: The Online Journal of Issues in Nursing. 2014;19 (2).doi: 10.3912/OJIN.Vol198No02PPT02
24. Ministry of Health, Malaysia. Improving Malaysia's Healthcare System to Meet Future Needs. Letter to the Editor, NST from the Director General of Health Malaysia in response to the article titled 'Affordable Healthcare, Please' dated 17 June 2015. Available: https://kpkesihatan.com/2015/06/23/improving-malaysias-healthcare-system-to-meet-future-needs
25.Chetty VK, Culpepper L, Phillips RL Jr, Rankin J, Xierali I, Finnegan S, Jack B. FPs lower hospital readmission rates and costs. Am Fam Physician. 2011;83(9):1054.
26. LudmilaMarcinowicz, SlawomirChlabicz, RyszardGrebowski. Understanding patient satisfaction with family doctor care. Journal of Evaluation in Clinical Practice. 2010; 16 (4) :712-715.DOI: 10.1111/j.1365-2753.2009.01180.x
27. A. Rätsep, I. Oja, R. Kalda, M. Lember. Family doctor's assessment of patient and health care system-related factors contributing to non-adherence to diabetes mellitus guidelines. Primary Care Diabetes Europe.2007; 1(2): 93–97.

*Corresponding author:Nor Asiah Muhamad
E-Mail:norasiahdr@gmail.com