

## The Changing Face of Primary Care: A Cross Sectional Study in Malaysia (Perubahan Corak Penjagaan Kesihatan Primer: Suatu Kajian Keratan Rentas di Malaysia)

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### ABSTRACT

*There has been an epidemiological transition in morbidity and mortality patterns in developing countries. This study aimed to determine whether there was an accompanying change in disease presentation in primary care. This was a cross-sectional study conducted at 12 public primary care clinics in Malaysia. Outpatient medical records were randomly selected and reviewed to identify patients' reasons for encounter. The overall retrieval of records was 99.1% (n=1,753; range 95.7-100.0%). The mean age was 33.1 (SD 22.2) years. For all ages, the most common reasons for patient encounter (RFE) were cough (21.1%; 95% CI 16.5, 25.8), follow-up care for chronic diseases (19.6%; 95% CI 12.7, 26.6) and fever (18.4%; 95% CI 14.2, 22.5). The top RFE in West Malaysia was follow-up care for chronic diseases while in East Malaysia, the most common RFE was cough (25.2%; 95% CI 16.8, 33.6) and fever (21.7%; 95% CI 14.3, 29.0). In conclusion, there is a change in the presentation of diseases, with chronic disease emerging as one of the top RFE in primary care. In adults, for all age groups over 40 years old, care for chronic diseases has overtaken acute disease care. However, acute respiratory problems remain the overall top RFE at public primary care clinics in Malaysia. There are major differences in morbidity patterns and reasons for encounter for different age groups and geographical areas and this could be utilized for better health care planning.*

*Keywords: Acute disease; chronic disease; primary health care; reasons for encounter*

### ABSTRAK

*Di negara-negara membangun, kini terdapat peralihan epidemiologi dalam corak morbiditi dan kematian. Kajian ini bertujuan untuk menentukan sama ada di peringkat kesihatan primer adakah terdapatnya perubahan corak presentasi penyakit yang seiring dengan peralihan epidemiologi tersebut. Penyelidikan ini adalah kajian keratan rentas yang telah dijalankan di 12 buah klinik kesihatan awam di Malaysia. Rekod perubatan dari jabatan pesakit luar disampel secara rawak dan sebab-sebab kedatangan pesakit-pesakit dinilai. Pada keseluruhannya, pengesanan rekod adalah 99.1% (n=1,753; lingkungan 95.7-100.0%). Purata umur pesakit adalah 33.1 (SD 22.2) tahun. Untuk semua kumpulan umur, sebab kedatangan pesakit yang paling biasa ialah batuk (21.1%; 95% CI 16.5, 25.8), rawatan susulan untuk penyakit kronik (19.6%; 95% CI 12.7, 26.6) dan demam (18.4%; 95% CI 14.2, 22.5). Sebab kedatangan pesakit yang paling utama di Malaysia Barat ialah rawatan susulan untuk penyakit kronik manakala di Malaysia Timur, sebab paling utama ialah batuk (25.2%; 95% CI 16.8, 33.6) dan demam (21.7%; 95% CI 14.3, 29.0). Secara kesimpulannya, terdapat perubahan corak presentasi penyakit di peringkat primer dengan penyakit kronik telah muncul sebagai salah satu sebab utama kedatangan pesakit. Untuk golongan orang dewasa berusia lebih daripada 40 tahun, rawatan untuk penyakit-penyakit kronik telah melebihi penjagaan penyakit akut. Walau bagaimanapun, secara keseluruhannya, masalah pernafasan akut kekal menjadi sebab paling utama untuk kedatangan pesakit di klinik kesihatan awam di Malaysia. Untuk golongan umur dan kawasan geografi yang berbeza, corak morbiditi dan sebab kedatangan pesakit adalah sangat berbeza. Penemuan ini dapat digunakan untuk perancangan penjagaan kesihatan yang lebih baik.*

*Kata kunci: Penjagaan kesihatan primer; penyakit akut; penyakit kronik; sebab kedatangan pesakit*

### INTRODUCTION

The rise in chronic diseases has been identified as a global crisis (Beaglehole et al. 2011). The burden is disproportionately high in developing countries (Beaglehole et al. 2011), leading to increase in health care cost. Malaysia, a country with a fast growing economy, is now undergoing a rapid change of disease epidemiology. As the country becomes more developed, there is a greater increase in lifestyle associated diseases such as obesity,

hypertension and diabetes (Institute for Public Health 2008 & 2011; Ministry of Health Malaysia 1996).

In primary care, patients present with a wide array of symptoms ranging from upper respiratory tract infections to chronic diseases. The public system for primary care was established for the management and care of acute illnesses and maternal and child health (Family Health Development Division 2013). However, there are indications of an increase in chronic disease presentation and management in

public primary care clinics (Emmanuel et al. 2004; Institute for Public Health 2008; Teng et al. 2003). Nevertheless, a study conducted in private clinics found that acute illnesses were still the top reason for patient encounter (Teng et al. 2003). It is unclear whether there is a change in the presentation of diseases seen in public primary care clinics in tandem with the improvement of the socioeconomics of the country.

Therefore, this study aimed to determine common reasons for patient encounter at public primary care clinics.

#### MATERIALS AND METHODS

A cross-sectional survey was carried out on a random sample of outpatient medical records from 12 conveniently selected public primary care clinics. Six clinics from East Malaysia and 6 from West Malaysia were selected as patient demographic and morbidity patterns were perceived to differ in these regions. This study was part of a larger study investigating medical safety in primary care (Khoo et al. 2012).

The public primary care clinics were run by either trained family physicians known as Family Medicine Specialists (FMS), general doctors without postgraduate specialization, known as Medical Officers (MO), or paramedical practitioners known as Assistant Medical Officers (AMO). The AMO are trained to manage simple acute conditions but not chronic diseases. However, they can write repeat prescription for patients with chronic diseases with doctors' supervision.

A total of 1769 medical records were selected using systematic random sampling from the participating clinics and were photocopied in April 2007. Six clinics used clinic-based cards while the remainder used home-based cards. The sample was collected using a random start with a Table of Random Numbers and the interval for systematic random sampling was calculated using the estimated total daily attendance of the clinics (the lowest estimate taken to ensure sufficient medical records selected). Random selection of medical records was done using the outpatient attendance registry. An excel format was provided to the nurses to facilitate the selection of medical records. Clinic-based cards were retrieved from the medical records unit while for clinics with home-based cards, the records were collected and photocopied with patients' consent. All identifiers of patients, health care providers and clinics were deleted.

Each medical record was subsequently reviewed independently by two experienced FMS. Any disagreements in assessments were reconciled by discussion and consensus, with arbitration from the research team members when necessary. During the review, the RFE of each patient were recorded on a checklist. Multiple responses were allowed. The identified RFE were subsequently coded in categories. To increase the validity of the review, research team members randomly reviewed a proportion of the medical records.

EPI INFO 2000 software was used for data entry. Data analysis was done using STATA SE Version 10. Meta-analysis was used to obtain pooled estimates with 95% confidence intervals for all outcome measures as the selection of participating clinics were done by convenient sampling. RFE were coded into categories. 'Illegible', 'no complaints' and 'no presenting symptoms documented' were excluded in subsequent analysis. For analysis of ethnicity, Chinese was categorised together with 'other' and 'missing' due to small numbers.

Approval to conduct the study was obtained from the Medical Research and Ethics Committee (Reference number: (02) dlm. KKM/MIHSEC/08/0805; 15 November 2006, NMRR-07-770-1042; ethics approval by MREC MRG-07-LOI-HSR-1), Ministry of Health. Permission was also obtained from the District Health Officer in charge of each participating clinic. Confidentiality of patient records was maintained throughout the study.

#### RESULTS

From the 1769 medical records sampled from participating clinics, we retrieved 1753 medical records (retrieval rate 99.1%; range 95.7-100.0%). Of these, 81.0% was seen by AMO.

#### DEMOGRAPHY

The demographic distribution is shown in Table 1. Patients' mean age was 33.1 (SD 22.2) years. Overall, the majority of patients were in the age groups 19-40 years and 41-60 years. In East Malaysia, patients were younger (mean age 30.8 years, SD 22.4 years), compared to West Malaysia (mean age 35.9 years, SD 21.6 years). In West Malaysia, the main ethnic group seen was the Malay (67.8%) while in East Malaysia, it was the indigenous population (Other Bumiputera/Kadazan) (79.5%).

#### REASONS FOR ENCOUNTER (RFE)

From the 1753 medical records, 2207 RFE were recorded with an average of 1.26 RFE (range 0 to 5) per consultation. The mean RFE for the clinics ranged from 1.16 to 1.91 per consultation. The most common RFE was cough (21.1%; 95% CI 16.5, 25.8), followed by follow-up care for chronic diseases (19.6%; 95% CI 12.7, 26.6), and fever (18.4%; 95% CI 14.2, 22.5) as shown in Figure 1. The percentages are pooled estimates.

Figure 2 shows the comparison of RFE between East Malaysia and West Malaysia. The most common RFE in West Malaysia was the follow-up care for chronic diseases while in East Malaysia, the most common RFE was cough (25.2%; 95% CI 16.8, 33.6) and fever (21.7%; 95% CI 14.3, 29.0).

Figure 3 shows the top ten RFE for different age groups. In the older age groups of 41-60 years and over-60 years old, follow-up care for chronic disease was the most common RFE (35.4%; 95% CI 23.9, 47.0 and 49.4%; 95%

TABLE 1. Overall patients demography

Characteristic	Overall % (n)	West Malaysia % (n)	East Malaysia (Sabah) % (n)
<b>Age group</b>			
≤ 12 years old	21.2 (372)	15.2 (121)	26.2 (251)
13-18 years old	9.7 (170)	11.8 (94)	7.9 (76)
19-40 years old	26.3 (461)	24.8 (197)	27.5 (264)
41-60 years old	25.0 (438)	29.7 (236)	21.1 (202)
> 60 years old	13.0 (227)	13.6 (108)	12.4 (119)
Age Missing	4.9 (85)	4.8 (38)	4.9 (47)
<b>Ethnic</b>			
Malay	32.3 (566)	67.8 (538)	2.9 (28)
Indian	8.1 (142)	17.8 (141)	0.1 (1)
Other Bumiputera/ Kadazan	43.8 (768)	0.8 (6)	79.5 (762)
Chinese/other/missing	15.8 (277)	13.7 (109)	17.5 (168)
<b>Gender</b>			
Male	43.1 (755)	42.6 (338)	43.5 (417)
Female	51.8 (908)	52.4 (416)	51.3 (492)
Missing	5.1 (90)	5.0 (40)	5.2 (50)

Note: 'Chinese', 'other' and 'missing' were combined due to the small numbers

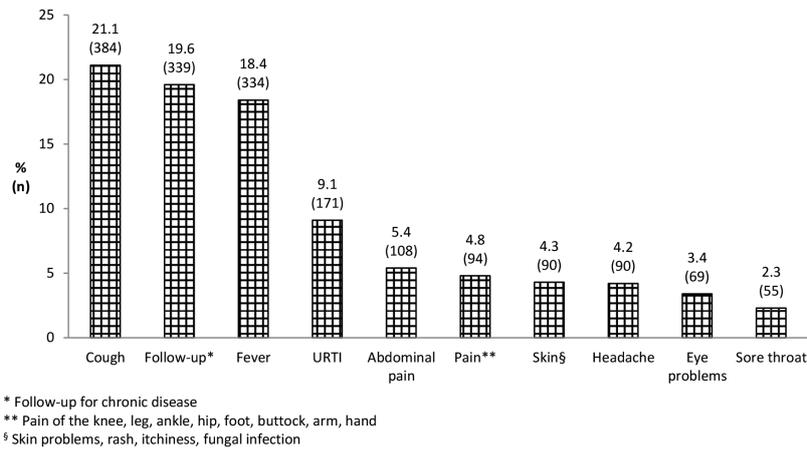


FIGURE 1. Overall top ten reasons for patient encounter

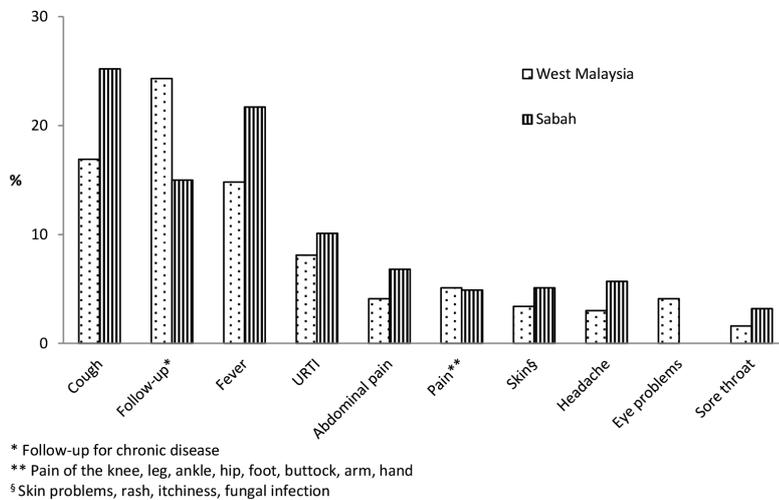


FIGURE 2. Top ten reasons for encounter by region

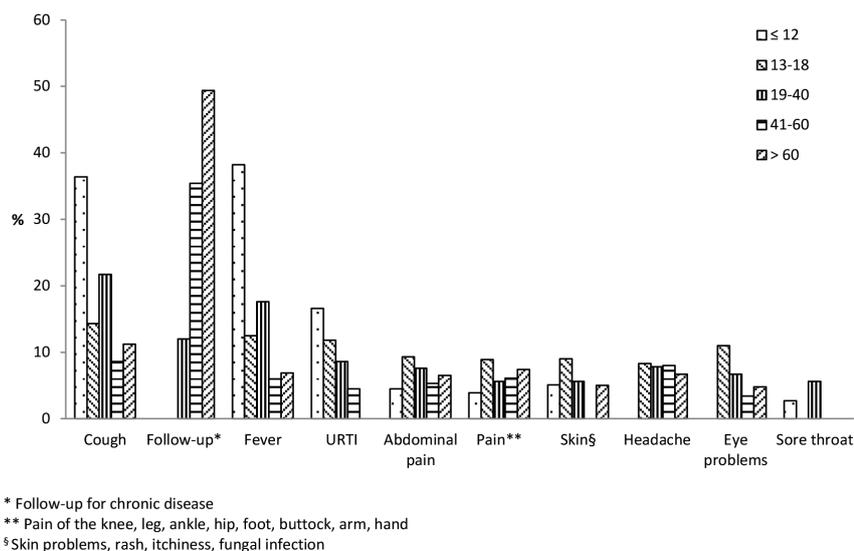


FIGURE 3. Top ten reasons for encounter by age

CI 31.6, 67.2, respectively), followed by cough (8.6%; 95% CI 5.2, 12.0 and 11.2%; 95% CI 6.0, 16.4, respectively). For children aged 12 years old and younger, the most common RFE was fever (38.2%; 95% CI 24.3, 52.2), cough (36.4%; 95% CI 25.1, 47.6) and upper respiratory tract infection (16.6%; 95% CI 9.5-23.8). Categorization by systems showed that respiratory tract symptoms were the most frequent RFE, followed by gastrointestinal tract symptoms. In the 13-18 year old age group, cough was the most common RFE (14.3%; 95% CI 8.1, 20.6), followed by fever (12.5%; 95% CI 7.1, 17.9) and upper respiratory tract infection (11.8%; 95% CI 6.0, 17.6). A similar pattern was seen in the 19-40 year old patients.

## DISCUSSION

The key findings of this study are that chronic disease follow-up is emerging as an important reason for encounter in primary care. In adults for all age groups over 40 years old, care for chronic diseases has overtaken acute disease care. However, acute illness still contributes substantially to the work load in the public primary care setting.

In West Malaysia, follow-up care for chronic disease was the top RFE whilst in East Malaysia acute illnesses (e.g. cough and fever) were more common. This may be due to regional socioeconomic and development differences. The incidence of poverty in 2007 in East Malaysia was 16.4% compared to 3.6% in West Malaysia (Country Health Plan 2011). East Malaysia is less developed compared to West Malaysia and the access to healthcare is limited as can be seen by the lower doctor to patient ratio of 1:2248 compared to the national average of 1:940 (The Star Online 2013).

Public clinics offer treatment that is substantially cheaper than that of private clinics. In a public primary care clinic, a Malaysian citizen pays USD0.30 for consultation,

including investigation and treatment. As Malaysia becomes more developed, care for chronic diseases are expected to increase compared to care for acute minor illnesses. This is likely to lead to a disproportionate increase in health care costs burden for the public sector compared to that of the private health care (Mimi et al. 2011).

We found the most common RFE were those of the respiratory system (cough, sore throat and upper respiratory tract infection). Diarrhoea was not identified as one of the top ten RFE. This is encouraging and likely reflects improvements in public health and general standard of living. This is consistent with findings of the national survey, NHMS III, where the community incidence of acute diarrhoeal illness has fallen to 5% (Institute for Public Health 2008).

The predominant age groups seen at the public primary care clinics were the 19-40 and the 41-60 years old, followed by children below 12 years of age. This is consistent with other studies (De Silva & Mendis 1998; Emmanuel et. al 2004; Lim 1991). This can partly explain the regional differences in the top common RFE. For example, children are more often seen for acute illnesses and form the greater part of the patient population in East Malaysia (Institute for Public Health 2008), which could explain why the top RFE there is still acute respiratory symptoms. This finding concurs with other studies (Emmanuel et al. 2004; Teng et al. 2003). In adults for all age groups over 40 years old, care for chronic diseases has overtaken acute disease care.

## STRENGTHS AND WEAKNESSES

This study was carried out in 12 clinics selected conveniently in two regions that are different geographically and socio-demographically. Although the selection of the clinics was convenient, medical records that formed the data were

selected randomly to reduce bias. Sample size was also large with over 1700 medical records analyzed.

The study was limited by retrospective record review and missing data due to poor documentation. The RFE was taken as those documented in the record and it was difficult to code using the International Classification of Primary Care. However, this was a pragmatic research where data was collected at the point of health service delivery. It provides us an insight of the problems encountered.

#### CONCLUSION

Chronic disease management was the most common RFE in West Malaysia and the third top RFE in East Malaysia. However, acute respiratory problems remain the overall top RFE at public primary care clinics in Malaysia. In adults, for all age groups over 40 years, care for chronic diseases has overtaken acute disease care. There are major differences in morbidity patterns and reasons for encounter for different age groups and geographical areas and this should be utilized for better health care planning. Public primary care clinics play an important role in chronic disease management and health care strategies are required to ensure that necessary resources and training is available for these centres to provide quality care for chronic diseases as country develops.

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