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- Further information is available upon request.



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General Practice, Family Medicine and Primary Care in Hong Kong: reflections from an outsider looking in

Doris Young

As I embark on my 5th year as the external examiner for the Exit Examination (EE) of the Hong Kong College of Family Physicians (HKCFP), it is an opportune time for me to reflect on my perceptions of the development of General Practice, Family Medicine and Primary Care in Hong Kong. I valued the opportunity to share experiences with the trainees, academic colleagues and the practitioners who provide the foundation as well as the scaffolding to the Hong Kong primary care system. Being an examiner in the consultation skills assessment component of the EE also took me to various sites where General Practice /Family Medicine are practised. Thus I have come to understand the complexity of 'first point of contact' patient centred care services offered to the Hong Kong people. So, as an outsider looking in, what are the challenges facing the discipline of Family Medicine in Hong Kong and what strategies should be put in place to provide quality and safe Family Medicine care to the community and does it matter what you call the discipline, General Practice, Family Medicine or Primary Care?

What's in a name? General Practice or Family Medicine; Primary or Community Care?

Let me begin by looking at the definitions of General Practice, Family Medicine and Primary Care and see what they mean and is one superior to the other and how does it fit in to the HK health care system.

Family Medicine (FM) is a medical specialty devoted to comprehensive health care to people of all ages. It is a form of primary care that provides continuing, comprehensive health care for the individual and family across all ages, sexes, diseases, and parts of the body.¹ This term is used in USA, Canada and recently adopted by Hong Kong and a growing number of Asian countries.

A **General Practitioner** or **GP** is a medical practitioner who treats acute and chronic illnesses and provides preventive care and health education for all ages

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Doris Young, MD, MBBS, FRACGP

Professor of General Practice

Associate Dean, Academic

Faculty of Medicine, Dentistry and Health Sciences University of Melbourne

Correspondence to : Professor Doris Young, Department of General Practice, 200 Berkeley Street, Carlton Vic 3053, Australia.

and both sexes. They have particular skills in treating people with multiple health issues and co-morbidities.² The term *general practitioner or GP* is common in the United Kingdom, European countries such as The Netherlands, Denmark several Commonwealth countries such as Australia and New Zealand.

Primary Care is the term for the health services which play a central role in the local community. It refers to the work of health care professionals who act as a 'first point of consultation' for all patients. Such a professional would usually be a general practitioner or family physician, depending on locality. However, at the patient's discretion and according to their self-assessment of the seriousness of their ailment, they may opt to see another health care professional first, such as a pharmacist, herbalist (TCM) or in some localities a nurse.³

Based on the definitions above, I think that GPs and Family Medicine doctors deliver similar whole person, acute, subacute and continuing 'generalist' care to patients of all ages, their families in the communities they live. In some countries like UK, Australia, New Zealand and the Netherlands they are also the 'gatekeepers' and co-ordinators of the primary care system in collaboration with a multidisciplinary team located in the community. *WONCA (World Organization of National Colleges, Academies and Academic Associations of General Practitioners/Family Physicians)* encompass both terms and they use *Family Medicine and General Practice* synonymously.

Family Medicine in Hong Kong: from identity crisis to formation of a unified front

On first impressions based on the above definitions, there is confusion in the naming of the medical 'generalist' discipline in Hong Kong. The conjoint examination awards a Fellowship of the HKCFP and a Fellowship of the Royal Australian College of General Practitioners (RACGP) to trainees after 4 years post intern. Some of these doctors will enter private practice to deliver General Practice/Family Medicine in 'primary care' settings; others will continue a further 2 years of higher training to become a Fellow of the Hong Kong Academy of Medicine to become a Family Medicine Specialist. Most will eventually enter private practice as Family Medicine specialists to also deliver 'primary care'.

What about the academic institutions? Are they clearer in their charge to advance the academic discipline of General Practice/Family Medicine/Primary Care?

If we look at the names of the University Departments in Hong Kong, we would say they are representative of their 'discipline identity'. At Chinese University of Hong Kong, it is known as Division of Family Medicine and Primary Health care and recently the Family Medicine Unit at University of Hong Kong has finally gained a Department status and

established a new Department of Family Medicine and Primary Care. In addition to the two Universities there are also 7 Departments of Family Medicine located in 7 regional clusters of Hospital Authority providing low costs General Practice /Family Medicine services to 74 Government Out-Patient Clinics (GOPC) located in disadvantaged communities. These GOPCs provide the training grounds for the majority of the Family Medicine trainees be it basic or advance. The term 'Family Medicine' is now firmly embedded in all the institutions/organisations that represent the academic discipline in Hong Kong.

The challenges ahead for Hong Kong Family Medicine specialists

Having established the College, the assessment and the credentials of Family Medicine, Hong Kong will face the same challenges that other health care systems around the world have to grapple with in terms of quality and safety care delivery to our patients and the community. How would the Family Medicine specialists distinguish themselves from those that did not acquire this higher training? Can patients and the community tell the difference in the care they received? What will be the role of the College and the Academy to ensure standards are maintained? Will there be differential payments and charges by the Family Medicine Specialists and if so how would that weigh up against other specialists such as general internists and paediatricians?

As an outsider I can only pose the questions but provide no answers except that I am confident that my academic colleagues in Hong Kong will seek research funding to evaluate the cost effectiveness of the various models of primary care delivery by Family Medicine specialists in Hong Kong. It is indeed satisfying to know that regardless of what we call ourselves, GPs, Family Physicians, at the end of the day, we practise the same branch of medicine that William Osler, the renowned Canadian medical educator and wise scholar sent this farewell message to Canadian and American medical students 100 years ago,

*'Have no higher ambition than to become an all-round family doctor, whose business in life is to know disease and to know how to treat it.'*⁴ ■

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“Primary health care, now more than ever”: this motto, quoted from the 2008 World Health Organization (WHO) annual world health report¹, has clearly emphasized the need for primary care as a foundation for any healthcare systems. At approximately the same time, our government has also released the healthcare reform document² “Your health, your life” that has highlighted the need for promoting and enhancing primary care in Hong Kong.

The Hong Kong Primary Care Office (PCO) was established in September 2010 comprising staff with expertise from the Food and Health Bureau, the Department of Health and the Hospital Authority. According to the Primary Care Development in Hong Kong Strategy Document,³ the PCO’s role is to support and coordinate the development of primary care in Hong Kong, particularly the implementation and coordination of actions across different healthcare sectors.

The PCO has already been working on this development through liaising with different stakeholders and exploring future potentials. It has also started organizing seminars to frontline primary care providers, informing them about their vision and strategy in improving Hong Kong’s primary care. Furthermore, as most readers may already be aware, applications for the primary care registry have already been activated. With an intention to include different types of healthcare workers into the primary care registry (such as physiotherapists, nurses etc), this registry should prove to be one that encompasses the holistic and multi-professional nature of what primary care should be characteristic.

Despite the efforts made, there are intrinsic flaws with the current development direction.

Firstly, it is understandable to have a wide inclusion for primary care physicians at the initial stage of establishing the primary care registry, with subsequent creation of a stringent set of criteria for defining the indices for high quality primary care. However, promotion of the primary care registry will take place within 2011, at a time when the indices of high quality primary care have not yet been defined. How can the Hong Kong population be sure that whom they are seeing are reflective of what family medicine should be? How can the PCO guarantee that our citizens receive appropriate care?

Secondly, the PCO strategies include improving all aspects of the 5 C’s concept of primary care. Undoubtedly these are essential components of any primary care development cornerstones. However, there are as yet no proposed measures as to how these could be carried out. The current heavy workload in public primary care will certainly not be able to cope with such new strategies unless the Hospital Authority (HA) introduces alternative approaches in their service provision. The health insurance scheme, which has yet to gain support from private healthcare providers, may be the way forward if there is greater primary care involvement; nevertheless, this is still in its preliminary stage and may be futile in the long run because of the lack of support.

Thirdly, success in organizational change requires several components, including top level commitment, stakeholder consultation, user involvement, continual learning, alignment and integration. So far there have been minimal frontline consultations. There is still significant service overlap between the HA and the Department of Health which has not been addressed, apart from a very generic “Community Health Centre”.

Overall, the future direction of Hong Kong’s primary care appears to be going in a positive direction. However, if our initial steps are taken without careful considerations, primary care runs the risk of failing in front of our people’s expectation, failing to provide the necessary care for our people, and in the end increasing the health burden of our ageing society. ■

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Kenny Kung

MRCGP, FHKCFP, FRACGP, FHKAM (Family Medicine)
Associate Consultant in Family Medicine
Department of Family Medicine, NTEC, HA.

What do Hong Kong's family physicians think of clinical guidelines? – A questionnaire survey

Amy KL Chan 陳潔玲, Richard Baker, TP Lam 林大邦, Mary BL Kwong 鄺碧綠, Loretta WY Chan 陳穎欣, Timothy Hong 康天澤

Summary

Objective: To study the current use of and attitude towards clinical guidelines (CGs) among Hong Kong's family physicians, and to explore the attributes that may enhance implementation.

Design: Postal questionnaire survey.

Subjects: A questionnaire was posted to all 1427 members of the Hong Kong College of Family Physicians (HKCFP) in the period from March to July, 2010.

Main outcome measures: Response to a questionnaire on the current usage of and attitude towards CGs, respondents' demographic data.

Results: 617 completed questionnaires were received (response rate 43.2%). Ninety-one percent of respondents had used CGs in patient care and 85% had used them within a month. Sixty-three percent of respondents gave the internet as the first answer to the question of where they found the clinical guidelines. "Contradicting recommendations" was ranked highest as a barrier to guideline use (82%), followed by "CGs not tailored for individual patient's needs" (77%), and "mistrust guidelines sponsored by pharmaceutical

companies" (75%). There was a very high degree of agreement on what constituted a good CG: evidence-based (99%), simple and easy to use (99%), applicable to the local population (99%) and the primary care setting (98%), regularly updated (98%) and with cost effective recommendations (93%). On strategies thought to be useful in promoting the use of CGs, 96% of respondents agreed on effective dissemination, 93% on a central system for adoption of CGs, 90% on involving primary care doctors in drafting CGs and 71% on providing financial incentives.

Conclusion: Most respondents were using and supportive of CGs, and would like to have a central system for guideline adoption and effective dissemination. They wished to be more involved in the development process. They thought a good CG should be evidence-based, simple and easy to use and applicable in the local setting. Family physicians' views about CGs are important and relevant for Hong Kong's guideline development policy.

Keywords: Clinical guidelines, survey, attitudes, family physicians, Hong Kong

Amy KL Chan, MBBS (HK), FRACGP, FHKCFP, MPH (HK)

Family Physician in Private Practice

Richard Baker, OBE, MD, FRCGP

Professor of Quality in Health Care,

Department of Health Sciences, University of Leicester

TP Lam, PhD (Sydney), MD (HK), FRACGP, FHKAM (Fam Med)

Professor,

Department of Family Medicine and Primary Care, The University of Hong Kong

Mary BL Kwong, MBBS (HK), FRCP (Edin), FHKAM (Paediatrics), FHKAM (Fam Med)

Specialist in Paediatrics

Loretta WY Chan, MBBS (HK), FHKAM (Fam Med), FHKCFP, FRACGP

Honorary Clinical Assistant Professor,

Department of Family Medicine and Primary Care, The University of Hong Kong

Timothy TC Hong, MBBS (HK), FHKCFP, FRACGP, Dip Ger Med RCPS (Glasg)

Resident,

Department of Family Medicine and Primary Health Care, United Christian Hospital

Correspondence to: Dr Amy KL Chan, Shop 5, 1/F, ABBA Centre, 223, Aberdeen Main Road, Aberdeen, Hong Kong SAR.

摘要

目的: 研究目前香港家庭醫生對臨床醫學指引的使用情況和對其取態, 以及探討增加使用指引的方法。

設計: 郵遞問卷調查。

對象: 在2010年3月至7月間, 以郵遞方式將問卷寄給所有1427名香港家庭醫學學院成員。

主要測量內容: 回應問卷中關於現時臨床醫學指引的使用情況和對其的看法, 回覆者的人口統計學上資料。

結果: 收回617份問卷(回應率為43.2%)。91%的回應者曾經使用臨床醫學指引, 而85%的回應者在過去一個月也曾用過。63%是從互聯網上首先得到指引。互相矛盾的建議是使用指引時的最大障礙(82%), 其次是指引並非為個別病人而制訂(77%), 以及對

由製藥公司贊助的指引抱懷疑態度（75%）。回應者對理想臨床醫學指引的特性均意見一致：有實証基礎的（99%），簡易使用（99%），適用於本地人仕（99%）和基層醫療（98%）定期更新（98%）和具成本效益（93%）。至於在推行臨床醫學指引時的策略，96%認同需有效地廣為傳播，93%贊同設立中央系統批核指引內容，90%認同需有基層醫生參與臨床醫學指引的草擬，以及71%認同給予財政上的獎勵。

結論：大多數回覆者已經使用和會支持使用臨床醫學指引，他們希望能有一個中央系統批核指引和有效地將它推廣。他們亦希望能夠在發展過程有更多參與。他們認為一個好的臨床醫學指引必須基於實証，簡單和容易使用，以及適用於本地環境。在發展醫學指引政策時，家庭醫生的意見是重要和密切相關的。

主要詞彙：臨床醫學指引，調查，取態，家庭醫生，香港。

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Background

Clinical guidelines are “systematically developed statements to assist practitioner and patient decisions about appropriate health care for specific clinical circumstances”.¹ Planned implementation of high quality clinical guidelines has been shown to improve the structure, process and outcome of patient care in a defined population, for example, the Netherlands.² However, the effectiveness of clinical guidelines is affected by various issues from guideline attributes to real-life implementation. Surveys involving more than 10,000 clinicians around the world have been conducted to assess their attitude to clinical guidelines.³ Most doctors in the surveys found clinical guidelines to be useful, educational and likely to improve quality of care. Yet, this positive attitude does not automatically translate into practice changes. For example, general practitioners (GPs) in Australia were interviewed to study their use of guidelines in several clinical scenarios (hepatitis B immunization, diabetes mellitus, Chlamydia), and it was concluded that Australian GPs did not embrace clinical guidelines in their daily practice, and “it would take up to ten years for a culture to be created in which guidelines would be used and valued within general practice”.⁴

To improve Hong Kong’s healthcare system, HK\$ 600 million have been earmarked for enhancing primary care for the period 2010-11 to 2012-13.⁵ Out of this

budget, \$226 million will be used for setting up a Primary Care Office and \$194 million for implementing specific tasks such as developing clinical protocols. With the plethora of international clinical guidelines for local adoption, together with an administration for implementation, there appears to be a plausible way forward to improve the quality of patient care. However, the heterogeneous practice settings in Hong Kong make this process more complex. As the majority of front-line clinicians are solo private practitioners, it is often a self-employed doctor’s decision to pick up (or ignore) the clinical guidelines and follow (or dismiss) the recommendations in a fee-for-service setting. For family physicians working in the public sector, the use of guidelines may be facilitated (or impeded) by the administration. Amongst the barriers to implementing clinical guidelines, end-users’ views are one of the most important determinants in bridging the gap between research evidence and patient care. In Hong Kong, no studies have been done to study the attitude of family physicians towards clinical guidelines.

Objectives

We aim to find out the current use of and attitude towards clinical guidelines among Hong Kong’s family physicians, and to explore the attributes that may enhance implementation.

Methods

Five focus groups were conducted to understand the use of clinical guidelines by front-line clinicians. Family physicians were purposefully sampled through a network of committee members from the Hong Kong College of Family Physicians (HKCFP), Hong Kong Doctors Union and Hong Kong Medical Association. Focus group participants included a diverse range of age, gender, type/sector of practice, geographical locations and vocational training/postgraduate qualifications.

A 2-page A4 size questionnaire was constructed with 15 questions as shown in **Appendix A**. The first three questions were on guideline usage, followed by four questions on attitudes according to the themes derived from the focus groups, using a four-point Likert scale. There were two open questions asking for suggestions and comments, followed by questions

to collect demographic data (practice, time / place of graduation, higher qualifications, age/sex).

The questionnaire was posted to all HKCFP members, with a cover letter explaining the background and purpose of the study. A lucky draw and CPD accreditation were used as incentives. Non-respondents were sent a reminder 4 to 8 weeks after the first mailing, and in total 3 mailings were done. Ethical approvals were received from the local Institutional Review Board (IRB). For the purpose of raising awareness, three articles were written for journals freely posted to members of HKCFP and the Hong Kong Academy of Medicine.⁶⁻⁸

Data analysis

Chi-square test was used to compare the characteristics of survey respondents with HKCFP members. Cross-sectional data were analyzed by simple

frequency statistics. Multi-variate regression analysis was used to identify correlation between uptake of clinical guidelines with age, gender, qualifications, type and sector of practice. All quantitative analysis was done using the Statistical Package for Social Science version (SPSS) 17.0.

Results

All HKCFP members (1458) were sent a copy of the questionnaire and three mailings were completed by July 2010. Of the questionnaires sent, 18 were excluded as the recipients were medical students, 13 were returned because of invalid addresses or the doctor had left the practice. There were a total of 617 responses, giving a response rate of 43.2% (617/1427).

Table 1 presents the demographic details of the survey respondents. Comparing among all members of HKCFP, the higher proportions of those who responded

Table 1: Demographics of survey respondents

		Number of Respondents (%)	HKCFP Members (%)	p value
Sex	Male	398 (66)	1035 (71)	0.08
	Female	203 (34)	423 (29)	0.08
Age	<30	65 (11)	116 (8)	0.04*
	31-40	264 (44)	583 (40)	0.23
	41-50	109 (18)	408 (18)	0.95
	51-60	80 (13)	219 (15)	0.27
	>60	84 (14)	219 (15)	0.61
Years after graduation	0-5	45 (7)	-	-
	6-10	176 (29)	-	-
	11-15	111 (18)	-	-
	16-20	64 (11)	-	-
	>20	205 (34)	-	-
Place of primary qualification	Hong Kong	458 (76)	-	-
	Outside HK	144 (24)	-	-
Higher qualifications#	Specialist in FM	141 (23)	233 (16)	<0.0001*
	Fellows in FM	175# (33)	554 (38)	0.05
	Diploma in FM	112# (26)	-	-
	Nil	83 (15)	-	-
	Others	18 (3)	-	-
Sector of current practice	Hospital Authority	216 (36)	-	-
	Department of Health	47 (8)	-	-
	Private Hospital	21 (3)	-	-
	Solo Private Practice	205 (34)	-	-
	Group Private Practice	89 (15)	-	-
	Others (e.g. retired)	24 (4)	-	-

Note: (Numbers may not add up to 100% because of missing data)

% proportion of characteristics of respondents among all members of Hong Kong College of Family Physicians (HKCFP)

#Respondents selected multiple post graduate qualifications in the order of Specialists in Family Medicine, followed by Fellows in Family Medicine, Diploma in Family Medicine and so on.

*Comparison of proportion was performed by chi-square test with statistical significance at $p < 0.05$

to the survey were the younger than 30 years old members, and the specialists in family medicine group.

Out of the 606 valid responses, 551 (91%) respondents claimed to have used clinical guidelines in patient care. Their characteristics are given in **Table 2**, which shows there are differences in guideline usage among different groups. For example, 100% of respondents from the private hospitals reported using guidelines for patient care. A higher proportion of respondents from the Hospital Authority (HA) and the Department of Health (DH) used guidelines as compared to those from the private sector. The older the respondents, the fewer used guidelines, e.g., 97% of respondents younger than 30 years ever used clinical guidelines while only 79% of respondents aged above 60 ever used clinical guidelines.

Table 3 shows the multi-variate regression analysis for correlation between uptake of clinical guidelines and age, type and sector of practice. Doctors who were of older age and engaging in solo private practice were less likely to have ever used guidelines, but the differences were not statistically significant. The only statistically significant factor affecting taking up of clinical guidelines is having higher postgraduate qualifications. As seen in **Table 2**, a greater proportion of respondents who possessed higher qualifications reported using clinical guidelines in patient care (90% for diploma holders, 97% for Fellows of the College, 92% for specialists, as compared to 84% of respondents who did not possess any higher qualifications).

As shown in Chart 1, almost half of the respondents (42%, 231/545) had used a guideline within a week during the survey, and the majority (85%, 463/545) had used one within a month of the survey. Chart 2 shows that 63% of respondents gave the internet as the first answer to the question of where they found the clinical guidelines. This is followed by medical journals (18% as the first source, 43% as the second source). Continuing Medical Education programmes ranked third (39%). Two thirds of respondents selected more than three sources for guideline information.

Table 4 shows the top three answers to the attitude questions in the survey. There was an almost unanimous response to the elements of a good clinical

guideline. Nearly all respondents agreed or strongly agreed that a good guideline should be simple and easy to use (99%), evidence-based (99%), applicable to the local population (99%) and the primary care setting (98%), regularly updated (98%) and with cost effective recommendations (93%). However, about 20% disagreed or strongly disagreed that a clinical guideline would be considered “good” by the fact that it is authorized by a respected Hong Kong authority.

Table 2: Responses to “Do you ever use clinical guidelines in patient care?”

		Number of Respondents	Ever used guidelines	%
Total		606	551	91
Sex	Male	398	352	88
	Female	203	194	96
Age	<30	65	63	97
	31-40	264	252	95
	41-50	109	100	92
	51-60	80	66	83
	>60	84	66	79
Years after graduation	0-5	45	43	96
	6-10	176	171	97
	11-15	111	102	92
	16-20	64	61	95
	>20	205	169	82
Place of primary qualification	Hong Kong	458	422	92
	Outside HK	144	125	87
Higher qualifications#	Specialist in FM	141	130	92
	Fellows in FM	175#	193	97
	Diploma in FM	112 #	140	90
	Nil	83	70	84
Sector of current practice	Hospital Authority	216	212	98
	Department of Health	47	46	98
	Private Hospital	21	21	100
	Solo Private Practice	205	188	92
	Group Private Practice	89	79	89
	Others (e.g. NGO)	24	21	88

Note: (Numbers may not add up because of missing data)

Respondents selected multiple post graduate qualifications in the order of Specialists in Family Medicine, followed by Fellows in Family Medicine, Diploma in Family Medicine and so on.

NGO Non-government organization

Table 3: Factors that could affect the uptake of clinical practice guidelines

	Standardized coefficients	p value
Age	-0.035	0.077
Higher qualifications	0.028	0.007*
Sector and type of practice		
Hospital Authority	0.082	0.180
Department of Health	0.079	0.262
Private Hospital	0.095	0.257
Solo Private Practice	-0.019	0.758
Group Private Practice	0.008	0.902

* $p < 0.05$ is taken as statistically significant.

Among the different strategies to promote the use of guidelines, respondents agreed or strongly agreed most on “effective dissemination” (96%), followed by “establishing a central system for adopting evidence-based clinical guidelines” (93%) and “involving primary care doctors in the drafting process” (90%). However, more than two-thirds of respondents disagreed or strongly disagreed on involving patients in the drafting process. Providing financial incentives as a strategy was agreed or strongly agreed with by 71% and raising public awareness was agreed or strongly agreed with by 67% of respondents.

The majority of respondents agreed or strongly agreed that clinical guidelines could assist clinical decision-making (97%), improve quality of patient-care (94%), justify oneself when being questioned by patients (94%) and defend one’s patient management when being legally challenged (93%). About 30% of respondents disagreed or strongly disagreed that clinical guidelines could improve patient satisfaction.

For barriers, “contradicting recommendations from different clinical guidelines” came first, agreed or strongly agreed with by 82% of respondents. The second most commonly perceived barrier was “guidelines not tailored for individual patient needs”, agreed or strongly agreed with by 77% of respondents. The other perceived barriers are listed in descending order of agreement - “mistrust guidelines sponsored by pharmaceutical companies” (75%), followed by “limitations in my practice setting are not considered” (73%), “clinical guidelines for Caucasians are not applicable in Chinese” (68%) and “recommendations are changing too frequently” (64%).

For the open question “What are your suggestions to promote the use of clinical guidelines in the primary care setting?”, 185 respondents (30%) put down some suggestions. About half of the suggestions were on improving the accessibility of clinical guidelines. To this end, respondents proposed the use of a central website for co-ordination and easy retrieval of updated guidelines. They also welcomed electronic versions of guidelines downloadable to iPhone, desk top and other portable devices. They wished to receive guidelines regularly by mails or e-mails, either in the form of newsletters, booklets, pocket cards, or a designated

section in commonly accessible primary-care journals. They thought access to guidelines in routine daily practice was important, and suggested incorporating recommendations into electronic prescribing processes during consultations.

Some respondents’ suggestions had already been covered in the questionnaire, but elaborations were expressed in the open answers. For example, for incentives, some respondents mentioned a financial subsidy while others suggested non-monetary rewards especially support from the employing organization. Some respondents from the public sector specifically mentioned assigning longer consultation time for guideline recommendations to be implemented.

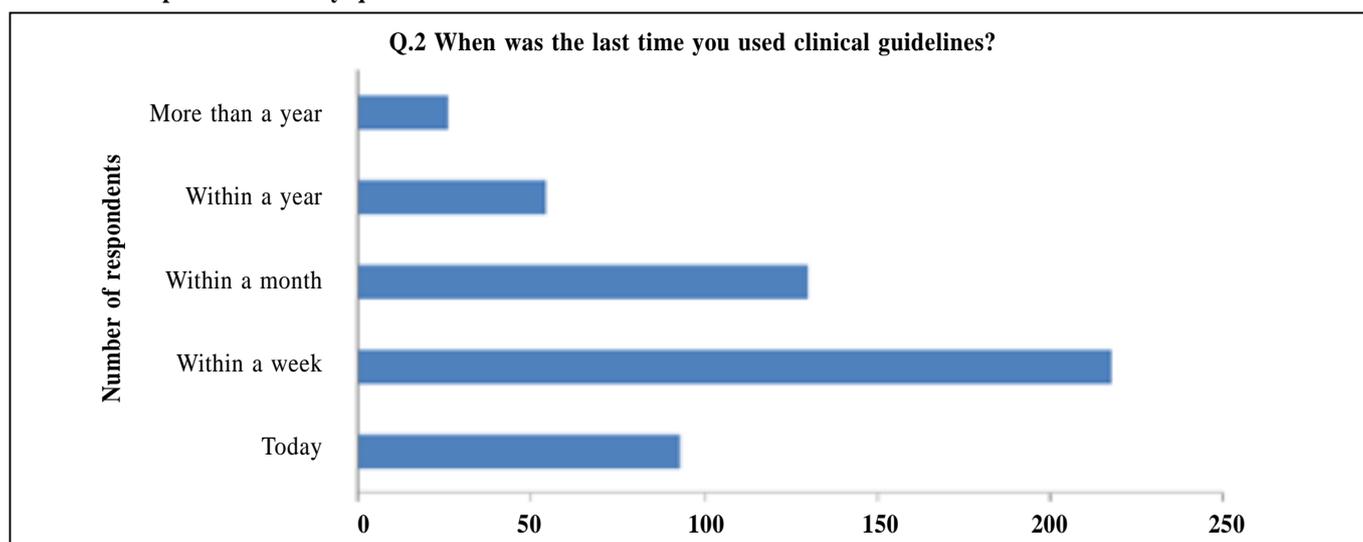
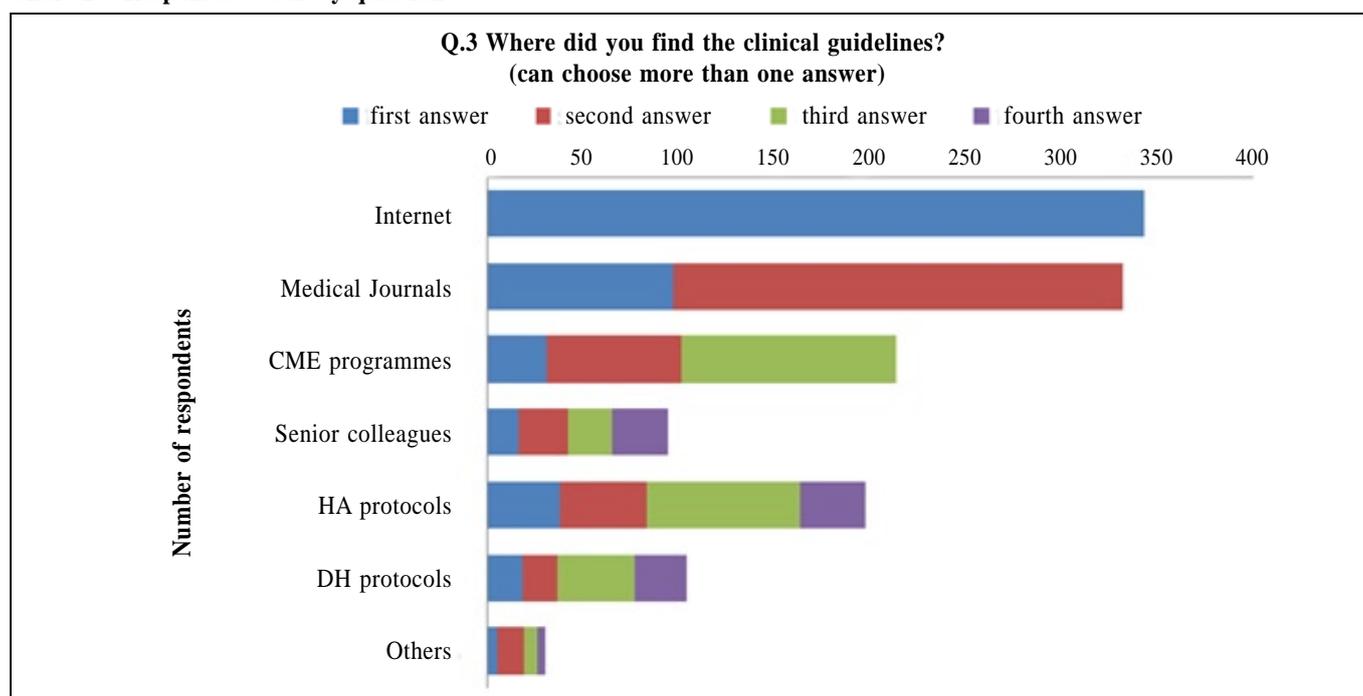
Discussion

The survey showed a positive attitude towards clinical guidelines among members of HKCFP. With a response rate of 43.2%, more than 90% of respondents claimed to use clinical guidelines in patient care, and 85% had used clinical guidelines within a month. The positive attitude was also supported by their agreement on the benefits of guidelines in assisting clinical decision-making and improving patient care. This is in line with Farquhar and colleagues’ systematic review.³ With 63% of respondents indicating the internet as their first choice in looking for guideline information (Chart 2), a web-based dissemination strategy is likely to be feasible and effective for Hong Kong’s family physicians.

A landslide preference is revealed by the survey results on guideline attributes: nearly all respondents opined that guidelines should be evidence-based, simple and easy to use, applicable to the local population and the primary care setting. On the contrary, contradicting and confusing recommendations were the first and foremost deterrents of adherence. The desire for a unified standard setting was reflected in the strong agreement to establish a central system for adopting evidence-based clinical guidelines (93%) with effective dissemination (96%). With a plethora of clinical guidelines available on the internet (for example, the Guidelines International Network now has more than 6,400 clinical practice guidelines online⁹), what

Table 4: Top three answers to the attitude questions (Questions 4 to 7)

	Statement	Agreed by number of respondents (%)	
Elements of a "good" guideline	Simple and easy to use	598	99
	Evidence-based	598	99
	Applicable to the local population	592	99
Strategies to promote guidelines	Effective dissemination	577	96
	Establish a central system	561	93
	Involve primary care doctors in drafting	544	90
Benefits of using guidelines	Assist clinical decision making	570	97
	Improve quality of patient care	586	96
	Justify my patient management	566	94
Barriers in using guidelines	Contradicting recommendations	496	82
	Not tailored to individual patient's needs	460	77
	Mistrust guidelines sponsored by drug companies	454	75

Chart 1 – Responses to survey question 2**Chart 2 – Responses to survey question 3**

respondents want to receive seems to be guidelines that are “endorsed” rather than just any guidelines available from the internet. However, it should also be noted that 20% of respondents disagreed that a clinical practice guideline would be considered “good” by the fact that it is authorized by a respected authority. A possible reason is that respondents prefer a rigorous and transparent appraisal rather than a mere “rubber stamping” by any authorities. Credibility is a fundamental issue, and 75% of survey respondents did not trust guidelines sponsored by pharmaceutical companies.

Guidelines should be flexible to accommodate individual patient needs, and limitations in the local settings must be carefully considered. Involving end-users in the development of guidelines may help achieve these goals. Ninety percent of respondents agreed on involving primary care doctors in the drafting process, though in the open answer in the survey, some respondents mentioned that specialists’ views should be sought as well. Surprisingly, about two-thirds of respondents disagreed on involving patients in the drafting process. This may reflect differences in fundamental beliefs about the purpose of clinical guidelines – to improve the quality of care, or, merely to assist or support the doctors in patient care.

Promoting guidelines with financial incentives, as compared to other strategies, showed less support from respondents (71%) than expected. Hong Kong’s primary care is predominately provided by private practitioners, hence the financial incentives used in other health systems such as the National Health Service in the UK, with the intention to introduce market forces to improve efficiency, may not work the same way in Hong Kong. Not surprisingly, public sector doctors’ incentives to follow guidelines may come from support beyond direct cash dollars, as exemplified by the comments given in the open-ended questions in the survey.

Strengths and limitations

There are no empirical studies that explore Hong Kong’s family physicians’ attitudes towards clinical guidelines. The response rate of 43.2% in the present survey is in line with previous experience;¹⁰ yet the total number of respondents still amounts to less than half of HKCFP members. There are statistically more respondents who are aged less than 30 years and

who are specialists in family medicine. Both groups are more likely to use guidelines in patient care, as shown in the regression analysis. Hence the result may be skewed towards a more positive attitude towards clinical guidelines. The generalizability of the survey results is hence limited and caution should be taken in interpreting the data.

Suggestions on future guideline policy

With the establishment of the Primary Care Office funded by the government,⁵ the organizational support for a central agency for adoption of clinical practice guidelines is coming into place. The centralization of guideline construction and dissemination is being supported by family physicians, as shown in the survey results. To ensure that clinical guidelines are “simple and easy to use”, resources could be invested into designing attractive and user friendly versions, paper or electronic, employing social influence theory and knowledge on marketing.¹¹ Consultation and involvement of front-line clinicians in the drafting process are likely to improve guideline compliance, but steering towards a bottom-up approach in the drafting process requires a political will to nurture leadership among family physicians.⁷ Cultivating leadership in family physicians in the attitude, knowledge and skills in developing guidelines for use in primary care should be a joint mission for the government, professional bodies and the academic community.

Conclusion

Clinical guidelines are an increasingly important tool in promoting effective health care, yet implementation is not always successful. In Hong Kong, no empirical studies have been done to find out the current use of and attitudes towards clinical guidelines among front-line doctors. About half of the members of HKCFP responded to a questionnaire survey which showed that respondents were using and supportive of clinical guidelines, and would like to have a central system for guideline adoption and effective dissemination. They wished to have more support in implementation and be involved in the development process. They thought that a good clinical guideline should be evidence-based, simple and easy to use and applicable in the local setting.

Key messages

1. A questionnaire survey on members of the Hong Kong College of Family Physicians was conducted in 2010 to study the attitude of family physicians towards clinical guidelines.
2. The response rate was 43.2%. Ninety one percent of respondents had used clinical guidelines in patient care, 85% had used them within a month and sixty-three percent indicated the internet as their first choice in locating clinical guidelines.
3. The respondents thought a good clinical guideline should be evidence-based (99%), simple and easy to use (99%) and applicable in the local setting (99%).
4. “Contradicting recommendations” was ranked highest as a barrier to using clinical guidelines (82%), followed by “guidelines not tailored for individual patient’s needs” (77%), and “mistrust guidelines sponsored by pharmaceutical companies” (75%).
5. On strategies thought to be useful in promoting the use of clinical guidelines, 96% of respondents agreed on effective dissemination, 93% on a central system for adoption and 90% on involving family physicians in drafting clinical guidelines.

Acknowledgement

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Appendix A - Questionnaire used in the survey

We would like to know your usage of and attitude towards clinical guidelines. Clinical guidelines are "systematically developed statements to assist practitioner and patient decisions about appropriate health care for specific clinical circumstances". Please put a ✓ in the boxes provided for the following questions:

1. Do you ever use clinical guidelines in patient care? Yes No (please go to Q4)
 2. When was the last time you used clinical guidelines?
 Today Within a week Within a month Within a year More than a year
 3. Where did you find the clinical guidelines?
(Can choose more than one item)
 Internet Medical journals CME programmes or conferences Senior colleagues
 HA protocols Dept of Health protocols Others (please specify) _____
 4. What do you think are the benefits in using clinical guidelines?
(Please answer ALL items)

	Strongly Disagree	Disagree	Agree	Strongly Agree
a) Improved quality of patient care	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Assist clinical decision making	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Justify myself when being questioned by patients	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Defend my patient management when being legally challenged	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Improved patient satisfaction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 5. Do you think the following discourage you from using clinical guidelines?
(Please answer ALL items)

	Strongly Disagree	Disagree	Agree	Strongly Agree
a) Mistrust guidelines sponsored by pharmaceutical companies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Contradicting recommendations from different clinical guidelines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Recommendations are changing too frequently	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Limitations in my practice setting are not considered	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Clinical guidelines for Caucasians are not applicable in Chinese	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Guidelines not tailored for individual patient needs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Guidelines increase the chance of legal litigation by patients	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 6. Do you agree that the following are elements of a "good" clinical guideline?
(Please answer ALL items)

	Strongly Disagree	Disagree	Agree	Strongly Agree
a) Applicable to local population	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Regularly updated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Simple and easy to follow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Evidence-based	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Recommendations are shown to be cost effective	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Recommendations are practical in the primary care setting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Authorized by a respected Hong Kong authority	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 7. Do you agree that the following will promote the use of clinical guideline among family doctors in Hong Kong?
(Please answer ALL items)

	Strongly Disagree	Disagree	Agree	Strongly Agree
a) Establish a central system for adopting evidence-based clinical guidelines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Provide financial incentives (such as the government-sponsored influenza Vaccination Subsidy Scheme (IVSS))	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Involve family doctors in the drafting process	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Involve patients in the drafting process	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Promote public awareness of clinical guidelines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Dissemination of clinical guidelines effectively	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 8. What are your suggestions to promote the use of clinical guidelines in the primary care setting? _____
 9. Other comments: _____
- We would like to know:
10. Your current practice:
 Hospital Authority Department of Health Private Hospital Solo Private Practice
 Group Private Practice Others (please specify): _____
 11. Years after your graduation: 0-5 6-10 11-15 16-20 >20
 12. Place of obtaining your primary medical qualification (e.g. MBBS, MBChB, etc): Hong Kong Outside of Hong Kong (please specify): _____
 13. Your higher qualifications: *(Can choose more than one item if applicable)*
 Specialist in family medicine FRACGP/MRCGP (or above) in family medicine Diploma in family medicine
 Other (please specify): _____ Not applicable
 14. Your age: ≤ 30 31-40 41-50 51-60 >60
 15. Your gender: Male Female

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Assessment and management of diabetic albuminuria

Man-kuen Cheung 張文娟, Fai-ying Wong 黃輝瑩, Jun Liang 梁峻

Summary

Microalbuminuria is the earliest clinical evidence of nephropathy in diabetic patients. Early detection and intervention can help to slow or even revert the progression to more advanced stages of nephropathy. This article aims to review and discuss recent trends in assessing and management of diabetic albuminuria. In general, urine dipsticks should not be used to identify albuminuria. Albumin to creatinine ratio (ACR) is the preferred test, as it is a validated, more convenient and more accessible method. Patients with microalbuminuria, compared with those with macroalbuminuria, will have different implications in therapeutic interventions. Proteinuria in a diabetic patient may not necessarily be attributable to diabetes.

摘要

蛋微量蛋白尿是糖尿病腎病最早的臨床證據。早期診斷及治療有助於延緩甚至逆轉腎病向晚期發展。本文旨在對糖尿病蛋白尿的診斷與管理的最新趨勢進行綜述和討論。一般不採用尿液試紙來診斷蛋白尿，而應首選白蛋白-肌酐比（ACR），這種方法有效、方便且易行。與有大量白蛋白尿的病人相比，對微量蛋白尿的病人應有不同的治療方法。糖尿病病人出現蛋白尿不一定由糖尿病引起。

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Introduction

Diabetic nephropathy is becoming the leading cause of end-stage renal disease worldwide.¹⁻⁴ The appearance

Man-kuen Cheung, FHKAM (Family Medicine), FHKCFP

Associate Consultant,

Fai-ying Wong, FHKCFP, FRACGP

Resident,

Jun Liang, FHKAM (Family Medicine), FHKCFP

Consultant,

Department of Family Medicine, New Territory West Cluster, Hospital Authority.

Correspondence to: Dr Man-kuen Cheung, Department of Family Medicine, Tuen Mun Hospital. Email: cheungmk1@ha.org.hk

of microalbuminuria is the earliest clinical evidence of nephropathy.⁵ Previous studies showed that each year, 2% of patients without albuminuria progress to microalbuminuria, 3% with microalbuminuria progress to macroalbuminuria, and 2.5% with macroalbuminuria progress to end stage renal failure.⁶ However, if detected early, such progressions can be slowed, arrested, or even reverted.⁵ In the latest Hong Kong Reference Framework for Diabetes Care for Adults in Primary Care Settings 2010, which was just released by the Food and Health Bureau, it was recommended that screening for microalbuminuria should be done annually in all Type 2 diabetic patients.

This article discusses recent trends in assessing diabetic albuminuria, and reviews the current literature on the management of diabetic patients with albuminuria.

Assessment tools for albuminuria in diabetes

1. Urine dipsticks
2. Timed urine collection: 24-hour urine albumin measurement
3. Spot urine collection:
Albumin-to-creatinine ratio (ACR)
Protein-to-creatinine ratio (PCR)

Urine dipsticks

Detection of proteinuria at the point of care using dipsticks has been widely used as a screening test to guide further quantitative urine test. A recent analysis in a NICE guideline showed that reagent strips used to detect proteinuria in routine clinical practice are predominantly sensitive to albumin, not to total protein. No one type of reagent strip performed better than the others. The positive predictive values of reagent strips for detecting albuminuria ranged from 71-91%. The negative predictive value of reagent strips varied according to the cut-off values used to define

albuminuria, ranging from 76-100%.⁷ An Australian paper noted that at a specificity of 67%, the sensitivity of dipsticks for proteinuria was 90%. The specificity of dipsticks was considered low, which would result in a high proportion of the population being recalled for more tests before being declared false positives.⁸ A UK study also showed that dipstick for proteinuria has an acceptable sensitivity but poor specificity.⁹ Therefore, reagent strips should not be used to identify proteinuria among diabetic patients unless they are capable of specifically measuring albumin at low concentrations and expressing the result as an ACR.⁷

Timed urine collection: 24-hour urine albumin measurement

The establishment of proteinuria as the single most important clinical variable for predicting the risk of future chronic kidney disease progression and guiding the therapy in chronic kidney disease (CKD) has been based on evidence using 24-hour urine total protein measurement.¹⁰ Therefore, measurement of albumin excretion in a 24-hour urine collection has long been the “gold standard” for quantitative evaluation of albuminuria in diabetic patients. However, collection errors due to improper timing and missed samples may lead to significant over- and under-estimation of albuminuria. There is also obvious inconvenience to patients.¹¹ Recently, spot urine collections (ACR or PCR) have been widely adopted as more convenient alternatives.

Spot urine collections:

The measurement of protein on a single-voided specimen of urine would be more convenient but is limited by the obvious problem of variable urine concentration resulting from variations in hydration status. To overcome this, it was proposed that protein measured on a single-voided urine specimen should be expressed as a ratio to urinary creatinine, a marker of urine concentration.¹⁰

Albumin-to-creatinine ratio (ACR)

A recent study found that ACR accurately predicted both an abnormal 24-hour urine albumin $\geq 30\text{mg} / 24\text{-hour}$ and frank albuminuria at $\geq 300\text{mg} / 24\text{-hour}$ or

$\geq 24\text{-hour}$.¹² Detection of early diabetic kidney damage at a stage when therapy could be usefully intensified is now nearly universally through urinary ACR.¹³ A first-morning sample is preferred because of the potentially higher correlation with 24-hour albumin excretion, but a random sample is considered acceptable if a first-morning specimen is not available.¹¹

Protein-to-creatinine ratio (PCR)

Diabetic or not, a highly significant linear regression was found between spot morning PCR and 24-hour urinary protein excretion rates.⁷ PCR accurately predicted both an abnormal 24-hour urine protein $\geq 150\text{mg}/24\text{-hour}$ and significant proteinuria above $300\text{mg}/24\text{-hour}$.¹² However, PCR becomes a less accurate predictor of 24-hour urinary protein excretion in the higher values.⁷ The approximate equivalents that allows conversion of ACR values to PCR or 24-hour urinary protein excretion rates is shown in **Table 1**.

Table 1: Conversion table of ACR, PCR and 24-hour protein excretion — adapted from NICE guideline⁷

ACR (mg/mmol)	Approximate equivalent PCR (mg/mmol)	24-hour urinary protein excretion (g/day)
30	50	0.5
70	100	1

It is recommended that ACR is preferred for detection and identification of proteinuria, as it has greater sensitivity than PCR for low levels of proteinuria. PCR can be used as an alternative in quantifying and monitoring proteinuria. ACR is the recommended method for people with diabetes.⁷

Definition of albuminuria

Definition of albuminuria varies according to the tests used, and different cut-off values are used to define micro- and macro-albuminuria in different clinical guidelines. (**Table 2**).

Algorithms for assessment of DM – what do guidelines say?

The World Health Organization (WHO) in 2002 suggested measuring ACR in a first pass morning urine, and then confirming with overnight or 24-hour

Table 2: Definitions of albuminuria

	Urine Collection Method	Normal	Micro-albuminuria	Macro-albuminuria
NKF KDOQI ²²	24-hour excretion (mg/day)	<30mg/day	30-300mg/day	>300mg/day
	ACR (mg/g)	<17mg/g (men) <25mg/g(women)	17-250mg/g(men) 25-355mg/g(women)	>250mg/g(men) >355mg/g(women)
NICE ⁷	ACR (mg/mmol)	<=2.5mg/mmol (men)	>2.5mg/mmol (men)	>30mg/mmol
		<=3.5mg/mmol (women)	>3.5mg/mmol (women)	
Basi <i>et al</i> ²⁰	ACR	<30ug/mg	30-300ug/mg	>300ug/mg
Yuen <i>et al</i> ²¹	24-hour excretion (mg/day)	<30mg/day	30-300mg/day	>300mg/day
	ACR (mg/mmol)	<2.5mg/mmol	2.5-25mg/mmol	>25 mg/mmol

Table 3: Micro-albuminuria and macro-albuminuria: implications for management

	Micro-albuminuria	Macro-albuminuria
IDF 2005 ¹⁵	Start ACEI or ARB, Treat hypertension HbA1C, Calculate eGFR	Advise limiting protein intake to 0.8g/kg/day
NKF 2007 ¹⁷	Target dietary protein intake should be 0.8g/kg body weight/day	
NICE 2009 ¹⁸	If diabetic nephropathy is confirmed, offer ACEI with dose titration to maximum dose (unless not tolerated), Substitute an ARB if ACEI are poorly tolerated. Maintain BP < 130/80mmHg if abnormal ACR	
ADA 2010 ¹⁹	In patients with type 2 diabetes, hypertension, and microalbuminuria, <i>both ACEI and ARB</i> have been shown to delay the progression to macroalbuminuria	In patients with type 2 diabetes, hypertension, macroalbuminuria, and renal insufficiency (serum creatinine>1.5mg/dl), <i>ARB</i> have been shown to delay the progression of nephropathy

CEI – Angiotensin Converting Enzyme Inhibitors

ARB – Angiotensin II Receptor Blockers

eGFR – Estimated Glomerular Filtration Rate

urine collection. Urine ACR > 200 microgram/min or > 300mg/24-hour were the cutoff point for DM nephropathy.¹⁴

International Diabetes Federation (IDF) in 2005 proposed to check urine with a dipstick. If dipstick test is positive, obtain a urine PCR after urinary tract infection is ruled out. If dipstick test is negative, obtain a urine ACR. If PCR or ACR is raised, repeating the test twice more over the following 4 months were suggested. Albuminuria or proteinuria is only confirmed if there is raised ACR or PCR finding on two of the three occasions. If both repeat tests were not raised, annual screening should be performed.¹⁵

In 2006, WHO recommended ACR as the preferred method of annual screening. Confirmation is required

through repeated testing and elevated albumin excretion rate should be confirmed by repeated test.¹⁶

In 2007, National Kidney Foundation recommended to check urine ACR annually. If ACR is positive in the absence of urinary tract infection, it should be repeated for 2 more times within 3-6 months. Albuminuria is confirmed if ACR is positive in at least two of the three samples.¹⁷

The same line of thinking has been adopted by National Institute for Health and Clinical Excellence (NICE) in 2009¹⁸ and American Diabetes Association in Standards of Medical Care in Diabetes 2010.¹⁹

In short, as more and more studies confirmed the close correlations between results from spot urine

(Continued on page 18)

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Full prescribing information is available upon request.



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Key messages

1. Albuminuria is the earliest clinical evidence of nephropathy in diabetic patients. Early detection and intervention can help to slow or even revert the progression to more advanced stages of nephropathy.
2. Spot urine collection (ACR and PCR) are validated, more convenient and more accessible alternatives for assessment of albuminuria than 24-hour urine.
3. ACR is preferred for detection and identification of proteinuria. PCR can be used to quantify and monitor proteinuria.
4. Treatment of diabetic albuminuria and proteinuria includes: ACEI or ARB, BP target <130/80mmHg, tight glycaemic control and dietary protein intake <0.8g/kgBW/day for diabetic proteinuria.
5. In patients with DM and chronic kidney disease (CKD), the CKD may not necessarily be attributable to DM. Other causes should be excluded.

collection and timed urine collection, there is an international trend to adopt urine albumin-to-creatinine ratio (ACR) and urine total protein-to-creatinine ratio as validated, more convenient and more accessible alternatives for albuminuria assessment.

It is important to note that, when interpreting ACR results, other causes of microalbuminuria, such as urinary tract infection, severe hyperglycaemia and cardiac failure, should be excluded. Vigorous physical activity, contamination with blood or other renal disease could potentially cause a false result – a phenomenon not too infrequently encountered in clinical practice.

Micro- and macro-albuminuria – implications for management

Diabetic albuminuria is divided into micro- and macro-albuminuria. Their implications for management are summarized in **Table 3**.

Treatment with ACEI or ARB can be initiated irrespective of blood pressure level, unless there is significant hypotension (BP<100/60mmHg). The target for blood pressure control is <130/80mmHg.

Combinations of ACEI and ARB have been shown to provide additional lowering of albuminuria.²³ However, the long term effects of such combinations on renal and cardiovascular outcomes have not yet been evaluated in clinical trials and they are associated with increased risk of hyperkalaemia.

Diabetic kidney disease

One point to note is that in patients with diabetes mellitus (DM) and chronic kidney disease (CKD), the CKD may not necessarily be attributable to DM, as there may be other causes of CKD developing in a patient with DM. CKD should only be attributable to DM if:

1. macro-albuminuria is present, or
2. micro-albuminuria is present in the presence of DM retinopathy in type 2 DM, or
3. micro-albuminuria is present in type 1 DM of at least 10 years

This is because in type 2 DM with microalbuminuria, only about 40% of renal biopsy results show diabetic changes typical of those seen in patients with type 1 diabetes.¹⁷

Non-diabetic causes of proteinuria should be considered in patients with active urinary sediments e.g. RBC or casts, and type 2 DM without DM retinopathy. In such circumstances, specialist's opinion should be sought.

Conclusion

The development of new diagnostic processes is a step forward in the advancement of medicine, with improvement in accessibility, convenience and thus adherence. By understanding the development of the new assessment tools for albuminuria in diabetic patients, and getting familiar with the prevailing international guidelines, clinicians are better equipped to design an appropriate complication screening programme for their diabetic patients. Depending on the different levels of diabetic albuminuria, appropriate interventions can be provided, including management of modifiable risk factors (especially dyslipidaemia), monitoring and review of lifestyle issues on a regular basis, and appropriate pharmacological treatment. ■

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A gentleman with an itchy rash on his leg

King-man Ho 何景文

Readers are invited to participate in the Clinical Quiz. A prize draw, sponsored by Pfizer Corporation Hong Kong Limited, will be undertaken among the successful entries. For entry into the draw, simply answer the question, fill in the reply slip and return it to the College by 9 May 2011. Each reader is allowed to submit one entry only. The name of the winner and the answer will be published in the June 2011 issue.

Clinical history:

This gentleman presented with an itchy erythematous patch on his right leg for several years. The condition got worse during the winter time.



What is the most likely diagnosis?

- A. Psoriasis
- B. Asteatotic eczema
- C. Tinea corporis
- D. Necrobiosis lipoidica

The Hong Kong Practitioner Clinical Quiz – March / 2011

Answer :

Name : _____

Tel. No. : _____

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Please send your answer to :- **HKCFP**
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The slide and the question were prepared by:

Dr King-man Ho, FRCP (Glasg, Edin), MRCP (UK), FHKCP, FHKAM (Medicine)
Consultant Dermatologist-in-Charge,
Social Hygiene Service, PHSB, CHP, DH.

Answer to last month's Clinical Quiz



Question:

A 15-year old boy complained of very itchy eruption at the left lower back for past two days after an outdoor camping few days ago. He had no systemic upset and enjoyed good past health except history of childhood asthma but had been in clinical remission for a long time. He had not put on any topical cream or ointment onto the site prior to onset of eruption. What is the most likely diagnosis?

Answer:

D. Insect bite reaction

Outdoor insect bite reactions are common especially at the change of season from Spring to Summer. However, indoor insect bites may be found throughout the year. Some predisposing factors may be found e.g. pets at home, recent renovation work at home, office or nearby areas. Characteristic lesions are grouped urticarial erythematous papules that are very pruritic and associated with blood

The winner of the December 2010 Clinical Quiz is **Dr. Ho Tai Wai, David**

stained excoriated marks especially in small children. It can be restricted to the area of the bites but sometimes the reaction can be more widespread. Most of the insect bite reactions need only symptomatic relief with some over-counter preparations e.g. soothing gel or lotions containing camphor and menthol to control the pruritus. Only persistent reactions that drive the patient for consultation will require topical corticosteroid cream to reduce the inflammation. A mixture of potent topical steroid cream and 10% crotamiton cream with or without occlusion will give quick relief but this should not continue for more than few days. Oral antihistamine is generally not required unless the pruritus is severe and generalized. Indeed, prevention of insect bites is the best approach. Use of protective clothing and repellents e.g. DEET (N,N-diethyl-3-methylbenzamide or N,N-diethyl-m-toluamide) will be effective for having outdoor activities in the countryside. Flea bites can present as intensely itchy papulo-vesicles or frank bulla especially in small children.

Leucocytoclastic vasculitis is not very itchy and usually presents in the lower limbs. Palpable purpura are hallmark of the condition and papulo-pustules or even ulceration can be found in acute severe vasculitis. Mild pruritus, fever and malaise may occur. Erythema nodosum involves the subcutaneous fat and has the histopathology of septal panniculitis. It usually presents as deep seated and indurated non-ulcerated tender nodules symmetrically on the anterior shins. It is not itchy. Arthralgia and mild systemic upset may accompany the condition. Superficial bacterial folliculitis may be with mild itchy sensation but follicular erythematous papules and pustules should be found. It is commonly found on the face, chest, back, axillae or buttocks. Superficial folliculitis are small 1 to 3 mm pustules and crusted papules with erythematous base and will be found clustered and heal without scarring. Deep folliculitis will be larger and slightly tender with a central pustule on the larger papule. Topical antibiotic ointment or antibacterial wash will be effective for superficial folliculitis and systemic antibiotic may be required for deeper types.

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Ottawa Ankle Rules for assessment of ankle injuries

Kwok-biu Tsui 徐國標, Leo CW Kong 江志宏, Luke CY Tsang 曾昭義

Summary

Foot and ankle x-ray examinations are commonly ordered by family physicians for ankle injuries. The 1993 Ottawa ankle rule project demonstrated that more than 95% of patients with ankle injuries had radiographic examinations but that 85% of the films showed no fractures. To address the problem of cost-effectiveness, a group of Ottawa emergency physicians developed two rules to identify clinically important fractures of the malleoli and the midfoot. Use of these rules reduced radiographic examinations by 28% for the ankle and 14% for the foot.

The Ottawa Ankle Rules are examples of clinical decision rules, which are multifactorial tools used to aid in clinical decision making. In radiology, clinical decision rules are an important method for determining who should undergo imaging. To be useful, clinical decision rules should be clinically important and relevant, have face validity, be reproducible and easy to use. They should also be validated in subjects distinct from those used to develop the rules.

This paper aims to introduce Ottawa Ankle Rules, and shows that evidence supports it as an accurate instrument for excluding fractures of the ankles and mid-foot. The applicability of the Ottawa ankle rules in Asian populations and in primary care setting is also discussed.

摘要

家庭醫生會經常為腳踝受傷進行足部和腳踝的X光檢驗。於1993年按渥太華腳踝規則進行之研究顯

示，在為超過95%的腳踝受傷患者進行X光檢查中，95%的X光片並沒有顯示骨折。為關注這項檢查的成本效益問題，一組渥太華急診科醫生重新建議用兩項規則，來鑒別臨床上重要的足踝和足弓骨折。按這些規則進行檢查，減少了28%的腳踝和14%的腳部X光檢查。

渥太華腳踝規則是臨床決策規則的例子。它是一種工具，利用多項因素的特性來輔助臨床上決定。在放射科，臨床決策規則是一種重要方法以決定誰應該進行影像檢查。為能達到成效，臨床決策規則具有臨床上的重要性和相關性，有表面度效，可重複性和易於使用。而在不同的病人組別仍然有效使用。

本文旨在介紹渥太華腳踝規則，並列出支持它作為一種準確排除足踝和足弓骨折方法的證據。渥太華腳踝規則在亞洲人士和基層醫療環境的適用性亦加以討論。

HK Pract 2011;33:22-28

Background

General practitioners frequently encounter ankle injuries, especially inversion injuries. It is one of the commonest musculoskeletal injuries in athletes as well as sedentary persons, accounting for an estimated 2 million injuries per year and 20% of all sports injuries in the United States.¹ Ankle injuries are usually due to simple fall or a twist. Majorities are just ligamentous soft tissue injuries, or small avulsion fracture of little clinical significance. A small number of them suffer from more serious fractures, which require plaster treatment or internal fixation. Though prevalence of fractures is low in a primary care setting, x-ray is often routinely ordered to exclude bony injuries. At emergency departments, the management of ankle injuries is daily routine. Though most patients undergo radiography, fracture occurs in less than 15%.²⁻⁵

Studies in the past have tried to identify clinical indicators to determine the presence of an ankle

Kwok-biu Tsui, MBBS (HK), FHKCFP, FRACGP, FHKAM (Fam Med)
Leo C W Kong, MBChB (CUHK), FHKCFP, FRACGP, FHKAM (Fam Med)
Luke C Y Tsang, MBBS (NSW), DFM (CUHK), FRACGP, FHKAM (Fam Med)
Professional Development and Quality Assurance, Department of Health

Correspondence to: Dr Kwok-biu Tsui, Hong Kong Families Clinic, 3/F Tang Chi Ngong Specialist Clinic, 284 Queen's Road East, Wan Chai, Hong Kong SAR.

fracture. These included colour change, mechanism of injury, age of patient and presence of swelling.^{2,4,6-12} However, these studies were not properly validated. Some studies even had contradictory results. For instance, in the two studies by deLacey G *et al*⁸ and Cockshott WP *et al*⁹, swelling was considered to be a sine qua non of fracture. But in the study by Dunlop MG *et al*, 11% of malleolar fractures manifested no swelling.⁴

In view of the inconsistent assessments and use of radiological investigations, and the small yield of positive results, Stiell and colleagues at the University of Ottawa developed a set of clinical parameters-/clinical decision rules to help guide the management of ankle injuries and to determine the indications for radiography of ankle and midfoot.

Methodology

A review of literature on Ottawa Ankle Rules and ankle injuries was undertaken. The Cochrane Library, Ovid and Medline databases were searched for the following keywords and MeSH terms: ankle, fracture, ankle injuries, ankle sprain, ankle fracture, mid-foot fracture, radiography, radiology, x-ray*, physical examination, Ottawa Ankle Rules (OAR), clinical decision rule*, clinical prediction rule*, guideline*, Asian*, Hong Kong, primary care, family medicine, family practice, and general practice. In addition, the references in the articles obtained were scanned to identify published studies of potential interest, and other relevant and up-to-date articles.

Twenty-four articles were identified. Eleven were about general discussion on ankle injury and x-ray examination of the injury.¹⁻¹¹ Six were about development, validation and implementation of OAR.¹²⁻¹⁷ The following questions were used in evaluation of these six papers: whether the test was performed in an appropriate spectrum of patients, whether there was an independent comparison with a reference standard of diagnosis, and whether the test was validated in a second, independent group of patients. All answers were positive, which showed that the results of the studies were valid. For discussion of clinical decision rules, two papers regarding trauma imaging were included.¹⁸⁻¹⁹ For systematic review of the accuracy of OAR, one important article was identified.²⁰ Two international

guidelines on imaging in ankle injury were found.²¹⁻²² One is a publication and the other can be accessed through the internet. For discussion on applicability of OAR in Asian and in primary care, only two of each can be found.²³⁻²⁶ Though the studies were of small scale, they are included for discussion since there are no other similar articles identified.

The Ottawa Ankle Rules (OAR)

To address the problem of frequent unnecessary radiographs for acute ankle injuries, Stiell and colleagues conducted a series of studies in phases.¹³

1. Phase zero: Efficiency of use of ankle x-ray and attitudes of clinicians¹⁴

A two-stage study was designed. They included patients who presented with ankle pain or tenderness after they had sustained blunt ankle injuries. "Ankle" was subdivided into two zones representing the malleolar region and the midfoot, which included the following anatomic structures and their overlying soft tissues: (a) the malleolar region (distal 6 cm of tibia, distal 6 cm of fibula, and talus) and (b) the midfoot (navicular, cuboid and cuneiform bones, and the anterior process of the calcaneus and the base of the fifth metatarsal bone).

In the first stage, the efficiency of the use of ankle radiography was examined by retrospective chart review. They concluded that emergency physicians relied heavily and rather inefficiently on radiography. In the second stage, the judgments and attitudes of experienced clinicians in their use of ankle radiography were studied through a prospective survey. They showed that experienced emergency physicians could accurately distinguish fracture from nonfracture cases but they were reluctant to use this clinical skill.

2. Phase one: Development of the OAR¹²

The study objective was to develop decision rules that would predict fractures in patients with ankle injuries.

A prospective survey of 750 emergency department patients was carried out in 1990. 32 clinical variables were assessed. A few variables were found to be highly

associated with fractures. They were included in the first rule which stated that an ankle x-ray series was only necessary if there were pain near the malleoli and one or more of the following findings: 1) age of 55 years or more, 2) inability to bear weight both immediately and for four steps in the emergency room, 3) bone tenderness of either inferior tip or posterior edge (distal 6 cm) of lateral malleolus, and 4) bone tenderness of either inferior tip or posterior edge (distal 6 cm) of medial malleolus.

A similar process determined the best predictor variables for midfoot fracture on a foot radiographic series. The second rule stated that a foot x-ray series is only necessary if there is pain in the midfoot and there is bone tenderness at the navicular, cuboid or the base of the fifth metatarsal.

In this study, 689 ankle radiographic series were performed. All 70 significant malleolar fractures were identified when the first rule was applied. Similarly, all 32 significant midfoot fractures on the 230 foot radiographic series performed were found when the second rule was applied.

3. **Phase two:** *Validation and refinement of the OAR*¹⁵

The study objective was to validate and refine previously derived clinical decision rules. 1,032 patients were studied. All 121 malleolar zone fractures were identified, thereby achieving the goal of sensitivity of 1.0. The foot series rule identified 48 out of 49 significant midfoot fractures. The refined Ottawa rules retained a sensitivity of 1.0 even after exclusion of the age and cuboid criteria. To validate the refined rules, 453 patients were studied. The refined rules correctly identified all 50 ankle series fractures and all 19 foot series fractures. No fracture was missed.

The refined rules were:

First rule:

An ankle x-ray series is only necessary if there is pain near the malleoli and any one of the following findings: 1) inability to bear weight both immediately and for four steps in the emergency department, or 2) bone tenderness of either inferior tip or posterior edge (distal 6 cm) of lateral malleolus, or 3) bone tenderness of either inferior tip or posterior edge (distal 6 cm) of medial malleolus.

Second rule:

A foot x-ray series is only necessary if there is pain in the midfoot and any one of these findings: 1) inability to bear weight both immediately and for four steps in the emergency department, or 2) bone tenderness at the navicular, or 3) bone tenderness at the base of the fifth metatarsal.

4. **Phase three:** *Implementation of the OAR*¹⁶

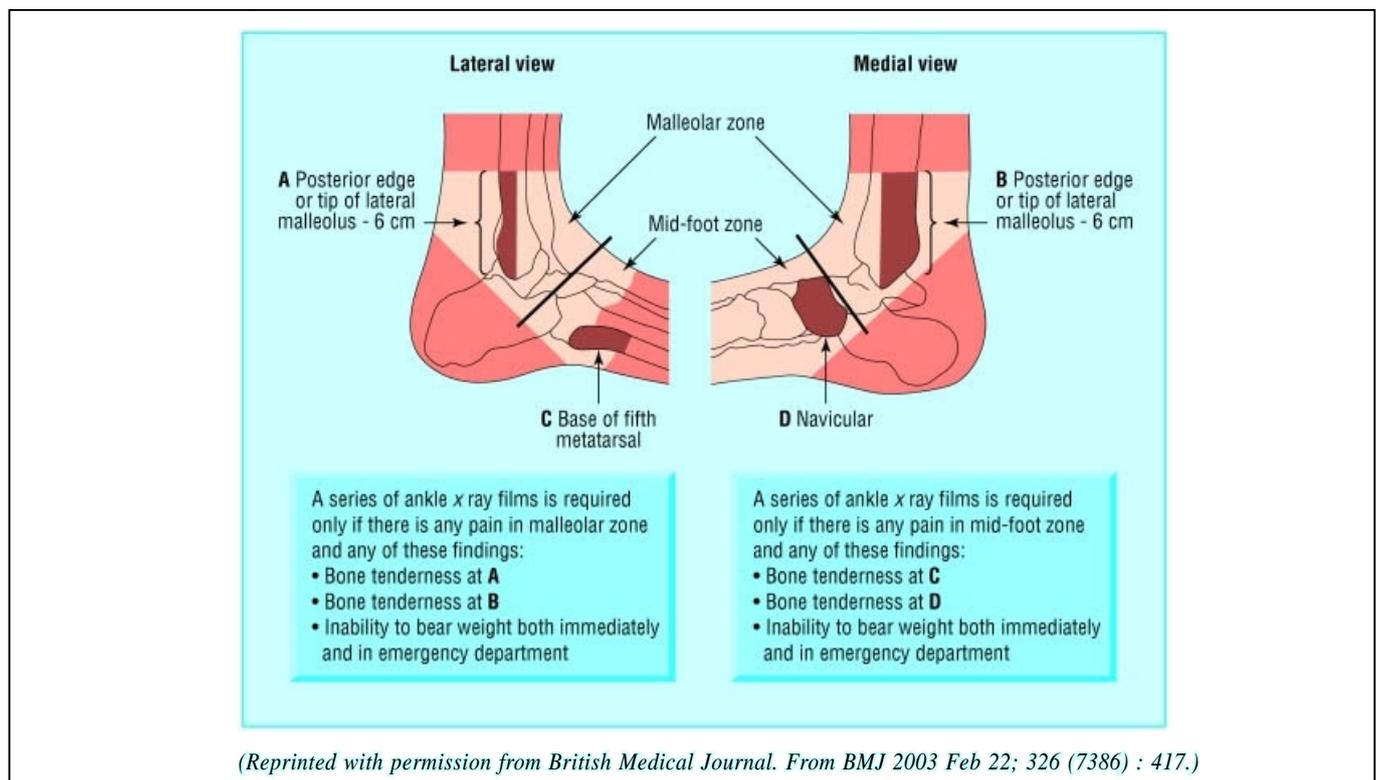
In phase 3, they put the OAR into practice in the Ottawa Civic Hospital Emergency Department. Compared with baseline levels and compared with a nearby “control” community hospital, they found that radiography for 593 patients was reduced by 28% for ankle radiographs and by 14% for foot radiographs. Patients discharged without radiography spent 36 minutes less in the emergency department, had much lower estimated costs for radiography and physician visits, were equally satisfied with physician care, and were no more likely to have subsequent x-ray examinations than were patients who did undergo radiography in the emergency department. The OAR accurately identified all 93 malleolar and midfoot fractures in the 593 patients.

The OAR as clinical prediction rules

Clinical prediction (or decisive) rules attempt to reduce the uncertainty of medical decision-making by standardizing the collection and interpretation of clinical data. A clinical rule is derived from original research and may be defined as a decision-making tool that incorporates several relevant variables from the history, physical examination or simple tests.¹⁷ The process of development and validation of clinical prediction rules are costly and time-consuming. For ankle injuries, we have the Ottawa Ankle Rules as clinical prediction rules to identify patients with ankle injuries who do not require imaging. Both the first and second rules are based on simple criteria. For the first rule (and second rule): inability to bear weight, tenderness at the posterior edge or inferior tip of the medial malleolus (navicular for second rule) and tenderness in a similar distribution at the lateral malleolus (base of fifth metatarsal for second rule).

To be useful, a clinical prediction rule should meet the following criteria:¹⁸

Figure 1: Ottawa Ankle Rules



1. It should be *clinically important and relevant*. The underlying clinical issue must be of sufficient importance to justify the research needed to derive the rule. X-ray of ankle is a very common procedure performed in emergency department and is thus clinically important. Missing ankle fractures affects the patient's future ability for mobilization, thus it is relevant.
2. It should have *face validity*. Face validity is the extent to which the test actually measures what it is supposed to measure. For wide adoption, practitioners must accept the logic of the clinical prediction rule. For OAR, focal tenderness corresponding to common sites of fracture is one of the factors under study, thus here imparting face validity.
3. It should be *reproducible*. The performance of a clinical prediction rule in actual clinical practice is more important than its performance in the original research setting.
4. It should be *easy to use* by health care professional. The OAR consist of simple criteria that can be understood by persons with lesser medical

expertise. Derksen RJ *et al* showed that specialized emergency nurses were able to assess ankle and foot injuries using OAR with high level of accuracy after attending a short and inexpensive course.¹⁹

5. It must have been *validated* in subjects distinct from those used to develop the rule so that it can demonstrate generalisability.

Validation of the OAR

L M Bachmann *et al* conducted a systematic review in 2003 on the accuracy of the OAR.²⁰ They electronically searched databases, checked the reference lists of included studies and contacted experts and authors in the specialty. Twenty-seven studies reporting on 15,581 patients were used for meta-analysis. Six of them were on assessment of the ankle or mid-foot in children. Sensitivities were consistently high, ranging from 99.6% in studies on application of the rules within 48 hours of injury to 96.4% in studies of combined assessment of ankle and mid-foot. The specificities ranged from 47.9% to 26.3%. Less than 2% of patients in most subgroups who were negative for fracture according to the Ottawa Ankle Rules actually had a fracture. They concluded

that evidence supports the OAR as an accurate instrument for excluding fractures of the ankle and the mid-foot after sustaining injury', using x-ray as the gold standard. The instrument has a sensitivity of almost 100% and a modest specificity. They estimated that the OAR would decrease the number of unnecessary radiographs by 30-40%.

The Royal College of Radiologists also has similar recommendations for performing radiological investigations for acute ankle injuries. The guideline states that the features that justify x-ray include inability to weight bearing immediately and in the emergency room, point tenderness over the medial malleolus, and/or the posterior edge and distal tip of the lateral malleolus (Recommendation grade B).²¹ The American College of Radiologists adopts the OAR as guidance for ordering x-ray for suspected ankle fracture. The rule is ranked as most appropriate (=9) in the rating scale of 10.²²

The Ottawa Ankle Rules is an instrument that is calibrated towards high sensitivity. There is room for improvement of its low specificity. Further modification or refinement of the rules may increase the specificity, i.e. to decrease the number of false-positive results.

Are the OAR applicable in Asian populations?

The population chosen for development of OAR was originally Caucasian. To test whether the rules can be applied to Asians, two studies have been done: one in Singapore and one in Hong Kong. Both these studies were included in the meta-analysis by L M Bachmann *et al.*

The study done by Tay *et al* in Singapore was completed in 1999.²³ There were 494 patients (age 12 years and above) enrolled in the study, predominantly Chinese, Malay and Indian. These 494 consecutive eligible patients presenting to the emergency department in a large teaching hospital with twisting injuries about the ankle were examined by emergency physicians for clinical criteria requiring ankle and foot x-ray studies according to the OAR. 488 of these patients underwent x-ray studies that were interpreted by a radiologist. The limitation of the study was that the radiologists were able to study the datasheet, and thus were not blinded to the clinical findings. The sensitivity and specificity

of the OAR for predicting the presence of fracture were calculated to be 0.9 and 0.34, respectively. They also calculated sensitivity and specificity for a modified version of the OAR that included patients who were unable to bear weight *either* immediately after injury *or* in the emergency department (as opposed to *both /and* as described in the original rules). The sensitivity improved to 0.99. They concluded that the OAR cannot be used to screen for the need for x-ray studies in their Asian patients who had sustained twisting ankle injuries because of inadequate sensitivity, but when modified become acceptable, and can reduce the number of x-ray studies requested by 28%.

A prospective study in Hong Kong was conducted in 2000 in the Kwong Wah Hospital.²⁴ 773 eligible patients were enrolled. Consecutive Chinese patients age 16 and older with ankle and midfoot pain after twisting injury were examined by emergency physicians trained in the use of the OAR. All patients were sent for radiographs (the gold standard). The radiologists were blinded to the results of the OAR and the emergency physician's interpretation. 131 clinically significant fractures (53 ankle fractures and 78 mid-foot fractures) were identified. One significant distal fibula fracture was missed. The sensitivity and specificity of the OAR for ankle injuries was 98% and 40.8%. For midfoot, the respective results were 100% and 43.8%. Their conclusion was that the OAR were highly sensitive and were accurate clinical decision rules for guiding decisions for ordering radiographs for Chinese patients with foot and ankle injuries.

Since there is a paucity of studies for validation of the OAR for Asians, further trials of larger scale are needed to ascertain whether these rules are applicable to the Asian population.

Are the OAR applicable in primary care setting?

The original setting for development of the OAR was in accident and emergency departments in large hospitals. The rules have been validated in such setting in many studies. However, little research in family medicine discusses office use of the OAR.

GF Smith *et al* conducted a study in 1993 on clinical evaluation of ankle inversion injuries in family practice offices. They did not develop any decision

Key messages

1. The Ottawa Ankle Rules (OAR) are examples of clinical decision rules, which are multifactorial tools used to aid in clinical decision making, and are clinically important and relevant, have face validity, reproducible and easy to use.
2. The 'Ottawa Ankle Rules' is an instrument that is calibrated towards high sensitivity.
3. Studies have shown that use of OAR can reduce radiographic examinations by about 30% for the ankle and about 15% for the foot.
4. The American College of Radiologists adopts the OAR as guidance for ordering x-ray for suspected ankle fracture.

rule, but found out that the following clinical factors were significantly associated with the presence of a fracture: tenderness on the dorsum of the foot, impaired weight bearing ability, recentness of injury (less than 48 hours), and presence of additional injuries. Each of these findings had a negative predictive value of 94% or more. They also estimated that there would be a 30% reduction in x-ray utilization if these criteria were used, which was similar to the findings of OAR.²⁵

Wynn-Thomas *et al* attempted to validate the OAR in a New Zealand primary health care setting in 2001.²⁶ The research was conducted in two "after-hours" medical centres. 200 patients were recruited. Prospective data were collected on eligible patients over a six-month period. The general practitioner managed patients in their usual manner and recorded their findings on a data collection sheet that included (but did not emphasize) the observations necessary to apply the OAR. X-ray results were later recorded by the research team. Ottawa positive and negative status was determined retrospectively from the data for each patient by two GPs working independently and blinded to the x-ray results. In total, 113 patients were assessed as Ottawa positive, and 13 of them had significant fractures. A total of 133 patients received x-rays. 13 significant fractures were diagnosed. The overall sensitivity of the OAR was found to be 100%. The authors concluded that this study validated the OAR.

In the primary care setting, the OAR can be used as a reference when dealing with patients with ankle

injuries. The rules are not meant to override clinical judgment. In conditions such as gross deformity, we clearly need an x-ray without using a clinical decision rule. We should also be cautious in patients with multiple painful injuries, diminished peripheral sensation, or altered mental status due to head trauma or drug intoxication, or if gross swelling makes palpation of bone tenderness very difficult. On the other hand, some non-clinical factors, such as demand from patients and the worry of medico-legal consequences, may affect a doctor's decision to order investigations.

Conclusion

The Ottawa Ankle Rules offer the attending doctor an opportunity to use clinical judgement to assess patients with acute ankle injuries for the need for radiography. The application of simple clinical observations would help to differentiate which patients are at negligible risk for a fracture and thus need not undergo radiography. The rules have been validated in the hospital setting. So far, however, the usefulness of the rules as a decision tool in primary care has been assessed only in one study. More discussion, refinement and dissemination of this approach among general practitioners may therefore be pertinent.²⁰ ■

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An 8 year-old-boy with fever, severe bilateral calf pain and toe-walking

Julie Y Chen 陳芸

Summary

Benign acute childhood myositis (BACM) is rare. It has been regarded as a dramatic complication of viral respiratory tract infection, particularly influenza B, whose clinical resolution is spontaneous, favourable and equally dramatic. This case report describes a clinical presentation which is consistent with the literature and offers an approach to ruling out sinister differential diagnoses. Awareness of this condition may help front-line clinicians to consider a selective approach to pursuing investigations.

摘要

良性急性兒童肌肉炎症(BACM)是病毒性呼吸道感染,尤其是乙型流感感染的併發症。它罕見而突發。它會自然康復,過程理想,而同樣地令人感到突然。本報告敘述此病一案例的臨床表現,它和文獻上記載的很相近。同時提出一個與其他嚴重疾病辨症的方法。對這種炎症的認知有助前線醫生為病人挑選適當的檢驗方案。

HK Pract 2011;33:31-38

Introduction

Upper respiratory tract infections (URTI) are common in the community. Both doctors and patients are well familiar with the usual litany of symptoms and signs as well as the natural history of the illness. One of the unusual and anxiety-provoking

complications of URTI is benign acute childhood myositis (BACM), a self-limited muscle syndrome seen in school age children.¹ It is more often associated with URTI due to influenza B² than with other viruses. It was originally described in 1957 as myalgia cruris epidemica³ and is also known as influenza-associated myositis (IAM).³ Recent scattered case reports and case series have been reported from Australia,⁴ North America,^{5,6} the United Kingdom,⁷ India⁸ and Taiwan,² all describing a typical patient profile, presentation and clinical course.

Awareness of the existence of this entity and its dramatic clinical presentation, particularly during an influenza season, would help clinicians recognize a benign self-limited condition and may pre-empt hospital admission and excessive testing for serious disease.

The following case was encountered in a non-clinical setting, and is meant to highlight distinctive clinical features which may alert the clinician to the diagnosis of BACM, rather than to serve as an exemplar for practice.

Case presentation

BB*, an 8-year-old Eurasian Hong Kong boy, presented with bilateral calf pain and fever while on holiday in Thailand in February 2010. Before leaving on his trip, he had a fever of 39°C (responsive to ibuprofen), runny nose, cough, myalgia and general malaise for 3 days with the fever resolving on day 4. Upon arrival in Thailand on day 5, he was asymptomatic but developed a low grade fever later the same evening, coupled with a complaint of sore calves. On the morning of day 6, he had alarmed his parents because he was unable to get out of bed to use the toilet. He preferred to crawl on all fours or to ambulate upright by “toe-walking” (distinct from “tip-toeing”) (**Figure 1**) stating that his calves hurt when

*Real names have not been used to preserve anonymity.

Julie Y Chen, MD, FCFPC

Assistant Professor,

Department of Family Medicine and Primary Care and
Institute of Medical and Health Sciences Education,
The University of Hong Kong.

Correspondence to: Dr Julie Y Chen, Department of Family Medicine and Primary Care, 3/F Ap Lei Chau Clinic, 161 Main Street, Ap Lei Chau, Hong Kong SAR.

he tried to stand or walk. He said he felt no discomfort moving around as long as he was not weight bearing. His appetite and energy level were unaffected with his only complaint being that he wished he could join his friends in the pool.

Figure 1: Toe-walking



When seen in his hotel room that day, BB appeared well, and was actively playing computer games. He was afebrile. Both lower extremities were of normal colour and temperature without evidence of swelling or skin rash. There was bilateral calf tenderness and calf pain with passive dorsiflexion of the ankle bilaterally. Muscle tone, power, sensation and tendon reflexes were grossly normal and symmetrical. Additionally, the urine was observed to be pale yellow in colour.

BB had previously been well with no similar episodes of calf pain in the past. His past medical history was unremarkable for chronic conditions or major medical illnesses. Routine childhood immunizations were up-to-date. He had not received the influenza vaccination this year. He was typically active in sporting activities but had not reported any trauma or undue exertion prior to his illness. There was no family history of neuromuscular disease.

After 36 hours of rest and enthusiastic use of a wheelchair to ambulate, BB suddenly started walking normally, with complete resolution of the calf pain, and was engaging in all holiday activities. His return to Hong Kong was uneventful and he continues to remain well.

Discussion

This diagnosis of BACM was made solely on clinical grounds and based on a review of published

available medical literature accessible on the internet, as laboratory investigations were not readily available in this particular setting. A subsequent, more comprehensive review of the literature revealed that there was a paucity of information about BACM, with this mostly in the form of case reports or short textbook entries.

Typical clinical picture

A textbook presentation of BACM would have a school aged boy presenting with bilateral calf pain and compensatory gait in the face of a resolving URTI during influenza season. The finding of symmetric calf pain relates to the very typical involvement of gastrocnemius and soleus muscles although very rarely the thighs or upper extremities may be affected. The patient may refuse to walk (crawling or “bottom shuffling”)⁴ or use a characteristic wide-based and straight-legged “Frankenstein”⁶ gait or “toe-walking”¹ to avoid stretching the calf muscles. Aside from very tender calf muscles, the patient would have a normal neurologic examination (sensory, motor and deep tendon reflexes) and appear systemically well.

Laboratory findings

There is marked elevation of serum creatine kinase (CK) in BACM, usually up to 2 to 50 times normal (median 4100 IU/L),³ normal CK being up to 240 IU/L.⁴ These values return to normal within a month.¹ Often there is also leukopenia and an elevation of liver transaminases.⁶

Epidemiology and aetiology

The actual incidence and prevalence of the condition is not known. Though this is a rare condition documented only by case reports, it seems that among children with influenza, the prevalence is quite high. In a retrospective hospital-based study of 197 Taiwanese children with culture-confirmed influenza, 46 (23%) were identified with BACM.² Boys are affected more frequently than girls by a ratio of 2:1³ leading to the question of whether there was a genetic association with this condition.

The evidence linking BACM to a viral cause, specifically influenza B, is fairly consistent with the McIntyre and Doherty¹¹ study. Among 77 BACM

(Continued on page 34)

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or you can contact Ms Tang for further details.

Enquiry Tel: 2518 5681 Fax: 2814 7475 Email: fmpg@hku.hk
Address: 3/F, Ap Lei Chau Clinic, 161 Main Street, Ap Lei Chau, Hong Kong

Case Report

patients studied 62% were test positive for influenza B and 25% for influenza A. Other entities have also been associated with BACM including parainfluenza, adenovirus, rotavirus, and mycoplasma.

In the case of BB, the aetiologic agent was likely influenza B, as the swine and seasonal flu monitor published by the Hong Kong Centre for Health Protection indicated that during the time of BB's initial illness in Hong Kong, the predominant circulating strain was influenza B, though the overall seasonal influenza activity was low.¹² There have been sporadic reports of BACM in the literature mostly occurring during late winter and early spring, consistent with the timing of outbreaks of viral respiratory illness in the northern hemisphere.

Pathogenesis

BACM is considered a myositis as defined by consistently elevated serum CK and characteristic pathologic findings on muscle biopsies.⁵ The exact

pathogenesis is unclear but it has been postulated to involve a post infectious autoimmune mechanism (supported by the diversity of associated agents and the appearance of muscular pain after other symptoms subside) caused by direct invasion by viral particles (as seen on muscle biopsy).¹³

Differential diagnoses

Despite a suggestive clinical picture, key differential diagnoses, should be considered including Guillain-Barré syndrome¹⁴ and rhabdomyolysis⁹ both of which could have potentially serious outcomes but both of which also exhibit distinguishing features. A comparison of the features of these two conditions with BACM and benign viral myalgia is presented in **Table 1**.

Guillain-Barré syndrome is a peripheral neuropathy with a varied spectrum of subtypes but whose common hallmark is a clinical picture of rapidly progressive limb weakness peaking within four weeks, associated with a history of preceding

Table 1: Features of BACM compared with important differential diagnoses^{5, 10}

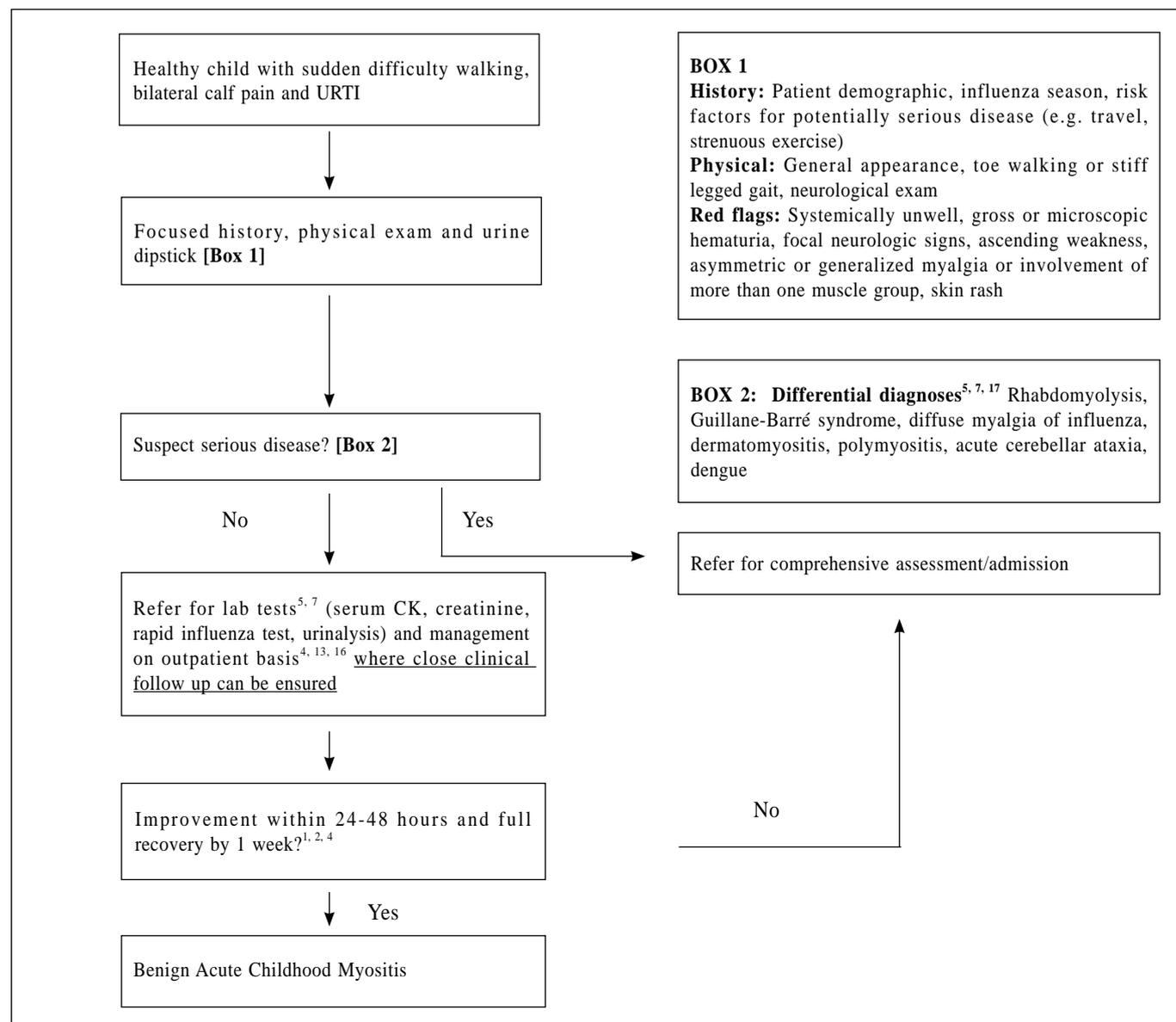
FEATURES	Benign myalgia	BACM	Rhabdomyolysis	Guillain-Barré syndrome
Frequency	Common	Rare	Rare	Rare
Patient age and gender	Any	2:1 male predominance ³ , Age 3-14, median age 8.5 ³	4:1 female predominance ³ ; Adults more than children ⁴	Any
Myalgia symptom				
<i>Characteristics</i>	Achy muscles even at rest	Tenderness, pain when affected muscles used	Tenderness	Pain often present
<i>Localisation</i>	Back and proximal extremities	Calf muscles	Diffuse (extremities and trunk)	Lower extremities
<i>Onset</i>	Prodromal phase of viral infection	During viral infection or recovery phase of viral infection	Recovery phase of viral infection	Post infection phase (2-4 weeks after infection)
Other clinical features	Fatigue, general malaise	Toe walking; wide-based and stiff-legged "Frankenstein" ¹⁶ gait; "bottom-shuffling"; crawling	Occurs after injury, exertion or immobility; dark coloured urine (myoglobinuria)	Distal paraesthesia; ascending weakness; symmetrical lower extremity weakness; decreased deep tendon reflexes
Urinalysis	Normal	Normal	Positive dipstick for blood, no RBC on microscopy	Normal
Serum creatine kinase (CK)	Normal	Elevated	Very elevated	Normal
Natural history	Self-limited	Self limited (2-3 days of muscle pain)	Risk of acute renal failure	Risk of acute neuromuscular failure (respiratory failure)

respiratory or gastrointestinal infection.¹⁴ Other possible neurologic findings include loss of the deep tendon reflexes, sensory symptoms (e.g. paraesthesia), autonomic signs (e.g. tachycardia), and cranial nerve involvement (e.g. facial weakness). A child's refusal to walk or to weight-bear may be due to a neurological deficit, i.e. lower extremity weakness, or may be a protective reaction, i.e. to avoid muscle pain⁷ which may be a difficult but important differentiating feature, as BACM patients are neurologically intact.

Rhabdomyolysis is positioned on the severe end of the spectrum of myositis entities and is of

particular concern as it may lead to life-threatening complications such as myoglobin-induced acute renal failure, compartment syndrome and electrolyte disturbances.³ Contents of damaged skeletal muscle cells, including the haem protein myoglobin and the enzyme creatine kinase (CK), are released into the systemic circulation and are diagnostic (by definition over 1000 IU/L⁹ and may rise to 500,000 IU/L¹⁰) markers for the illness. Urine appears reddish brown as myoglobin is filtered into the urine, and will also dip positive for blood (haem) due to the cross reactivity of haem and myoglobin. However, no red blood cells should be seen under microscopic examination of the urine. Epidemiologically, rhabdomyolysis has

Figure 2 : Summary of a proposed diagnostic approach to an otherwise healthy child presenting with sudden difficulty walking, bilateral calf pain, and URTI



Key messages

1. A child with bilateral calf pain and compensatory toe-walking in the face of a resolving URTI during influenza season may suggest BACM.
2. Assessment of BACM may be conducted on an outpatient basis if appropriate and rapid laboratory testing is available and clinical follow up can be assured.
3. Serious differential diagnoses such as Guillane-Barré syndrome and rhabdomyolysis must be ruled out.

been reported more frequently in girls and has been associated with influenza A³ which in turn has been linked with causing more severe disease².

Prognosis

The prognosis for BACM is excellent, with spontaneous, rapid and full recovery within 3-7 days.¹ Only rest, analgesia and supportive measures are required.

In terms of the risk of developing rhabdomyolysis, Agyeman *et al*³ described a series of 316 clinically similar cases which they termed influenza-associated myositis in children. Of these, 10 (3%) developed rhabdomyolysis with 8 patients going into acute renal failure. A study of rhabdomyolysis in a series of paediatric patients by Mannix *et al*¹⁵ found that 38% were due to a viral myositis and of those, influenza was the most common aetiological agent.

Recovered patients do not seem to be any increased risk for recurrence although it may happen, usually in the context of a first exposure to a different virus.¹ Although vaccination is believed to reduce the risk of common complications such as otitis media and pneumonia, it is not known if it affects the likelihood of developing BACM.⁶

Proposed diagnostic approach (Figure 2)

Recognizing the stereotypical clinical presentation and biochemical features of BACM could prevent unnecessary invasive tests. On the other hand, BACM

must be differentiated from conditions with serious consequences so erring on the side of caution by extensive testing is understandable. It would be reasonable to manage a patient in whom there was a strong clinical suspicion for BACM as an outpatient in a primary care setting where laboratory testing and results were rapidly available and follow up assured. This would enable monitoring for rhabdomyolysis or following up a mildly elevated CK which may reflect early Guillane-Barré syndrome. In Hong Kong this would probably mean the Accident and Emergency Department (AED) or similarly resourced outpatient setting.

In their series of 32 cases seen at a university based primary care paediatric clinic, Zafeirou *et al*¹⁶ indicated that the majority of patients were evaluated on an outpatient basis with blood and urine tests and then followed up at a subspecialist outpatient clinic. Rennie *et al*⁷ suggested that BACM could be evaluated appropriately in an accident and emergency department if adequate follow up arrangements can be made and this is echoed by King *et al*⁴ who further stressed the importance of ensuring close clinical follow up.

Non-classic presentation of BACM would trigger a more urgent referral for more comprehensive assessment of serious differentials. Possible red flags are outlined in the algorithm.

Conclusion

In a child presenting with bilateral calf pain and sudden difficulty walking in the setting of a viral illness, it remains critical to exclude the possible sinister causes but to also recognize BACM as an uncommon but dramatic complication of a common viral infection. A possible diagnostic approach is thus proposed to help clinicians address parental anxiety and to facilitate the outpatient assessment of patients with this condition.

Acknowledgement

I would like to gratefully acknowledge the cooperation and the encouragement of BB and his parents, in the compilation of this case report. ■

(Continued on page 38)

Enhancing the practice of primary care physicians as our goal to serve
the medical profession and the Society



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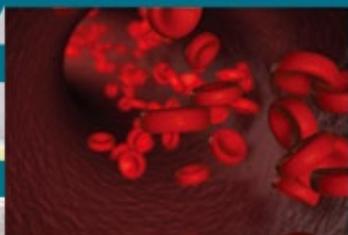
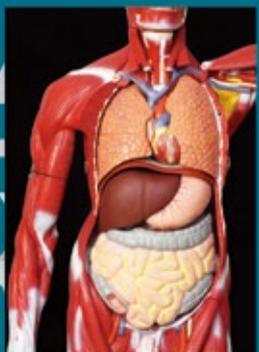
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What's in the web for family physicians – influenza updates

Alfred K Y Tang 鄧權恩

Seasonal and Pandemic Influenza 2011 Conference

<http://www.idsociety.org/Content.aspx?id=13344>

Free registration with website of Infectious Disease Society of America (IDSA) would allow viewing of IDSA's Seasonal and Pandemic Influenza 2011 conference online. The conference took place on January 27-28, one can still view the sessions online as a on-demand CME activity. The conference highlighted different areas of concern about Influenza, including Influenza basics, surveillance during epidemic, and emerging drug resistance related to treatment of Influenza.

WHO Global Advisory Committee on Vaccine Safety (GACVS): Influenza vaccines

http://www.who.int/vaccine_safety/topics/influenza/en/

GACVS, an expert clinical and scientific advisory body, was established by WHO to deal with vaccine safety. The section on influenza addresses issues of public concern related to influenza vaccine. A comprehensive set of the lessons and action points can be accessed on the website, including allergic reactions following influenza vaccination; Bell's palsy following intranasal vaccination; fatal adverse events following influenza vaccination in elderly population; influenza vaccination of women during pregnancy; safety issues associated with pandemic influenza vaccines; and safety of pandemic A (H1N1) influenza vaccines. At the same time, the WHO publication "Pandemic (H1N1) vaccines and vaccination Frequently Asked Questions and Answers" is also available at http://www.wpro.who.int/NR/rdonlyres/74DF72C5-2933-48F6-A2E1-80ACE7FD7BCE/0/Pandemic_H1N1_vaccinesandvaccinationQA.pdf

Influenza Virus Resource

<http://www.ncbi.nlm.nih.gov/genomes/FLU/FLU.html>

Hosted by the National Center for Biotechnology Information (NCBI), the website provides useful and timely information of influenza virus. The website presents gene sequence data from the 2009 A (H1N1) influenza virus outbreak and tools for analysis and annotation. The NCBI site

Alfred K Y Tang, MBBS(HK)

Family Physician in Private Practice.

Correspondence to : Dr Alfred K Y Tang, Shop 3A, 2/F, Hsin Kuang Shopping Centre, Wong Tai Sin, Kowloon, Hong Kong SAR.
E-mail: alfredtang@hkma.org

also links to other resources hosting flu sequences, relevant publications and general information about flu viruses, including flu epidemics and flu virus biology. A hyperlink to the PubMed literature database allowing search of recent publications on influenza viruses is also available at this webpage.

Guillain-Barré syndrome

<http://www.aic.cuhk.edu.hk/web8/GBS.htm>

Guillain-Barré syndrome (GBS) is a rare disorder in which a person's own immune system damages the nerve cells, causing muscle weakness and sometimes paralysis. There had been a lot of public concern on whether the 2009 H1N1 vaccine is associated with a higher chance of contracting GBS. This webpage of the ICU web of Chinese University of Hong Kong offers a concise summary of the Guillain Barré syndrome. The content covers the clinical features, different clinical types, precipitating factors, course of illness, differential diagnosis, prognosis and treatment of GBS.

Flu Express by Centre of Health Protection, Department of Health

http://chp.gov.hk/en/guideline1_year/29/134/441/304.html

Flu Express is a weekly report produced by the Respiratory Disease Office of the Centre for Health Protection (CHP). It conveys useful and important information on influenza epidemic and the latest influenza activities of both local and global situations are summarized. It is a useful reference allowing family physicians to stay tuned with the most current situation during epidemics.

H1N1 Warning by WHO

<http://www.who.int/wer/2011/wer8608.pdf>

The statement made by WHO on 18th Feb 2011 on the 2010–2011 influenza season in the northern hemisphere. It was demonstrated that pandemic influenza A (H1N1) 2009 virus is still circulating and causing severe disease in younger people. The statement recommended continued vigilance, and with appropriate surveillance, control and treatment practices for the control of both seasonal influenza and influenza A (H1N1) 2009 virus, should be maintained and imperative during the post-pandemic period. ■

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Request for Honorary Clinical Tutors for Academic Year 2011/2012

The teaching of medical students by general practitioners in their clinics is important because students need to learn about the management of patients and their problems in the community. Only general practitioners can provide this form of teaching and exposure. We would like to invite you to participate as our Honorary Clinical Tutor.

As an honorary clinical tutor you may gain credits towards the award of the HKCFP Certificate of Postgraduate Studies upon application, by writing to the Quality Assurance and Accreditation Committee. You can also enjoy library privileges at our Departmental Library and the Medical Library at the Prince of Wales Hospital.

Meetings will be held for discussion on methods and developments in clinical teaching.

Please fill in the form below to help us in our planning. Final arrangements of the clinical attachments will be made by telephone contact with you at a later date.

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2. **Arrangement of attachments for each student:**

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- ii. Flexible time arrangement between tutor and students

3. **Possible times of attachments** are as follow: (please indicate first preference by 1, second preference by 2, etc)

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|--------------|------|---------------|-------|---------------|------|---------------|-------|
| [ ] Tuesday  | Time | _____ - _____ | am/pm | [ ] Wednesday | Time | _____ - _____ | am/pm |
| [ ] Thursday | Time | _____ - _____ | am/pm | [ ] Friday    | Time | _____ - _____ | am/pm |
| [ ] Saturday | Time | _____ - _____ | am/pm |               |      |               |       |

4. Questions/Comments: \_\_\_\_\_

*Please attach your business/ clinic card/ fax no/ E-mail if available and mail or fax this form as soon as possible to:*

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# Hong Kong Primary Care Conference 2011

## A New Frontier

### Announcement

**It** is our great pleasure to announce that the first Hong Kong Primary Care Conference (HKPCC), organized by the Hong Kong College of Family Physicians, will be held on 28 – 29 May 2011 at the Hong Kong Academy of Medicine Jockey Club Building, Wong Chuk Hang, Hong Kong.

Spurred on by the great success of our past Annual Scientific Meetings, the Hong Kong College of Family Physicians is now expanding our Annual Scientific Meeting into an exciting new conference that is relevant to the much broader primary care community. We hope to provide a platform to share the latest scientific updates, current development and future trends in primary care, and to allow college members and other members of the primary care team (family physicians, nurses, community and allied health practitioners) to network and learn from one another.

The theme of this inaugural conference is “A New Frontier”. As our government’s recent healthcare policy is placing a great emphasis on the development of primary care, we hope our new-found conference will provide a new frontier for the fields of primary care, by bringing experts and practitioners together and encouraging future development and collaboration.

We now cordially invite you to submit abstracts for free paper presentations and posters, to participate in our full paper competition, and to register for the conference. Instructions for abstract submission and full paper competition are available on the next few pages and at our College website.

More information on the first Hong Kong Primary Care Conference will follow soon in the future issues of the Hong Kong Practitioner and FP Links, as well as on our College website. It is our hope that your attendance and contribution will help in shaping the future of primary care in Hong Kong. Please come and join us!

**Dr. Man-kuen Cheung**  
Chairlady  
Organizing Committee  
Hong Kong Primary Care Conference 2011



## BIRTH OF HKPCC FIRST EVER LOGO

LOGO Competition Announcement

**To** celebrate the founding of the HKPCC and to commemorate this event, we have invited designers from all walks of life to design an exclusive logo for the HKPCC. We have received many entries of talented artwork and wish to express our gratitude to all participants for their immeasurable support to the College and the first HKPCC 2011.

It gives us great pleasure to announce the Winner of the Logo Competition:

**Ms. Cheng Zeemink**



**Hong Kong  
Primary Care  
Conference**  
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of Family Physicians

Our logo forms the “Star of Life” and the people here represent doctors, nurses, physiotherapists, occupational therapists and other allied health professionals to form a community (the conference) for sharing medical scientific updates for future development and collaboration.

**HKPCC 2011 Organizing Committee**

# Hong Kong Primary Care Conference 2011

## A New Frontier



### Full Paper Competition

(Submission Deadline: 31 March 2011, Thursday)

We cordially invite your participation in the Full Paper Competition of the HKPCC 2011. The Competition is a long-standing tradition of HKCFP for promoting and recognizing well-designed, innovative research, which bears potential to exert impact in clinical practice or development in the field of primary care.

The HKPCC 2011 Organizing Committee will invite renowned scholars to review the participating papers. Judges appointed by the Organizing Committee will determine the final awardees based on qualities of the papers.

The winner will be awarded the Best Research Paper Award, which will be presented at the opening ceremony of the HKPCC 2011. The winning team will also be featured in our college newsletter – Family Physicians Links (FP Links).

#### Awards

The **Best Research Paper Award** winner will receive **HK\$5,000** and a certificate.

#### Eligibility Requirements and Author Guidelines

To be eligible for participation in the full paper competition, **the first author of the paper must meet ALL of the following conditions:**

- (1) The author must register at the Conference;
- (2) The author completes the majority of the research and writing for the paper;
- (3) The author has not used the paper to apply for other awards.

The participating papers should be full-length articles. They should include a structured abstract of no more

than 250 words. The text should contain between 2,000- 3,000 words, organized as INTRODUCTION, METHOD, RESULTS and DISCUSSION. It should consist of no more than 5 illustrations (tables/figures).

Electronic version is preferred. The full paper should be typed in 12 point size in Microsoft Word format.

#### Award Selection Criteria

Each paper will be evaluated against the following criteria:

1. Academic rigor of the paper (e.g. originality, methodology, organization and presentation)
2. Relevance to primary care (e.g. importance of the topic and the impact of the findings on the practice or development of primary care)

#### How to Submit

**By Email** – Attach the paper with the completed “Full Paper Submission Form” and send to [hkpcc@hkcfp.org.hk](mailto:hkpcc@hkcfp.org.hk).

**IMPORTANT:** Please download the **Full Paper Submission Form** from our College’s Website [www.hkcfp.org.hk](http://www.hkcfp.org.hk) and submit the paper with the form.

#### Submission Deadline

31 March 2011 (Thursday)

If you have any questions concerning the HKPCC 2011 Full Paper Competition, please do not hesitate to contact Mr. Patrick Wu, the HKPCC 2011 Secretariat, by phone at 2528 6618 or by email: [hkpcc@hkcfp.org.hk](mailto:hkpcc@hkcfp.org.hk).

*We look forward to receiving your research articles!*

# Hong Kong Primary Care Conference 2011

## “A New Frontier”



### Abstract Submission Instructions

#### Abstract Format

- Electronic version is preferred. Abstracts should be typed in 12-point size in Microsoft Word format. Handwritten abstracts will not be accepted.
- The abstract must not exceed 250 words, and should be organized as follows: TITLE, AUTHOR(S), INTRODUCTION, METHOD, RESULTS and DISCUSSION. Commentaries and discussion papers need not follow the above format apart from the TITLE and AUTHOR(S).
- All presenting authors must register at the Conference.
- Authors' full names and affiliations must be specified. Surnames should be printed in bold.
- All abstracts must be submitted in either English or Chinese. All accepted abstracts must be presented in English.

#### How to Submit

**By Email** – Attach the abstract with the completed “Abstract Submission Form” and send to [hkpsc@hkcfp.org.hk](mailto:hkpsc@hkcfp.org.hk).

**IMPORTANT: Please download the Abstract Submission Form from our College's Website [www.hkcfp.org.hk](http://www.hkcfp.org.hk) and submit the abstract with the form.**

#### Please Note

- 1) The submitted abstract must not be identical to abstracts submitted to other conferences.
- 2) The Organizing Committee will have the right of final decision on the acceptance of an abstract.
- 3) Only **ONE** designated presenter can present an accepted abstract. Co-authors are welcome to register and attend the session.
- 4) Acknowledgement will be sent by email upon receipt.
- 5) If you have any questions concerning the abstract submission, please contact Mr. Patrick Wu, by phone at 2528 6618 or by email [hkpsc@hkcfp.org.hk](mailto:hkpsc@hkcfp.org.hk).
- 6) The deadline for abstract submission is **31 March 2011 (Thursday)**.

# Hong Kong Primary Care Conference 2011

## "A New Frontier"

### Scientific Programme

| Date<br>Time  | <b>28 May 2011 (Sat)</b>         |                               |                          |                           |                         |
|---------------|----------------------------------|-------------------------------|--------------------------|---------------------------|-------------------------|
| 13:45 — 14:30 | Registration                     |                               |                          |                           |                         |
| 14:30 — 15:00 | Opening Ceremony                 |                               |                          |                           |                         |
| 15:00 — 15:30 | Plenary Session I                |                               |                          |                           |                         |
| 15:30 — 16:00 | Plenary Session II               |                               |                          |                           |                         |
| 16:00 — 16:30 | Coffee Break                     |                               |                          |                           |                         |
| 16:30 — 18:30 | Workshop 1<br>(Wound Management) | Workshop 2<br>(Psychotherapy) | Seminar A<br>(Education) | Seminar B<br>(Clinical I) | Free Paper Presentation |
| 18:30 — 21:30 | Dinner Symposium                 |                               |                          |                           |                         |

| Date<br>Time  | <b>29 May 2011 (Sun)</b>                                                    |                               |                         |                            |           |                         |
|---------------|-----------------------------------------------------------------------------|-------------------------------|-------------------------|----------------------------|-----------|-------------------------|
| 09:00 — 09:30 | Registration                                                                |                               |                         |                            |           |                         |
| 09:30 — 11:00 | Workshop 1<br>(Wound Management)                                            | Workshop 2<br>(Psychotherapy) | Seminar C<br>(Research) | Seminar D<br>(Clinical II) | Seminar E | Free Paper Presentation |
| 11:00 — 11:30 | Coffee Break                                                                |                               |                         |                            |           |                         |
| 11:30 — 12:00 | Plenary Session III                                                         |                               |                         |                            |           |                         |
| 12:00 — 12:30 | Plenary Session IV                                                          |                               |                         |                            |           |                         |
| 12:30 — 15:00 | Lunch Symposium                                                             |                               |                         |                            |           |                         |
| 15:00 — 15:30 |                                                                             |                               |                         |                            |           |                         |
| 15:30 — 16:30 | Reception of the 24th Fellowship Conferment Ceremony                        |                               |                         |                            |           |                         |
| 16:30         | The 24th Fellowship Conferment Ceremony<br>The 22nd Dr. Sun Yat Sen Oration |                               |                         |                            |           |                         |

**\*\*Pending CNE, CPD & CME accreditation**

**Disclaimer**

Whilst every attempt will be made to ensure all aspects of the conference mentioned will take place as scheduled, the Organizing Committee reserves the right to make last minute changes should the need arise.

# Hong Kong Primary Care Conference 2011

Organized by The Hong Kong College of Family Physicians

28 – 29 May 2011, HKAM Jockey Club Building, Wong Chuk Hang, HK

## "A New Frontier"

### REGISTRATION FORM

Name : Prof. / Dr. / Mr. / Mrs. / Ms.

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Contact No. : \_\_\_\_\_ Member ID (if applicable) : \_\_\_\_\_

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*\*Details or updates would be sent by email*

#### REGISTRATION (please tick as appropriate):

|                                         | HKCFP Member                           | Non-member                       |
|-----------------------------------------|----------------------------------------|----------------------------------|
| HKCFP Hong Kong Primary Care Conference | <input type="checkbox"/> Complimentary | <input type="checkbox"/> HK\$600 |
| <b>Workshops</b>                        |                                        |                                  |
| Workshop 1 : Wound Management           | <input type="checkbox"/> HK\$200       | <input type="checkbox"/> HK\$400 |
| Workshop 2 : Psychotherapy              | <input type="checkbox"/> HK\$200       | <input type="checkbox"/> HK\$400 |

Each participant can only register for **ONE** workshop  
Workshop registration is subject to availability. Cheques will be returned to unsuccessful registrants.

#### COMPLIMENTARY TRANSPORTATION

| Pick-up Points           | 28 May 2011 (Sat)        | 29 May 2011 (Sun)        |
|--------------------------|--------------------------|--------------------------|
| Admiralty                | <input type="checkbox"/> | <input type="checkbox"/> |
| Kowloon Tong MTR station | <input type="checkbox"/> | ---                      |
| Tuen Mun                 | <input type="checkbox"/> | ---                      |

Note: Details concerning the transportation arrangements will be further announced.

#### PAYMENT METHOD

Please send completed registration form with crossed cheque payable to "HKCFP Education Ltd" to the address: Room 701, 7/F, HKAM Jockey Club Building, 99 Wong Chuk Hang Road, Hong Kong.

If you have any questions concerning HKPCC 2011, please contact Mr. Patrick Wu, the HKPCC 2011 Conference Secretariat, by email: [hkpc2011@hkcfp.org.hk](mailto:hkpc2011@hkcfp.org.hk) or by phone at 2528 6618.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Registration forms can also be downloaded through College website - [www.hkcfp.org.hk](http://www.hkcfp.org.hk).

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*The Hong Kong Practitioner* is published quarterly by The Hong Kong College of Family Physicians.

The Journal is indexed in *EMBASE/Excerpta Medica* as 'HK Pract'. It has a circulation of 4000, distributed to all members and some non-members of the College, academic institutions as well as private subscribers in Hong Kong and overseas.

The aim of the journal is to promote the development of quality family medicine/general practice in Hong Kong and the region, by publishing editorials, original articles, update reviews, letters to the editor, and self-assessment materials.

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Papers submitted for publication should fulfil the following criteria:-

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### Original Research Papers

Papers on original research relating to primary care in Hong Kong are particularly welcome.

They should be set out in a standard format with an Introduction giving background and objectives; Method giving details of subjects, study design and measurements, interventions, outcomes, and statistical methods; Results; Discussion; Conclusions; References; and Acknowledgements.

Papers should be between 1,500 and 3,500 words in length.

Graphs and tables should be limited to six and references to 40.

A structured summary of up to 200 words should be set out under the headings of Objective, Design, Subjects, Main Outcome Measures, Results, and Conclusions. Up to five keywords should be given to aid index cross-reference.

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