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Clinical practice patterns among native and immigrant doctors doing out-of-hours work in Norway: a registry-based observational study

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ABSTRACT

Objectives: To evaluate whether immigrant and native Norwegian doctors differ in their practice patterns.

Design: Observational study.

Setting: Out-of-hours (OOH) emergency primary healthcare in Norway, 2008.

Participants: All primary care physicians doing OOH work, altogether 4165 physicians.

Main outcome measures: Number of patient contacts per doctor. Use of laboratory tests, minor surgery, sickness certification and length of consultations. Use of diagnoses related to psychiatric and sexual health. Choice of management strategy with psychiatric patients (psychotherapy or hospitalisation).

Results: 21.4% of the physicians were immigrants, and they had 30.6% of the patient contacts. Immigrant doctors from Asia, Africa and Latin America had most patient contacts, 633 (95% CI 549 to 716), while native Norwegian doctors had 306 (95% CI 288 to 325). In multivariate analyses, immigrant physicians did not differ significantly from native Norwegians regarding use of laboratory tests, minor surgery or length of consultations, but immigrant doctors wrote more sickness certificates, OR 1.75 (95% CI 1.24 to 2.47) for immigrant doctors from Europe, North America and Oceania versus native Norwegian doctors and OR 1.56 (95% CI 1.15 to 2.11) for immigrant doctors from Asia, Africa and Latin America versus native Norwegians. Immigrant physicians from Europe, North America and Oceania used more diagnoses related to pregnancy, family planning and female genitals, OR 1.55 (95% CI 1.11 to 2.16), versus native Norwegian physicians. Immigrant doctors from Asia, Africa and Latin America used less psychiatric diagnoses, OR 0.71 (95% CI 0.53 to 0.95), versus native Norwegian doctors but did not differ significantly in their management of recognised psychiatric illness.

Conclusions: Immigrant doctors make an important contribution to OOH emergency primary healthcare in Norway. The authors found only modest evidence that their clinical practice patterns are different from that of native Norwegian doctors.

ARTICLE SUMMARY

Article focus

- Western countries receive an increasing number of immigrant doctors.
- Concern has been raised regarding their skills.
- We studied immigrant doctors' clinical performance.

Key messages

- Immigrant doctors from Asia, Africa and Latin America did more OOH work than native Norwegian doctors.
- Immigrant doctors wrote more sickness certificates per consultation.
- Otherwise, there were only minor differences in practice patterns between immigrant and native Norwegian doctors.

Strengths and limitations of this study

- Large and complete material.
- Avoids problem with case mix.
- Limited information about immigrant doctors' educational background.

INTRODUCTION

As in most Western countries, Norway has received many immigrant physicians during the recent years. Approximately 30% of doctors practising in Norway have been educated abroad.[1] However, since many native Norwegians also have received their education abroad, only 16% of all doctors are foreign immigrants.[2] Immigrants constitute about 20% of all regular general practitioners (RGPs) and are over-represented in rural areas.[3] The RGP scheme in Norway is a contractual system based on listing and capitation.

Since an increasing number of minority patients tend to choose minority physicians, a more diverse physician workforce is welcome.[4] However, immigrant doctors face cultural and language barriers, and concern has been raised regarding their skills in

communication and psychiatry.[5–8] Also, some immigrant physicians have little training in sexual medicine.[9 10] Foreign doctors are more often subject to disciplinary actions,[11 12] and some feel that their immigrant status in itself may put them at risk of being punished.[13 14]

A few studies have compared clinical performance of immigrant and native physicians. In surveys of self-reported practice, it has been found that immigrant doctors less often provide recommended preventive care, more often overprescribe lipid-lowering agents, provide less contraceptive services to adolescent females, order more laboratory tests and refer more patients to specialists.[15–18] A Canadian registry-based study, linking claims with other healthcare databases, found that immigrant physicians were more likely to prescribe antibiotics inappropriately.[19] A similar American study found no differences between native and immigrant doctors in the care of myocardial infarction.[20]

Surveys based on doctors' self-reported clinical practice have inherent validity problems, and more studies of actual clinical performance are needed. However, when comparing the performance of individual physicians in their own practices, one has to address the problem of case mix.[21] The patients will differ from doctor to doctor, and this may explain why practice patterns differ between doctors.

Since patients choose their own RGP, the lists vary widely in size and composition. Therefore, it is difficult to compare the clinical performance of RGPs without case mix adjustment. However, out-of-hours (OOH) emergency healthcare is organised in a way that patients cannot choose which doctor to consult, thus eliminating the problem of case mix. In this setting, it is possible to do more valid analyses of doctors' actual performance. We have performed such a study, covering all physicians in Norway participating in the emergency primary healthcare during 2008.

METHODS

The material in this study comprises all electronic compensation claims for emergency primary healthcare contacts in Norway during 2008. Contacts with RGPs during office hours are not included. Nearly all claims are electronic, only about 2% are paper based and not included in this material.[22]

In Norway, the local municipalities are responsible for the emergency primary healthcare for their inhabitants and visitors, both during office hours and OOH. The organisation of the emergency services may differ somewhat between municipalities, but all send electronic compensation claims for all patient contacts to the Norwegian Health Economics Administration (HELFO). Thus, HELFO has complete records of all patient contacts with the emergency primary healthcare.

The following HELFO variables were used in this study: Doctors' gender, age, time of contact, diagnosis (ICPC-2, International Classification of Primary Care) and a number of different fee codes. There are different fees for different types of contact, an extra fee if the consultation lasts more than 20 min, and numerous fees for different procedures, for example, one fee for psychotherapeutic intervention and one for referral to a psychiatrist or psychiatric hospital. A special fee is used by all doctors who are approved general practice specialists, enabling us to identify these doctors.

The HELFO file was linked with the RGP database, enabling us to identify doctors who were RGPs. In addition, the centrality of the doctor's municipality was recorded. The centrality is defined as a municipality's geographical location in relation to a centre where there are important functions (central functions) and is measured on a scale of 0–3 where 0 is the least and 3 is the most central.[23]

All Norwegian citizens are given a unique personal identification number (ID-number) at birth. This number is used in various official records and allows for linking such records on an individual level. Foreigners moving to Norway to stay for more than 6 months are also given an ID-number. A dummy number (D-number) may be issued to foreign nationals staying in Norway for <6 months.

Statistics Norway supplied the following variables (based on ID-number for all doctors): Immigrant status, area of origin, country of graduation and length of stay in Norway (years). Country of graduation is where the medical education was finished. Some doctors may first have graduated in their home country and again in Norway, if their qualifications were not recognised as the professional equivalent of Norwegian qualifications. In these cases, Norway is listed as the country of graduation. An immigrant doctor is defined as an individual who is born abroad by two foreign parents and who has since moved to Norway. We divided immigrant doctors into two groups according to their area of origin:

1. Europe, North America, Oceania
2. Asia, Africa, Latin America

For each doctor, we calculated the percentage of consultations in which the following services had been given: laboratory test, minor surgery, sickness certification and extra time (consultation lasting more than 20 min). We also calculated the diagnostic distribution (ICPC-2 chapters) for each doctor and whether the individual doctor tended to use more fees for psychotherapy or more fees for referral to psychiatric hospitals. All percentages were dichotomised by the median value and used as dependent variables in multiple logistic regression analyses. Similar analyses were performed with psychotherapy versus referral as dependent variable and whether the doctor had more or less than median percentage of his contacts during nights (00:00–08:00). Independent variables in these multivariate analyses were doctors' gender and age group, centrality, whether the doctor was a RGP or general practitioner (GP) specialist, graduated in Norway or not, immigrant doctors' area of origin and length of stay in Norway. Significance was accepted at the 5% level ($p<0.05$).

The study is part of the project 'Immigrants' health in Norway' located at the Research Group for General Practice at the Department of Public Health and Primary Health Care, University of Bergen. The project has been approved by the Norwegian Data Inspectorate, the Regional Committee for Medical Research Ethics, the Norwegian Labour and Welfare Service and the Norwegian Directorate of Health. Linking of records was performed by the Norwegian Prescription Database and the Norwegian Social Science Data Service who finally supplied us with the anonymous data file.

RESULTS

A total of 4312 different doctors participated in OOH work in Norway during 2008. Of these, 147 could not be identified by ID-number, leaving 4165 for analysis, 78.6% native Norwegians and 21.4% immigrants. There were 1 478 121 patient contacts of which 1 431 390 were attributed to identified physicians. Native Norwegian doctors had 69.4% of the contacts and immigrants 30.6%.

Characteristics of native Norwegian and immigrant physicians are shown in table 1. Besides Norway (75%), the most common countries of graduation were Germany (6%), Denmark (4%), Poland (4%), Hungary (4%) and Sweden (2%). Only 1% graduated outside Europe. Immigrant doctors from Asia, Africa and Latin America had considerably more patient contacts than the rest. Minor differences were found in the frequency of laboratory testing, minor surgery, sickness certification and length of consultations (bivariate analyses).

In multivariate analysis, young doctors and doctors outside the most central areas wrote less sickness certificates, while immigrant doctors wrote more (table 2). Older physicians, RGPs and GP specialists had shorter consultations, while rural physicians more often needed extra time. Female and young doctors made more use of laboratory tests, while rural doctors made less use of such tests. Female doctors and GP specialists did less minor surgery, while rural doctors and RGPs did more.

Young doctors and those working outside the most central areas had relatively more patient contacts during nights (table 3). Female physicians, GP specialists, RGPs and immigrant doctors from Europe, North America and Oceania had relatively more diagnoses related to pregnancy, family planning and female genitals, while immigrant doctors with shorter lengths of stay had less such diagnoses. Psychiatric diagnoses were relatively more often used outside the most central areas, while immigrant doctors from Asia, Africa and Latin America used such diagnoses significantly less than others. RGPs more often than other doctors chose psychotherapy instead of sending the patient to a psychiatrist or psychiatric hospital.

DISCUSSION

The most important difference between immigrant and native Norwegian physicians is that immigrant doctors, especially those from Asia, Africa and Latin America, do considerably more OOH work. However, other explanatory variables than immigrant status are more important in explaining differences in practice patterns between individual doctors.

Table 1 Comparison of native Norwegian and immigrant doctors (point estimates with 95% CIs)

	Norwegian	Immigrant from Europe, North America, Oceania	Immigrant from Asia, Africa, Latin America
N	3242	556	367
Percentage women	41.7 (40.0 to 43.4)	43.5 (39.5 to 47.7)	22.1 (18.1 to 26.6)
Age (years)	38.9 (38.5 to 39.2)	40.9 (40.1 to 41.7)	39.5 (38.7 to 40.4)
Immigrant doctors' length of stay in Norway (years)		9.5 (8.8 to 10.1)	14.6 (13.6 to 15.5)
Percentage graduated in Norway	82.5 (81.1 to 83.7)	35.3 (31.4 to 39.3)	64.6 (59.6 to 69.3)
Percentage rural (centrality 0)	21.1 (19.8 to 22.6)	31.9 (28.2 to 35.9)	18.0 (14.4 to 22.2)
Percentage RGP	51.0 (49.3 to 52.7)	59.4 (55.2 to 63.4)	44.7 (39.7 to 49.8)
Percentage GP specialist	30.8 (29.3 to 32.5)	25.9 (22.4 to 29.7)	21.0 (17.1 to 25.4)
Number of contacts during 2008	306 (288 to 325)	370 (330 to 411)	633 (549 to 716)
Percentage of contacts during night (0:00–08:00)	9.4 (9.0 to 9.9)	8.8 (7.9 to 9.8)	8.7 (7.5 to 10.0)
Laboratory use per 100 consultations	34.3 (31.9 to 36.7)	30.3 (28.9 to 31.8)	35.0 (33.0 to 37.1)
Minor surgery per 100 consultations	10.0 (8.1 to 12.0)	10.3 (9.0 to 11.7)	9.7 (8.7 to 10.7)
Sickness certification per 100 consultations	6.6 (6.3 to 7.0)	6.9 (6.4 to 7.5)	7.5 (6.8 to 8.1)
Use of extra time fee per 100 consultations	34.3 (33.5 to 35.1)	37.2 (35.3 to 39.1)	37.3 (34.9 to 39.7)
Psychiatric diagnoses per 100 consultations	5.1 (4.9 to 5.3)	5.4 (5.0 to 5.8)	4.5 (4.1 to 4.9)
Relative use of psychotherapy/referral	0.75 (0.66 to 0.83)	1.25 (0.68 to 1.82)	0.96 (0.74 to 1.18)
Diagnoses related to pregnancy, family planning and female genitals per 100 consultations	2.2 (2.1 to 2.3)	2.1 (1.9 to 2.2)	1.9 (1.8 to 2.0)

GP, general practitioner; RGP, regular general practitioner.

Table 2 Use of sickness certification, extra time, laboratory and minor surgery per consultation

	N	More than median sickness certification per consultation	More than median use of extra time per consultation	More than median laboratory use per consultation	More than median minor surgery per consultation
Gender					
Male	2490	Ref.	Ref.	Ref.	Ref.
Female	1675	1.12 (0.98 to 1.29)	1.09 (0.95 to 1.25)	1.33 (1.16 to 1.52)	0.59 (0.52 to 0.68)
Age (years)					
36–45	1035	Ref.	Ref.	Ref.	Ref.
<36	1974	0.72 (0.60 to 0.87)	1.06 (0.88 to 1.28)	1.56 (1.30 to 1.88)	0.96 (0.80 to 1.16)
>45	1156	0.83 (0.69 to 1.01)	0.66 (0.54 to 0.80)	0.84 (0.70 to 1.02)	0.87 (0.72 to 1.05)
Centrality					
3	1866	Ref.	Ref.	Ref.	Ref.
2	953	0.23 (0.20 to 0.28)	0.94 (0.79 to 1.11)	0.82 (0.69 to 0.96)	0.95 (0.81 to 1.12)
1	415	0.46 (0.37 to 0.58)	2.06 (1.64 to 2.59)	0.52 (0.42 to 0.65)	1.85 (1.48 to 2.31)
0	928	0.49 (0.42 to 0.58)	3.62 (3.02 to 4.34)	0.49 (0.42 to 0.58)	2.57 (2.17 to 3.05)
Not GP specialist	2944	Ref.	Ref.	Ref.	Ref.
GP specialist	1221	1.14 (0.94 to 1.37)	0.63 (0.52 to 0.76)	1.08 (0.90 to 1.30)	0.82 (0.68 to 0.99)
Not RGP	2017	Ref.	Ref.	Ref.	Ref.
RGP	2148	1.11 (0.94 to 1.30)	0.65 (0.55 to 0.77)	0.99 (0.84 to 1.16)	1.52 (1.29 to 1.79)
Graduated in Norway	3107	Ref.	Ref.	Ref.	Ref.
Graduated abroad	1058	0.84 (0.71 to 0.99)	1.06 (0.90 to 1.26)	0.98 (0.84 to 1.16)	1.08 (0.91 to 1.27)
Native Norwegian	3242	Ref.	Ref.	Ref.	Ref.
Immigrant from Europe, North America, Oceania	556	1.75 (1.24 to 2.47)	1.27 (0.90 to 1.79)	0.80 (0.58 to 1.12)	1.00 (0.71 to 1.40)
Immigrant from Asia, Africa, Latin America	367	1.56 (1.15 to 2.11)	1.27 (0.94 to 1.71)	1.20 (0.90 to 1.61)	1.16 (0.87 to 1.56)
Native Norwegians and immigrant doctors' length of stay >15 years	3491	Ref.	Ref.	Ref.	Ref.
Length of stay 0–5 years	253	0.70 (0.47 to 1.05)	0.82 (0.55 to 1.24)	1.45 (0.98 to 2.15)	1.31 (0.88 to 1.97)
Length of stay 6–15 years	421	0.84 (0.59 to 1.19)	0.98 (0.69 to 1.38)	1.32 (0.94 to 1.86)	1.32 (0.94 to 1.86)

Multiple logistic regression analyses using doctors' characteristics as explanatory variables (OR with 95% CIs).
GP, general practitioner; RGP, regular general practitioner.

Case mix is a problem in most non-randomised observational studies of clinical practice,[21] but OOH patients cannot choose their doctor, and doctors are therefore mostly exposed to similar patients. Therefore, case mix is of less importance in our study than if the physicians had been compared in their own practices. Nevertheless, it is possible that patients may differ between OOH services, and if different types of doctors are unevenly distributed among OOH services, case mix may still represent a problem. Immigrant RGPs are over-represented in rural areas,[3] but our study indicates that this only applies to immigrant physicians from Europe, North America and Oceania. Nevertheless, the multivariate analyses demonstrate the importance of correcting for centrality.

Immigrant doctors were about the same age as native Norwegians, but there were considerably fewer women among immigrant physicians from Asia, Africa and Latin America. It should be noted that two-thirds of these immigrants had finished their medical education in Norway, probably 'diluting their foreignness.' However, significantly fewer of them were approved general practice specialists. Also in North America, immigrant primary care physicians are less likely to have completed a family medicine residency or being board certified.[18 24]

We found no significant differences in multivariate analyses between immigrant doctors and native Norwegians in their use of laboratory tests, minor surgery and length of consultations. The most important independent variable in this respect was centrality, but the doctor's age, gender, RGP and specialist status were also important explanatory variables. However, immigrant physicians wrote more sickness certificates. Sickness certification is a potential source of conflict between patient and physician and may require some negotiating skills. Refusing patients' demands may be difficult,[25 26] especially when language skills are limited, and foreign doctors often feel that their immigrant status put them at risk of receiving complaints.[13 14] Therefore, immigrant physicians may experience a stronger pressure to accept patients' demands. An alternative explanation could be cultural. It is possible that in some countries, sickness certifications are more of a formality and written without much negotiation.

Medical education in many non-Western countries has little emphasis on behavioural sciences, communicative skills and mental health.[5 6] Medical candidates from

Table 3 Amount of night work, use of psychiatric and gynaecological diagnoses, and preference for psychotherapy or referral

	N	More than median share night time work (0:00–08:00)	More than median use of diagnoses related to pregnancy, family planning and female genitals	More than median use of psychiatric diagnoses	Chooses psychotherapy more often than referral or hospitalisation
Gender					
Male	2490	Ref.	Ref.	Ref.	Ref.
Female	1675	1.02 (0.89 to 1.16)	1.21 (1.07 to 1.38)	0.89 (0.78 to 1.01)	1.06 (0.87 to 1.30)
Age (years)					
36–45	1035	Ref.	Ref.	Ref.	Ref.
<36	1974	1.32 (1.10 to 1.58)	1.00 (0.84 to 1.20)	1.10 (0.92 to 1.32)	0.82 (0.64 to 1.06)
>45	1156	0.88 (0.73 to 1.06)	0.97 (0.81 to 1.16)	0.91 (0.76 to 1.09)	1.05 (0.80 to 1.37)
Centrality					
3	1866	Ref.	Ref.	Ref.	Ref.
2	953	1.52 (1.29 to 1.78)	0.94 (0.81 to 1.10)	1.51 (1.29 to 1.76)	0.99 (0.78 to 1.24)
1	415	3.33 (2.65 to 4.19)	0.85 (0.68 to 1.05)	2.07 (1.66 to 2.58)	1.37 (0.98 to 1.91)
0	928	2.79 (2.35 to 3.30)	0.96 (0.82 to 1.13)	2.14 (1.82 to 2.53)	1.04 (0.80 to 1.35)
Not GP specialist	2944	Ref.	Ref.	Ref.	Ref.
GP specialist	1221	0.90 (0.75 to 1.08)	1.28 (1.07 to 1.53)	1.15 (0.96 to 1.38)	0.77 (0.59 to 1.00)
Not RGP	2017	Ref.	Ref.	Ref.	Ref.
RGP	2148	0.89 (0.76 to 1.05)	1.21 (1.03 to 1.41)	1.01 (0.86 to 1.18)	2.64 (2.10 to 3.32)
Graduated in Norway	3107	Ref.	Ref.	Ref.	Ref.
Graduated abroad	1058	1.06 (0.90 to 1.24)	0.92 (0.79 to 1.08)	0.96 (0.82 to 1.13)	1.11 (0.88 to 1.41)
Native Norwegian	3242	Ref.	Ref.	Ref.	Ref.
Immigrant from Europe, North America, Oceania	556	0.98 (0.70 to 1.37)	1.55 (1.11 to 2.16)	1.35 (0.97 to 1.88)	1.09 (0.68 to 1.74)
Immigrant from Asia, Africa, Latin America	367	1.19 (0.89 to 1.59)	1.09 (0.82 to 1.45)	0.71 (0.53 to 0.95)	1.23 (0.83 to 1.83)
Native Norwegians and immigrant doctors' length of stay >15 years	3491	Ref.	Ref.	Ref.	Ref.
Length of stay 0–5 years	253	0.90 (0.61 to 1.33)	0.56 (0.38 to 0.82)	0.98 (0.66 to 1.44)	1.07 (0.61 to 1.85)
Length of stay 6–15 years	421	0.98 (0.70 to 1.38)	0.59 (0.42 to 0.82)	0.88 (0.63 to 1.23)	1.04 (0.65 to 1.67)

Multiple logistic regression analyses using doctors' characteristics as explanatory variables (OR with 95% CI).
GP, general practitioner; RGP, regular general practitioner.

these schools are not familiar with patient-centred care and tend to have a more paternalistic attitude.[7 27] In some countries, mental health issues are not addressed by primary care physicians at all.[6] In our study, country of graduation seemed to play little role in explaining variations in practice patterns. Differences attributed to immigrant status are probably more related to cultural and less to educational background. It should be noted, however, that 99% of the doctors had graduated from medical schools in Europe.

In studies using patient vignettes, international medical graduates are less able to diagnose depression than US graduates.[8 28] In our study, immigrant physicians from Asia, Africa and Latin America used psychiatric diagnoses significantly less than other doctors, indicating that these physicians are less sensitive to mental health problems. It is also possible that some immigrant doctors may be reluctant towards 'branding' the patient with a psychiatric diagnosis.

In some cultures, it is uncommon for patients to bring psychiatric problems to the doctor,[6 27] possibly making their physicians less aware of such illness. However, when it comes to actions taken with recognised psychiatric patients, immigrant status plays little role. In this respect, the most important explanatory variable was whether the OOH doctor was a RGP or not. RGPs handled more of the psychiatric cases themselves instead of referring them to specialist care.

Immigrant physicians from Europe, North America and Oceania used more diagnoses related to pregnancy, family planning and female genitals than native Norwegian doctors, while immigrants with shorter stay in Norway used such diagnoses less. It is possible that some international medical graduates have less sexual health competence,[9 13] but this does not seem to play an important role in our material since immigrant doctors from Asia, Africa and Latin America used these diagnoses to a similar degree as native Norwegian physicians did.

Patients have a right to expect their doctors to be properly qualified, regardless of where they have been educated. Therefore, it is essential that the qualifications of all doctors, foreign and native, are secured by the regulating authorities. There were small differences

between immigrant and native Norwegian doctors in our study. This indicates that the assessment of professional qualifications has been adequate. Our study collected data from 2008, the year before Norway adopted Directive 2005/36/EC on the recognition of professional qualifications.[29] Thus, our results cannot be used to evaluate the effect of this Directive.

We conclude that immigrant doctors make an important contribution to OOH emergency primary healthcare in Norway. We found only modest evidence that their clinical practice patterns are different from that of native Norwegian doctors.

Contributors ED conceived the main project 'Immigrants' health in Norway' and obtained the data. HS designed the present study, analysed the data and drafted the manuscript. All authors participated in the interpretation of the data, revising the manuscript and approving the final version. HS is the guarantor for the study.

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REFERENCES

1. Utne KK. *Education of Norwegian Health Personnel Abroad (in Norwegian). HMT* 2010:20–2. http://project.vbook.no/project.asp?version_id=733&page=20
2. Taraldset A. *Foreign Doctors in Norway 2001-2010 (in Norwegian). HMT* 2010:16–19. http://project.vbook.no/project.asp?version_id=733&page=16
3. Vold B. Every fifth regular general practitioner is an immigrant (in Norwegian). *Samfunnsspeilet* 2011;25:51–7. http://www.ssb.no/samfunnsspeilet/utg/201102/10/
4. Ferguson WJ, Candib LM. Culture, language, and the doctor-patient relationship. *Fam Med* 2002;34:353–61.
5. Dorgan KA, Lang F, Floyd M, *et al*. International medical graduate-patient communication: a qualitative analysis of perceived barriers. *Acad Med* 2009;84:1567–75.
6. Searight HR, Gafford J. Behavioral science education and the international medical graduate. *Acad Med* 2006;81:164–70.
7. Dahm MR. Patient centred care—are international medical graduates 'expert novices'? *Aust Fam Physician* 2011;40:895–900.
8. Kales HC, DiNardo AR, Blow FC, *et al*. International medical graduates and the diagnosis and treatment of late-life depression. *Acad Med* 2006;81:171–5.
9. Sciolla A, Ziajko LA, Salguero ML. Sexual health competence of international medical graduate psychiatric residents in the United States. *Acad Psychiatry* 2010;34:361–8.
10. Padela AI, Shanawani H, Greenlaw J, *et al*. The perceived role of Islam in immigrant Muslim medical practice within the USA: an exploratory qualitative study. *J Med Ethics* 2008;34:365–9.
11. Bratland SZ, Hunskaar S. Medico-legal assessments of complaints against general practitioners (in Norwegian, English abstract). *Tidsskr Nor Laegeforen* 2006;126:166–9.
12. Humphrey C, Hickman S, Gulliford MC. Place of medical qualification and outcomes of UK General Medical Council "fitness to practise" process: cohort study. *BMJ* 2011;342:d1817.
13. Fiscella K, Roman-Diaz M, Lue BH, *et al*. 'Being a foreigner, I may be punished if I make a small mistake': assessing transcultural experiences in caring for patients. *Fam Pract* 1997;14:112–16.
14. Diaz E, Hjörleifsson S. Immigrant general practitioners in Norway: a special resource? A qualitative study. *Scand J Public Health* 2011;39:239–44.
15. Thind A, Feightner J, Stewart M, *et al*. Who delivers preventive care as recommended? Analysis of physician and practice characteristics. *Can Fam Physician* 2008;54:1574–5.
16. Smith MA, Cox ED, Bartell JM. Overprescribing of lipid lowering agents. *Qual Saf Health Care* 2006;15:251–7.
17. Sengupta S, Smith BH. GPs, schoolgirls and sex. A cross cultural background comparison of general practitioner attitudes towards contraceptive service provision for young adolescent females in Scotland. *Br J Fam Plann* 1998;24:39–42.
18. Morris AL, Phillips RL, Fryer GE Jr, *et al*. International medical graduates in family medicine in the United States of America: an exploration of professional characteristics and attitudes. *Hum Resour Health* 2006;4:17.
19. Cadieux G, Tamblyn R, Dauphinee D, *et al*. Predictors of inappropriate antibiotic prescribing among primary care physicians. *CMAJ* 2007;177:877–83.
20. Ko DT, Austin PC, Chan BT, *et al*. Quality of care of international and Canadian medical graduates in acute myocardial infarction. *Arch Intern Med* 2005;165:458–63.
21. Nicholl J. Case-mix adjustment in non-randomised observational evaluations: the constant risk fallacy. *J Epidemiol Community Health* 2007;61:1010–13.
22. Analytic Report. *Regular General Practitioners, Out-of-Hours Service, and Specialists. Activity Statistics 2009 (In Norwegian)*. Oslo: The Norwegian Health Economics Administration (HELFO), 2011. http://www.helfo.no/statistikk/Documents/Analyserapport%20Aktivitetsstatistikk%202009.pdf
23. *Standard for Classification of Municipalities 1994. (In Norwegian)*. Oslo: Statistics Norway, 1994. http://www.ssb.no/kommuner/komklasse94.html
24. Thind A, Freeman T, Cohen I, *et al*. Characteristics and practice patterns of international medical graduates: how different are they from those of Canadian-trained physicians? *Can Fam Physician* 2007;53:1330–1.
25. Walter A, Chew-Graham C, Harrison S. Negotiating refusal in primary care consultations: a qualitative study. *Fam Pract* 2012;29:cmr128.
26. Carlsen B, Norheim OF. "Saying no is no easy matter" a qualitative study of competing concerns in rationing decisions in general practice. *BMC Health Serv Res* 2005;5:70.
27. McDonnell L, Usherwood T. International medical graduates—challenges faced in the Australian training program. *Aust Fam Physician* 2008;37:481–4.
28. Kales HC, Neighbors HW, Valenstein M, *et al*. Effect of race and sex on primary care physicians' diagnosis and treatment of late-life depression. *J Am Geriatr Soc* 2005;53:777–84.
29. *European Union Directive 2005/36/EC on the Recognition of Professional Qualifications*. http://ec.europa.eu/internal_market/qualifications/policy_developments/legislation_en.htm