Research

Alex Harding, Joe Rosenthal, Marwa Al-Seaidy, Denis Pereira Gray and Robert K McKinley, on behalf of the Society for Academic Primary Care (SAPC) Heads of Teaching Group

Provision of medical student teaching in **UK general practices:**

a cross-sectional questionnaire study

Abstract

Background

Health care is increasingly provided in general practice. To meet this demand, the English Department of Health recommends that 50% of all medical students should train for general practice after qualification. Currently 19% of medical students express general practice as their first career choice. Undergraduate exposure to general practice positively influences future career choice. Appropriate undergraduate exposure to general practice is therefore highly relevant to workforce planning

This study seeks to quantify current exposure of medical students to general practice and compare it with past provision and also with postgraduate provision.

Design and setting

A cross-sectional questionnaire in the UK.

A questionnaire regarding provision of undergraduate teaching was sent to the general practice teaching leads in all UK medical schools. Information was gathered on the amount of undergraduate teaching, how this was supported financially, and whether there was an integrated department of general practice. The data were then compared with results from previous studies of teaching provision. The provision of postgraduate teaching in general practice was

Results

General practice teaching for medical students increased from <1.0% of clinical teaching in 1968 to 13.0% by 2008; since then, the percentage has plateaued. The total amount of general practice teaching per student has fallen by 2 weeks since 2002. Medical schools providing financial data delivered 14.6% of the clinical curriculum and received 7.1% of clinical teaching funding. The number of departments of general practice has halved since 2002. Provision of postgraduate teaching has tripled since 2000.

Conclusion

Current levels of undergraduate teaching in general practice are too low to fulfil future workforce requirements and may be falling. Financial support for current teaching is disproportionately low and the mechanism counterproductive. Central intervention may be required to solve this.

cost; general practice; medical students; primary healthcare; teaching; workforce.

INTRODUCTION

General practice is the largest provider of medical care in the UK,1 and demand is rapidly increasing.² However, GP recruitment has not kept pace with clinical demand, recruitment in other healthcare sectors,3 the growth of the UK population,3 or the number of GPs in comparable countries. 4 To address this, the Department of Health in England plans that 50% of medical postgraduate training places will be in general practice by 2016.5

At present, general practice is the first career choice of 19% of UK medical graduates.6 In this context, teaching medical students about general practice in medical schools is important as it has a significant positive influence on future career choices.7

Teaching medical students takes time and resources, and GPs are compensated in recognition of this. Funds are intended to replace the direct (clinician time spent teaching) and indirect (administration, equipment, and premises) costs of teaching.8 At present, these funds are delivered in varying and complex ways by the UK health departments and fall under varying names in the different countries:

- England and Wales: Service Increment for Teaching (SIFT);
- Scotland: Additional Cost of Teaching (ACT); and

 Northern Ireland: Supplement for Teaching and Research (STAR).

There has been much debate about how these resources are accounted for 9,10 and, in England, the payment mechanism is being reviewed.3 In general practice, the ability to deliver teaching is linked to adequate funding¹¹ and so the outcome of spending reviews is important.

A survey of all UK medical schools was conducted to inform this debate by:

- describing the current and historical amount of undergraduate general practice teaching in UK medical schools;
- identifying financial and academic resources (like departments of general practice) that may help support this teaching; and
- describing the current and historical amount of postgraduate general practice teaching, to enable comparisons with undergraduate teaching.

METHOD

Past provision of undergraduate general practice teaching

In order to compare present data with past data and to establish trends, a review of all previous national surveys of undergraduate general practice teaching was conducted. These data were then compared with the results of the current survey.

A Harding, MEd, FRCGP, senior lecturer and subdean, University of Exeter Medical School, Exeter. J Rosenthal, FRCGP, sub-dean, University College London Medical School, London. M Al-Seaidy, MBBS, ST2 in general practice, Health Education South-West, Exeter. D Pereira Gray, OBE, FMedSci, emeritus and honorary professor of general practice, University of Exeter, Exeter. R McKinley, MD, FRCGP, professor of primary care education, Keele Medical School, Keele University, Keele.

Address for correspondence

Dr Alex Harding, University of Exeter Medical School, Barrack Road, Exeter EX2 5DW, UK.

E-mail: a.m.harding@exeter.ac.uk

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How this fits in

Demand for GP care is rapidly increasing, but the supply of GPs is problematic. Currently, the number of GPs going into training is also problematic. Plans to expand GP training to 50% of medical graduates have been proposed. Teaching medical students in general practice increases the probability that they will opt for a career in general practice and so appropriate undergraduate experience will be important for workforce planning. Since the late 1960s GP teaching of medical students has increased to occupy 13% of the clinical teaching in UK medical schools. This study suggests that this growth has stopped, and may be in decline. Effective financial mechanisms may help to alleviate this, but central intervention may be required to deliver it.

Current provision of undergraduate general practice teaching: questionnaire survey

A questionnaire (Appendix 1) was designed using standard methods. 12,13 Two researchers identified, refined, and, subsequently, mapped the research questions to potential questionnaire items. Information was requested from each school on the amount of undergraduate general practice teaching, namely the:

- percentage of the clinical curriculum delivered in general practice;
- total number of teaching sessions delivered to students in general practices; and
- number of practices involved in medical student teaching.

Information was also requested on support for undergraduate general practice teaching, including the:

- percentage of the health department's budget dedicated to general practice teaching within each medical school; and
- existence of a department of general practice at the medical school — defined as an organisation responsible for both research and teaching in general practice, that is based in one location in the medical school.

In order to make valid comparisons with previous studies, the survey focused on teaching in general practice in the clinical years of the medical curriculum. A session was assumed to last 3.5 hours. Responders were asked to exclude student-selected components and teaching delivered by GPs coming into the medical schools.

The questionnaire was refined three times through discussion and consensus seeking at the Heads of Teaching Group at the Society for Academic Primary Care. Questions were put into an online survey tool (SurveyMonkey, www.surveymonkey. com) format and posted on a passwordprotected website. The questionnaire was piloted among four out of the 31 potential responders and then further modified in light of the feedback. Some questions were reworded because the replies to the questions were unclear at the pilot stage. Extra questions were inserted at this stage to seek clarification on how quantitative data had been calculated. The four pilot participants were spread between old and new medical schools as initial work suggested there may be significant differences between their GP teaching and financial models.

Once the survey design had been finalised, an e-mail containing the URL of the questionnaire was sent to the general practice teaching lead at each UK medical school. Three reminders were sent over a period of 5 months. Responders were followed up by one of the researchers when clarification of responses was required.

In order to compare the trajectories of undergraduate and postgraduate teaching, additional information was obtained about the quantity of postgraduate teaching. Information was requested on:

- the number of UK foundation postgraduate posts in general practice from the UK Foundation Programme Office; and
- specialist training for GP registrars in England from the Health and Social Care Information Centre.

RESULTS

Seven reports relevant to the past provision of undergraduate general practice teaching were identified. 14-20 A total of 29 of the 31 UK medical schools in existence at the time of data collection (2011-2013) completed the questionnaire survey.

Amount of undergraduate general practice teaching

Percentage of the medical curriculum. Between 1968 and 2008, the percentage of the medical curriculum taught in general practice rose from <1% in 1968 to 13.0% in

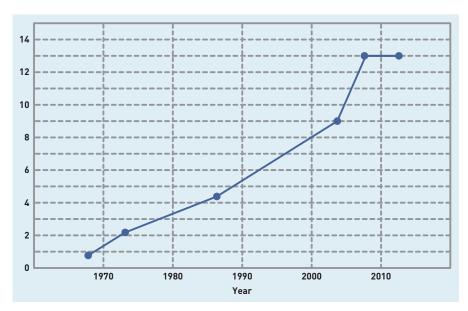


Figure 1. Mean percentage of total clinical curriculum delivered in general practice, 1968–2013. 15-19

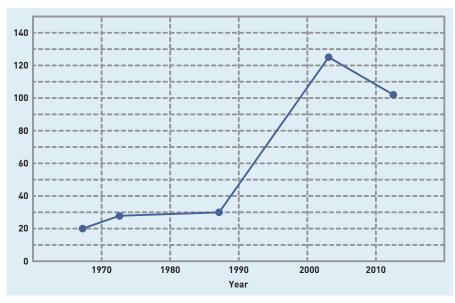
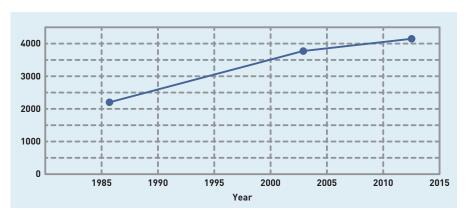


Figure 2. Historical and current mean number of 3.5-hour sessions of teaching per medical student delivered in UK medical schools.15-18

Figure 3. Historical and current numbers of general practices involved in teaching with UK medical schools.^{17,18}



2008 (Figure 1). Since then this figure has remained static at a mean of 13.0% (range 3.4-20.0%).

Total number of clinical contact sessions delivered. The total number of clinical contact sessions in general practice for medical students rose almost sixfold between 1968 and 2002 (20 sessions per student to 122 per student, Figure 2). However, numbers then declined from 122 sessions per student in 2002 to 102 in 2011-2012 (range 42-220). This means there has been a recent decline in general practice experience over the clinical years of 20 sessions per student, which is equivalent to 2 weeks of teaching.

Number of general practices involved in teaching. The number of practices involved in teaching almost doubled from just over 2000 in 1986 when data were first collected, to just over 4000 in 2013 (Figure 3).

Support for undergraduate general practice teaching

Financial support. Of the 29 responders, 11 supplied financial information (Table 1). Of these 11 schools, the mean contribution of general practice teaching to the clinical curriculum was 14.6% (range 3.4-20.0%). The mean proportion of the total NHS funding for teaching (SIFT, ACT, or STAR) for these schools that was available for their general practice teaching was 7.1% (range 3.0-15.0%).

In two of these medical schools, the proportion of curricular time in general practice exactly matched the proportion of the budget available for general practice teaching. In seven schools, the proportion of the budget available was less than half of the proportion of the course taught in general practice.

Number of departments of general practice. Very few medical schools had integrated departments of general practice prior to 1968. By 2002 100% of schools had integrated departments. Since this time the number has fallen to less than 50% (Figure 4).

Postgraduate general practice teaching

There were no foundation posts in general practice before 2003; by 2010 there were 3500. As each post lasts 4 months, these placements equate to 14 000 months of new postgraduate general practice teaching

The number of GP registrars and the duration of training in general practice

Table 1. Percentages of the clinical curriculum delivered and clinical education budget available to general practice in medical schools

Medical school	Curriculum, %	Budget, %	Curriculum: budget ratio
1	17.0	4.0	4.3:1
2	17.0	6.0	2.8:1
3	3.4	3.2	1.1:1
4	12.5	5.2	2.4:1
5	20.0	7.8	2.6:1
6	15.0	15.0	1:1
7	10.0	3.0	3.3:1
8	20.0	10.0	2:1
9	12.0	5.0	2.4:1
10	20.0	5.0	4:1
11	14.0	14.0	1:1
Mean	14.6	7.1	2.4:1

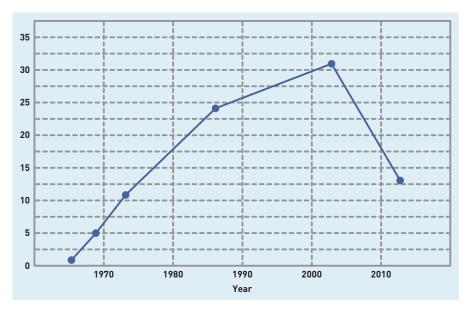


Figure 4. Number of integrated university departments of general practice. 14-18

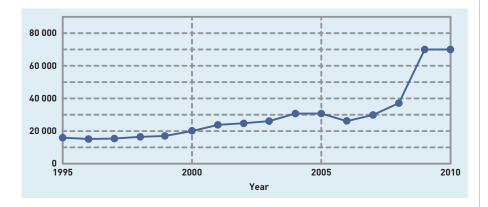


Figure 5. Total months of vocational training in general practice, 1995-2010. Number of GP registrars multiplied by the duration of training. Source: Health and Social Care Information Centre. 21

(18 months compared with 12 months previously) have also increased. The total amount of GP registrar training in England (number of GP registrars multiplied by the duration of their postgraduate training) was relatively stable at approximately 18 000 months a year from 1995 (1512 registrars x 12 months' training) but had risen to almost 70 000 months by 2010 (3881 registrars \boldsymbol{x} 18 months' training) (Figure 5).21

DISCUSSION

Summary

The results from this and previous research show that general practice's contribution to the undergraduate clinical curriculum rose between the late 1960s and 2008, but has remained static at 13% (range 3.4-20%) since 2008. However, the total amount of undergraduate clinical teaching has declined by 2 weeks since 2002. For the medical schools that returned financial data (11 out of 29), a mean of 14.6% of the undergraduate curriculum was delivered by general practice; this was supported by a mean of 7.1% of the medical schools' clinical teaching budget.

Regarding academic support, it was found that less than half of UK medical schools currently have integrated departments of general practice that deliver both teaching and research; this compares with 100% in 2002. These findings can be contrasted with substantial increases in the amount of postgraduate general practice education, which has more than tripled since 2000.

Strengths and limitations

The survey had a response rate of 93.5% and data could be set in a strong historical context. Furthermore, all data were crosschecked with all responders to ensure that reporting was as consistent as possible between schools.

To clarify the quantity of undergraduate teaching in general practice, two different measures were used — percentage of curriculum and total number of sessions delivered - both of which confirm a substantial deviation from the trend of gradually increasing amounts of undergraduate teaching.

This is the first national description of the relationship between the amount of undergraduate general practice teaching and the financial support for it. The results suggest a considerable difference between the proportion of curriculum delivered in general practice and the proportion of medical school budgets made available for this teaching. The development of the questionnaire was instructive, as previously there were no agreed protocols for recording or calculating some of this information.

Despite cross-checking questionnaire with responders, differences in the interpretation of questions and

inconsistency in data persisted. For example, there were issues regarding definitions of what constituted general practice teaching. Here, some schools chose to include university-based teaching on subjects such as sociology and professionalism as general practice placement teaching. This may overestimate the amount of placement teaching received by students. Cross-checking of data excluded several instances of this practice. There were also issues regarding access to relevant data: 11 of 31 responders were able to provide both the percentage of general practice teaching and the percentage of the budget available to general practice. In those cases where financial data were not returned, most of the responders (those responsible for general practice teaching at the school) did not have access to the financial information necessary to answer the question.

The ratio of total medical school funding to general practice teaching funding may not take into account central administrative costs carried by the medical school, but these are unlikely to account for the magnitude of the differences. A moredetailed costing analysis of general practice teaching, based on further survey results, is presented elsewhere by Harding et al.²² The findings from this study show that the cost of a placement in general practice is slightly more than a hospital placement.

Finally, the results will underestimate the total amount of general practice teaching, as teaching in the clinical years only has been reported and there is some general practice teaching in pre-clinical years.

Comparison with existing literature

This current study presents the first longterm data establishing teaching trends over the past 45 years. However, amalgamation of data has brought challenges. For example, it is unclear what statistical methods have been used in some studies to calculate data.

Implications for research and practice

Workforce planning: service priorities. The current quantity of undergraduate teaching reported here contrasts strikingly with targets for GP workforce expansion. These require that 50% of postgraduate training places will be in general practice by 2016,5 and 100% of foundation doctors will have postgraduate training placements in general practice.²³ One factor that increases the likelihood of students choosing a career in general practice is learning in the general practice environment.7,24 The lack of any expansion of undergraduate education in general practice in the past decade is therefore a real cause for concern. However, any expansion of undergraduate education will need to take account of both increased service demands and increases in postgraduate training.

Demand for general practice care is increasing rapidly,² as is the complexity of its delivery, with increased administration, external regulation, and continuing organisational change. Simultaneously, postgraduate general practice teaching and foundation teaching have increased substantially. GP registrars can make valuable contributions to service provision, and in times of increased service demand this may be of relevance. A more coordinated approach to undergraduate and postgraduate teaching planning may alleviate an emerging disparity between these two sectors.

Teaching medical students in general practice. Undergraduate teaching in general practice positively influences future career choice, 7,24 and two of this study's findings are relevant here.

- The mean provision of general practice teaching (13.0%) remains a small proportion of total clinical teaching and it is unlikely that this is sufficient to influence enough medical students to choose general practice. Further research is needed to identify the teaching methods and resources necessary to address this capacity issue, as has been highlighted recently by Hobbs and Taylor.²⁵
- The financial support for undergraduate general practice teaching seems low, given its importance. The mean percentage of medical school funding allocated to general practice teaching was 7.1%, while the mean teaching to funding ratio was 2.4:1. This underscores the significant disparity between teaching delivery and payment received. It is unlikely that these arrangements are adequate to provide enough education (in terms of quantity) or to improve its quality. Furthermore, insufficient financial support can lead to reduced motivation to teach¹¹ and, as a result, further reductions in teaching provision.

Although the level of funding is important, the way in which this money is paid is also significant. Current payment mechanisms for undergraduate GP teaching are highly variable and can be complicated. Payments often involve sequential transfers of monies between different healthcare organisations,

all of which are under intense financial pressures. A simpler and more direct payment mechanism is needed: this might include earmarking funds for general practice teaching and direct transfer of these funds to general practice. This would bring the payment mechanism in line with payments made to hospitals and may help ensure that general practice teaching receives more appropriate resources. Central guidance may be necessary to ensure this occurs.

Data on early-years teaching has not been collected before and was not collected in this survey. This would be an interesting area for further research.

Academic support for teaching in general practice. The number of integrated departments of general practice has more than halved since 2002. Such departments can:

- support undergraduate learning;
- offer teaching for higher degrees;
- develop new clinical teaching methods;
- make necessary links between education and research; and, in the process,
- foster better social interaction.

The academic support provided by such departments is necessary to sustain and grow undergraduate education in general practice.11

Development of clinical teaching. Data on the quantity of undergraduate clinical teaching in general practice and the funding to support it have been presented. This survey also collected data on current teaching methods: these are not presented here, but few substantial changes to undergraduate clinical teaching methods have been made in recent times.^{26,27} Further research may be fruitful in helping to adapt clinical teaching in general practice to a changing healthcare environment.

CONCLUSION

The results of this study show that the amount of general practice teaching for medical students in the UK may be insufficient to meet the considerable workforce development needed to ensure adequate community-based care in the future. The quantity of time provided for teaching students in general practice, which was already low, has plateaued, and may be falling. Current financial arrangements for undergraduate teaching. lack of support, and increasing service demands may go some way to explain this. A national re-examination of undergraduate curricular priorities and associated funding may be necessary to deliver workforce plans for general practice. Careful central planning may be needed to support the necessary changes.

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Ethical approval

Ethical approval was not required for this research.

Provenance

Freely submitted; externally peer reviewed.

Competing interests

The authors have declared no competing interests. Robert K McKinley and Joe Rosenthal are advisors on behalf of English general practice with the Department of Health regarding funding arrangements. The opinions of the authors do not necessarily reflect the opinions of their employing organisations.

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Discuss this article

Contribute and read comments about this article: bjgp.org/letters

REFERENCES

- Office of Population Censuses and Surveys. Social Survey Division. General Household Survey, 1988–1989 [computer file]. Colchester, Essex: UK Data Archive [distributor], November 1990. SN: 2724, http://dx.doi.org/10.5255/ UKDA-SN-2724-1 (accessed 5 May 2015).
- Hippisley-Cox J, Fenty J, Heaps M. *Trends in consultation rates in general* practice 1995 to 2006: analysis of the QRESEARCH Database. London: QResearch and The Information Centre for Health and Social Care, 2007.
- Health Education England. Investing in people for health and healthcare: 3. workforce plan for England. London: Health Education England, 2014.
- Organisation for Economic Co-operation and Development. Factbook country statistical profiles — 2013 edition. https://stats.oecd.org/Index. aspx?DataSetCode=CSP2012 (accessed 5 May 2015).
- Department of Health. Delivering high quality, effective, compassionate care: developing the right people with the right skills and the right values. London: Department of Health, 2013.
- Lambert T, Goldacre M. Trends in doctors' early career choices for general practice in the UK: longitudinal questionnaire surveys. Br J Gen Pract 2011; DOI: 10.3399/bjgp11X583173.
- Zink T, Center B, Finstad D, et al. Efforts to graduate more primary care physicians and physicians who will practice in rural areas: examining outcomes from the University of Minnesota-duluth and the rural physician associate program. Acad Med 2010; 85(4): 599-604.
- NHS Executive. SIFT into the Future: future arrangements for allocating 8 funds and contracting for NHS service support and facilities for teaching undergraduate medical students. Leeds: NHS Executive, 1995.
- Clack GB, Baty M, Perrin A, Eddleston AL. The development of a more equitable approach to resource allocation and manpower planning for undergraduate teaching in a UK medical school. Medical Educ 2001; **35(2):** 102-109
- Clack GB, Bevan G, Eddleston ALWF. Service Increment for Teaching (SIFT): a review of its origins, development and current role in supporting undergraduate medical education in England and Wales. Med Educ 1999;
- Harding A, Sweeney G. How does an increase in undergraduate teaching load affect GP teacher motivation? A grounded theory study using data from a new medical school. Educ Prim Care 2013; 24(4): 237-243.
- Oppenheim AN. Questionnaire design, interviewing and attitude measurement. London: Continuum, 1992.
- Robson C. Real world research: a resource for social scientists and practitioner researches. 2nd edn. Oxford: Blackwell Publishing, 2002.

- Pearson RJ, Eimerl TS, Byrne PS. Medical students and general practice. 14. Lancet 1968; 291(7533): 81-83.
- Harris CM. General practice teaching of undergraduates in British medical schools. London: Royal College of General Practitioners, 1969
- Byrne PS. University departments of general practice and the undergraduate teaching of general practice in the United Kingdom in 1972. J R Coll Gen Pract 1973; 23(Suppl 1): 1-12.
- Howie JG, Hannay DR, Stevenson JS. The Mackenzie report: general practice in the medical schools of the United Kingdom — 1986. Br Med J (Clin Res Ed) 1986; **292(6535):** 1567-1571.
- Mathers N, Carter Y, Marshall M, UK Heads of the Academic Departments of General Practice. New century, new challenges. Fam Pract 2003; 20(4):
- Jones R, Stephenson A. Quality assurance of community-based undergraduate medical curricula by academic departments: cross-sectional survey. Educ Prim Care 2008; 19(2): 135-142.
- Peters M, Jones R. General practice: the future teaching environment. Undergraduate primary care education in London: a report from the Heads of Departments of General Practice and Primary Care. London: King's College London; 2008; http://www.kcl.ac.uk/content/1/c6/04/49/17/HoDsreport.pdf (accessed 5 May 2015)
- Health and Social Care Information Centre. NHS Staff 1995-2005, Medical and dental. http://www.hscic.gov.uk/ searchcatalogue?productid=2004&topics=2%2fWorkforce%2f Staff+numbers%2f 2fMedical+and+dental+staff&sort=Relevance&size=10&page=4#top (accessed 11 May 2015).
- Harding A, Rosenthal J, Al-Seaidy, et al. Funding the teaching of medical students in general practice: a formula for the future? Educ Primary Care 2015
- 23. Health Education England. Broadening the foundation programme. Leeds: Health Education England, 2014.
- Brooks RG, Walsh M, Mardon RE, et al. The roles of nature and nurture in the recruitment and retention of primary care physicians in rural areas: a review of the literature. Acad Med 2002; **77(8):** 790–798.
- 25. Hobbs FR, Taylor CJ. Academic primary care: at a tipping point? Br J Gen Pract 2014; DOI: 10.3399/bjgp14X679543.
- Sinclair S. Making doctors: an institutional apprenticeship. Oxford: Oxford International Publishers Limited, 1997.
- Bonner TN. Becoming a physician: medical education in Britain, France, Germany, and the United States, 1750-1945. Baltimore MD: Johns Hopkins University Press, 1995.

Appendix 1. SAPC Teaching Survey. Support for Undergraduate General Practice Teaching

This questionnaire has been designed for completion by leaders of undergraduate community based teaching at UK medical schools. Its aim is to enable exchange of information which may be help us approach likely challenges ahead, and support the development and improvement of undergraduate medical education.

Some of the questions relate to finance and resources which we appreciate may be regarded as sensitive. Please feel free to complete only those questions which you are comfortable with.

1. Contact Details

Name of School Address

Telephone

Community contact for further information:

Address

Telephone

E-mail

2. Course information

- Student intake year 1 for academic year 2010-11
- Number of undergraduate students at Medical School for 2010-11
- Total length of undergraduate course (including any compulsory intercalated degree)

3. Community courses: Structure

Please briefly describe the nature of the community placements in each year:

Structure: (for example 5 x 2 hour attachments to varied community healthcare institutions)

Year 2

Structure

Year 3

Structure

Year 4

Structure

Year 5

Structure

Year 6 (if appropriate)

Structure

4. People

- Please describe the key staff involved in the management of community teaching at your medical school. (Where possible providing job titles, outline of role and number of sessions that is: half days) per week dedicated to teaching management/administration)
- How many practices are involved in delivering teaching to students?

. continued

Appendix 1 continued. SAPC Teaching Survey. Support for Undergraduate General Practice Teaching

We appreciate that some of this information may be regarded as sensitive and confidential. Any information you feel able to share will be welcome.

- Payment rate for community teaching £/hr or per half day or per day
- What percentage of the clinical course is delivered in community settings?
- Please outline how you calculated this?
- Percentage of SIFT payments directly allocated to community based teaching?
- Do you have a formal programme of investment in practice premises?
- If so can you provide any information about this?
- How many sessions/hours of dedicated academic time does your medical school support for management of undergraduate general practice teaching?
- How many sessions/hours of dedicated administrative time does your medical school support for undergraduate general practice teaching?

4 Other educational information

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Please describe up to 3 current challenges which you are facing with respect to community teaching (also outlining possible solutions where you can)
2
3
Please describe up to 3 innovations in your medical school with respect to community teaching

2 3

What do you see as the main constraints to delivering / developing your community programme?

Do you have any ways of solving these problems?

Do you perceive any conflict in practices providing both undergraduate and postgraduate teaching?

If so how might these be addressed?

Do you have any ideas about expanding community capacity for teaching?