

## Appendix 1 – Medline search strategy

1. Education, Medical, Undergraduate/
2. Students, Medical/
3. Curriculum/
4. Schools, Medical/
5. Family Practice/
6. General Practice/
7. Primary Health Care/
8. Community Medicine/
9. (general practi\* or family practi\* or (primary adj2 care) or primary health\*).mp.
10. 1 or 2 or 3 or 4
11. 5 or 6 or 7 or 8 or 9
12. 10 and 11
13. exp africa/ or exp americas/ or antarctic regions/ or arctic regions/ or exp asia/ or exp australia/ or europe/ or andorra/ or austria/ or balkan peninsula/ or belgium/ or europe, eastern/ or finland/ or france/ or germany/ or gibraltar/ or greece/ or iceland/ or italy/ or liechtenstein/ or luxembourg/ or mediterranean region/ or monaco/ or netherlands/ or portugal/ or san marino/ or scandinavia/ or spain/ or switzerland/ or transcaucasia/ or vatican city/ or exp historical geographic locations/ or islands/ or atlantic islands/ or australia/ or borneo/ or greenland/ or indian ocean islands/ or indonesia/ or japan/ or macau/ or mediterranean islands/ or pacific islands/ or philippines/ or prince edward island/ or svalbard/ or taiwan/ or west indies/ or exp oceania/ or "exp oceans and seas"/
14. exp Great Britain/
15. Ireland/
16. 14 or 15
17. 13 and 16
18. 13 not 17
19. 12 not 18
20. limit 19 to english language

**Appendix 2 - Summary of papers (n=169) included in the review**

<b>Short Title</b>	<b>Journal of publication</b>	<b>Where was the study done (which medical school/s)?</b>	<b>In which aspect of the review was the paper included?*</b>
Adams (Adams et al. 2011)	Medical Teacher	University of Oxford	Descriptive review
Alderson (Alderson and Oswald 1999)	Medical Education	University of Cambridge	Descriptive review
Jepson (2011)	Education for Primary Care	Keele University	Descriptive review
Ashley (Ashley, Rhodes, Sari-Kouzel, Mukherjee, & Dornan 2009)	Medical Teacher	University of Manchester	Meta-ethnography
Bartram (Bartram et al. 2005)	Reviews in Clinical Gerontology	This study was a survey of teaching of geriatric medicine in all 31 medical schools in the UK. 23 medical schools provided a response to the questionnaire.	Descriptive review
Basak (Basak, Yaphe, Spiegel, Wilm, Carelli, & Metsmakers 2009)	European Journal of General Practice	This study was of 32 European Academy of Teachers in General Practice (EURACT) member countries. 21 representatives responded,. 45 medical schools were represented, along with 8 from the UK	Descriptive review
Benson (Benson, Quince, Hibble, Fanshawe, & Emery 2005)	British Medical Journal	University of Cambridge graduate medical degree course	In-depth quantitative outcome analysis Meta-ethnography
Bentham (Bentham et al. 1999)	Medical Education		Descriptive review
Bonsor (Bonsor et al. 1998)	Academic Medicine	University of Liverpool	Descriptive review
Borgstrom (Borgstrom et al. 2010)	Journal of General Internal Medicine		Descriptive review

Britten (Britten et al. 2000)	Education for General Practice	The sampling frame for the project was all DPGOEs and HoDs in the UK - 53 individuals. Replies were received from 29 out of 31 HoDs	Descriptive review
Brown (Brown 2002)	Journal of Interprofessional Care	University of Liverpool	Descriptive review
Bryant (Bryant et al. 2008)	Education for Primary Care		Descriptive review
Burge (Burge 2002)	British Journal of Dermatology	A questionnaire was sent to the dermatologists responsible for organizing the teaching of undergraduate dermatology in each of the 24 medical schools in England, Scotland, Wales and Northern Ireland	Descriptive review
Campion (Campion et al. 1992)	Quality in health care	University of Liverpool	Descriptive review
Cannings (Cannings et al. 2005)	Medical Education		Descriptive review
Chipp (Chipp et al. 2004)	Medical Teacher	University of Birmingham	Descriptive review
Choudhury (Choudhury et al. 2006)	Medical Teacher	Barts and the London School of Medicine and Dentistry University of London	Descriptive review
Clack (Clack 1994)	British Journal of Medical Education	King's College School of Medicine	Descriptive review
Cleland (Cleland et al. 2008)	British Journal of Medical Education	University of Aberdeen University of Cardiff	Descriptive review
Coady (Coady et al. 2004b)	Scandinavian Journal of Rheumatology	University of Newcastle	Descriptive review
Coady (Coady et al. 2004a)	Rheumatology	University of Newcastle	Descriptive review
Coleman (Coleman and Murray 2002)	Family Practice	University College London	Descriptive review
Conning	Medical Education	Guy's, Kings and St. Thomas' (GKT) School	Descriptive review

(Conning et al. 2001)		of Medicine	
Cook (Cook and Nicholson 2006)	Education for Primary Care	Barts and the London, Queen Mary's School of Medicine and Dentistry	Descriptive review
Cook (Cook 2009)	Medical Teacher	Barts and the London School of Medicine and Dentistry	Descriptive review
Cooke (Cooke et al. 1996)	BJGP	University of Oxford	Descriptive review
Cotton (Cotton et al. 2009)	Education for Primary Care	20 medical schools in the UK were included in a workshop to develop a list of criteria for teaching in general practice. 35 GPs working in 2 medical schools took part in 4 focus groups and gave their views on the desirability of the criteria.	Descriptive review
Dammers (Dammers et al. 2001)	Medical Education	University of Newcastle	Descriptive review
Darnton (Darnton et al. 2007)	Education for Primary Care	University of Leeds	Descriptive review
Davies (Davies and Elhassan 2012)	Clinical Otolaryngology	Questionnaires were sent to 30 UK medical schools. 22/30 (73%) responded	Descriptive review
Davison (Davison et al. 1999)	Medical Education	University of Glasgow	Descriptive review
Deaville (Deaville et al. 2009)	Rural and Remote Health		Descriptive review
Deaville (Deaville and Grant 2011)	Medical Teacher		Descriptive review
Dornan (Dornan et al. 2012)	Advances in Health Sciences Education		Descriptive review
Drinkwater (Drinkwater et al. 2008)	Medical Education		Descriptive review
Duncan (Duncan et al. 2003)	Learning in Health & Social Care	Kings College Medical School	Descriptive review
Edgcumbe (Edgcumbe et al. 2008)	Education for Primary Care	University of Cambridge	Descriptive review

Elam (Elam et al. 2009)	Education for Primary Care		Descriptive review
Elliott (Elliott 1999)	Medical Teacher	All academic departments of general practice, 16 in Canada, 10 in Australia and 24 in the United Kingdom, were invited to take part in the survey: 45 of them agreed. Not sure how many from the UK agreed	Descriptive review
Escott (Escott et al. 2009)	Education for Primary Care		Descriptive review
Farmer (Farmer et al. 2003)	Education for Primary Care	University of Aberdeen	Descriptive review
Firth (Firth and Wass 2007)	Education for Primary Care	A large northern medical school - check which one!	Descriptive review
Gormley (Gormley et al. 2011)	Medical Teacher	Queen's University Belfast	Descriptive review
Graham (Graham and Seabrook 1995)	Medical Education	King's College School of Medicine and Dentistry	Descriptive review
Graham (Graham et al. 1999)	British Journal of Medical Education	King's College School of Medicine and Dentistry, London.	Descriptive review
Grant (Grant et al. 1997)	Medical Education		Descriptive review
Grant (Grant and Robling 2006)	Medical Teacher		Descriptive review
Grant (Grant et al. 2007)	BMC Medical Education	Imperial College London	Descriptive review
Grant (Grant et al. 2010)	Education for Primary Care	Cardiff University	Descriptive review
Gray (Gray and Fine 1997)	BJGP	United Medical and Dental School, King's College School of Medicine and Dentistry, and St George's Hospital Medical School.	Descriptive review

Gray (Gray et al. 2000b)	Medical Teacher	St Bartholomew's and the Royal London School of Medicine and Dentistry	Descriptive review
Gray (Gray et al. 2000a)	Medical Education	At least the University of Bristol and Southampton, but also regions covering South Thames and Oxford and Anglia, and all general practices in the South and West NHS executive region	Descriptive review
Gray (Gray 2000)	Medical Teacher	St Bartholomew's and the Royal London School of Medicine and Dentistry	Descriptive review
Gray (Gray et al. 2001)	BJGP	St Barts and the Royal, Queen Mary's School of Medicine	Descriptive review Financial costs summary
Halestrap (Halestrap and Leeder 2011)	Education for Primary Care	Peninsula Deanery	Descriptive review
Hampshire (Hampshire 1998)	British Journal of Medical Education	University of Nottingham	Descriptive review
Hampshire (Hampshire and Avery 2001)	Medical Education	University of Nottingham	Descriptive review
Hannay (Hannay et al. 1999)	Medical Teacher	University of Sheffield	Descriptive review
Hannay (Hannay et al. 2003)	Medical Teacher	University of Sheffield	Descriptive review
Harding (Harding et al. 2011)	Education for Primary Care	Peninsula College of Medicine and Dentistry	Descriptive review
Hartley (Hartley et al. 1999)	British Medical Journal	CeMENT medical schools - UCL, Imperial, Barts	Descriptive review
Hastings (Hastings et al. 2000)	Medical Education	University of Leicester	Descriptive review
Hastings (Hastings et al. 2006)	British Journal of Medical Education	University of Leicester	Descriptive review
Hawthorne (Hawthorne et al. 2006)	BMC Medical Education	University of Cardiff	Descriptive review
Hay	British Journal of Dermatology	Greater London. Glasgow. Belfast,	Descriptive review

(Hay 1993)		Nottingham and Leicester	
Henderson (Henderson et al. 2002)	BJGP	Imperial College School of Medicine (ICSM) and United Medical and Dental Schools of Guys and St Thomas' Hospitals (UMDS)	Descriptive review
Henderson (Henderson, Hogan, Grant, & Berlin 2003)	Medical Education	Imperial College London School of Medicine	Meta-ethnography
Himmel (Himmel and Kochen 1995)	BJGP	A total of 77 heads of departments in universities in 12 European countries were sent a questionnaire. 69 completed questionnaires were received (90%). 30 responded from the UK and Ireland.	Descriptive review
Hogg (Hogg et al. 2008)	Education for Primary Care	Barts and the London (Queen Mary's School of Medicine)	Descriptive review
Hopayian (Hopayian, Howe, & Dagley 2007)	Medical Teacher	A survey in medical schools in the UK was conducted either through the dean or the lead person for each course. 28 interviews were conducted (90% response rate)	Descriptive review
Howe (Howe 2000)	Medical Education	University of Sheffield	Descriptive review
Howe (Howe et al. 2000)	Medical Teacher	University of Sheffield	Descriptive review
Howe (Howe and Ives 2001)	Medical Education		Descriptive review
Howe (Howe 2001)	Medical Education	University of Sheffield	Descriptive review
Howe (Howe et al. 2002a)	Medical Education	University of Sheffield	Descriptive review
Howe (Howe, Billingham, & Walters 2002b)	Journal of Interprofessional Care	North Trent and University of Sheffield	Meta-ethnography
Howe (Howe, Dagley, Hopayian, & Lillicrap 2007)	Medical Teacher	University of East Anglia	Descriptive review

Howman (Howman et al. 2012)	Medical Teacher	Questionnaires were sent to all 31 UK medical schools. 24/31 medical schools responded (77% response rate). In total, 11 of the respondents were GPs and the rest psychiatrists.	Descriptive review
Jha (Jha et al. 2002)	Medical Teacher	University of Leeds	Descriptive review
Johnston (Johnston & Boohan 2000)	British Journal of Medical Education	Queen's University, Belfast	In-depth quantitative outcome analysis
Jones (Jones et al. 1996)	British Journal of Medical Education	University of Cambridge Medical School	Descriptive review
Jones (Jones et al. 2005)	Medical Teacher	Royal Free and University College Medical School	Descriptive review
Jones (Jones et al. 2008)	Primary Health Care Research and Development	Royal Free and University College Medical Schools	Descriptive review
Jones (Jones and Stephenson 2008)	Education for Primary Care	A questionnaire was sent to heads of department of general practice and primary care in UK and Eire medical schools. For the initial questionnaire they received 28 completed questionnaires out of 33 sent (response rate 85%). For the follow-up questionnaire 29 departments responded (88%), and this included all of those but one who had completed the first questionnaire.	Descriptive review
Kay (Kay et al. 2000)	Rheumatology	Questionnaires were sent to all 26 UK medical schools. 23 of the 26 schools responded.	Descriptive review
Lammie (Lammie, Van, Sinclair, Smith, French, & Taylor 2002)	Education for Primary Care	University of Aberdeen	Descriptive review
Lefford (Lefford et al. 1994)	Medical Education	28 UK medical schools were contacted	Descriptive review



Lempp (Lempp et al. 2003)	Education for Primary Care	Guy's, King's and St Thomas' School of Medicine (GKT)	Descriptive review
Lloyd (Lloyd and Rosenthal 1992)	British Journal of Medical Education	Royal Free Hospital School of Medicine	Descriptive review
Lloyd-Williams (Lloyd-Williams and Lloyd-Williams 1996)	Journal of Cancer Care	Leicester hospitals, with trainees from a number of different medical schools	Descriptive review
Lucas (Lucas et al. 2004)	Education for Primary Care	GP registrars undertaking their VTS at St George's Medical School	Descriptive review
Lucas (Lucas and Pearson 2005)	Education for Primary Care	University of Leeds	Descriptive review
Lucas (Lucas & Pearson 2012)	Education for Primary Care	University of Leeds	Meta-ethnography
Macfarlane (Macfarlane et al. 2002)	Medical Teacher	The CeMENT project was a collaboration involving five North London medical schools	Descriptive review
Mathers (Mathers et al. 2004)	Medical Education	University of Birmingham	Descriptive review
Mattsson (Mattsson, Freeman, Coles, & Schmedlin 1991)	Medical Education	University of Southampton	Meta-ethnography
McKinley (McKinley et al. 2000)	Medical Education		Descriptive review
McKinley (McKinley et al. 2004)	Medical Teacher	University of Leicester	Descriptive review
McLachlan (McLachlan, King, Wenger, & Dornan 2012)	British Journal of Medical Education	University of Manchester	Meta-ethnography
McNiff (McNiff et al. 2009)	Education for Primary Care	Aberdeen	Descriptive review
Merriman (Merriman et al. 2010)	Education for Primary Care	Not sure which medical school, but the authors were based in the SW.	Descriptive review
Morrison (Morrison and Sullivan)	Medical Education	University of Glasgow	Descriptive review

1993)			
Morrison (Morrison and Murray 1994)	British Journal of Medical Education	University of Glasgow	Descriptive review
Morrison (Morrison and Murray 1995)	Health Bulletin	University of Glasgow	Descriptive review
Morrison (Morrison and Murray 1996)	BJGP	University of Glasgow	Descriptive review
Mowat (Mowat & Hudson 1996)	Medical Teacher	6 GP teachers with responsibility for early patient contact (EPC) courses in different medical schools in the UK were identified.	Descriptive review
Murray (Murray, Jinks, & Modell 1995)	Medical Education	University College London Medical School	Descriptive review Financial costs summary
Murray (Murray, Todd, & Modell 1997b)	Medical Education	University College London medical school	In-depth quantitative outcome analysis Financial costs summary
Murray (Murray, Jolly, & Modell 1997a)	British Medical Journal	University College London medical school	In-depth quantitative outcome analysis
Murray SA (Murray 1999)	British Medical Journal	Students worked in practices in and around Glasgow, so perhaps University of Glasgow	Descriptive review
Murray (Murray, Jolly, & Modell 1999)	Medical Education	Royal Free and University College Medical School	In-depth quantitative outcome analysis
Murray (Murray, Alderman, Coppola, Grol, Bouhuijs, & Van, V 2001)	Medical Education	University College London Medical School	In-depth quantitative outcome analysis
Nagel (Nagel et al. 2011)	The Clinical Teacher	Not a medical school, but in the Yorkshire and Humber Deanery. So teaching could be for University of Leeds students	Descriptive review

Nicholson (Nicholson et al. 2001)	Medical Education	St Barts and the Royal London School of Medicine and Dentistry	Descriptive review
Nicholson (Nicholson, Rana-Masson, & Cushing 2003)	Education for Primary Care	St Barts and the Royal London	Descriptive review
Nicholson (Nicholson et al. 2005)	Education for Primary Care	Queen Mary's Medical and Dental School	Descriptive review
Oakley (Oakley and Oyebode 2008)	BMC Medical Education	University of Birmingham	Descriptive review
O'Flynn (O'Flynn et al. 1997)	British Medical Journal	Authors were from University of Newcastle and United Medical and Dental School (Guy's and St. Thomas').	Descriptive review
O'Flynn (O'Flynn et al. 1999)	BJGP	University of Newcastle and United Medical and Dental School (Guy's and St. Thomas')	Descriptive review
O'Sullivan (O'Sullivan et al. 2000)	Medical Education	University College London Medical School	Descriptive review
Oswald (Oswald 1993)	Medical Education	University of Cambridge	Descriptive review Financial costs summary
Oswald (Oswald et al. 2001)	Medical Education	University of Cambridge	Descriptive review Financial costs summary
Owen (Owen et al. 2008)	Education for Primary Care	University of Bristol	Descriptive review
Owens(Owens and Gibbs 2001) (2001)	Medical Teacher	University of Liverpool	Descriptive review
Parle (Parle, V et al. 1997)	Medical Education	University of Birmingham	Descriptive review
Pearson (Pearson & Lucas 2011b)	Medical Teacher	University of Leeds	Meta-ethnography
Pearson (Pearson and Lucas 2011a)	Education for Primary Care	University of Leeds	Descriptive review
Pink (Pink et al. 2008)	Medical Education	Cardiff University	Descriptive review

Price (Price, Spencer, & Walker 2008)	Medical Education	University of Newcastle	In-depth quantitative outcome analysis
Quince (Quince, Benson, Hibble, & Emery 2007)	Education for Primary Care	University of Cambridge	Descriptive review
Rees (Rees and Knight, V 2008)	British Journal of Medical Education		Descriptive review
Regan (Regan et al. 2002)	Medical Teacher	University of Manchester	Descriptive review
Rhodes (Rhodes et al. 2006)	Medical Teacher	Imperial College London	Descriptive review
Roberts (Roberts et al. 2000)	Medical Teacher	University of Sheffield	Descriptive review
Robinson (Robinson et al. 1994)	BJGP	A questionnaire was sent in June 1993 to the heads of all 28 undergraduate departments of general practice in the UK and Eire. Twenty seven out of 28 questionnaires were returned by the undergraduate departments of general practice (96%).	Descriptive review
Robinson (Robinson et al. 1996)	Medical Education	University of Newcastle	Descriptive review
Sandars (Sandars & Boreham 2002)	Education for Primary Care	University of Manchester	Descriptive review
Schamroth (Schamroth et al. 1990)	Medical Education	University College and Middlesex School of Medicine	Descriptive review
Seabrook (Seabrook et al. 1999)	Medical Education	Kings College London	Descriptive review
Silverstone (Silverstone, Whitehouse, Willis, McArdle, Jones, & O'Neill 2001)	Medical Education	University of Manchester	Meta-ethnography
Sinclair (Sinclair et al. 2006)	The European Journal of General Practice	Graduates of the University of Aberdeen medical school	Descriptive review

Smith (Smith and Morrison 2006)	British Journal of Medical Education	University of Glasgow	Descriptive review
Smith (Smith et al. 2009)	Medical Education	University of Glasgow	Descriptive review
Snadden (Snadden and Yaphe 1996)	Medical Teacher	University of Dundee	Descriptive review
Stanley (Stanley and al-Shehri 1992)	BJGP	University of Liverpool	Descriptive review
Thistlethwaite (Thistlethwaite & Jordan 1999)	Medical Education	University of Leeds	Meta-ethnography
Thistlethwaite (Thistlethwaite 1999)	Medical Teacher	University of Leeds	Descriptive review
Thistlethwaite (Thistlethwaite 2000)	Education for Health	University of Leeds	Descriptive review
Thistlethwaite (Thistlethwaite et al. 2000)	Medical Education	University of Leeds	Descriptive review
Thistlethwaite (Thistlethwaite and Storr 2004)	Education for Primary Care	University of Leeds	Descriptive review
Thompson (Thompson et al. 2010)	Education for Primary Care	A questionnaire was sent to all salaried and partner GPs in Shropshire, not sure which medical schools this would cover	Descriptive review
Toft (Toft et al. 2012)	Education for Primary Care	University of Leeds	Descriptive review
Usherwood (Usherwood et al. 1991)	Medical Education	University of Sheffield	Descriptive review
Usherwood (Usherwood 1993)	Medical Education	University of Sheffield	Descriptive review
Usherwood (Usherwood et al. 1995)	British Journal of Medical Education	University of Sheffield	Descriptive review
Wainwright	Medical Education	University of Glasgow	Descriptive review

(Wainwright et al. 1999)			
Wallace (Wallace et al. 2001)	Medical Education	Medical schools in North Thames in the CeMENT project Imperial College School of Medicine (St Mary's and Charing Cross and Westminster) Queen Mary's and Westfield College (St Bartholomew's and the Royal London School of Medicine and Dentistry) Royal Free Hospital School of Medicine University College London Medical School	Descriptive review
Walters (Walters et al. 2003)	BMJ	Royal Free and University College Medical School	Descriptive review
Walters (Walters et al. 2007)	Medical Education	Royal Free and University College Medical School	Descriptive review
Warburton (Warburton and Whitehouse 1998)	Medical Teacher	University of Manchester	Descriptive review
Watmough (Watmough et al. 2005)	Education for Primary Care	University of Liverpool	Descriptive review
Watmough (Watmough 2012)	Education for Primary Care	University of Liverpool	Descriptive review
Whitehouse (Whitehouse 1998)	Education for Health	University of Manchester	Descriptive review
Wilson (Wilson et al. 1996)	BJGP	University of Leicester	Descriptive review Financial costs summary
Wilson (Wilson and Cleland 2008)	Rural and Remote Health	University of Aberdeen	Descriptive review
Wylie (Wylie et al. 1999)	Medical Education	Kings College School of Medicine and Dentistry	Descriptive review
Wylie (Wylie et al. 2001)	Medical Education	GKT School of Medicine	Descriptive review
Wylie (Wylie et al. 2009)	Education for Primary Care	Kings College School of Medicine and Dentistry	Descriptive review

\* All papers in meta-ethnography and in-depth quantitative outcome analysis also contributed to the descriptive review

### Appendix 3 - Student/learner themes describing perceived benefits and dis-benefits of learning in general practice

Outcomes	Benefits	Dis-benefits
<p><i>Cognitive</i> Included relevant disease-based knowledge; understanding the interaction between patient and environment, or health and life; organisational structures in healthcare provision; developing reflective practice</p>	<ul style="list-style-type: none"> <li>• Appreciation of learning about the social environment in the community and the social context of illness (Brown 2002;Howe, Dagley, Hopayian, &amp; Lillicrap 2007;Murray 1999;O'Sullivan et al. 2000)</li> <li>• Developed an understanding of different organisations based in the community, and allied health professionals' roles (Brown 2002;Murray 1999;Nicholson et al. 2001;Owen et al. 2008)</li> <li>• Real patients contextualised learning (Dammers et al. 2001;Hampshire and Avery 2001)</li> <li>• Value of meeting and talking with people in their own homes (Dammers, Spencer, &amp; Thomas 2001;Hampshire 1998;Whitehouse 1998)</li> <li>• Gained an understanding of the psychological impact of illness (Hampshire &amp; Avery 2001;Walters et al. 2007)</li> <li>• Increased opportunities to learn about psychosocial issues and patient concerns via a patient-centred approach (O'Sullivan, Martin, &amp; Murray 2000)</li> <li>• Learned more about rural health care (Deaville et al. 2009;Wilson et al. 1996)</li> <li>• Learned about the relationship between patients and GPs (McNiff et al. 2009)</li> <li>• Gained knowledge of general practice as a career and developed positive views of general practice (Drinkwater et al. 2008;Farmer et al. 2003;Jones et al. 2005)</li> </ul>	<ul style="list-style-type: none"> <li>• Rural placements provided a narrow range of patient contact and learning opportunities( Deaville, Wynn-Jones, Hays, Coventry, McKinley, &amp; Randall-Smith 2009)</li> <li>• Lack of acute medical cases in general practice( Lucas and Pearson 2005;O'Sullivan, Martin, &amp; Murray 2000)</li> <li>• Not all cases were interesting (Wylie et al. 1999)</li> <li>• Students perceived that teaching from nursing staff rarely seemed to challenge student knowledge due to a lack of a reference point (from the nurses) for gauging the level of knowledge the students should have (Smith et al. 2009)</li> </ul>

<p><i>Emotional</i> Including development of empathy; self awareness; managing personal distress;</p>	<ul style="list-style-type: none"> <li>• Enjoyed general practice placements and its educational value (Bonsor et al. 1998; Hannay et al. 2003; Murray et al. 1997b; Silverstone et al. 2001)</li> <li>• Placements in general practice were found to be enjoyable, and in some cases more enjoyable than hospital placements (Hastings et al. 2000; Smith and Morrison 2006)</li> <li>• Gained confidence by talking to patients and being able to conduct physical examinations (Hampshire 1998)</li> <li>• Students liked the friendliness of practice staff and the practice atmosphere in GP placements (Farmer, Iversen, Bond, &amp; Duthie 2003; Snadden and Yaphe 1996)</li> <li>• Increased understanding and motivation on the course from an early clinical experience course (Dammers, Spencer, &amp; Thomas 2001; Hampshire 1998)</li> <li>• Personal validation (Ashley et al. 2009)</li> <li>• Increased satisfaction (Ashley, Rhodes, Sari-Kouzel, Mukherjee, &amp; Dornan 2009)</li> <li>• Increased confidence, including increased confidence in clinical skills (Ashley, Rhodes, Sari-Kouzel, Mukherjee, &amp; Dornan 2009; Grant and Robling 2006)</li> <li>• Changing attitudes towards patients with mental illness (Walters, Raven, Rosenthal, Russell, Humphrey, &amp; Buszewicz 2007)</li> </ul>	<ul style="list-style-type: none"> <li>• Stress from the amount of work to be done (Oswald et al. 2001)</li> <li>• Having to deal with bereaved patients and families (Snadden &amp; Yaphe 1996)</li> <li>• Placements in rural areas were seen as isolating from social and professional circles (Deaville and Grant 2011; Deaville, Wynn-Jones, Hays, Coventry, McKinley, &amp; Randall-Smith 2009; Farmer, Iversen, Bond, &amp; Duthie 2003)</li> </ul>
<p><i>Behavioural</i> Including history and examination skills; consultation skills; receiving feedback.</p>	<ul style="list-style-type: none"> <li>• Students liked the opportunities for conducting their own supervised consultations and direct observation by a GP (Farmer, Iversen, Bond, &amp; Duthie</li> </ul>	<ul style="list-style-type: none"> <li>• Disliked practice teaching that was mainly observation rather than participatory (Hastings, Fraser, &amp; McKinley 2000)</li> </ul>



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- 2003;Hastings, Fraser, & McKinley 2000;Smith & Morrison 2006)
- Lots of opportunities for feedback from clinical teachers, in some cases more than in hospital(Oswald 1993;Thistlethwaite and Jordan 1999;Whitehouse 1998)
    - Improvement of consultation/interview skills due to increased opportunities for practicing with feedback
  - Developed new skills such as critical appraisal, research methods and the social sciences(Jones, Singh, & Lloyd 2005)
  - GP attachments helped achieve objectives related to history taking and physical examination(Murray et al. 1999;Nicholson, Osonnaya, Carter, Savage, Hennessy, & Collinson 2001;Walters, Raven, Rosenthal, Russell, Humphrey, & Buszewicz 2007;Watmough 2012;Whitehouse 1998)
  - Value of small group teaching(Nicholson, Osonnaya, Carter, Savage, Hennessy, & Collinson 2001)
  - Value of being taught by other health professionals, i.e. by midwives and practice nurses (Nicholson, Osonnaya, Carter, Savage, Hennessy, & Collinson 2001;Owens and Gibbs 2001)
  - Opportunities to develop professional skills(Silverstone, Whitehouse, Willis, McArdle, Jones, & O'Neill 2001)
  - Less contrived nature of general practice patients allowed for development of clinical skills(Thistlethwaite & Jordan 1999)
  - More opportunities for informal
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teaching(Lucas & Pearson 2005)

- More structured, tutorial-based teaching than in hospital(Lucas & Pearson 2005)

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Other

- Distances required for travel to rural placements was seen as a barrier(Deaville & Grant 2011;Deaville, Wynn-Jones, Hays, Coventry, McKinley, & Randall-Smith 2009;Farmer, Iversen, Bond, & Duthie 2003)
  - Long days associated with practice attachments(Hastings, Fraser, & McKinley 2000)
  - Students at single handed practices were concerned about lack of opportunity to work within a larger team(Wylie, Stephenson, Copperman, Wingfield, Turner, & Steward 1999)
  - Students wanted the opportunity to work in several different practices over the course of their degree(Wylie, Stephenson, Copperman, Wingfield, Turner, & Steward 1999)
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#### Appendix 4 - Patient themes describing perceived benefits and dis-benefits of learning in general practice

Outcomes	Benefits	Dis-benefits
<p><i>Cognitive</i> Including increased familiarity or understanding about disease process or absence of disease affecting self; increased knowledge of the healthcare system; more knowledge about availability of treatments (or lack of); increased knowledge about possible prognoses</p>	<ul style="list-style-type: none"> <li>• Patients felt they would learn more about their own illness(Chipp et al. 2004)</li> <li>• A small number of patients thought they would get better treatment(Chipp, Stoneley, &amp; Cooper 2004)</li> <li>• Improved knowledge and an opportunity to understand more about their disease(Coleman and Murray 2002)</li> <li>• More time with the GP to talk about their illness(O'Flynn et al. 1999)</li> <li>• Feeling that their GP will know more about their condition(Walters et al. 2003)</li> <li>• Enjoyment from listening to doctors discussing their condition and feeling more involved in their care as a result(Grant &amp; Robling 2006;Howe, Dagley, Hopayian, &amp; Lillicrap 2007)</li> </ul>	<ul style="list-style-type: none"> <li>• Involvement in teaching reinforced feelings of ill health</li> </ul>
<p><i>Emotional</i> Altruism / sense of reward from participating; anxiety about novice status of students or participating; vulnerability or exposure through questioning during teaching; increased sense of resolution / acceptance about current illness experience through teaching experience and discussion; increased confidence to communicate or challenge healthcare professionals</p>	<ul style="list-style-type: none"> <li>• Altruism, and providing a service to the community by training better doctors(Coleman &amp; Murray 2002)</li> <li>• Patients saw a medical student because they want to 'give something back' to the hospital or doctor(Chipp, Stoneley, &amp; Cooper 2004;Walters, Buszewicz, Russell, &amp; Humphrey 2003)</li> <li>• Feeling helpful and useful(Howe, Dagley, Hopayian, &amp; Lillicrap 2007)</li> <li>• Enjoyment from the encounter itself(Howe et al. 2002a)</li> </ul>	<ul style="list-style-type: none"> <li>• Teaching generated feelings of anxiety and embarrassment, especially during intimate examinations(Jones et al. 1996;McLachlan et al. 2012)</li> <li>• Concern about student access to case notes(O'Flynn, Spencer, &amp; Jones 1999)</li> <li>• Feeling awkward and not wanting the student present during a consultation(Jones, Oswald, Date, &amp; Hinds 1996)</li> <li>• Feeling more 'shy' and 'inward' due to presence of a student(Jones, Oswald, Date, &amp; Hinds 1996)</li> </ul>

	<ul style="list-style-type: none"> <li>• Patients saw medical students because they have 'got to learn somehow'(Chipp, Stoneley, &amp; Cooper 2004)</li> <li>• A relief from social isolation and an opportunity for companionship</li> <li>• Feeling more cared for</li> </ul>	<ul style="list-style-type: none"> <li>• Finding it difficult to discuss personal matters(O'Flynn, Spencer, &amp; Jones 1999)</li> <li>• Feeling objectified and alienated(McLachlan, King, Wenger, &amp; Dornan 2012)</li> </ul>
<p><i>Behavioural</i> Increased understanding of disease- frameworks and presenting experiences in medical language</p>	<ul style="list-style-type: none"> <li>• Feeling more balanced and as if they are working more together with their GP(Walters, Buszewicz, Russell, &amp; Humphrey 2003)</li> </ul>	<ul style="list-style-type: none"> <li>• Feeling as though teaching was a transactional relationship between the student and doctor, and they were outside of this community of practice(McLachlan, King, Wenger, &amp; Dornan 2012)</li> </ul>
Other	<ul style="list-style-type: none"> <li>• Judging their doctor's involvement in teaching as evidence of excellence(Grant &amp; Robling 2006)</li> </ul>	<ul style="list-style-type: none"> <li>• Some left the consultation not being able to say what they wanted to say(O'Flynn, Spencer, &amp; Jones 1999)</li> </ul>

**Appendix 6 - GP/teacher themes describing perceived benefits and dis-benefits of learning in general practice**

<b>Outcomes</b>	<b>Benefits</b>	<b>Dis-benefits</b>
<p><i>Cognitive</i> Increased familiarity with topic through teaching; exploration of existing literature; learning new facts from students</p>	<ul style="list-style-type: none"> <li>• Gained new knowledge by teaching students(Gray and Fine 1997;Quince et al. 2007;Thistlethwaite and Storr 2004)</li> <li>• Opportunity to have a 'fresh pair of eyes' in the practice(Grant &amp; Robling 2006)</li> <li>• Maintenance of knowledge base(Grant &amp; Robling 2006;Quince, Benson, Hibble, &amp; Emery 2007;Thistlethwaite &amp; Storr 2004)</li> <li>• Enhancement of professional performance (nursing perspective)(Howe et al. 2000)</li> </ul>	
<p><i>Emotional</i> Exploring and understanding patient and student agendas more fully due to increased time, space and opportunity; fear / anxiety about exposure / involvement in teaching; sense of reward / achievement after participation</p>	<ul style="list-style-type: none"> <li>• Increased confidence and morale(Hartley et al. 1999)</li> <li>• Teaching added variety to the week(Quince, Benson, Hibble, &amp; Emery 2007)</li> <li>• Teaching led to a renewed enthusiasm for clinical work due to contact with enthusiastic students, increased time spent with patients and greater confidence in clinical skills(Hartley, Macfarlane, Gantley, &amp; Murray 1999)</li> <li>• 'Feel-good' factor in response to positive student feedback(Nicholson et al. 2005)</li> <li>• Enjoyment of teaching to enthusiastic students(Hartley, Macfarlane, Gantley, &amp; Murray 1999;Howe 2000)</li> <li>• Teaching was seen as 'stimulating' and made the week more interesting (Gray &amp; Fine 1997;Lammie, Van, Sinclair, Smith, French, &amp; Taylor 2002;Thistlethwaite 2000)</li> </ul>	<ul style="list-style-type: none"> <li>• Increased time pressures led to stress and anxiety(Hartley, Macfarlane, Gantley, &amp; Murray 1999;Wilson, Fraser, McKinley, Preston-Whyte, &amp; Wynn 1996)</li> <li>• Negative teaching experiences and criticism from students(Howe 2000)</li> <li>• Concerns about money(Howe 2000)</li> <li>• Additional incidental workload for other practice staff was seen as a negative influence on morale</li> </ul>

	<ul style="list-style-type: none"> <li>• Potential for meaningful interactions with patients, peers and professional colleagues(Pearson and Lucas 2011b)</li> <li>• Image of practice was positively influenced by teaching(Quince, Benson, Hibble, &amp; Emery 2007)</li> <li>• Positive impacts on GP team morale(Grant &amp; Robling 2006;Hartley, Macfarlane, Gantley, &amp; Murray 1999)</li> </ul>	
<p><i>Behavioural</i> Development of teaching skills; development of consultation skills resulting from discussions related to teaching, or transfer of learner-centred teaching skills to patient-centred consultation context</p>	<ul style="list-style-type: none"> <li>• Opportunity for longer contact with patients</li> <li>• Teaching provided a stimulus for GPs continuing medical education as a result of student questioning</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of time for teaching, and increased time pressures due to teaching (Gray &amp; Fine 1997;Hartley, Macfarlane, Gantley, &amp; Murray 1999;Howe, Crofts, &amp; Billingham 2000;Lammie, Van, Sinclair, Smith, French, &amp; Taylor 2002;Wilson, Fraser, McKinley, Preston-Whyte, &amp; Wynn 1996)</li> <li>• Increasing workload by teaching could conflict with patient care; perceived adverse effects on patient care(Gray &amp; Fine 1997)</li> <li>• Lack of physical space for teaching in practice(Gray &amp; Fine 1997;Lammie, Van, Sinclair, Smith, French, &amp; Taylor 2002;Quince, Benson, Hibble, &amp; Emery 2007)</li> </ul>
Other	<ul style="list-style-type: none"> <li>• Feeling that the experience would encourage students to return as graduates if they enjoyed the placements</li> <li>• Beneficial changes in the practice, i.e. upgrades in IT facilities and practice/patient records due to introduction of teaching</li> </ul>	<ul style="list-style-type: none"> <li>• Concern that deprivation in the local teaching area would put students off working there in the future</li> </ul>



## Appendix 6 - Summary of papers included in the in-depth quantitative outcomes analysis

Author and medical school	Study participants		Assessment measures*	What was the comparison?	Overall weight of evidence <sup>†</sup> (EPPI-Centre 2010)
	Intervention	Comparison			
Benson (Benson, Quince, Hibble, Fanshawe, & Emery 2005) University of Cambridge	196 patients attending teaching consultations	294 patients attending non-teaching consultations	<ul style="list-style-type: none"> <li>• PEI</li> <li>• CSQ</li> </ul>	To compare patients' enablement and satisfaction after teaching and non-teaching consultations	Medium/low
Johnston (Johnston and Boohan 2000) Queen's University, Belfast	161 1 <sup>st</sup> and 2 <sup>nd</sup> year medical students and 32 dental students		<ul style="list-style-type: none"> <li>• OSCE scores</li> <li>• Time spent teaching</li> </ul>	To determine whether the learning of clinical skills was comparable between GP and hospital environments	Medium/low
Murray (Murray, Todd, & Modell 1997b) University College London	48 community-based 3 <sup>rd</sup> year medical students	20 hospital-based 3 <sup>rd</sup> year medical students	OSCE scores	To determine whether students acquired clinical skills as well in general practice as in hospital and whether there was any difference in the acquisition of specific skills in the two environments.	Medium
Murray (Murray et al. 1997a) University College London	225 3 <sup>rd</sup> year medical students rotated through the block - all of them took at least one of the two OSCEs, and 208 students (92%) took both OSCEs.		OSCE scores	To determine whether students acquired clinical skills as well in general practice as in hospital and whether there was any difference in the acquisition of specific skills in the two environments.	Low/medium
Murray (Murray, Jolly, & Modell 1999)	192 (85%) 3 <sup>rd</sup> year medical students completed the	181 (80%) 3 <sup>rd</sup> year medical students	Questionnaire responses: <ul style="list-style-type: none"> <li>• Time spent</li> </ul>	To obtain students' perceptions of the educational quality of the	Low/medium



University College London	questionnaire after their GP attachment and 181 (80%) after their hospital attachment.	completed the questionnaire after their hospital placement	teaching • Supervised teaching	general internal medicine teaching between general practice and hospital firms overall and to determine whether specific learning objectives were better addressed in general practice or in hospital.	
Murray (Murray et al. 2001) University College London	96/130 3 <sup>rd</sup> year medical students returned questionnaires. 60 (46.2%) consisted of paired data, where the same student had completed a diary for the same week of both the hospital and community firms.		Log diary study: • Time spent teaching • Supervised teaching • Time spent with patients	To determine the proportion of time students spend on different activities on an internal medicine clerkship, and to determine whether this differs in general practice and in hospital	Low/medium
Price (Price et al. 2008) University of Newcastle	1351 questionnaires were returned by patients with a student present in the consultation	1199 questionnaires were returned by patients without a student present in the consultation	• PEI • CARE	To compare patients' enablement and relational empathy scores after teaching and non-teaching consultations	Medium

\* PEI – Patient Enablement Index

CSQ – Consultation Satisfaction Questionnaire

CARE – Care and Relational Empathy measure

†The weight of evidence score was calculated as described in Section 2.8.2. The full quality assessment tool is available in Appendix 4.

**Appendix 7 - Summary of teaching activities in general practice compared to hospital settings**

	<b>Description of teaching activity</b>	<b>Intervention– General Practice teaching</b>	<b>Comparison– Teaching or district general hospital</b>	<b>Difference</b>
<b>Time spent being taught</b>				
Johnson (Johnston & Boohan 2000)	Length of time tutor lecturing per week (mean in minutes)	60 mins (range 30-67.5)	DGH* or TH 30 mins	p < 0.0001
Johnson (Johnston & Boohan 2000)	Time tutor spent in discussion with students (mean in minutes)	30 mins (range 20-58.8)	TH 15 mins, DGH 30 mins	p <0.0001
Murray and Alderman (Murray, Alderman, Coppola, Grol, Bouhuijs, & Van, V 2001)	Time spent teaching by GP (mean in minutes)	147 mins (SD 61)	Hospital:137 mins (SD 56)	p for difference NS
Murray and Alderman (Murray, Alderman, Coppola, Grol, Bouhuijs, & Van, V 2001)	Time spent teaching by other staff (mean in minutes)	43 mins (SD 33)	Hospital: 31 mins (SD 21)	p for difference NS
<b>Average time spent teaching</b>		<b>70 mins</b>	<b>48.6 mins</b>	
<b>Supervised ward or clinic based teaching</b>				
Murray, Jolly and Modell (Murray, Jolly, & Modell 1999)	Doctor watched student examine (presented in number of times per week, mean with 95% CI)	Medicine in the Community (MiC) only firms† 2.40, (95%CI 2.09-2.71)  MiC only: 1.24 (95% CI 0.96-1.52)	Hospital mean 0.85 (95%CI 0.67-1.02). Paired means MiC-hospital, 1.56 (95%CI 1.21-1.90) p value for difference <0.001  MiC/Oncology: 2.80 (95% CI 2.32-3.27)	

				MiC/Public health: 2.72 (2.37-3.07) p value for difference <0.0001	
Murray, Jolly and Modell (Murray, Jolly, & Modell 1999)	Number of comments on written clerking (presented in number of times per week, mean with 95% CI)	MiC only firms 1.17, (95%CI 0.86-1.49)  MiC only firms: 0.76 (95% CI 0.53-1.00)		Hospital mean 0.72 (95%CI 0.56-1.06) Paired means MiC-hospital, 0.45 (95%CI 0.13-0.78) p value for difference <0.01  MiC/Oncology firms: 1.49 (95% CI 0.91-2.07) MiC/Public health firms: 1.00 (0.69-1.31) p value for difference NS	
Murray and Alderman (Murray, Alderman, Coppola, Grol, Bouhuijs, & Van, V 2001)	Supervised interaction with patients (time spent per day in minutes, mean)	52 mins (SD 38)		Hospital: 46 mins (SD 46)	p for difference NS
Murray, Todd and Modell (Murray, Todd, & Modell 1997b)	Number of histories presented to tutor (per week)	3		1	p<0.005
<b>Time spent with patients</b>					
Murray, Todd and Modell (Murray, Todd, & Modell 1997b)	Number of patients clerked (per week)	4		2.5	p<0.005
Murray and Alderman (Murray, Alderman, Coppola, Grol,	Supervised interaction with patients (mean in minutes)	52 mins (SD 38)		Hospital: 46 (46)	p for difference NS

Bouhuijs, & Van, V 2001)				
Murray and Alderman (Murray, Alderman, Coppola, Grol, Bouhuijs, & Van, V 2001)	Unsupervised interaction with patients (mean in minutes)	30 mins (SD 14)	Hospital: 50 (SD 39)	p=0.007
<b>Average time spent with patients in each setting</b>		<b>41 mins (SD 28.6<sup>‡</sup>)</b>	<b>48 mins (SD 42.6)</b>	<b>Two-tailed p= 0.2023</b>

\*DGH = District general hospital, TH = Teaching hospital

†Medicine in the Community firms

‡Average SD calculated by averaging the variance and taking the square root

## Appendix 8 - Description of studies included in the meta-ethnography

	<b>Source paper</b>	<b>Setting</b>	<b>Sample description</b>	<b>Method of data collection (in-depth interviews, semi-structured, focus groups)</b>	<b>Aim of study</b>
1	Ashley (Ashley, Rhodes, Sari-Kouzel, Mukherjee, & Dornan 2009)	Diabetes and endocrinology ambulatory care setting University of Manchester	25 consultations (5 in general practice) Patients and 3rd year student-selected component (SSC) students were interviewed	Semi-structured exit interviews after the teaching consult	To find from patients, students and GPs how to optimise learning in ambulatory consultations
2	Benson (Benson, Quince, Hibble, Fanshawe, & Emery 2005)	5 general practices in England teaching students on the Cambridge graduate medical course	34 patients participating in pre-arranged teaching sessions, 20 patients not participating in these	Focus groups involving nominal group techniques	To explore patient's views about the impact of increased medical student teaching in general practice on the delivery of services and their attitudes towards direct involvement with students
3	Henderson (Henderson, Hogan, Grant, & Berlin 2003)	3 week general practice rotation at Imperial College London	18 4th year medical students participated in interviews Four focus groups comprising 12-15 4th year students	Focus groups and in-depth interviews with an iterative interview guide	To explore the attitudes and experiences of students taking part in a significant event analysis exercise
4	Howe (Howe, Billingham, & Walters 2002b)	North Trent Tutors and students at the University of Sheffield	GP and other allied health professional tutors, NHS users and 5th year medical students	Focus groups comprising the participants from each background	To consider whether different participants agree on the desired outcomes of medical training and the contributions of community and primary care based settings

5	Lucas and Pearson (Lucas & Pearson 2012)	One general practice in Bradford	18 patients (5 female, 13 male) who had participated in UG teaching	Individual in-depth interviews	To explore patient perceptions of their experience, process and evaluation of their role in UG medical education
6	Mattson, Mattsson, Freeman, Coles, & Schmedlin 1991)	University of Southampton, post general practice placement	20 final year medical students	Semi-structured interviews	To investigate student attitudes to general practice, the primary medical care course and its relation to the rest of the curriculum
7	McLachlan (McLachlan, King, Wenger, & Dornan 2012)	One general practice in Manchester and outpatient clinics at the Salford Royal Hospital	10 patients consulting for acute and chronic conditions. 2 were seen in general practice	'Minimally' structured interviews	To explore how patients experience opportunistic undergraduate medical teaching
8	Pearson and Lucas (Pearson & Lucas 2011b)	One general practice in Bradford	26 interviews with GPs, GP trainees, medical students and AHPs	Semi-structured interviews and focus groups	To explore how clinical learning occurs in a primary care workplace from a socio-cultural perspective
9	Silverstone (Silverstone, Whitehouse, Willis, McArdle, Jones, & O'Neill 2001)	University of Manchester integrated community-based learning course	3rd, 4th and 5th year medical students	Single and cross-year focus groups	To explore what students mean by a 'good GP' and how this relates to their perceptions of the community-based course
10	Thistlethwaite (Thistlethwaite & Jordan 1999)	Leeds University	53 3rd year medical students from 4 GP and 2 hospital-based firms	Focus groups and interviews	To explore student perspectives on doctor-patient communication

## Appendix 9 - Summary of financial costs from mapping study

Author and year	Summary of study	Financial costs described (generally direct quotations)
Oswald (Oswald 1993)	The aim of this study was to obtain feedback from the students on a clinical methods teaching course in general practice	'We wanted to ensure that our teachers were neither out of pocket nor tempted to curtail the teaching. Through a combination of payments under the GPs' statement of fees and allowances and finance available for the support of academic practices we were able to make payments to our teachers of £22 per student per session, a significant amount since most practices taught students in pairs.'
Murray (Murray, Jinks, & Modell 1995)	This paper uses the experience of a community-based junior medical firm to explore the potential costs, and highlight some of the unresolved problems, which a major transfer of education to the community might engender.	GP tutors were paid between £5000 to £6000 per annum (2 lecturer sessions per week) for teaching and teaching related activities. In addition to the lecturer's salary, GPs receive £12.00 per student session from the FHSA for taking students.
Murray (Murray, Todd, & Modell 1997b)	The objective of the study was to examine the feasibility and efficacy of general practitioners teaching basic clinical skills to first year clinical medical students in the community. The structure and methods of evaluation of the programme are described.	GP tutors were paid the equivalent of 2 sessions starting on the mid-point of the clinical lecturer scale (£5500 per year). In addition, they received £12.15 per session from the family health service authority (FHSA). Therefore total annual remuneration was £6500. Tutors who took more students were paid more.
Wilson (Wilson et al. 1996)	The aim of this study was examine whether changes in general practice have affected delivery of practice-based undergraduate education and to assess the extent to which practices will be able to increase their involvement in teaching.	All 166 doctors were asked whether the present level of remuneration, set at £12 per 3-h session, was adequate. Out of the 158 who answered, 139 (88%) thought it was inadequate. The median amount suggested was £44, with an interquartile range from £30 to £50.
Gray (Gray et al. 2001)	This study aimed to compare quality indicators, workload characteristics, and health authority income of general practices involved in undergraduate medical education in east London with those of other practices in the area and national figures where available.	Information on practice income - list size was the dominant factor. Undergraduate teaching status (as a marker of workload) was not associated with health authority income. 'Sessional placement payments are made to all practices for their teaching work. Teaching-related income also includes a 'facilities' component to support infrastructure costs, which goes to a minority of 'hub' practices that have

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undertaken to fulfil 75 teaching sessions a year. During 1998/1999 the average payment to ELCHA teaching practices (placements and facilities combined) was £8317. This ranged from £18 278 for hub practices to £1800 for those involved in a small number of teaching sessions.'

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Oswald  
(Oswald et al.  
2001)

The aim of this paper was to report the evaluation of a primary care based attachment which integrated with hospital based education.

By far the largest cost was the remuneration of the lecturers who delivered the course. The lecturers combined work on the CBCC with service delivery and other academic activities. The proportion of salary attributable to running the course was estimated at 50% for the University Lecturer, reducing to 30% by the end of the course, and as 50% of the Clinical Lecturers' salaries throughout.

Using these assumptions the actual costs of the CBCC, capital costs and running costs, totalled a little over £380 000. On a crude calculation of 13 students following the course for 1.25 years, this total gives a 'per student-year' cost of £23 386. This compares with the cost of student education estimated in SIFT into the Future of £35 577 per full-time student-year.

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Figure 3 - Medical schools represented in papers included in review

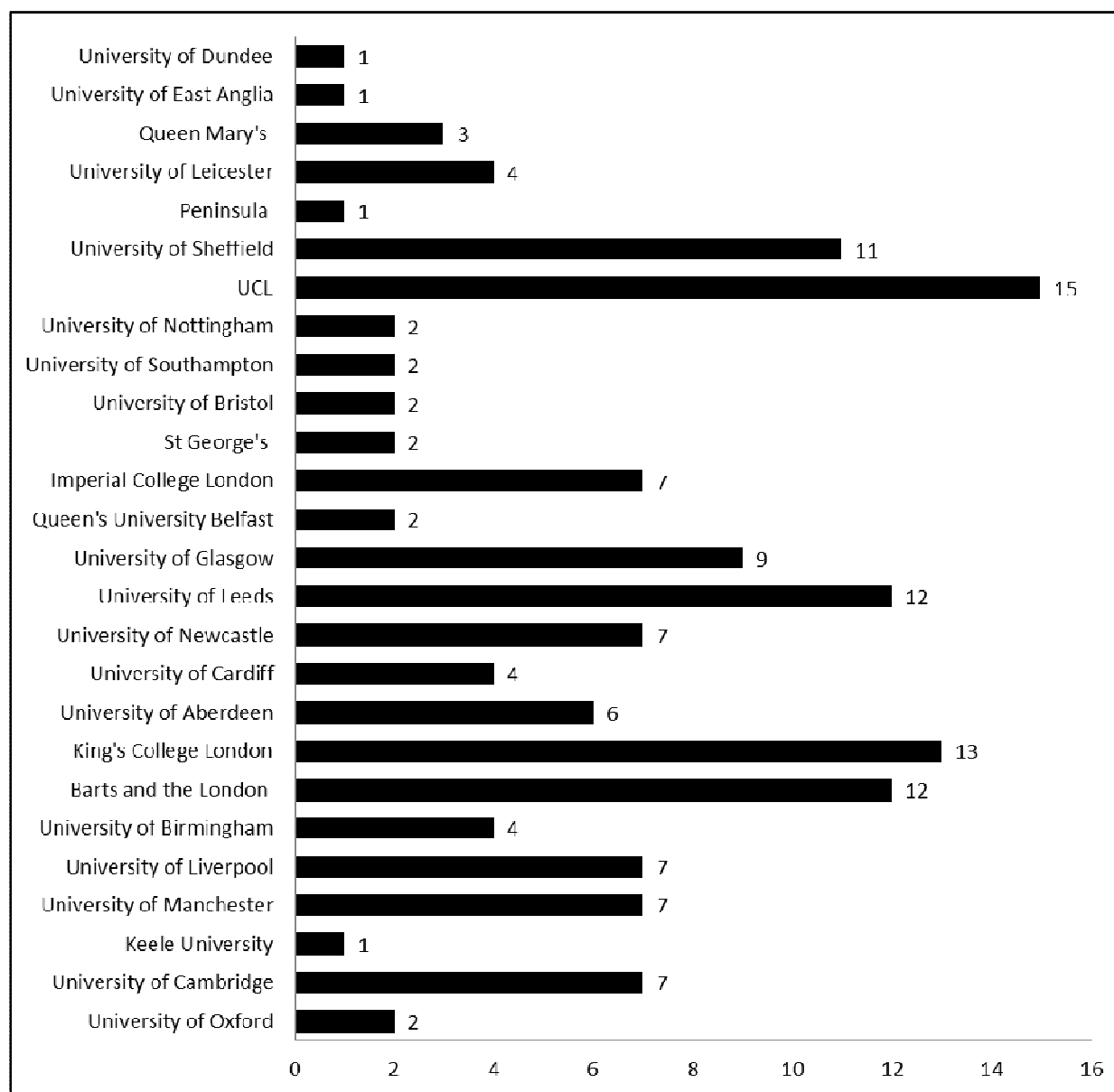


Figure 4 - Curriculum year

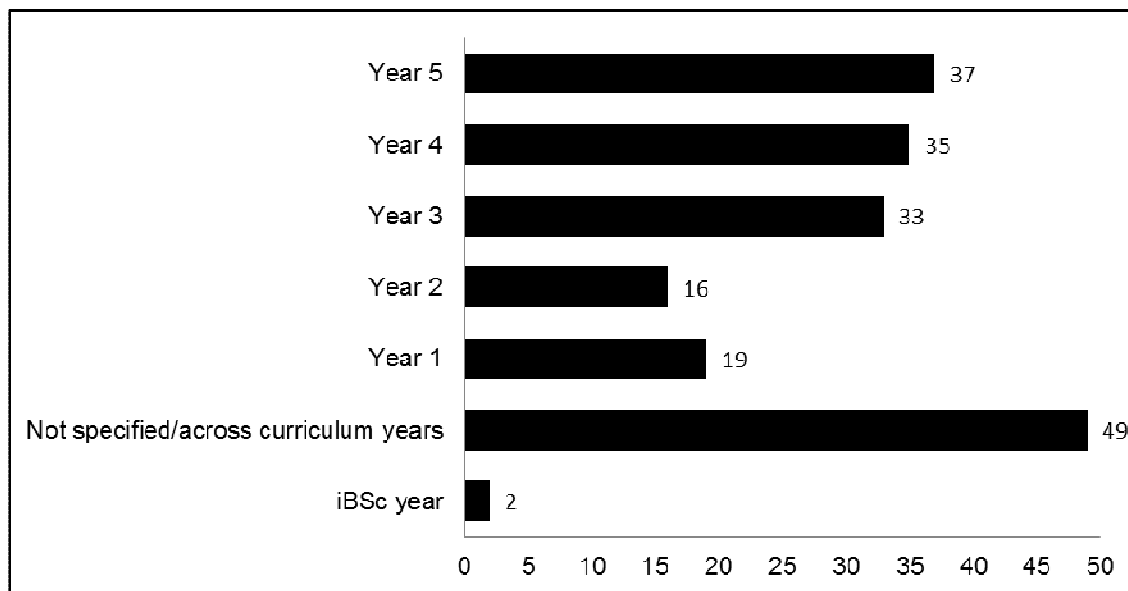
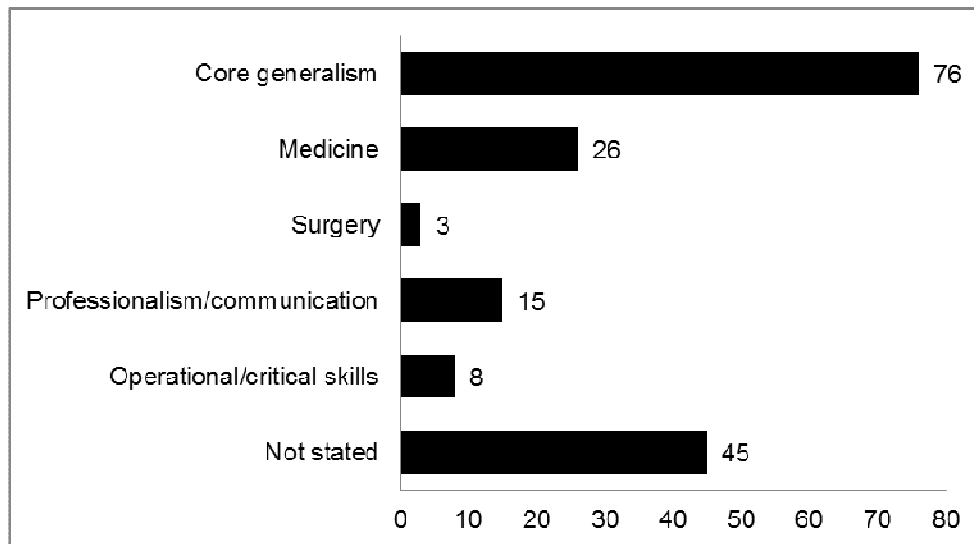


Figure 5 - Topic taught



**Figure 6 - OSCE results comparing general practice against hospital placements**

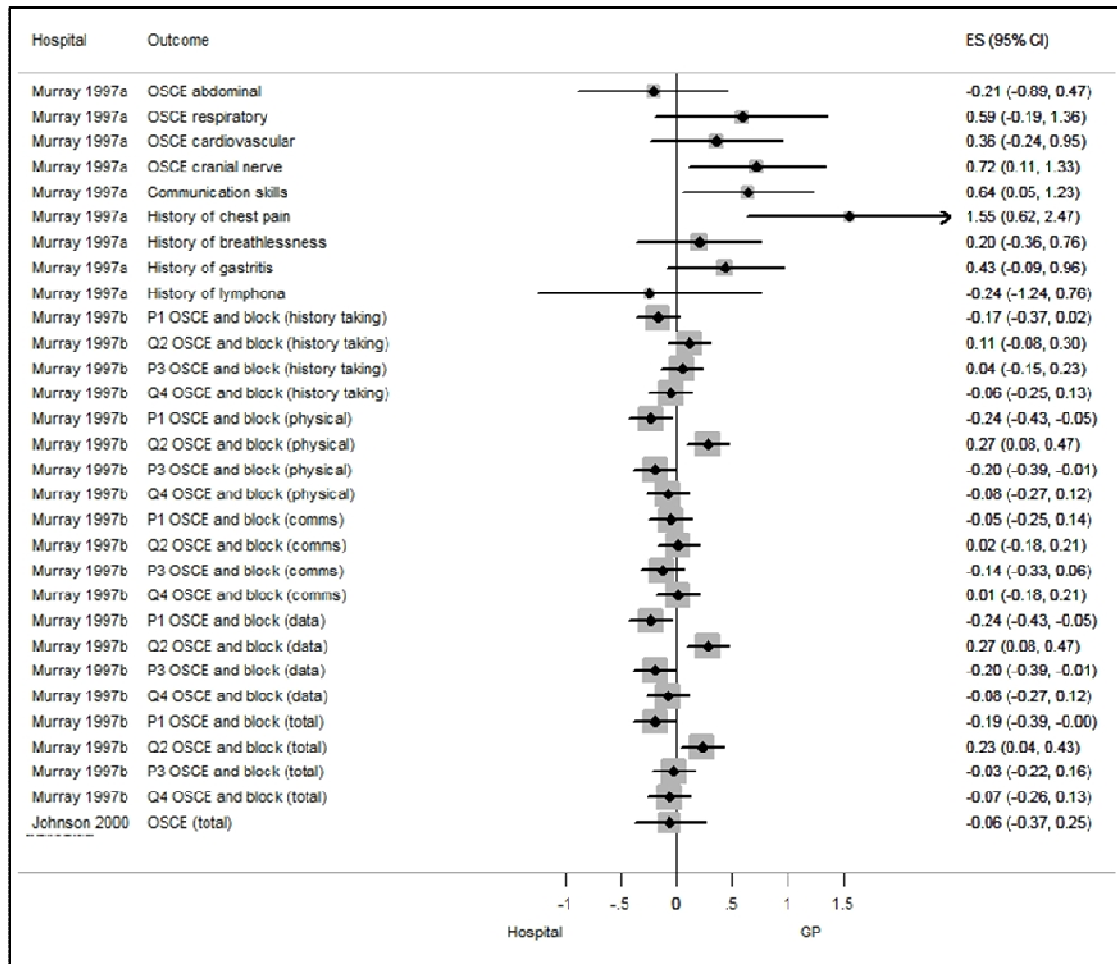


Table 2 - Summary of findings reporting comparative behavioural and cognitive outcomes from OSCE results

Baseline	Baseline	Examination skill or OSCE group	Follow-up	Follow-up	Statistical comparisons (p values and 95% CIs)
Intervention n	Comparison n		Intervention– General Practice	Comparison– Hospital	
<b>Murray, Todd and Modell(Murray, Todd, &amp; Modell 1997b) 1997</b>					
<b>Examinations, mean score on station</b>					p value and 95% for difference in scores
24	13	Abdominal exam	15.9	16.5	p = 0.49, 95% CI -2.67-1.3
24	9	Respiratory exam	18.5	16.7	p= 0.15, 95% CI -0.7-4.2
40	15	Cardiovascular exam	17.7	16.7	p = 0.26, 95% CI:-0.7-2.7
40	15	Cranial nerve exam	17.5	15.6	<b>p = 0.02, 95% CI 0.3-3.5</b>
<b>History taking, mean score on station</b>					
40	16	Communication skills	13.3	10.5	<b>p = 0.04, 95% CI 0.2-5.4</b>
16	9	History of chest pain	17.4	13.9	<b>p = 0.001, 95% CI 1.5-5.4</b>
39	18	History of breathlessness	14.7	14.1	p = 0.47, 95% CI -1.1-2.3
48	20	History of gastritis	17.5	16.2	p=0.11, 95% CI:-0.3-2.9
17	5	History of lymphoma	16.0	16.7	p=0.63, 95% CI:-3.8-2.3
<b>Murray, Jolly and Modell(Murray, Jolly, &amp; Modell 1997a) 1997 BMJ*</b>					
<b>Improvement in scores</b>					
208	208	Improvement in examination skills	4.23 (95% CI 2.38 to 6.08)	0.26 (95% CI - 1.5 to 1.94)	<b>p&lt;0.002</b>
208	208	Mean improvement in OSCE score	6.6 (95% CI 3.4 to 9.8)	1.7 (95% CI - 1.3 to 4.7)	<b>p=0.007</b>
<b>History taking, score (maximum score 60)</b>					
208	208	P1 OSCE and block	37.8 (95% CI 36.2 to 39.4)	39.9 (95% CI 38.2 to 41.6)	NS
208	208	Q2 OSCE and block	38.4 (95% CI 36.4	36.6 (95% CI	NS

			to 40.4)	34.3 to 39)	
208	208	P3 OSCE and block	40.5 (95% CI 38.4 to 42.6)	39.9 (95% CI 38.2 to 41.6)	NS
208	208	Q4 OSCE and block	41.1 (95% CI 38.9 to 43.3)	42.0 (95% CI 40.0 to 44.0)	NS
<b>Physical examination, score (maximum score 60)</b>					
208	208	P1 OSCE and block	35.9 (95% CI 33.0 to 38.8)	36.6 (95% CI 33.3 to 40.0)	NS
208	208	Q2 OSCE and block	45.0 (95% CI 41.8 to 48.2)	41.7 (95% CI 39.9 to 43.5)	NS
208	208	P3 OSCE and block	42.9 (95% CI 40.3 to 45.5)	41.0 (95% CI 38.9 to 43.1)	NS
208	208	Q4 OSCE and block	46.2 (95% CI 44.3 to 48.1)	46.4 (95% CI 44.6 to 48.2)	NS
<b>Communication skills, score (maximum score 20)</b>					
208	208	P1 OSCE and block	12.0 (95% CI 10.8 to 13.2)	12.4 (95% CI 11.7 to 13.2)	NS
208	208	Q2 OSCE and block	10.2 (95% CI 9.4 to 11.0)	10.1 (95% CI 9.3 to 10.9)	NS
208	208	P3 OSCE and block	13.1 (95% CI 12.3 to 13.9)	14.0 (95% CI 13.0 to 15.0)	NS
208	208	Q4 OSCE and block	13.4 (95% CI 12.4 to 14.4)	13.3 (95% CI 12.2 to 14.4)	NS
<b>Data interpretation, score (maximum score 40)</b>					
208	208	P1 OSCE and block	24.4 (95% CI 23.0 to 25.8)	26.9 (95% CI 25.4 to 28.3)	<b>p=0.02</b>
208	208	Q2 OSCE and block	21.0 (95% CI 19.4 to 22.6)	17.4 (95% CI 15.5 to 19.4)	<b>p=0.007</b>
208	208	P3 OSCE and block	19.3 (95% CI 17.5 to 21.1)	22.0 (95% CI 20.1 to 23.9)	<b>p=0.04</b>
208	208	Q4 OSCE and block	23.2 (95% CI 21.8 to 24.6)	24.0 (95% CI 22.5 to 25.5)	NS
<b>Total scores (maximum score 180)</b>					
		P1 OSCE and block	110.1 (95% CI	115.9 (95% CI	NS

			106.1 to 114.1)	111.7 to 120)	
		Q2 OSCE and block	114.6 (95% CI 109.2 to 120.1)	105.9 (95% CI 101.3 to 110.6)	<b>p=0.02</b>
		P3 OSCE and block	115.8 (95% CI 110.0 to 121.6)	116.9 (95% CI 112.2 to 121.6)	NS
		Q4 OSCE and block	123.9 (95% CI 120.0 to 127.8)	125.8 (95% CI 121.8 to 129.8)	NS
<b>Johnson(Johnston &amp; Boohan 2000) 2000</b>					
<b>Total OSCE score</b>					
	72 students in GP	90 in teaching hospitals	143 (135±155),	Teaching hospital 146 (135±157), district general hospital: 144 (125±149)	p = 0.320

\* Students were taught for their first five weeks of blocks 1 and 2 either in general practice or in hospital  
225 students rotated through the block - all of them took at least one of the two OSCEs, and 208 students (92%) took both OSCEs.  
NS= p for difference not significant.

Table 3: Results reporting patient satisfaction and enablement

<b>Tool</b>	<b>Study</b>	<b>Intervention– students present in GP consultation</b>	<b>Comparison– student no present</b>	<b>SMD<sup>‡</sup></b>	<b>95% CI</b>	
<b>PEI</b>	Price (Price et al. 2008)	PEI mean score 4.3 (SD 3.9)	PEI mean score 4.6 (SD 3.9)	-0.077	-0.155	0.001
<b>PEI</b>	Benson (Benson, Quince, Hibble, Fanshawe, & Emery 2005)	PEI proportional score 33.4% (SD 30.4)*  Converted back to raw score: 3.96 (SD 3.65)	PEI proportional score 31.2% (28.9)*  Converted back to raw score: 3.77 (SD 3.468)	0.054	-0.127	0.234
<b>Pooled effect for PEI</b>				<b>-0.0565</b>	<b>-0.128</b>	<b>0.0149</b>
<b>CARE</b>	Price (Price, Spencer, & Walker 2008)	CARE mean score 42.7 (SD 8.0)	CARE mean score 43.7 (SD 7.2)	0.264	0.083	0.446
<b>CSQ</b>	Benson (Benson, Quince, Hibble, Fanshawe, & Emery 2005)	CSQ proportional score 80.4 (10.1)*  Converted back to raw score: 72.36 (SD 9.09)	CSQ proportional score 78.5 (10.5)*  Converted back to raw score: 70.65 (SD 3.85)	-0.131	-0.209	-0.053

\* The authors expressed scores for the PEI and CSQ as a percentage of the maximum score obtainable (12 for PEI, 90 for CSQ)

‡ GP as intervention, with hospital as comparison group



Box 1 - Implications of this review for policy, practice and research

**Implications for policy:**

- With an increasing shift towards training in general practice and the community, it is important to consider the potential learning opportunities, quality and cost of training in these settings
- This review has shown that medical education comparable to existing hospital teaching can be provided in the general practice setting
- The current financial costs of providing undergraduate medical education in general practice are unclear

**Implications for practice**

- Teaching in general practice settings is valued by students, patients and GP tutors
- Patients may feel embarrassed, anxious or objectified in teaching consultations. These feelings can be minimised when a GP welcomes patients into the social community of the teaching encounter
- There are a number of practical ways in which a GP can facilitate the active participation of students and patients in a teaching consultation and minimise power hierarchies
- Students need support and guidance when negotiating the different cultures across teaching and learning environments

**Implications for research**

- There is a wealth of single institution descriptive research looking at undergraduate medical education in general practice
- We recommend that future research about the effectiveness of general practice placements might use routinely collected medical student assessment data from multiple practice sites and medical schools
- There is currently little research or transparency about the real costs of providing medical education in the general practice setting
- Further research is required to understand the complexities of patient participation in medical education