A Review of NES Funding for Multidisciplinary Educational Research 2005 - 2008
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### NES Patient Safety Educational Research Programme

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Assessing the actual and potential effects of investment in educational research is a difficult exercise. Different approaches are possible but we decided to provide an account of the rationale, activities and achievements to date for the purpose of governance and to develop a better understanding of impact processes for future evaluations. Between 2005-2007 NHS Education for Scotland (NES) provided £500,000 to foster multidisciplinary educational research. This funding allocation was used to manage, support and resource the NES Educational Research and Development Strategy (2005-2009) which was approved by the NES Board in November 2004 following an extensive ‘listening exercise’ with internal and external partners.

A system for managing and supporting research activity was set up which covered application and monitoring processes, quality assurance mechanisms and dissemination of findings. Guidance was also provided for staff who needed to obtain ethical and management approval to undertake their educational R&D projects. A series of workshops highlighted the application system for those interested and active in research and encouraged their participation in the process. In total, 24 research projects were funded following a peer review process within three programme areas: patient safety, CPD/team-based education, and assessment and clinical skills.

The immediate impact of this investment is already beginning to materialise. Many research teams have submitted or intend to submit their work for publication and are broadcasting their findings at national and international conferences. The outcomes of some projects have started to inform educational policy and practice developments. Further details about these projects and their respective programmes can be found in the accompanying folder.

To maximise educational gain, NES needs to focus on increasing its research brokering efforts with research users. We must also illustrate how investment in educational research can provide the evidence-base to underpin strategic objectives. Undertaking this assessment has deepened our awareness of the immediate, mid-term and ultimate effects that can result from in-house funding of educational research. We must now integrate these benefits for NES as a corporate organisation and demonstrate the value of education in improving the quality of service delivery and patient care over the long-term.

Helen Allbutt & Murray Lough
November 2008
NES Patient Safety Educational Research Programme
BACKGROUND

The NHS Education for Scotland (NES) Educational Research and Development Strategy was approved by the NES Board in November 2004 and implemented in January 2005. Four research themes were identified following an extensive ‘listening exercise’ with internal and external stakeholders. These themes were subsequently adapted to fit the recommendations arising from health care policy and NES’ Corporate Plan and were incorporated into three educational research programmes: patient safety, CPD/team-based education and assessment clinical skills. Between 2005-2007, NES invested £500,000 to foster multidisciplinary educational research. In total, 24 research projects were funded within these programmes following a peer review process. The summary of each project can be found in the accompanying folder under its respective educational research programme.

PROCESS

This impact assessment has sought to illustrate the multidimensional effects of educational research in policy and practice settings. Impact is not always easy to demonstrate and requires different assessments at different time points to determine the long-term worth of the investment. The immediate outcomes of NES funding in multidisciplinary educational research are highlighted here. Impacts have been grouped in terms of their contribution to knowledge and its dissemination; capacity building and infrastructure; the known effects on policy and practice and emerging future developments. Case studies provide examples of the types of research undertaken in the programme and focus specifically on those which have already begun the process of translating findings into practice-based settings.

SCOPE

Patient safety was the largest educational research programme funded by NES. NES supported 12 projects between 2005-2007 at a cost of £250,426. All 12 research studies fell within the following topic areas:

- Identification of the educational needs arising from patient safety incidents relating to the use of medicines
- Investigation into the causes of error in prescribing and dispensing medication
- Barriers and facilitators to implement evidence-based practice on decontamination in general dental practice
- Feedback on performance in applying quality improvement methods (significant event analysis and criterion based audit)
- Exploration of the barriers and facilitators to clinical audit effectiveness in NHS Scotland organisations
- Exploration of the impact of the new foundation programme on postgraduate medical training
- Instrument development for measuring, benchmarking and improving safety climate perceptions in primary care teams
- Collective learning from error and adverse events in primary care

IMPACTS

Knowledge and dissemination: Patient safety is one of the most important challenges facing health care practitioners today. This is a broad research area which concerns the reporting, analysis, and prevention of error that often leads to adverse healthcare events. The research teams in this programme have already published two papers in peer reviewed journals; another seven papers have been submitted awaiting review, and another ten are in preparation. Several researchers have presented the findings of their studies at national and internal
conferences. Further outputs in these areas are planned.

**Infrastructure and research capacity:** There have been impacts in career development and capacity building in this programme. Two lead investigators had little research experience prior to their award of NES funding and had never previously managed a research project. Others have benefitted from gaining valuable experience as research supervisors and in having budgetary responsibilities.

**Impacts on policy:** Research on significant event analysis from several studies in this programme has informed new guidance to enable primary care teams to learn from national patient safety incidents. Other developments and impacts on policy formation are likely to emerge over time.

**Impacts on practice:** A generic training programme for the prescribing, dispensing and administration of medicines is being developed in partnership with NHS Greater Glasgow and Clyde as a result of one of the funded research studies. Other developments and impacts on practice are likely to emerge over time.

**Organisational impacts and impacts on future research:** There have been common, transferable themes arising from the findings of these projects which will inform existing and future NES educational developments. One is the requirement for more focused education of the NHS clinical workforce in prescribing, dispensing and the administration of medicines. Secondly, is in determining how trained peer feedback can add value to vocational training and continuing professional development of NHS practitioners. Thirdly, findings confirm the need to enhance the NHS workforce with knowledge and skills of patient safety and quality improvement through targeted education and training programmes. Finally, the studies collectively suggest that NES needs to prioritise and embed a culture of safety amongst primary care teams in order to optimise collective learning and quality improvement in practice settings.

**TWO CASE STUDIES**

These case study examples show how individual research projects have begun the process of translating their findings to impact on wider policy and practice developments.

**Patient safety incidents relating to the use of medicines**

NHS staff views were gathered to identify educational needs relating to clinical experience of prescribing, dispensing and the administration of medicines. Over a thousand patient safety incidents were also examined. Educational interventions which contribute to safer practice in these areas are being implemented across several professional groups.

**Error causation in the prescribing and dispensing of drugs**

This study aimed to identify the causes of error in prescribing and dispensing of medicines known to be of high risk. GPs identified inadequacies in monitoring and warning systems and also patient confusion with advice on medication. Pharmacists, on the other hand, reported difficulties as a result of change in the packaging of medicines and through inadequate prescribing instructions. These findings are feeding directly into educational programmes for healthcare practitioners.
The educational benefits and impact of significant event analysis by General Medical Practitioners and Clinical Pharmacists (Report 1)

Research Team: Paul Bowie, Ailsa Power

Aims and objectives
To investigate the effectiveness of significant event analyses (SEA) undertaken by Pharmacists as judged by a new system of independent peer feedback.

Setting
Pharmacists working in primary care, secondary care and academic settings in the NHS Scotland.

Method
Preliminary study involving the content analysis of Pharmacists’ SEA reports and written feedback generated by professional colleagues using a validated peer review instrument. The content of reports and feedback letters were systematically coded and categorised. Data collected included the range and severity of significant events identified; the reported reasons for the events occurring; types of learning needs identified; action(s) taken; and learning issues raised by peer feedback.

Key findings
A total of 37 pharmacists submitted 43 SEA reports during the study timescale. All events submitted were classified as having a negative impact on the quality and safety of patient care. Most events related to prescribing, dispensing, administration, communication and patient/relative-centred issues. Patients reportedly came to harm in 13% of cases. 63% of reported learning needs related to personal awareness/responsibilities when undertaking work tasks, and 58% of implemented change involved amending existing protocols or introducing new procedures. 70% of SEAs were judged to be ‘satisfactory’ after peer review. The effectiveness of change implementation and providing a clear description of an event were highlighted as key issues which required improvement in those event analyses judged ‘unsatisfactory’.

Conclusion
The study findings demonstrate that most Pharmacists may be able to apply SEA in a satisfactory manner by demonstrating reflective learning, undertaking insightful analyses and implementing necessary change. SEA and peer feedback may have a potential role to play in enhancing the quality and safety of Pharmacy practices. Based on this evidence and the more established evidence base in general practice, NHS Education for Scotland is now keen to promote this learning method across the Pharmacy profession and pilot with all other clinical groups, both as part of vocational training and continuing professional development.
The educational benefits and impact of significant event analysis by General Medical Practitioners and Clinical Pharmacists (Report 2)

Research Team: Paul Bowie, John McKay, Ailsa Power

Background and aims
Patient safety dominates the agenda in most modern health care systems. One improvement method that may facilitate learning from patient safety-related incidents is significant event analysis (SEA). The technique is promoted as a team-based approach to enhancing safety, managing risk and facilitating the reporting of safety incidents. The National Patient Safety Agency (NPSA) recommends that primary care teams should analyse those significant events which have resulted in “minor” or “moderate” harm to patients, or had the potential to do so. The aim of this study was to review the contents of SEA reports submitted by GPs to a peer feedback model co-ordinated by NHS Education for Scotland. In doing this we will identify the range of quality and safety issues analysed, the types of learning needs that were raised and the actions implemented by health care teams.

Method
Study sample and timescale
SEA reports reviewed were voluntarily submitted in a standard format to NES between July 2005 and February 2007 for the external peer review of a significant event analysis. Reports considered ‘unsatisfactory’ excluded from the study.

Content analysis of SEA reports
Each SEA report was analysed for content independently by two researchers. To enhance validity, a third researcher (PB) independently analysed one-in-five reports and the associated coding before final agreement was reached. Data were collected using a pre-designed proforma and entered into a Microsoft Excel spreadsheet for descriptive statistical analysis. Differences in proportions between GP groups were calculated along with 95% confidence intervals.

Results
191 SEA reports were reviewed. 163 significant events (85%) had a ‘negative’ impact on the quality and/or safety of patient care. 48 reports (25.1%) described incidents which led to patient harm. The most prevalent cause of events identified was that of individual health care professionals ‘errors’ relating to their knowledge and skills. 104 SEA reports (54.5%) described the direct or indirect involvement of other health and social care agencies in the significant event. 164 reports (85.9%) demonstrated that change(s) had been agreed and implemented as a result of the SEA.

Conclusions
The study findings justify further exploration on the role of SEA as a technique to enhance patient safety in general practice. In particular much work needs to be done to explore ways in which learning and change can be disseminated to the wider general practice environment. The role of SEA in local or national patient safety reporting systems should also be elucidated. As part of its patient safety strategy, NHS Education for Scotland in conjunction with its Partners has a direct role to play in disseminating this learning and ensuring that SEA remains part of the educational agenda and mechanisms to assure SEA quality and effectiveness are put in place.
An enquiry into the causes of errors in prescribing and/or dispensing of drugs known to be a source of significant errors

Research team: Ailsa Power, Murray Lough, Hannah Hesselgreaves

Background
This project aimed to identify and investigate the causes of events and disseminate advice on good practice in prescribing and dispensing drugs known to be of high risk. This objective, proposed in the funding bid and ethics application has been achieved. The project was funded for one year, and was completed on time. This report details the objectives, the study, its findings, and the implications for training and the role of NES.

The study, being a qualitative project, evolved over the course of the research, based on the findings. Therefore, an in-depth exploration of the perceptions of support staff (dispensing technicians and general practice receptionists) emerged as a valuable part of the project.

Project outcomes
The report consists of four parts. The first 3 parts are papers that have been submitted for peer review to journals. They are listed below:

2. The perceptions of pharmacists and dispensing technicians about the causes of medication error in community pharmacy (submitted to Pharmacy World and Practice)
3. The perceptions of reception staff in general practice about the causes of medication errors (International Journal of Pharmacy Practice)

Impact Assessment
The fourth part presents an impact assessment of the project, detailing the rationale, evaluation, and feedback. The feedback part in particular provides guidance for NES training activities, or other changes recommended to the service, based on evidence, partially provided by data from three focus groups.
A pilot study of the feasibility and potential of introducing educational models of clinical audit and peer assessment to practice managers, nurse practitioners and pharmacists in the west of Scotland

Research team: Paul Bowie, Pat Quinn, Lindsey Pope, Ailsa Power

Introduction and aims
Clinical audit is widely recognised as a key improvement method and an important continuing professional development activity for all health care professionals. However, there is strong evidence that health care professionals struggle to engage with clinical audit and when they do their attempts to improve the quality and safety of patient care can often be ineffective. It is assumed that they intuitively understand audit methods and have the necessary skills and attributes to apply these to a satisfactory standard. A whole range of factors have been identified which may impact on the ineffectiveness of audit attempts including: lack of protected time; professional apathy; and lack of knowledge and skills. In response NHS Education for Scotland developed voluntary peer feedback mechanisms to enable trained general medical practitioners to review the quality of colleagues’ clinical audit attempts – specifically, criterion based audit and significant event analyses. Evidence of the value and impact of this educational model has shown promise. The aim of this pilot study is to determine the potential feasibility, acceptability and educational impact of a similar clinical audit feedback model to a range of other non-medical primary health care professionals.

Methods
Sample and settings: Participants were recruited from a range of primary health care settings in the five NHS Health Boards based in the west of Scotland.

Clinical audit training and CPD tasks: Participants received training in clinical audit methods and were then asked to undertake and submit a report(s) of either a completed audit cycle or both for external review and feedback.

Review and feedback: Audit and SEA reports were reviewed by trained groups of healthcare professionals using validated instruments and developmental feedback provided.

Data collection: Participants completed a questionnaire to collect data on their pre and post study views, experiences and knowledge levels.

Results
34 participants (nurse practitioners, pharmacists, dentists, physiotherapists and practice managers) submitted 34 SEA reports and 20 audit reports for external feedback. For those receiving feedback on their audits, estimated knowledge and skill levels were statistically higher after the study across a range related issues such as defining audit criteria (P<0.05), planning and audit project (P<0.05) and preparing a written audit report (P<0.05). Similar findings for SEA were also reported with statistically higher post study findings for ability in analysing a significant event (P<0.05) and confidence in leading the team in SEA (P<0.05).

Conclusion
This small study provides further evidence of the acceptability and educational impact of the external review of clinical audit activities as part of CPD as a whole and the first known evidence involving non-medical professionals. Given the overall evidence base, NHS Education for Scotland should engage with relevant stakeholders to enhance clinical audit practice as part of vocational training and continuing professional development as a means of contributing towards effective appraisal and clinical governance mechanisms.
Assessment of competence in applying the significant event analysis technique: more assessors or event analyses?

Research team: Paul Bowie, John McKay, Douglas Murphy, Ailsa Power

Introduction and aim
Significant event analysis (SEA) is an important technique for facilitating multi-disciplinary reflective learning, improving health care and enhancing patient safety. A voluntary model of peer assessment, based on educational principles, has been developed and tested by NHS Education for Scotland (NES) for the purpose of determining whether event analyses undertaken by GPs and pharmacists are judged to be of a satisfactory standard. Peer networks of assessors have been created and trained for this purpose. However, a potential limitation of the model is that it is focused on the assessment of a single significant event that has been voluntarily submitted by a practitioner as a proxy to determine the ability of individual practitioners to apply this technique to a satisfactory standard. The main aim of this pilot study was to provide evidence that fair and reliable judgments can be made on the competence of an individual practitioner in applying the SEA technique.

Method
12 GPs were required to submit 3 SEA reports to provide sufficient data for statistical analysis. These were assessed using a continuous seven-point rating scale and assessors were also asked to make a dichotomous judgment as to whether each event analysis report was satisfactory or unsatisfactory. The assessors were then asked to provide a dichotomous decision on whether in their view the submitting health professional could be judged overall as competent in the SEA technique (overall pass/fail).

Data were analysed to examine the relationship between the continuous 7-point rating scale and the ‘satisfactory’/‘unsatisfactory’ judgment and the relationship between the overall ‘competence’ judgment and the ‘satisfactory’/‘unsatisfactory’ judgments. Differences in judgments were explored using a chi-squared test.

Results
As a general finding a 0 or 1 satisfactory judgment from three 3 SEA reports resulted in a judgment of ‘not competent.’ 2 or 3 ‘satisfactory’ SEA reports resulted in a ‘competent’ judgment. However on 3 occasions a reviewer did not follow this pattern with a participant’s 3 SEA reports. There was substantial variation between assessors with assessor 2 for only 1 of the 12 GPs, with assessors 4 and 8 giving a satisfactory judgment on all 3 SEA reports for 9 of the 12 GPs.

Conclusion
The findings demonstrate that further training and calibration of the GP peer reviewers to increase the reliability of the model is required prior to repeating any further reliability exercises.
Decontamination in primary care: an investigation into the barriers and facilitators to dissemination and implementation of best evidence

Research team: Alex Haig, Jan Clarkson, Doug Stirling, Debbi Bonetti, Linda Young, Heather Cassie

Background
There has been a concerted effort across the NHS to promote evidence based practice. A cornerstone of evidence based practice is national clinical guidance which enables healthcare practitioners to base decisions on a synthesis of the latest high quality research. Whilst a great deal of effort and resource goes into producing clinical guidance, there is very little evidence on how to best ensure that the guidance becomes part of practice, particularly in primary care.

The specific topic area this study focused on was decontamination in primary care dentistry. In Scotland alone, 180 million reusable instruments are decontaminated annually in general dental practice. Previous work has highlighted inadequate decontamination of instruments increasing the risk of HAIs including blood borne viruses (HIV, Hepatitis B, Hepatitis C), vCJD and viral, bacterial and fungal infections. There are a number of initiatives currently underway to improve practice and ensure compliance with the Glennie Report by 2009; the research was conducted with close working with the Scottish Dental Clinical Effectiveness Programme’s (SDCEP) now published guidance on primary care decontamination.

Method
This project build upon previous scoping research to produce a robust and comprehensive national survey to elicit the barriers and facilitators to implementing clinical guidance (for decontamination) in primary care dentistry. The work examined behaviour at both dentist and practice level, looking at current practice, beliefs, self-assessment, attitudes and perceived behavioural control.

Results
The results demonstrated wide variation in current decontamination working at both dentist and practice level, with no respondents complying with all sixteen behaviours examined. Intention to change also varied widely depending on the behaviour examined, though motivation to change was more consistent. This research confirmed previous findings that strongly questioned the effectiveness of self-assessment in evaluating and changing individuals’ behaviour. Dentists generally thought decontamination procedures were important and necessary but often questioned their practicality; compliance was far more likely when they saw it as necessary and/or practical.

Conclusion
The work has informed numerous projects, including the ongoing design of a multi-centre randomised controlled trial.
The educational assessment of clinical audit: how do medical assessors and NHS clinical audit specialists compare?

Research team: Paul Bowie, John McKay, Lilian Murray, Murray Lough

Rationale, aims and objectives
Clinical audit informs GP appraisal and will provide evidence of performance for revalidation in the UK. However, objective evidence is now required. An established peer assessment system may offer an educational solution for making objective judgments on clinical audit quality. NHS clinical audit specialists could potentially support this system if their audit assessments were comparable with established medical peer assessors. The study aimed to quantify differences between clinical audit specialists and medical peer assessors in their assessments of clinical audit projects.

Methods
A comparison study of the assessment outcomes of clinical audit reports by two groups using appropriate assessment instruments. Mean scores were compared and 95% confidence intervals (CI) and limits of agreement calculated. A 2-point mean difference would be relevant.

Results
12 SEA and 12 criterion audit reports were assessed by 11 experienced GP assessors and 10 NHS audit specialist novice assessors. For SEA, the mean score differences between groups was <1.0. 95% CI for bias was -0.1 to 0.5 (P=0.14). Limits of agreement ranged from -0.7 to 1.2. For criterion audit, a mean score difference of 1 or less was calculated for seven projects and scores between 1.1 and 1.9 for four. 95% CI for bias was 0.8 to 1.5 (P<0.001). Limits of agreement ranged from -2.5 to -0.0.

Conclusions
The study findings suggest that a sample of NHS clinical audit specialists can give numerically accurate feedback scores to GPs on the quality of their clinical audit activity compared with established peer assessors as part of the model outlined.
Clinical audit in NHS Scotland: a qualitative study of experienced clinical audit specialists perceptions of progress

Research team: Paul Bowie, Ailsa Power

Objectives
To explore clinical audit advisors’ experiences, views and perceptions of the current barriers and facilitators impacting on audit development in a range of organisations in NHS Scotland. We also contrast these findings with the established evidence base and debate them in the context of more recent policy developments.

Method
Qualitative analysis of semi-structured interview and focus group transcripts in NHS Scotland. 21 audit advisors took part in the study. Nine participants attended individual interview and a further 12 were involved in two focus group sessions.

Results
Six principle themes were identified: Clinician engagement with audit; Leadership and accountability; Knowledge, skills and experiences of clinicians; Clinicians’ attitudes and perceptions; Resource and support issues; and Perceptions of progress. Audit does not appear to be embedded in the professional practices of many clinical teams. A significant minority of clinicians are apparently unaware of, or inactive and unconcerned about the need to participate in audit. The priority given to the topic amongst NHS organisations is variable and inconsistent as is the necessary leadership to promote, plan and manage audit effectively.

Conclusions
This study provides further confirmatory evidence of the difficulties affecting the implementation of clinical audit in the NHS. Policymakers have largely assumed that clinicians intuitively understand audit method and can apply it effectively. NHS organisations may still be failing to provide sufficient leadership in the strategic planning and implementation of effective programmes of audit in priority areas. Overall, it is clear that across the board audit education and training at undergraduate and postgraduate levels, and as part of continuing professional development, should be introduced where necessary and have a much greater and integrated focus. A long-term educational strategy will be pivotal to equipping clinicians with the necessary skills and professional attributes to allow them to engage in the process knowingly and with confidence. If enhancing the quality and safety of healthcare is to be taken seriously, the teaching of improvement methods should be a compulsory part of the education and training of all health care professionals. NHS Education for Scotland has a challenging but influential role to play in persuading key stakeholders of the merits of this argument based on all the evidence.
The new prescriber: the development of a tool which will quality assure the prescribing performance of Foundation Doctors and the Nurse Prescriber

Research team: Anne Hesketh

Background
This report describes the development of a 360° diagnostic tool on prescribing performance. It also describes the piloting of the tool and its associated feedback system with FY1 doctors and hospital based nurse prescribers.

Method
The content of the tool was established through several stages:
- A literature review of prescribing competences and prescribing errors
- A cross check of content against other documents relevant to prescribing
- Patient interviews
- Feedback from prescribing experts and other groups with an interest in safe prescribing.

A short pretesting exercise helped guide the format of the 360° diagnostic questionnaire. This was then developmentally tested with seven potential participants/raters. The system consisted of the prescriber giving four 360° questionnaires (Appendices F1/ F2) to a range of raters and completing one as self-assessment. All their results were then collated. A feedback format for the collated scores and supporting comments was designed. The feedback also included an action plan for follow up reflection or action. FY1s were to receive their feedback through meeting with their Foundation Tutor; nurses were encouraged to discuss their feedback with a suitable colleague.

FY1 trainees from three Foundation programmes and nurse prescribers on the NHS Tayside Hospital based prescriber database were invited to participate in the pilot. The process was evaluated through:
- A summary analysis of prescriber performance data
- Prescriber questionnaire
- Rater focus groups
- Interviews with Foundation Tutors

Results
Of those targeted 28 (58%) of FY1s and 8 (21%) Nurse prescribers participated. Not all had complete sets of returns (4 peer raters and a self assessment). Many Nurse prescribers [23 (60%)] volunteered reasons for non participation which included not, or limited prescribing. Pharmacists, nurses and trainee grade doctors were the most common raters. Main findings showed that the system was feasible to implement. Its usefulness for nurse prescribers was variable due primarily to the environment in which they prescribe, eg in isolation in a clinic, or due to the limited number/frequency of drugs prescribed. The content of the tool with its detailed breakdown of the prescribing process successfully provided valuable feedback to both groups of prescribers and highlighted educational needs. It also was very successful in raising awareness of the various aspects of good prescribing. The feedback discussion was a valuable part of the system.

Concerns were expressed on the ability of the tool to identify poor performers. This is a valid concern, although the tool was designed to be diagnostic, not screening i.e. to support the poor performer. Reasons for this concern primarily focussed on rater knowledge of the prescriber and, for trainee doctors, the lack of responsibility many FY1s had in reality with regard to the prescribing process.

Conclusions
The 360 prescribing performance system for FY1s is acceptable to those involved, can be implemented in a busy hospital environment and is able to provide valuable formative feedback on performance. Its use with new nurse prescribers, however, may be limited due to the environment in which they prescribe. However the groundwork carried out in this project may prove a sound basis for a reflective tool or, with adaptation, a system for on-the-job assessment for this group of prescribers.
Patient safety incidents relating to the use of medicine: a preliminary investigation of educational needs arising from patient safety incidents involving the use of medicines

Research team: Anne Watson, Hannah Hesselgreaves

Background
Differences in education and training have led to some health professionals in secondary care repeating or missing learning opportunities. Evidence about educational needs is required to consider a national “passport system”.

Objectives
To analyse patient safety incidents; explore staff views in relation to educational needs; identify existing educational programmes related to safe medicine use; propose a strategy to develop the educational framework.

Method
A three stage mixed methodology approach was taken: using medication incident reports (1058), three focus groups including medical, nursing, and pharmacy staff, and eight telephone interviews with education providers. Setting - NHS hospitals in Greater Glasgow and Clyde, Scotland.

Results
Incidents in prescribing, dispensing, preparation, administration, monitoring, advice, supply chain, and discharge stages of medicating patients were identified from incident reports. Focus groups highlighted educational needs. For doctors' training, focus on prescribing (particularly IV medicines), preparation of IV medicines, and consistent handwriting protocols were suggested. For nursing education, skill mix, and knowledge of drugs were highlighted. Pharmacists can contribute by being involved in training, particularly in checking procedures. More exposure to clinical experiences, resourcing limitations, and variability in access to training were considerations in implementing training. Curriculum content in higher education institutions and in-service training programmes does not directly and formally address the factors raised in patient safety incident data.

Recommendations and Conclusions
Patient safety data can inform areas for education and training across professional groups. A strategy is proposed to consider interventions for medical, nursing and pharmacy education, including formal training, local level improvement cycles, and other small-scale changes to influence attitudes about practices that contribute to patient safety.
What impact are Foundation Programmes having on Foundation Doctors, the healthcare team and patient care?

Research team: Fiona French, Judy Wakeling, Catriona Rooke, Gellisse Bagnall, Ken McHardy

Background
A new Foundation Programme was introduced in 2005, reforming the first two years of UK postgraduate medical training. Foundation emphasises the acquisition of generic skills, supported by formal teaching sessions based on a national curriculum. Trainees are formally assessed throughout the two years. They rotate through six 4-month posts, providing experience of more specialties than previously.

The aim of this first Scotland-wide qualitative project was to assess the impact of the new Programme on F1 doctors, F2 doctors, consultants, nurses and patients. Previous research had reported that many aspects of the F1 year were working well but trainees and consultants had some concerns, particularly about the teaching and assessment. Some trainees felt they were over-protected and denied valuable learning opportunities such as working at nights.

Method
In summer 2007, just before the end of the F1/F2 years, we interviewed 23 F1 doctors, 22 F2 doctors, 23 consultants and 25 nurses in 29 hospital units. Interviews were used so that we could explore issues in some depth. During the interview phase, the new UK Medical Training Application System ran into considerable difficulties, adversely affecting the morale of trainees. This may have also negatively influenced trainees’ opinions of Foundation training.

Results
On the whole, trainees reported satisfaction with the knowledge and skills gained from working as a trainee doctor. However, some consultants and F2s felt that some specialties were too specialised, resulting in insufficient responsibility and/or difficulties acquiring generic skills. Consultants and F2s also reported that F2s were at times compared unfavourably to their predecessors because they were less experienced and less useful to the service. They may also have little interest in the specialty in which they were working. Some trainees were unhappy with the mix of specialties they had experienced and felt there should be more flexibility. Of the 44 trainees, 18 felt that exposure to certain specialties had had a positive impact on their career plans, while 20 trainees reported no impact.

Many trainees felt that working at nights was a valuable learning experience as they had to be more self-reliant. Many were positive about working within a hospital-at-night team as they were able to focus on the more difficult aspects of patient care. Consultants and nurses generally agreed although some had concerns about doctors becoming deskilled.

Trainees were critical of the F1 teaching and would like more clinical topics included. Trainees and consultants felt that the assessment tools could be improved but nurses were generally satisfied with them. All groups commented on the possible bias resulting from trainees choosing their assessors. Trainees felt that some of the practical skills being assessed were too basic. Trainees and consultants were concerned that some assessment tools lacked reliability and poorly performing trainees would not necessarily be detected. Nurses appreciated being involved as assessors. Shorter rotations and reduced working hours have made it more difficult for consultants and nurses to get to know trainees. Some trainees and consultants suggested the F1 year should return to two 6-month posts, with the F2 year remaining as three 4-month posts.

Conclusion
Further research is required into the merits of shorter rotations (particularly as working hours are to be reduced further) and the ability of some specialties to deliver adequate training for F2 doctors. The assessment tools and teaching programme also require further attention.
A qualitative study of staff perceptions of complaints and related learning in primary care

Research team: Pat Quinn, Paul Bowie

Background
Complaints are understood as both a source and a medium which by contributing to patient safety culture improvements can be expected in quality of outcome and experience of health care. However, there exists little research of the experience of complaints and what is learned from them from the perspective of primary care staff.

Aim
To understand complaints and what is learned from them from the perspective of primary care staff working in general practice in Glasgow.

Method
An inductive iterative approach was adopted. Informal visits to general practices was accessed and arranged through GP colleagues working within NHS Education for Scotland. Exploratory informal interviews, participant observation and purposeful literature review informed subsequent sample frame and data collection methods. Primary care staff working in general practices with three lead GPs invited by post to participate in the study. A convenience sample of three practices in Glasgow was drawn from positive responses. Data collection involved field observation and semi-structured interviews with different staff group members.

Findings
Findings are at an early stage of development. For primary care staff ‘expressed dissatisfaction’ is both ubiquitous and of diverse origin. Emerging issues include the differential experience of complaints according to occupational role- how this potentially negative impact can be accentuated or minimised; routine non-conformity as component of learning; perceived (in)efficacy of complaints procedures, the structure and organisation of practice tasks, the role of locality and the nature of expressed dissatisfaction; the relationship between practice philosophy and levels of complaints.

Conclusion
The preliminary findings of this small study are at an early stage of development, but provide important preliminary insights into the nature of complaints, how they perceived and are handled, and how practice staff identify learning from them. Team-based learning from complaints appears at this stage to be a largely an informal, on-the-job process, rather than through more formal investigative processes which is the expectation/assumption amongst policy markers. More research is required amongst a more diverse group of practices.
Development and testing of a questionnaire to measure safety climate in primary care

Research team: Carl de Wet, William Spence, Paul Bowie

Background
Building a safety culture is an important part of improving patient safety. Measuring safety climate is part of this process. Existing instruments were mainly developed for secondary care settings in North America and many lack adequate psychometric testing. Our aim was to develop and test an instrument to measure safety climate in primary care in the UK.

Method
The instrument development phase was facilitated through a steering group, literature review, written feedback and semi-structured interviews with GP practice members, a modified Delphi group of experts and a content validity index. Instrument testing involved statistical methods including exploratory and confirmatory factor analysis, Cronbach and Raykov reliability coefficients, item statistics and ANOVA of subgroups.

Results
A content-valid questionnaire was developed. 563 Practice staff from 49 general practices completed the questionnaire. 5 safety climate factors were identified and confirmed by factor analysis. All retained items had strong factor loadings. Instrument reliability was good. Overall perceptions of safety climate were generally positive for primary care. There were significant differences between individual practices, and within a given practice. Management perceptions of safety climate were generally more positive than staff.

Discussion
PC-SafeQuest is a 30 item questionnaire that can be used to measure safety climate in primary care. It can help to prioritise safety and educational interventions and track changes over time. It could potentially be used for benchmarking in the future.
Significant events in primary care: a cross-sectional study of awareness, attitudes and analysis in NHS Greater Glasgow

Research team: Paul Bowie, Ailsa Power

Background
To determine the extent to which general practitioners (GPs) and non-medical primary care staff were aware of a recent significant event and whether a structured analysis of this event was undertaken to minimise the perceived risk of recurrence. Additional information was gathered on barriers to and attitudes towards significant event analysis.

Method
A cross sectional postal questionnaire was sent to 466 principals from 188 general practice surgeries. The main outcome measures were: self-reported personal and practice characteristics, awareness of a recent significant event, participation in the structured analysis of the identified significant event, perceived chance of recurrence, forums for discussing and analysing significant events, and levels of primary care team involvement.

Results
One hundred and twenty two GPs (62%) responded to the survey. Responses were received from a further 111 non-medical primary care team members from 173 practices surveyed (64%).

Preliminary survey findings from non-medical staff indicate that 20/232 were unaware of a recent significant event (8.6%). Determining when an event is ‘significant’ is a barrier for a sizeable minority (36%), while around 85% believe they are knowledgeable about how to analyse a significant event. A minority of staff report that there is a lack of time to analyse significant events (25%). The vast majority of respondents agreed that SEA is non-threatening, events are always identified and acted upon, training in SEA is not required for them and that all clinical and non-clinical staff should be involved in SEA.
NES CPD/Team-based Collective Learning Educational Research Programme
Programme Lead: Diane Kelly

BACKGROUND

The NHS Education for Scotland (NES) Educational Research and Development Strategy was approved by the NES Board in November 2004 and implemented in January 2005. Four research themes were identified following an extensive ‘listening exercise’ with internal and external stakeholders. These themes were subsequently adapted to fit the recommendations arising from health care policy and NES’ Corporate Plan and were incorporated into three educational research programmes: patient safety, CPD/team-based education and assessment and clinical skills. Between 2005-2007, NES invested £500,000 to foster multidisciplinary educational research. In total, 24 research projects were funded within these programmes following a peer review process. The summary of each project can be found in the accompanying folder under its respective educational research programme.

PROCESS

This impact assessment has sought to illustrate the multidimensional effects of educational research in policy and practice settings. Impact is not always easy to demonstrate and requires different assessments at different time points to determine the long-term worth of the investment. The immediate outcomes of NES funding in multidisciplinary educational research are highlighted here. Impacts have been grouped in terms of their contribution to knowledge and its dissemination; capacity building and infrastructure; the known effects on policy and practice and emerging future developments. Case studies provide examples of the types of research undertaken in the programme and focus specifically on those which have already begun the process of translating findings into practice-based settings.

SCOPE

NES supported 7 projects in this research programme between 2005-2007 at a cost of £155,588. All the research studies fell within the following topic areas:

- Understanding how collective learning, change and improvement take place in secondary care
- Evaluation of the effectiveness of practice based small group learning aimed at transferring evidence into practice
- Determining the perceptions and experiences of the community nursing team towards protected learning time
- An action research study of a facilitated learning programme for quality improvement using collective decision making and action planning
- Developing a quality standards framework for primary care practices to support educational activities
- Exploration of peer assisted learning placements in three allied health professions
- A randomised controlled trial to assess the impact of a web-based CPD programme

IMPACTS

Knowledge and dissemination: The research undertaken in this programme has increased the depth and breadth of knowledge in this largely unexplored topic area. The research teams in this programme have already published two papers in peer reviewed journals; another three papers are currently in press, one paper has been submitted awaiting review, and another two are in preparation. Several researchers have presented the findings of their studies at national and internal conferences. Further outputs in these areas are planned.

Infrastructure and research capacity: There have been impacts in career development and capacity building in this programme. One lead investigator had little research experience prior to this award and had never previously managed a research project. Others have benefitted from gaining valuable experience as research supervisors and in having budgetary responsibilities.
Impacts on policy: Research on the peer assisted learning placements study has already led to the generation of guidance in collaboration with higher educational institutions. Other developments and impacts on policy formation are likely to emerge over time such as informing the education and training plans of the NHS workforce.

Impacts on practice: The practice-based small group approach improved the knowledge, skills and confidence of practitioners and their use of evidence-based practice. In this study, knowledge was generated through a process of providing solutions to problems identified on the ground. Research and practice were seen as integrated activities that iteratively informed and supported each other. Other developments and impacts on practice are likely to emerge over time.

Organisational impacts and impacts on future research: There have been common, transferable themes arising from the findings of these projects which will inform existing and future NES educational developments. In particular, the research highlights the importance of the learning environment and facilitation as drivers for effecting quality improvement in the NHS. Real and sustained change requires the inclusion of all staff groups and an attitudinal shift on the part of front-line staff which educational developments can promote. Similar processes of collective learning occur across both primary and secondary care settings and this is leading to further research on the relationships between organisational development and quality of care. There is also planned work to determine how best ancillary and clerical staff can contribute to the quality improvement and patient safety agenda.

TWO CASE STUDIES

These case studies examples show how individual research projects have begun the process of translating their findings to impact on wider policy and practice developments.

Evaluation of the effectiveness of practice-based small group learning

Five small groups of clinicians across Scotland participated in a one year educational programme to appraise the evidence-base within primary care. Evaluation of this programme found positive changes had occurred in participants’ knowledge, skills and confidence in interpreting health care evidence and applying that evidence in day to day practice.

Learning practice programme

An action research project was undertaken to determine whether facilitated learning support can effect quality improvement initiatives in primary care. The results from this study suggest that this approach could enhance team working which may impact positively on patient care.
Quality standards framework for learning – the impact on General Practice

Research team: Anna Simpson

The Project

“Quality Standards Framework for Learning – the impact on General Practice” set out to produce a guide, which would enable General Practices to self assess and improve their current practice in the provision of education and learning activities.

An informal information gathering exercise carried out in NHS Grampian in 2005 indicated that Practice Managers would value some clear guidance on how to set up good quality learning activities in their practices, particularly within protected learning time.

This project set out to produce a guide, which would enable self-assessment and target setting as a means of improving educational activity.

The first step was to get some idea of how practices were currently performing. Volunteer Practice Managers were sought. Five practices agreed to participate in the study and all staff within the practice were asked to complete a questionnaire about what happened currently around learning and training. Some differences were noted between practices and between staff groups within the practice, with those in administrative roles generally having less access to information or being included or consulted about what should take place. There was a general weakness in all practices about assessing the benefits of learning or training to the practice team or patients.

From these responses and background knowledge of educational standards, a Guide to Good Practice in Learning was devised. It was then hoped to pilot this amongst participating practices, but time pressures prevented this taking place.

However the next step is to work with the practices and the Guide and further refine the document before disseminating it more widely. Ultimately it is hoped that this will be a relatively easy way of working with practices to make a positive impact on educational activity.

Update September 2008

The document has been part of the process for refining and adapting the CORAS quality assurance system, and has been consulted and helped inform interprofessional education initiatives.
Evaluation of the effectiveness of practice-based small group learning for primary care professionals in Scotland

Research team: Ronald MacVicar, Colette Ferguson, Diane Kelly

Background
It is recognised that “traditional” methods of delivery of continuing medical education have little impact on improving practice. There is some evidence that interactive sessions are more likely to be effective. Despite the increasing international evidence of both the popularity and the added value of small group learning as a component of Continuing Professional Development (CPD) for General Practitioners (GPs), evidence of these benefits translating into improved care for patients is sparse. Similarly there is a lack of consensus about how best to translate research findings into practice. There is an imperfect evidence base about how guidelines should be disseminated and implemented, most notably in General Practice.

Method
To investigate ways to address this gap between evidence based practice and clinical practice, five small groups in geographically disparate parts of Scotland undertook a 12-month pilot of Practice Based Small Group (PBSG) Learning. PBSG is a Canadian approach to CPD, which explicitly based on the principles of adult education and has been described elsewhere.

Findings
Evaluation of the pilot was very positive and suggested a positive change particularly in participants’ understanding, skills and confidence in relation to interpreting medical evidence and their ability to apply evidence to day-to-day practice. A further qualitative analysis of the success of the pilot identified some key elements of PBSG Learning that help to understand its success as an approach to CPD for GPs. These include the small group format and the crucial role of the facilitator in encouraging learning and creating a culture of openness, honesty and willingness to acknowledge ignorance as a precursor to learning. The authors identified that further research was needed with other professional groups including Practice Nurses (PNs) and multi-professional groups.

This qualitative study was designed to meet this need for further research. Specifically we sought to explore the experience of taking part in PN and multi-professional practice-based small groups and also to assess to what extent participants make changes in patient care or service delivery, in relation to PBSG topics. A mix of log-book method and semi-structured interviews was used.

Conclusion
The study showed that the PBSG approach is a useful approach to CPD for both PN and multi-professional groups. The benefits previously identified by GPs were equally observed by PNs. Our findings also demonstrate that this format is an effective method to make evidence based practice ‘come alive’ for PNs.

An atmosphere of “mutual keenness” to learn from and with each other is most likely to result in learning needs being met in the multi-professional context. Most GPs in the multi-professional groups considered it of value to have their practice questioned as well as to understand the nurses’ perspectives. All interviewees in both the PN and multi-professional groups provided specific examples of changes that they have implemented in their clinical practice, as a result of participating in PBSG learning. The findings highlight that, without adequate support from within the work environment, learners may not be able to implement some of the intended changes.
What are the perceptions, experiences and attitudes of the community nursing team towards protected learning time?

Research team: David Cunningham, Colette Ferguson

Background
There were two main research questions:
1. What are the perceptions, experiences and attitudes of community nursing managers towards Protected Learning Time?
2. What are the perceptions, experiences and attitudes of community nurses towards Protected Learning Time?

Method
A qualitative approach was adopted using grounded theory principles. 6 focus groups were recruited and one in-depth interview (director of nursing NHS Ayrshire and Arran). Interviews were transcribed and analysed using grounded theory techniques. Codes were developed, built up into categories and analysed using the constant comparative method.

Results
Participants recognised the potential benefits of PLT for community nursing and primary health care teams. They perceived community nurses had low rates of attendance because learning at PB-PLT was considered irrelevant. They felt community nurses were not involved in planning and preparing PB-PLT, and that their learning needs were not incorporated into PB-PLT. Participants felt there were organisational differences between practices and the community nursing team, which acted as a barrier to learning. Participants had concerns about the learning arranged for practice nurses at PB-PLT. They considered that the new GMS contract had been an initial barrier to learning.

Discussion
Nursing managers had perceptions of PLT which contrasted with their community nurses. There were similarities also. Primary health care teams need to improve mutual understanding, and need to work together to improve the quality of learning at PB-PLT.
‘The Learning Practice’ – Development of a facilitated learning programme in general practice teams: an action research study

Research team: Diane Kelly, Suzanne Bunniss

Background
Over the past 10 years there has been a plethora of policy documents, new initiatives and multiple re-organisations all seeking to modernise the NHS and improve quality. Many of these ideas were based on learning and organisational theory and offered great potential to enhance patient care. However, despite the best efforts of policy makers, managers, and health care staff recent literature suggests that the impact of these changes has been less than was hoped for and that there have also been unforeseen consequences. The health care commission in a recent review found that the main reasons for poor quality of care were related to: communication, team-working, weak leadership, and conflicting targets. In addition these issues are frequently mentioned in investigations undertaken when things have gone badly wrong (e.g. Bristol, Climbie, Shipman). The evidence clearly calls for a change in approach, one that moves away from a central management approach of targets, tasks and individual performance to one that focuses on the heart of the NHS, its people, their relationships and how they work with each other.

The Learning Practice Programme takes the ideas and principles of the learning organisation and relates them to health care teams to support patient care. The aim is to enhance team collective learning through collective decision-making to support quality improvement. The programme consists of two components: a diagnostic learning practice inventory (LPI) to identify existing learning organisation values, attitudes and behaviours within practice teams (learning capability); a facilitated learning support programme to enhance these learning organisation characteristics and help them become integral to day-to-day team functioning. The LPI was developed from the literature and has undergone psychometric testing which has been described elsewhere.

Original aim
To evaluate the ‘Learning Practice Programme’, a facilitated learning support initiative for general practice teams comprising 6 facilitated workshops.

Method
The study used an action research methodology. Data collection included written feedback, semi-structured interviews, researcher observation and questionnaires.

Results
Feedback on the Learning Practice Programme was overwhelmingly positive. Participants felt working in mixed-role groups was a valuable way to understand the experiences and expectations of their colleagues and the programme helped them communicate in more depth across their professional groups. External facilitation allowed team members to express themselves more openly, especially individuals who sometimes feel uncomfortable contributing to practice discussions. Teams introduced a range of quality improvement activities which they felt impacted positively on patient care as a result of participating in the pilot.

Discussion
The evaluation raises some important questions regarding team learning and change in general practice. It is a practical example of how teams can direct their own learning in ways that are relevant and applicable to real life in general practice. The indicators of success found within the LPP are relevant to NES and the wider NHS because they demonstrate that programmes such as this, which are sensitive to context, local diversity and collective responsibility, have a role to play in improving care. The evidence from the LPP suggests that this approach could provide solutions to issues that centrally controlled strategies are unable to fully address.
An exploration of collective learning, change and improvement in secondary care teams

Research team: Diane Kelly, Suzanne Bunniss, Barbara Meyer

Background
Since the arrival of the Labour government in 1997 there has been a directive to introduce accountability, clinical governance and pursue quality improvement. More recent NHS policy documents suggest that this can be accomplished by improving inter-disciplinary work and collective learning. This is supported by the consistent findings of adverse events inquiries showing that professional demarcations can impede collaborative work at the expense of patient care.

The Centre for the Advancement of Inter-professional Education (CAIPE) define collective learning as being ‘when two or more professions learn with, from and about each other to improve collaboration and the quality of care’. In contrast, several well documented features of health care include hierarchies, tribalism and miscommunication. In the current era of rapid change in the NHS, patient need has become increasingly complex, patient demand is escalating, and there have been extensive shifts in professional boundaries. To cope with this, staff require enhanced skills in team working and learning and a better understanding of the processes by which collective learning occurs.

Multi-disciplinary learning: What is known?
Informal learning
Learning can be broadly categorized as formal or informal. Formal learning is typically delivered through structured programmes while informal learning is experiential and ‘on the job’. Informal learning accounts for the majority of learning in a postgraduate setting. It is intrinsically collaborative, happening in an ongoing manner through communication between staff and results in context specific knowledge and skills. Lave and Wenger envision informal learning as ‘communities of practice’. It has been argued that informal learning is influenced and directed by social processes i.e. the culture and communication in the hospital environment. While there are several interventional studies considering evaluation of formal workshops for specific areas, there is a relative lack of work considering the informal learning networks of hospitals.

Original aim
The aim of this project is to explore how collective learning, change and improvement happen in secondary care teams.

The objectives are to:
• Identify examples of good practice of collective learning and the successful implementation of change
• Identify factors which promote and hinder change and its implementation amongst teams within secondary care
• Identify strategies to inform future developments in relation to learning and change at the primary / secondary care boundary
• Compare and contrast findings from primary care with those from secondary care.

Research questions:
• How do collective learning, change and improvement happen in secondary care teams?
• How can collective learning, change and improvement be supported within secondary care teams?

A small number of studies have provided observational insights into learning of discrete groups or settings in secondary care, however, a literature review did not reveal work considering the learning across the whole team and across differing secondary care environments. This study was designed to compliment a similar study in primary care, which found that informal relationships and hierarchies were central to the evolving knowledge and skills of the staff. Here we aim to consider the community of practice operating in secondary care by observing how learning takes place and innovation occurs in secondary care teams.
Method
This was a qualitative, observational study conducted at one hospital site in Scotland. Over a 3 month period SB spent day four day long visits in two wards and one clinic setting observing the care teams working in those settings. Data from the observational work was captured using a digital recorder and detailed logs. Teams were recruited through organisational contacts. In all cases, consent was secured in line with NHS ethical policy. The data has been analysed in narrative format and the planned publication will present narratives from different healthcare professionals.

Results
The findings indicate that shared collective learning is a necessity within secondary care teams, particularly in ward environments if they are to function well. Secondary care teams tend to be larger and more complex than primary care teams, with less clear boundaries of which individuals constitute the members of any given team. This team ‘fluidity’ means shared learning happens across a very wide variety of individuals and professional groups by necessity. These individuals groups are diverse in the roles they perform and their skill sets are highly differentiated. For this reason we found ‘structures within structures’ in secondary care teams; that is, within the larger ward team, sub teams operate as parallel functional groups, often according to role (e.g. doctors, nurses, porters etc) with points of overlap to other groups as required for patient care. Somewhat predictably, we also observed resource limitations and clinical-management tensions as part of the ongoing context of the team.

Overall, the findings indicate a sense of continual physical motion within acute settings in secondary care. Staff and patients move constantly within and between wards, which has important implications for shared learning. We have found this facilitates learning (because it creates high inter-personal exposure), however the resulting tendency to maintain organisational control through uni-professional hierarchies (e.g. porters, nurse, doctors each have internal line management structures) has the potential to undermine genuine shared learning by creating a sense of individual territorialism. The demarcation of role by uniform may be a contributing factor in this. We observed a high variation in the quality of care provision, some of which were very good examples of multi-professional learning and working. Again, we found the nature of the ward environment necessitates collective behaviour from staff because of their shared responsibility to patients. Similarly, the presence and proximity of other patients at the point of care raised interesting questions about the role patients play in facilitating collective care environments.

The findings with regard to how collective learning happens, confirmed the findings from the earlier primary care study. Learning between team members tends to happen implicitly, experientially and in a way that evolves over time. We observed a number of examples of health professionals within secondary care ward teams who demonstrated flexible, adaptive teaching and learning behaviours throughout the working day. These behaviours were often collective learning interactions, happening in an ongoing way as part of the everyday delivery of treatment, care and administration within the ward.

We found a number of factors inhibiting the potential for these learning interactions to become more widespread between NHS staff teams, and therefore more effective. These include a culture of professional territorialism and the expectation that healthcare staff in less powerful positions will not contribute as fully to learning and effectiveness of the healthcare team. These staff members at the ‘bottom of the hierarchy’ have less opportunity to bring their expertise to bear on the quality improvement challenges facing ward teams and to play a full role in generating improvement.
solutions. This has created an untapped pool of staff expertise and awareness, which teams often neglect to draw upon even as they seek to address ongoing challenges facing them.

We conclude that there is potential to encourage hospital staff at all levels, in all roles, to engage fully in adaptive learning behaviours and doing so is one strategy to release this untapped expertise within staff. However, this will require an attitudinal change towards issues of power, expertise and hierarchy, wherein all healthcare workers look for and expect genuine value in the contribution of their colleagues, regardless of their position.

Discussion

This study demonstrates important common ground between primary and secondary care; that is, health professional teams in both of these environments describe and practice shared learning in the same ways. However, the study also shows if NES is to support workplace learning in secondary care teams this will require understanding the extent to which these teams operate in very different contexts. Given the political emphasis within the NHS on team based learning and working, it is important to acknowledge that there is uncertainty at the most basic level within hospital wards about who constitutes the ‘team’. To promote team learning without acknowledging the ambiguity around this issue of team membership, will generate overly-simplified and therefore less effective approaches to inter-professional learning strategies.

If the NHS is to fulfil its new aim of ‘mutuality’, it will also be important to recognise the systems of power within secondary care environments that inhibit particular staff groups from making as full a contribution as they could to the quality of the NHS. This untapped staff potential is a crucial resource and it is important to find ways of inter-professional working and learning that allows this potential to be expressed at all levels. The study has raised questions about the extent to which NES should support the education of healthcare workers in ‘less powerful’ role groups who are none-the-less vital for frontline care delivery. This study confirms earlier work by demonstrating again that, among other things, real change requires an attitudinal shift.
A randomised controlled trial to assess the impact of a web-based continuing professional development programme

Research team: Ken Scoular, Debbie Bonetti, Jan Clarkson, Andrew Forgie, Linda Young, Heather Cassie

Background
Lifelong learning is a core aspect of quality improvement in the health service. As part of this all general dental practitioners (GDPs) must complete 250 hours of continuing professional development (CPD) over a five year period. For CPD to ultimately influence patient outcomes, it must impact on practice by addressing learning needs. However, anecdotal evidence suggests GDPs may be selecting CPD courses based on factors unrelated to learning needs, such as the location and timing of the courses. It may be possible to encourage GDPs to choose more courses to address their learning needs if a way is found to increase CPD module accessibility.

Method
This study was a twelve-month, pragmatic, two-arm, randomised control trial which aims to evaluate the implementation and impact of an e-learning CPD package (CPD-HQ) in general dental practice by investigating whether there is a difference between dental teams with access to an e-learning CPD package and those without in terms of: the number of CPD hours undertaken; CPD meeting learning needs; sharing of new knowledge in the dental team; and implementation of course information into practice.

Participants were GDPs. Outcomes were assessed using CPD-HQ data, the Pinnacle database and self-report by way of self-administered postal questionnaires and semi-structured interviews. A qualitative study was conducted to inform the content of the questionnaire and the framework was informed by psychological theory. Questionnaires are completed by GDPs at 0 (baseline), 6 and 12 months. Interviews will be conducted with GDPs and other members of the dental team between 6 and 12 months.

On completion of the baseline questionnaire participants were advised of their trial allocation, and those in the intervention arm were provided with access to the e-learning package. On receipt of the completed questionnaire control arm GDPs receive access to the e-learning package.

Results
Of the 290 eligible dentists approached to take part in the study, 112 consented. Of these 105 returned the baseline questionnaire. There were no statistically significant differences between the intervention and control arms at baseline.

Study GDPs report that they apply information from CPD courses to their practice, that they choose CPD courses which meet their learning needs and share information from CPD courses with other members of the dental team. However, only 37% of participants reported that they chose CPD courses based solely on their learning needs.

In general, study GDPs have a positive attitude towards attending CPD courses. However, the majority agree that the greatest barrier is finding courses which did not impinge on clinical time. On average participants were confident when it came to attending CPD courses, and had a positive attitude towards choosing CPD courses to meet learning needs, to applying the information gained at CPD courses and to sharing this information with other members of the dental team. Statistically significant relationships were found between belief measures and self-reported behaviour.

The majority said that they found CPD courses interesting and satisfactory, but generally found them difficult to book. Most participants said that they would like to see CPD courses online saying that it is something that they really want to do, that it would be useful, easy for them to do it and that they are confident they can do it.

Conclusion
The study is ongoing. The month 6 analysis will compare the data from the intervention and control arms in terms of the study outcomes. Further follow-up will take place at month 12 to investigate the longer term impact of the package.
Do profession and setting matter? A qualitative study of practice educators’ experiences of supervising two students together on allied health practice placements

Research team: Paul Lambert, Joanna Dawes

Background
This paper describes a study of the two-to-one (2:1) model of practice-based education. The 2:1 model is defined as the phenomenon of two pre-registration students being supervised by one practice educator in the same practice-based placement setting. Many of the allied health professions (AHPs) have traditionally used apprenticeship models of practice placement learning where one clinician supervises one student during a placement. Of the nine AHPs in Scotland, previous work identified that only physiotherapy, occupational therapy and speech and language therapy used 2:1 models in sufficient numbers to warrant detailed investigation.

Literature exists to support the use of 2:1 models and the benefits of peer assisted learning in pre-registration practice education of allied health professional students. However, the majority of the literature has addressed this topic from a uniprofessional point of view. This research set out to explore the actual experiences of using this model across various AHPs and clinical settings, with a view to establishing whether there are specific professional or setting attributes that contribute to the success of this approach.

Aim
To explore different AHP practice educators’ experiences of the 2:1 model in pre-registration practice education, with a view to gaining an understanding of the viability of this educational model and establish whether these differences are unique to specific professions or work-place settings.

Method
An iterative, qualitative study design was adopted, using a combination of nine one-to-one interviews and a focus group. Participants were recruited by means of purposeful sampling. The data were recorded, transcribed verbatim and analysed using the computer based software package NVivo 7.

Results
Positive and negative experiences of this model were reported.
“I wasn’t sure how it would work, but in actual fact, it was very positive and I found it works better with two students.” (Physiotherapist, orthopaedic in-patients)

It would also appear that although clinical setting often presented practical barriers to the success of this model, the approach taken by the practice educator was as important as the clinical setting or profession. Participants were from a range of clinical settings such as community outpatients, paediatrics, learning disabilities and mental health.

“Having enough people around to cover, ‘cos obviously when I’m seeing students I’m not seeing as many people as I would normally see, so I’m relying on someone else in the team picking up some patients for me.” (Speech and Language Therapist, medical in-patients)

There did not seem to be any indication that one profession found this model of practice education to be more or less acceptable than another, with factors such as a supportive colleagues, teamwork and space all seen as important indicators of success.

“I don’t know that it’s just necessarily the attributes of one particular person that make it work, I think the entire team need to be involved in order to make something like that work.” (Physiotherapist, acute respiratory in-patients)

Discussion
This study demonstrates that the 2:1 model is successfully used across three AHPs in Scotland. Despite practical issues contributing to the success or failure of this approach, neither the type of clinical setting nor the professional background should...
necessarily be used to predict success of 2:1 models. Findings do suggest that educational approach of the practice educator (e.g. apprenticeship versus collaborative approaches) may be a more important predictor of success.

This study has important implications for those supporting and promoting practice placement models in the allied health professions.
Programme Lead: Anne Hesketh

BACKGROUND

The NHS Education for Scotland (NES) Educational Research and Development Strategy was approved by the NES Board in November 2004 and implemented in January 2005. Four research themes were identified following an extensive ‘listening exercise’ with internal and external stakeholders. These themes were subsequently adapted to fit the recommendations arising from health care policy and NES’ Corporate Plan and were incorporated into three educational research programmes: patient safety, CPD/team-based education and assessment and clinical skills. Between 2005-2007, NES invested £500,000 to foster multidisciplinary educational research. In total, 24 research projects were funded within these programmes following a peer review process. The summary of each project can be found in the accompanying folder under its respective educational research programme.

PROCESS

This impact assessment has sought to illustrate the multidimensional effects of educational research in policy and practice settings. Impact is not always easy to demonstrate and requires different assessments at different time points to determine the long-term worth of the investment. The immediate outcomes of NES funding in multidisciplinary educational research are highlighted here. Impacts have been grouped in terms of their contribution to knowledge and its dissemination; capacity building and infrastructure; the known effects on policy and practice and emerging future developments. Case studies provide examples of the types of research undertaken in the programme and focus specifically on those which have already begun the process of translating findings into practice-based settings.

SCOPE

NES supported 5 projects in this educational research programme between 2005-2007 at a cost of £92,096. All the research studies fell within the following topic areas:

- Development of assessment tools in healthcare settings
- Evaluation of the effectiveness of different assessment tools and approaches
- Development and evaluation of educational interventions

IMPACTS

Knowledge and dissemination: The research undertaken in this programme underlines the importance of determining the effectiveness of educational interventions for NHS practitioners. To maximise educational outcomes, research is required to identify skill gaps and establish the best methods of assessing staff performance. Research teams have had two papers accepted for publication in peer reviewed journals and another four papers are being prepared for submission. Several researchers have presented the findings of their studies at national and internal conferences. Further outputs in these areas are planned.

Infrastructure and research capacity: There have been impacts in career development and capacity building in this programme. Two lead investigators had very little research experience prior to this award and had never previously managed research projects. Others have benefitted from gaining valuable experience as research supervisors and in having budgetary responsibilities.

Impacts on policy: A systematic review has led to the production of a full-text AMEE guide on the effectiveness of portfolios for postgraduate assessment and education.

Impacts on practice: As a result of one study, a national educational programme on consultation skills has been set up for pharmacists. An educational peer review system has also been introduced to allow pharmacists in Scotland to submit patient consultations for peer review and obtain individual educational feedback. The impacts of two further projects are described in the case studies below.
Organisational impacts and impacts on future research: There have been common, transferable themes arising from the findings of these projects which will inform existing and future NES educational developments. In particular, the research in this programme highlights the importance of establishing the evidence-base for existing and future assessment tools. Evaluation of new educational interventions including new ways of learning needs to be undertaken systematically and fed back over the long-term.

TWO CASE STUDIES

These case study examples show how individual research projects have begun the process of translating their findings to impact on wider policy and practice developments.

The adaptation of a ward simulation exercise to assess the performance of health care professionals and identify their educational needs

The adaptation of a ward simulation exercise to assess performance and identify educational needs has led to this exercise being effectively used for both education and assessment in the East of Scotland. The exercise is also being offered as a national resource to support the management of trainee doctors who experience difficulties.

Can problem-based learning modules delivered via the worldwide web using published clinical guidelines lead to changes in practice among GPs and Practice Nurses?

This research study found that computer interaction could replace group interaction in problem based learning and was effective in stimulating recognition amongst clinicians of the need to change practice. Interviews with participants revealed numerous and various examples illustrating how practice had changed as a result of the learning modules.
The effectiveness of portfolios for assessment and education

Research Team: Claire Tochel, Alex Haig, Anne Hesketh, Ann Cadzow, Karen Beggs, Iain Colthart, Heather Peacock

Background
Portfolios in post-graduate healthcare education are used to support reflective practice, deliver summative assessment, aid knowledge management processes and are seen as a key connection between learning at organisational and individual levels. This systematic review draws together the evidence on the effectiveness of portfolios across postgraduate healthcare and examines the implications of portfolios migrating from paper to an electronic medium across all professional settings.

Methods
A literature search was conducted for articles describing the use of a portfolio for learning in a work or professional study environment. It was designed for high sensitivity and conducted across a wide range of published and unpublished sources relevant to professional education. No limits for study design or outcomes, country of origin or language were set. Blinded, paired quality rating was carried out, and detailed appraisal of and data extraction from included articles was managed using an online tool developed specifically for the review. Findings were discussed in-depth by the team, to identify and group pertinent themes when answering the research questions.

Results
Fifty six articles from ten countries involving seven healthcare professions met our inclusion criteria and minimum quality threshold; mostly uncontrolled observational studies. Portfolios encouraged reflection in some groups, and facilitated engagement with learning. There was limited evidence of the influence of a number of factors on portfolio use, including ongoing support from mentors or peers, implementation method, user attitude and level of initial training. Confounding variables underlying these issues, however have not been fully investigated. A number of authors explored the reliability and validity of portfolios for summative assessment but reports of accuracy across the disparate evidence base varied. Links to competency and Quality Assurance frameworks have been demonstrated. There were conflicting reports about whether the different purposes of portfolios can be combined without compromising the meaningfulness of the contents. There was good evidence that the flexibility of the electronic format brought additional benefits to users, assessors and organisations, and encouraged more enthusiastic use. Security of data remained a high priority issue at all levels, and there was emerging evidence of successful transfer between electronic portfolio systems.

Conclusion
The evidence base is extensive, but contains few high quality studies with generalisable messages about the effectiveness of portfolios. There is, however, good evidence that if well implemented, portfolios are effective and practical in a number of ways including increasing personal responsibility for learning and supporting professional development. Electronic versions are better at encouraging reflection and users voluntarily spend longer on them. Regular feedback from a mentor enhances this success, despite competing demands on users’ time and occasional scepticism about the purpose of a portfolio. Reports of inter-rater reliability for summative assessments of portfolio data are varied and there is benefit to be gained from triangulating with other assessment methods. There was insufficient evidence to draw conclusions on how portfolios work in interdisciplinary settings.
Are the new Foundation Programme assessment systems acceptable to doctors, nurses and allied health professionals who are involved in rating Foundation Doctors in Aberdeen?

Research team: Fiona French, Catriona Rooke, Ann Cadzow, Suzanne Nabavian

Background
Foundation Programmes were introduced in Scotland on 1st August 2005, reforming the first two years of postgraduate medical training and introducing new web-based assessment methods. Nursing staff, in particular, have become more involved in assessing Foundation Doctors and it was felt that they may be less confident in this role than consultants and middle grade doctors.

Aims
This project has focused on two of the assessment methods – multi-source feedback and workplace assessment – and sought to ascertain whether assessors were adequately prepared for, and comfortable with, their role as assessors and whether or not they felt they required information/training.

Methods
Two focus groups and 21 interviews were undertaken to explore participants’ experiences and views of assessment in order to develop a self-completion questionnaire. The questionnaire was designed to evaluate assessors’ experiences and bring to light any problems encountered. After piloting it was administered anonymously to all 395 assessors who had undertaken one or more assessment in an Aberdeen hospital. The final response rate was 54%.

Results
Many assessors felt inadequately informed about Foundation Programmes (40% were unaware they could be asked to assess Foundation Doctors and 88% received no information to assist them). Most seemed comfortable with (1) the time taken to complete the assessment forms (54% stated that it never took too long), (2) how well they knew the Foundation Doctor’s work (only 8% felt they did not know it well enough every or most times) and (3) their appropriateness as an assessor (78% agreed that they were an appropriate assessor every or most times).

Most assessors also felt confident about appropriately rating the doctor’s performance (73% found deciding what number on the scale to give easy, and 75% the criteria against which they were assessing clear, every or most times). Only 12% reported having had practical difficulties with the new assessment system.

However, a minority of assessors raised more fundamental concerns regarding lack of anonymity for the assessor, potential bias resulting from Foundation Doctors choosing their own assessors, inability of the assessment tools to identify poorly performing trainees and insufficient contact between senior/middle grade doctors and those they are being asked to assess. It was reassuring that only six had felt a negative assessment was appropriate but had felt unable to give it.

Some differences were found between assessor groups. Senior house officers formed 43% of the assessors for WPA but conducted 66% of these assessments. Nurses were more likely to discuss the MSF with a colleague but less likely to discuss it with the Foundation Doctor. They were also less likely to have had previous experience of assessing doctors-in-training but more likely to have on-the job training in assessment similar to consultants.

About a third of respondents felt they required training for FY1 (32%) or FY2 (37%) assessment and around half specified type(s) of information they would find useful, such as standards expected of trainees at that stage of their training. Nurses and other healthcare professionals were more likely to want general information about assessment, whilst consultants/middle grade doctors were more likely to focus on expected standards for FY1s. A variety of formats were preferred (web-based, e-mail, paper format).
Conclusions
Most assessors felt comfortable with the new assessment systems and had encountered only minor practical difficulties. A minority would like information and/or training. Some of the more fundamental concerns discussed by assessors may have implications for the effectiveness of the new assessment tools for Foundation Doctors and merit further investigation.
The adaptation of a ward simulation exercise to assess the performance of health care professionals and identify their educational needs

*Research team: Philip Cachia, Jenni Hislop, Fiona Anderson, Anne Hesketh, George Hogg, Jean Ker, Louisa McIlwaine*

**Background**
This project builds on previous work to create a realistic simulated ward environment to observe the performance of provisionally registered junior doctors (at that time Pre-registration House Officers).

**Aims**
There were 2 strands to this project:
- creating a robust assessment tool to measure junior doctor performance
- supporting the education of Hospital at Night teams by adapting the current exercise to meet the specific needs of this staff group

**Methods**

**Development of an assessment tool:**
A modified Delphi with expert groups identified the key items to be included in the assessment tool

**Testing the tool:**
A total of 22 trainee doctors were recruited for the study. Each participated in the same ward simulation exercise. All exercises were recorded on to DVD for ease of assessment. Six consultants, experienced in the assessment of Foundation Year 1 doctors, agreed to assess participants’ DVDs. Each exercise was assessed by at least one of two groups, comprising of three assessors.

**Hospital at Night:** A literature review was carried out. Findings from the literature review informed the development of a template for focus group discussions on Hospital at Night. Qualitative data from the focus group sessions was used to develop the ward simulation exercise for Hospital at Night. An observation tool was created for this exercise.

**Results**
Our results suggest that we have created a reliable assessment tool. Further work to confirm validity is needed.

A ward simulation exercise has been created reflecting the role of the Hospital at Night practitioner and the environment in which they work. An observation tool has been created to provide feedback on performance.

**Conclusions**
With additional data and evidence to demonstrate validity, we will have a robust assessment tool which can be used for high stakes decisions. Although we have created an exercise which reflects the role of the Hospital at Night practitioner, further work is required to develop an exercise which could observe and assess the performance of the multi-professional Hospital at Night team.
The development, testing and evaluation of an instrument for the peer review of videotaped consultations of general medical practitioners and community pharmacists working in general practice

Research team: Rhona McMillan, Ailsa Power, Niall Cameron

Background
It has been clearly established that the delivery of effective doctor-patient communication does not only enhance patient satisfaction but can also lead to improved clinical outcomes. Equally, poor communication can adversely affect clinical outcomes, patient satisfaction and levels of litigation. The pivotal role of communication skills and the delivery of quality patient care has been recognised both by the General Medical Council (GMC) the Royal College of General Practitioners (RCGP) and it is one of the core categories of general practitioner (GP) appraisal in Scotland. Community pharmacists working in GP surgeries are expected to provide increasingly complex advice to patients. To date, review of and training for community pharmacists in communicating with patients about clinical issues has been minimal. In West of Scotland (WOS) established GPs have been able to submit videotaped consultations for peer review for almost 7 years. Although reviewers are trained in writing feedback based on a patient centred model, to date a valid and reliable tool which can be used to provide feedback about GP consultations or clinical discussions between pharmacists and patients has not been formally tested.

Method
An instrument for assessing GP and pharmacist interactions with patients was developed, and rated for face validity by 10 GPs and pharmacists with an interest in communication and education. Once agreement was reached, this instrument was tested. 3 reviewers each watched 3 consultations provided by 6 GPs (i.e. 18 consultations), and 3 reviewers each watched 3 consultations provided by 4 pharmacists (i.e. 12 consultations).

Findings
The results were statistically analysed. Statistical analysis of GP tapes revealed that GP performance was consistent over the 3 consultations and that the assessors agreed well. However statistical analysis of the pharmacist tapes demonstrated poorer agreement between assessors and poorer performance with less consistency. It was agreed that this may be because pharmacists were being asked to perform a task for which they had not been trained.

The new pharmacy contract recommends communication skills as part of pharmacist CPD, but there is little education available in this area for the working pharmacist in WOS. It was decided to alter original methodology, which involved a prolonged resubmission to Ethics. Pharmacists who had taken part in the project, together with some colleagues have been taught basic skills re consultation and feedback, and are now rolling out a programme of education, including peer review, in consultation skills for pharmacists in WOS.

As the statistical analysis for GP tapes was good, researchers felt it was important to assess feasibility, acceptability and educational impact for GPs submitting tapes for peer review. An independent researcher carried out structured interviews with a purposive sample of 10 GPs, interviews were transcribed and analysed. Feasibility, acceptability and educational impact for those GPs in Consultation Peer Review Group(CPRG) who were writing the reviews was assessed using an eform, results were collated and analysed.

Although GPs had to overcome significant barriers (ethical, technical, time) to allow them to take part in this activity the majority felt that it had been a good educational experience, and 6/10 felt that they would repeat the process within the next 5 years. CPRG put a lot of time, energy and enthusiasm into this activity, all were aware of the inherent ethical
issues, 14/15 felt their own consulting had improved and 14/15 were aware that they had learned both new knowledge and new skills as a result of this activity. All would recommend it to a colleague.

Conclusion
It would seem that this is a valid and reliable educational activity for practitioners who have been trained in consulting skills. The activity is feasible, acceptable and valued educationally both by participants and by reviewers. To enable more practitioners to take part in consultation peer review it is essential that accessible training in consultation skills is provided locally. It is also important to reduce the perceived barriers by ensuring the required equipment is easily available and that adequate technical support is provided.
Can problem-based learning modules delivered via the worldwide web using published clinical guidelines lead to changes in practice among GPs and Practice Nurses?

Research team: Jean Robson

Background
In this small study we have demonstrated that combining national guidelines with on-line problem-based learning (PBL) modules, in which group interaction is replaced by other methods of stimulating recognition of needs, consolidation and elaboration of learning, can result in reported change in practice in primary care doctors.

Method
Three modules were developed covering management of UTIs in adults, coeliac disease in adults and chronic kidney disease in adults, and acceptability, intention to change practice, reported change in practice after completion, and increase in knowledge were studied, using qualitative and quantitative methods.

Results
The results suggest a high level of acceptability amongst practitioners choosing this type of resource. Practitioners liked the fact that they could study where and when they wished, they liked the patient orientated approach, found the topics interesting, and appreciated the ease of use of the modules. The majority of participants reported intention to change practice, learners who studied urinary tract infections and coeliac disease frequently reported that they had changed their practice. Some learners studying chronic kidney disease said that although they had not changed practice this was because they had studied and developed a management plan for this condition before studying the module, however did gain confidence from their study. Change in practice was confirmed by reporting examples of change by all participants interviewed on urinary tract infection and coeliac disease modules, these were particularly numerous and varied for the urinary tract infection module, possibly reflecting the frequency with which practitioners deal with urinary infections. We were unable to demonstrate an increase in knowledge except in the CD module, this is surprising in the light of acceptability, change data, and annoyance of interviewees on not improving.

Conclusion
Although all participants completed an assessment of knowledge and on-line questionnaire to assess attitudes and intention to change at the end of the module, unfortunately we were only able to obtain agreement to be interviewed by 22% of participants; and means that it is only possible to draw conclusions that some participants achieved the reported advantages. Therefore further work would need to be performed to verify any conclusions. Sufficient data was not obtained to allow any conclusions to be drawn about use of modules by nurses in primary care, and further work should address these groups.