

The impact and implications of new technologies on workforce reconfiguration and the educational and training needs of managers and professionals, and the impact of education and training upon patient outcomes such as quality, responsiveness and dignity

Details

Proposal details

Full title of project

The impact of foundation doctor training: impact on workforce wellbeing and patient care

Proposed duration (in months)

33

Proposed start date

08 Aug 2008

Full Proposal

Scientific Summary

Aims

- Evaluate how well-being and motivation of Foundation doctors in emergency departments (EDs) impacts on quality of patient care
- Describe current arrangements for the delivery and implementation of Foundation training in England
- Identify how Foundation training in EDs impacts on the well-being, motivation and job satisfaction of doctors in training
- Identify key measures of Foundation doctor well-being and motivation, which impact on quality of patient care and which underpin the development of a generic tool to monitor well-being and motivation during training

Study type and setting

Phased multi-site observational study within 12 EDs using mixed methods. The study will evaluate the well-being of foundation doctors, the quality of the care they deliver and establish the relationship between these dimensions.

Methodology

Phase I:

- Consultation phase: up to 15 in-depth semi structured interviews will be with national and regional stakeholders
- Scoping study: To inform the development of survey measures, we will carry out ethnographic work, interviews and focus groups with foundation doctors, other healthcare professional staff in the ED and patients who have experienced ED care in four EDs

Phase II:

- Survey utilising validated measures carried out with three successive cohorts of Foundation doctors, measuring their well-being, motivation, job satisfaction, professional identity, confidence and competence. This will provide an overall well-being score for each doctor. The survey will be carried out within the 12 EDs at two levels, at a total of six time intervals over the 12 months, in order to measure changes over their whole foundation year and before and after their ED placement.
- Quality of care provided by foundation doctors will be measured by selecting the clinical

records for the three cohorts of foundation doctors across 12 EDs. A holistic records review approach will be taken by trained Specialist Registrar reviewers to provide a quality of care score for each Foundation doctor.

- Routine data will be collected from each ED to measure service performance over the study period.
- Foundation doctor scores on well-being and quality of care will be evaluated to establish the relationship between well-being and quality of care in this cohort.

Outcomes

1. Description of current variation in the organisation and delivery of Foundation training throughout England
2. Patient Outcomes:
 - Score on safety and quality of clinical care provided following the records review
 - Foundation doctor perceived confidence and competence over time
3. Workforce Outcomes:
 - Foundation doctor, well-being, motivation and job satisfaction
 - Differences in Foundation doctor well-being, motivation and job satisfaction compared across EDs
4. Service outcomes:
 - ED performance measured by mean waiting times, 4-hour performance, workload and work rate of Foundation doctors
 - Recommendations for best practice regarding the implementation and delivery of Foundation training in acute NHS settings in order to optimise patient care
5. Research outcomes;
 - Identification of measures of well-being and motivation that may be further developed into a validated generic tool for use in foundation training

Lay Summary

There have been a number of changes made recently by the government to improve the working conditions and well-being of NHS staff as there is evidence that improved working conditions can improve staff well-being, and in turn patient care. However the evidence of a direct link between well-being of staff and quality of patient care within healthcare is limited. More evidence is required about which aspects of working in the NHS impact on staff and also which aspects of well-being influence patient care.

This study aims to evaluate the well-being of doctors in training and compare this with quality of care provided to patients attending the emergency department (ED). The relationship between well-being and quality of care aims to identify key aspects such as motivation, job satisfaction, and confidence that impact on quality of care. The measures will have the potential to be developed into a tool that may be utilised more widely for doctors in the NHS.

The study will be in two phases, the first will outline the current training arrangements for doctors both regionally and locally. It will include development work in a small number of EDs to identify important factors related to the well-being of doctors. The second phase will comprise surveys of doctors in their second year of training (Foundation doctors) who are working in the ED as part of this year. The survey will collect data relating to doctor well-being, motivation, job satisfaction, professional identity, confidence and competence. These data will be compared with quality of care provided by these doctors through an examination of patient records detailing care given to patients.

It is anticipated that this study will identify key factors in doctor training that can improve well-being, motivation and job satisfaction and that directly link to improvements in the care of patients.

Applicants

Applicant - Lead applicant
Mrs Suzanne Mason

Medical Care Research Unit

School of Health and Related Research
Regent Court
30 Regent Street
Sheffield
S1 4DA
United Kingdom

[Phone](#)

0114 2220694

[Fax](#)

0114 2220749

[Email](#)

s.mason@sheffield.ac.uk

[Institution/Organisation](#)

University of Sheffield

[Job Title](#)

Senior Lecturer in Emergency Medicine

Applicant - Co-applicant

Dr Rachel O'Hara

Section of Public Health
School Of Health and Related Research
University of Sheffield
Regent Court
Sheffield
S1 4DA
United Kingdom

[Phone](#)

0114 222 0680

[Fax](#)

0114 2220791

[Email](#)

R.OHara@sheffield.ac.uk

[Institution/Organisation](#)

University of Sheffield

[Job Title](#)

Lecturer in Public Health

Applicant - Co-applicant

Dr Angela Carter

Institute of Work Psychology
Sheffield
S10 2TN
United Kingdom

[Phone](#)

0114 2223250

[Fax](#)

0114 2727206

[Email](#)

a.carter@sheffield.ac.uk

[Institution/Organisation](#)

University of Sheffield

[Job Title](#)

Research Fellow

Applicant - Co-applicant

Mr Colin O'Keeffe

Health Services Research Section
ScHARR
Sheffield
S1 4DA
United Kingdom

[Phone](#)

0114 222 0780

Fax
0114 222 0749

Email
c.okeeffe@sheffield.ac.uk

Institution/Organisation
University of Sheffield

Job Title
Research Associate

Applicant - Co-applicant
Mr Alan Fletcher

Accident and Emergency
Northern General Hospital
Herries Road
Sheffield
s5 7au
United Kingdom

Phone
0114 271 5679

Fax
Not supplied

Email
alan.fletcher@sth.nhs.uk

Institution/Organisation
Sheffield Teaching Hospitals NHS Foundation Trust

Job Title
Consultant in emergency Medicine

Applicant - Co-applicant
Mrs Beryl Darlison

Unknown
Sheffield
S1 4DA
United Kingdom

Phone
0114 222 0780

Fax
Not supplied

Email
darlison@waitrose.com

Institution/Organisation
Public

Job Title
unknown

Applicant - Co-applicant
Professor Gillian Needham

NHS Education for Scotland
Forest Grove House
Foresterhill Road
Aberdeen AB25 2ZP
AB25 2ZP
United Kingdom

Phone
01224 553970

Fax
01224 550670

Email
Gillian.Needham@nes.scot.nhs.uk

Institution/Organisation
NHS Education for Scotland

Job Title
Postgraduate dean

Applicant - Advisory Group

Professor Janet Grant

Centre for Education in Medicine
Institute of Educational Technology
Walton Hall
Milton Keynes
Milton Keynes
United Kingdom

[Phone](#)

01908 653776

[Fax](#)

01908 659374

[Email](#)

oucecm@open.ac.uk

[Institution/Organisation](#)

Open University, The

[Job Title](#)

Director

Applicant - Co-applicant

Dr Chris Stride

United Kingdom

[Phone](#)

0114 2223262

[Fax](#)

Not supplied

[Email](#)

c.b.stride@shef.ac.uk

[Institution/Organisation](#)

University of Sheffield

[Job Title](#)

Not Supplied

Research Outline

Details of research proposal

Introduction, aims and objectives

This study aims to evaluate the well-being of doctors in training and link this with the quality of care provided to patients attending the ED.

In 2005 all UK Deaneries introduced Foundation Programmes as the initial phase of Modernising Medical Careers (MMC) for doctors in training as 2 year holistic programmes, suited for medical graduates.

The Emergency Department (ED) is a complex and challenging training environment for doctors. Specifically, it encompasses patients with a wide range of presenting clinical conditions, where doctors in training work autonomously and often act as the main decision makers in patient care. In this sense it is ideal as a study context to link doctor well-being with quality of patient care. In most other clinical specialties it would be hard to ascribe care solely to doctors in training as they more often work within a clinical team comprising a number of clinicians.

The study will be in two phases, the first will outline the current training arrangements for doctors both regionally and locally. It will also undertake a scoping exercise in a small number of EDs to identify important factors to capture in surveying the well-being of doctors. The second phase will comprise a longitudinal survey of doctors in their second year of training (Foundation doctors) who are working in the ED as part of this year. The survey will collect data relating to doctor well-being, motivation, job satisfaction, professional identity, confidence and competence. These data will be linked with the quality of care provided by these doctors following a records review approach of clinical records and through analysis of routine ED data.

Finally, measures that are found to effectively link doctor well-being with patient care will be identified for future development into a validated tool that may be utilised more widely in the NHS.

Aims

- to evaluate how the well-being and motivation of Foundation doctors in EDs impacts on the quality of patient care
- to describe the current arrangements for the delivery of Foundation training in England and how it is currently implemented in ED
- to identify how Foundation training in EDs impacts on the well-being, motivation and job satisfaction of doctors in training
- to identify key measures of Foundation doctor well-being and motivation, which impact on quality of patient care and which will underpin the development of a tool to monitor well-being and motivation during training.

Objectives

Phase I:

- To conduct a national and regional consultation exercise with training stakeholders in order to
 - Describe the national strategic view of the aims of delivering Foundation doctor training with a particular focus on the role of training in providing for the well-being of doctors
 - Assess how the national view is implemented on a regional basis through the postgraduate deaneries and identify any regional variation to implementation within the specialty of emergency medicine.
- To gather information from scoping studies of factors contributing to the well-being of doctors in training within four EDs in order to develop measures to inform a quantitative evaluation of Foundation doctors in phase II of this study.

Phase II:

- Undertake a longitudinal study within 12 English EDs to evaluate Foundation doctor well-being, motivation and job satisfaction and compare this with quality of patient care. The components of this phase will be to:
 - Use a structured survey to assess Foundation doctors working in the ED in terms of their well-being, motivation, job satisfaction, professional identity, confidence and competence
 - Assess patient safety and quality of care by Foundation doctors by:
 - A review of clinical records of patients receiving emergency care from these doctors
 - Examining routine ED data to link workload, casemix, mean waiting times and four-hour performance between the EDs.
- Examine the findings from the study in order to:
 - o Evaluate the relationship between Foundation doctor well-being and patient care
 - o Identify best practice models of Foundation doctor training which might be generalised and implemented across the NHS in order to promote a healthy and productive Foundation doctor workforce
 - o provide a starting point for the development of a tool that can be developed to monitor the training of doctors in emergency medicine and other specialities.

Relevance to SDO call for proposals

This study will address topic 4 of the SDO call. The aims of NHS policy are to improve patient care through enhancing career structure and progression for doctors and thus to optimise the benefits of NHS resources by delivering the most appropriate level of care focused around meeting the needs of patients. Studies previously have focussed more on the well-being of other staff within the NHS, but doctors remain a relatively under-researched workforce. The development of a productive and efficient doctor workforce was a key objective in Modernising Medical Careers, a key organisational workforce issue that may influence quality of patient care. This study builds on previous work by our research team in the field of organisational and workforce impact on the delivery of emergency care in this country. This study will provide insight into how training is being delivered currently for doctors, and, using the example of

emergency medicine, will address the questions outlined in the call brief by:

- providing evidence for the link between doctor well-being and motivation with patient care provided in the ED
- Promoting understanding of the organisational arrangements in which doctors perform best and are most motivated
- By example, the study will inform how doctors and the care they provide might be monitored in the future and also provide guidance about how doctor training should be delivered and monitored within the wider NHS.

Background, including NHS context and relevant literature

NHS context

Recent initiatives have been introduced into the NHS designed to improve the organisation and conditions of work and hence workforce well-being. The impact on NHS staff of inadequate working conditions has been of increasing interest to policy makers, with issues such as poor recruitment and retention of staff negatively impacting on healthcare effectiveness. ^{1 2} These initiatives have highlighted the importance of support within organisations for the effective development of individuals, with clarity about what is required from a post, in order that they meet their potential.

Importance of training on doctor well-being and patient outcomes

The link between staff development, motivation and well-being and the impact on patient care is recognised as important. ^{3 4} Training and appraisal have been identified in the literature as an important element in appropriate people management, impacting on knowledge and skills, job satisfaction and well-being, which in turn may influence patient outcomes. ⁵ Previous studies have demonstrated relationships between the quality and extent of training and appraisal with psychological well-being of staff and better patient care. ^{6 7 8 9 10}

There is limited evidence of direct association between factors which effect performance and outcomes in health care and that would be important to take into account when studying a changing workforce. In one study ⁹ which sought associations between organisational practice and clinical outcomes, it was possible to demonstrate a linkage between good Human Resources practice (such as appraisal and training) and effective teamwork with reduction in measures of patient mortality. A further study ¹¹ demonstrated, in a non-health care setting, that organisational climate (e.g. skill development, concern for employee welfare) was significantly associated with productivity and profitability, and that the relationship was mediated by employee job satisfaction.

There is an increasing literature on links between patient safety and organisational culture and climate, with a range of tools and interview methods proposed. ¹²

Training doctors in the NHS

Recently doctor training has undergone change in response to policy initiatives to improve the quality of patient care. The introduction of Modernising Medical Careers (MMC) in 2005 was in response to perceived longstanding problems with the job structure, working conditions and training opportunities in postgraduate medical education. Training posts were criticised for being short term, stand-alone and not part of a clearly identified training programme, while supervision and assessment was judged as variable. These issues called into question whether doctors were being appropriately trained to meet the demands of a modern, patient-centred NHS. ¹⁴

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The first stage of MMC reform introduced a two year, Foundation Programme (Foundation years 1 and 2) to address these perceived deficiencies. Postgraduate training now is structured around a formal programme with a national curriculum and structured assessment of clinical competencies.

A recent inquiry into MMC ¹⁵ has highlighted a number of areas of concern with the foundation training model; variability in the quality of the year 2 placements and doctors not reaching appropriate levels of clinical responsibility when compared with their SHO predecessors. These issues have the potential to impact on the well-being and motivation of doctors and also on quality of patient care provided by them.

The report recommended greater clarity about what role Foundation year 2 doctors are expected to play in the healthcare team and what their service contribution should be. A further period of re-structuring of postgraduate training now seems possible and this may affect the Foundation Programmes and hence the first stages of a doctors career.

Importance of evaluation

There is a need for better quality research evidence to fully investigate the nature of causal links between doctor training, other aspects of people management and their impact on psychological aspects of this workforce and patient outcomes. Studies need to incorporate a longitudinal element into their design, need to be adequately powered and need to incorporate validated measures in order to better establish these causal links. ¹⁶

It is crucial that initiatives designed to improve the knowledge, skills and well-being of the workforce, are evaluated and monitored. There is also a need for the development of standardised measures of factors such as well-being and job satisfaction that impact on patient care, which can provide meaningful comparative data across organisations and to act as a baseline for future studies. 17

The ED is in a unique position to provide an excellent broad based experience for foundation doctors in a challenging, high profile environment where there is the need to demonstrate safe and effective care and decision making in the context of rising demand and scarce resources. This makes the ED an appropriate setting for this proposed evaluation.

Evaluating new ways of working requires new ways of measuring their effect. It is proposed therefore to use interview, observation, survey and a quality records review using validated, relevant instruments to collect longitudinal data from doctors operating in a range of emergency medicine working environments, and also data from the patients they treat. This information will be integrated into a coherent mixed methodology framework unified around measuring well-being and motivation and linking this with patient care. The identification of important measures of doctor well-being that can be linked with patient care may allow the further development of tools for wider use within the NHS to monitor and evaluate doctors in training.

Plan of investigation

The study will be conducted in 2 phases and will use a mixed methods approach across multiple sites as follows:

Phase I:

1. Planning and preparation

Ethical approval will be sought via the National Research Ethics Service.

All EDs in England will be approached for participation in phase II of the study. We will select 12 EDs stratified on deanery membership.

As EDs agree to participate in the longitudinal study, applications for research & development approval will be instigated within each Trust.

2. Consultation exercise

Interviews will identify, compare and assess different strategies and organisational arrangements for the implementation and delivery of post-graduate medical education and training.

We will undertake a national, regional and local service level consultation involving stakeholders who will be consulted about the arrangements to deliver and monitor doctor training and determine the local context in which postgraduate training is being implemented and delivered.

3. Survey development through scoping study within four emergency departments

In order to identify important data collection items in phase II of the study, four of the consenting EDs, representing a range of ED size and within different deaneries will be selected for a combination of ethnographic work, interviews and focus groups with foundation doctors, other ED health care professionals and patients who have experienced ED care. These data will form the basis of developing a survey instrument for phase II of this study.

4. Developing the doctor survey for phase II

Using data collected in phase I, a doctor survey will be developed adapting previously validated measures of well-being, motivation, job satisfaction, professional identity, confidence and competence for dissemination in phase II of the study.

Phase II:

A longitudinal observational study will explore and measure the workforce and patient experience of Foundation doctors. Within the 12 participating EDs the study will involve 3 successive cohorts of Foundation doctors. This will include:

1. Foundation doctor survey

A survey of all Foundation doctors to assess aspects such as well-being, motivation, job satisfaction, professional identity, confidence and competence;

- prior to commencing year 2 of their training rotation
- at the end of year 2 of their training rotation
- at the beginning and end of each ED placement.

2. Quality of patient care

To assess patient quality of care we will undertake a safety and clinical records review to

evaluate quality of care and adherence to evidence-based guidelines. In addition, we will collect routine data from each ED such as waiting times, four-hour performance, workload and work rate of the Foundation doctors

3. Identification of measures for future development

Analysis of this data over time will enable the relationship between quality of patient care and doctor well-being and motivation to be identified both within each ED and between them. Important measures will be identified that can be developed further into a validated tool for more widespread use in monitoring doctor performance throughout training.

Methods (including the plan of analysis)

Phase I: (See figure 1)

1. Consultation exercise

Up to 15 in-depth semi structured telephone or face-to-face interviews with:

- National and regional stakeholders such as representatives from the postgraduate and medical education training board (PMETB), General Medical Council (GMC), The national Foundation Programme Office [www.foundationprogramme.nhs.uk], modernising medical careers (MMC) and the MMC Inquiry team. Topics will include; the current organisation of foundation doctor rotations, monitoring and assessment issues, criteria for success and planned developments in future training.
- Postgraduate deans within all the English postgraduate deaneries and foundation school directors. Data will be collected on; arrangements for the implementation of the foundation training agenda, key initiatives or examples of best practice occurring nationally.

2. Survey development through scoping study of four emergency departments

Up to four EDs will be selected for a combination of ethnographic work, interviews and focus groups. Selection of these EDs will be informed by data gathered in the consultation exercise and will include criteria such as membership of different deaneries, variation in the implementation of training, as well as EDs of varying size.

The main aspects of this work will include:

• Foundation doctors

Views will be sought from ED doctor focus groups about the training programme, experiences in the ED environment, peer support and mentorship, value of the job and opportunities for development.

• The environment

Short ethnographic observations of each ED working practices will enable a profile to be built up of the environment that the foundation doctors work in, the working relationships, departmental activity levels, evidence of teamworking and shop-floor support.

• Trainers and training leads

Two interviews per site with emergency medicine consultants involved in the delivery of training at foundation level will gather information on induction, monitoring, assessments and sign off. In addition, the impact that the new training arrangements have on other staff within EDs in terms of workload, motivation and job satisfaction will be explored.

• Patient interviews

For each site, a sample of five recent ED patients seen and treated by Foundation doctors will be randomly selected and invited to participate in a telephone interview designed to reflect on their recent experience in the ED and tease out those factors which influence ratings of the care they received. An adaptation of the Repertory Grid method²⁵ will be used to contrast and compare different experiences of care. In addition to being an important stand alone piece of work, this information will inform the design of the quality of care study in phase II.

• Foundation doctor survey development

The phase II survey will be developed mainly using adaptations of previously validated scales that reflect the information gathered from themes identified during the scoping work.^{18 19 20 21 22 23} It is felt that the use of pre-existing validated scales that have normative data on doctors within the NHS¹⁷ versioned to reflect the variables identified in phase I, will enable both contemporaneous and longitudinal comparative studies. The survey will be carefully developed and validated by critical commentary and piloting on a group of ED doctors to ensure clarity, readability and ease of completion.

Phase II: (see figure 1)

Longitudinal study

All English EDs will be approached for participation in this phase of the study. It is anticipated

that at least 12 EDs will participate. Three successive cohorts of Foundation doctors will be surveyed in order to ensure inclusion of doctors at every stage of their year 2 rotation. This longitudinal study will analyse both the workforce well-being and motivation of Foundation doctors and the quality of patient care being provided by them in the ED setting. There are three main elements:

1. Foundation doctors:

Doctors eligible for this study are all those entering the second year of foundation training, where one of their four-month posts is in the specialty of emergency medicine.

All eligible doctors will complete a survey at the beginning and the end of their second year. Up to four further surveys will be completed by doctors to ensure each is surveyed at the beginning and the end of each four-month ED post (see figure 1). Each survey will measure well-being, motivation, job satisfaction, professional identity, confidence and competence. Repeating the surveys at these six time points will allow the link between well-being and quality of care to be made. It is anticipated that the main headings of the survey will include:

- **Generic measures** : Well-being, ¹⁸ ¹⁹ motivation, ²⁰ job satisfaction, ²¹ professional identity, ²² confidence in role ²³
- **Programme / training measures** : Mentorship, formal teaching, formal assessments, feedback ²⁴
- **Emergency department measures** : Environment - workload, casemix, peer support, competence in role, job characteristics.

The survey will be administered postally or electronically, depending on local preferences. Data will be analysed to provide understanding of the differences in job perceptions and attitudes that exist within and between participating EDs, between Foundation doctors and over time.

2. Patients:

Quality of care will be assessed using a clinical records review. Record review has become an established method of examining the quality of care provided by a health care organisation. ²⁵ Members of the research team have refined these methods in a major study on the reliability of review methods. ²⁶ The proposed study will use a combination of approaches to derive a quality and safety of care rating for each Foundation doctor. Specialist Registrars in emergency medicine will be recruited from each participating ED to act as reviewers in their own hospital as would happen with clinical audit. Ten clinical records per doctor will be selected from a specified period during their time working in the ED. Five records will be reviewed using the implicit approach, ranking quality of care provided. A further five records will be reviewed using the explicit approach, where reviewers rate quality and safety of care against explicit evidence based standards of care. ²⁷ ²⁸ (See figure 1 for sample size).

To assess reliability, two reviewers will independently assess the same set of records at one time point in six of the participating EDs. Training will be provided for all reviewers.

3. Service:

Routine data will be collected from each participating ED to assess service performance within EDs over the study time period and also compare across EDs on the proportion of patients seen within the four-hour target, mean waiting times, casemix, workload and work rate of foundation doctors.

Statistical Issues

1. Sample Size

Phase II: Foundation doctor sampling

In order to be able to allow for 'clustering' of effects within EDs when testing for heterogeneity in doctor measures between EDs we are proposing to collect the foundation doctor outcome measures in each ED for three successive foundation training cohorts. The analysis will then take the form of a 2-way ANOVA with a different time period effect in each ED. This model will allow us to take into account the clustering of foundation doctor outcome measures within training cohorts within EDs. However, sample size calculations for 2-way ANOVA with clustering within block are not feasible, and since we have no idea of the variance between doctors, nor of the intra cluster correlation coefficient (ICC), such calculations would be arbitrary anyway. However, if

1. we only measured one cohort in each ED
2. the variance between Foundation doctors within cohorts is 5 times the variance between EDs
3. there are approximately 12 Foundation doctors within each cohort,

then 12 EDs (with 1 cohort of 12 Foundation doctors in each and n=144 doctors in total) would give 78% chance of finding significant heterogeneity between the departments (at p=0.05).

In order to allow for a small ICC we are therefore proposing to measure outcomes in 12 EDs in 3 successive cohorts of 12 foundation doctors, ie. in a total of 432 Foundation doctors

2. Data analysis

Phase I: Qualitative analysis. (Scoping study of four EDs)

Analysis of data collected from focus groups, interviews and ethnographic observations carried out in the four EDs will be analysed using thematic analysis (TA). This method is flexible and has the potential to identify, analyse and report themes within the data. broadly theoretical TA approach will be taken in order that analysis is driven by the research aim of identifying key themes related to well-being in Foundation doctors, to inform the development of survey measure for phase II of this study.

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Phase II: Quantitative analysis

Two types of analyses will be undertaken with the data. Initially, a longitudinal analysis of change in outcome measures within each ED. Following this data will be aggregated and a comparative cluster analysis between EDs will be carried out:

- Survey data from the foundation doctors will be analysed to measure changes over time in well-being, motivation, job satisfaction, professional identity, confidence and competence
 - Information gathered will be aggregated to produce a 'well-being score' for each doctor.
 - Records review data will be analysed quantitatively to provide a 'quality and safety' score for each Foundation doctor
 - Both absolute measures of well-being and *change* in well-being will be correlated with quality and safety scores and routine ED data to explore the relationship between Foundation doctor well-being and quality of care they provide
- The 'well-being' and 'quality and safety' scores will then be analysed using multivariate techniques:
- o To assess change within each Foundation doctor over time
 - o In a cluster analysis to evaluate differences between EDs in order to reflect the different training provided and organisational culture that exists and how these impact on patient care and service delivery.

Main Outputs

1. Description of current variation in the organisation and delivery of Foundation training throughout England
2. Patient Outcomes:
 - Score on safety and quality of clinical care provided following the records review
 - Foundation doctor perceived confidence and competence over time
3. Workforce Outcomes:
 - Foundation doctor, well-being, motivation and job satisfaction
 - Differences in Foundation doctor well-being, motivation and job satisfaction compared across EDs.
4. Service outcomes:
 - ED performance measured by mean waiting times, four-hour performance, workload and work rate of Foundation doctors
 - Recommendations for best practice regarding the implementation and delivery of Foundation training in acute NHS settings in order to optimise patient care.
5. Research outcomes;
 - Identification of measures of well-being and motivation that may be further developed into a validated generic tool for use in foundation training.

Benefits of research to NHS

This will be the first study of this type to correlate doctor well-being and motivation with quality of patient care. The ED will be used as the context for this study which will document well-being, motivation and job satisfaction of doctors in training over time and between EDs with different training arrangements and characteristics. The findings will be linked with quality of patient care being provided. Factors that directly link doctor well-being with quality of care will be identified. From this, recommendations about the nature of training, ED experience and doctor well-being that can improve patient care will be made. It is anticipated that measures will be identified that can be further developed into a validated tool for use in the wider NHS to monitor the progress of doctors in training.

Proposals for the involvement of stakeholders

Stakeholders have had a key role in the planning and writing of this proposal. The input from co-applicants GN (the UK Lead Dean for Emergency Medicine) and AF (an ex-local Foundation Programme Director, and current Training Programme Director for the Acute Care Common Stem) has proved invaluable in identifying existing organisations and processes for the phase I stakeholder consultation in this study. Our patient representative (BD) has attended meetings and commented on drafts and her input has ensured that the patient experience is incorporated into the design.

It is expected that the consultation exercise in phase I of this study will enable the views of stakeholders (from training, emergency medicine and patient perspective) to shape the format of phase II, especially the Foundation doctor survey and records review study. In addition, key stakeholders from medical education, emergency medicine and patient representation will form the steering committee for the study.

Finally, participants at all levels will be invited to two workshops at the conclusion of the study, in order to disseminate and discuss the findings.

Plans for dissemination of results

The results will be disseminated as:

- Final report to the NIHR SDO detailing the findings in relation to the aims and objectives
- Two workshops held at the end of the study to disseminate the findings from both phases. The first will be for key stakeholders such as deanery, PMETB, GMC and MMC representatives. The second will be for participating Trusts, EDs and patients.
- A report for distribution to policy makers, the College of Emergency Medicine and academy of Royal Colleges, the GMC, PMETB, MMC team and MMC Inquiry team, regional postgraduate deans, foundation school directors and local training leads and trainers
- A series of research papers for publication in relevant peer reviewed journals.
- Presentation of the findings at relevant health services research, medical education and emergency medicine meetings.

Justification of costs

Suzanne Mason will act as project lead (25% WTE, with funding requested for 2% of this time). She is already in a fully funded post at the University of Sheffield. CO will act as Project Manager for 33 months (100% WTE) to coordinate the whole project, manage the other project staff (clerical support), undertake the day to day running of the project, assist with data analysis and ensure good communication between participating sites. Dr Chris Stride will supervise SM and CO as statistician to the project for its duration. AC will provide organisational psychology and human resources consultancy expertise in phase I, preparation of phase II of this study and assist in analysis and final report writing. ROH and colleagues will provide advice on patient safety and safety climate for phase II (10% WTE each), assist in coordinating the recruitment and training of specialist registrars as reviewers and the conduct of the patient safety and quality of care aspect of the study. Specialist registrars (n=36) in emergency medicine will be funded, recruited and trained to review 4320 clinical records (n=120 per specialist registrar) in order to assess safety and quality of care provided by the Foundation doctors. Other costs principally relate to travel to undertake the phase I consultation and scoping work, travel to 12 EDs for phase II and conducting the Foundation doctor survey. Finally, costs are requested for service user and stakeholder involvement for provision of expert advice and attendance at steering committee meetings.

Steering Committee

The remaining applicants (GN, AF, JG, BD) will support the study through the formation of a steering committee that will be responsible for monitoring its progress. These individuals have extensive experience of doctor training and modernising medical careers, emergency care delivery and research in this field in the UK. Meetings will be held at 6 monthly intervals to; ensure safety of participants, monitor the study, ensure data protection and advise on the the final report.

Project timetable

Phase I (months 0-12)

As shown in **figure 2**, in the first 12 months of the project we will complete:

- Planning and preparation of the study
- Consultation exercise with key stakeholders
- Scoping study of four EDs
- Development of the survey tool for phase II
- Analysis and write up of phase I.

Phase II data collection (months 13-24)

In the second 12 months we will undertake:

- Foundation doctor survey over three cohorts of doctors in 12 EDs
- A records review approach to assessing the quality and safety of care provided to patients by Foundation doctors
- Collection of routine data from the 12 participating EDs.

Phase II data analysis and writing up (months 25-33)

- In the final 9 months we will undertake:
- Analysis of data collected during phase II of the study
- Writing up of the study results
- Production of the final report
- Dissemination of the results including two workshops to feedback findings to participants.

Interim reports

Interim reports

Interim report 1: Month 9

Reporting progress in phase I of the study. In particular, ethics and R&D approval status, recruitment of sites for phase II, progress in terms of the consultation and scoping exercises.

Interim report 2: Month 18

Reporting progress in phase II on the data collection. In particular, developing and conducting the Foundation doctor survey, undertaking the training and data collection for the patient quality and safety records review part of the study.

Interim report 3: Month 27

Reporting progress in terms of completing data collection, and inputting data for analysis. Plans for analysis and report writing will be submitted.

References

- 1. Department of Health. 2004. The NHS knowledge and skills framework (NHS KSF) and the development review process. D of H, London.
- 2. Department of Health. 2000. Improving working lives standard: NHS Employees Committed to Improving the Lives of People who Work in the NHS. London: Department of Health.
- 3. Karasek R. and Theorell T. 1990. Healthy Work: stress, productivity and the reconstruction of working life. New York : Basic Books.
- 4. Parker S. 1998. Advanced topics in organisational behaviour. Sage Publications.
- 5. Michie S and West M. 2004. Managing people and performance: an evidence based framework applied to health service organizations. *International Journal of Management Reviews* 5/6 (2): 91-111.
- 6. Grol R, Mokkink H, Helsper-Lucas A, Tielens V and Bulte J. 1989. Effects of the vocational training of general practice consultation skills and medical performance. *Medical Education* 23: 512-521.
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- 9. West MA, Shackleton VJ, Borrill CS et al. 2003. The relationship between staff management practices and patient mortality in acute hospitals: a longitudinal study.

- 10. Wall TD, Bolden RI and Borrill CS et al. 1997. Minor psychiatric disorder in NHS trust employees: occupational and gender differences. *British Journal of Psychiatry* 171: 519-523.
- 11. Patterson M G, Warr PB and West MA Organisational climate and productivity. *J Occupational and Organisational Psychology*. 2004; 77:193-216
- 12. Morey JC, Simon R, Jay GD et al. Error reduction and performance improvement in the emergency through formal teamwork training: evaluation: results of the MedTeams project. *Health Serv Res*. 2002 Dec;37(6):1553-81.
- 13. The National Health Service. Modernising Medical Careers. Available from: <http://www.mmc.nhs.uk/pages/resources/keydocuments>
- 14. Clough C. 2005. Modernising Medical Careers: effect on NHS service delivery. *Hospital Medicine* 66 (3):139-141.
- 15. Aspiring to Excellence: Findings and Recommendations of the Independent Inquiry into Modernising Medical Careers led by Sir John Tooke. Available from: <http://www.mmcinquiry.org.uk/draft.htm>
- 16. Yamey G. 2001. Promoting wellbeing among doctors. *British Medical Journal Editorial* 322: 252-253.
- 17. Mullarkey S, Wall TD, Warr PB, Clegg, CS and Stride C. 1999. Measures of job satisfaction, mental health and job-related well-being: A bench-marking manual. Sheffield, England: Sheffield Academic Press Ltd.
- 18. Warr PB. 1987. Work, unemployment and mental health. Oxford: Oxford University Press.
- 19. Warr PB. 1990. The measurement of well-being and other aspects of mental health. *Journal of Occupational Psychology* 63: 193-210.
- 20. Pritchard RD and Payne S. 2003. Performance management practices and motivation. In Holman D, Wall T D and Clegg C W. The new workplace: people technology and organisation: a handbook and guide to the human impact of modern working practices. John Wiley. 219 - 244.
- 21. Warr PB, Cook JD and Wall TD. (1979). Scales for the measurement of some work attitudes and aspects of psychological well-being. *Journal of Occupational Psychology* 52: 129-148.
- 22. Pratt M, Rockmann, K., Kaufmann, J. 2006. Constructing professional Identity The role of work and identity learning cycles in the customization Academy of Management of identity among medical professionals. *Journal*, 49:235-262
- 23. Croft S and Mason S. 2007. Are Emergency Department junior doctors becoming less experienced in performing common practical procedures? *Emergency Medicine Journal* 24:657-658.
- 24. Postgraduate Medical Education Training Board 2006 National Trainee survey - key findings. PMETB.
- 25. Lilford RJ., A Brown, CA. and Nicholl J. 2007. Use of process measures to monitor the quality of clinical practice. *British Medical Journal* 335 (7621):648-650.
- 26. Hutchinson, A. Comparative Study Of Different Methods To Assess Quality Of Care/ Safety. National Co-ordinating Centre for Research Methodology Project Code RM03/JH08/AH.
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- 28. The National Collaborative Centre for Acute Care Head injury. 2003. Triage, assessment, investigation and early management of head injury in infants, children and adults. Clinical Guideline N0234. Published by National Institute of Clinical Excellence.

- 29. Braun V and Clark V. 2006. Using thematic analysis in psychology. *Qualitative Research in Psychology* 3:77-101.

Morey JC, Simon R, Jay GD, Wears RL, Salisbury M, Dukes KA, Berns SD. Error reduction and performance improvement in the emergency department through formal teamwork training: evaluation results of the MedTeams project. *Health Serv Res.* 2002 Dec;37(6):1553-81.

Ethical approval

Is ethical approval required for this project from the research ethics committee?

Yes

Expertise

Team Expertise

The research team combines significant medical, clinical and HSR expertise and this study will build on local strengths and prior work in service evaluation. SM and AF have extensive clinical experience in emergency medicine. SM currently divides her time between clinical commitments in the ED, and HSR in emergency medicine at the University of Sheffield. Previously and current commissioned projects involving SM and CO have evaluated the impact of paramedic practitioners on older people (The Health Foundation), assessed factors that affect ED waiting times (NIHRSDO) and evaluated the role of Emergency Care Practitioners (NIHRSDO). The Institute of Work Psychology is dedicated to conducting applied research in work settings and is the leading centre for research in Work and Organisational Psychology in the UK. AC was the member of a team that undertook a large scale project for the Department of Health, examining the well-being of 193 secondary health care teams and 5,000 individuals in NHS Trusts in England. RO has extensive experience in risk management, patient safety and changing workplace behaviour. Relevant research projects include methods for assessing quality from hospital records, stakeholder consultations with UK rail companies, passenger representatives and health and safety regulators, and the contribution of organisational and individual factors to employee health status. GN is the national Lead Dean for emergency care and has extensive research experience in the field of postgraduate medical education and a flexible healthcare workforce. JG is a member of the PMETB board and has worked for more than 30 years in medical education development and policy research, JG is Special Adviser to the World Federation for Medical Education. BD is a lay advisor who has experience as a service user, but has also participated in previous research into organisational aspects of emergency medicine.

Grants

Year	Research Grant	Delivered on time
2002	UWAIT: An Investigation of Organisational Factors Influencing Waiting Times In The Emergency Department 2002-2006: NHS SDO	Yes
2002	A Randomised controlled trial to Evaluate The Effectiveness of Community Paramedic Practitioners Managing Older People Calling 999: Health Foundation	Yes
2005	National Evaluation of Emergency Care Practitioners Schemes 2004-05: NHS Modernisation Agency	Yes
2005	Scottish Executive Health Department (SEHD)/NES/Health Economic Research Unit re-survey of all trained Scottish Doctors	Yes
2002	Towards a Flexible Workforce: a basis for change 1999-2002 in Scottish doctors and dentists.	Yes
2003	Health and Safety Executive (HSE), 2003, Health and Safety in Homeworking: Good Practice Cases Studies	Yes
2007	The Effects of Tomorrow's Doctors: 2006 GMC	Yes
2005	Evaluation of the Assessment Programme for Foundation Doctors: Department of Health	Yes
2003	Evaluation of Modernising Medical Careers Programmes Pilot Schemes: Department of Health	Yes

Curriculum Vitae of applicants

Miss Suzanne Mason - Lead applicant

Degree subject/Profession Qualification

MBBS (London) 1990 FRCS (Glasgow) 1995 FFAEM (UK) 2000 MD (Sheffield) 2001

Present & Previous Positions held

February 2007 - present. Reader and Honorary Consultant in Emergency Medicine, University of Sheffield & Sheffield Teaching Hospitals Trust. October '01 - February 2007. Senior Clinical Lecturer and Honorary Consultant in Emergency Medicine. University of Sheffield & Sheffield

Teaching Hospitals Trust. February '97 - October '01. Specialist Registrar in Emergency Medicine; Honorary Clinical Teacher. Northern General Hospital Trust, Sheffield Children's Hospital, Sheffield; Doncaster Royal Infirmary, Doncaster.

Relevant Publications

Croft S, Mason S. Are Emergency Department junior doctors becoming less experienced in performing common practical procedures?, *Emergency Medicine Journal*, 2007. (In Press)

Mason S, Knowles E, Colwell B, Wardrope J, Dixon S, Gorringer R, Snooks H, Perrin J, Nicholl J. Paramedic Practitioner Older People's Support Trial (PPOPS): A Cluster Randomised Controlled Trial. *British Medical Journal*, 2007. (In Press)

Suzanne Mason, Thomas Locker, Angela Carter, Stephen Walters, Chris Stride. An Evaluation of the organisational factors affecting Emergency Department waiting times. University of Sheffield. NCCSDO 2006. <http://www.sdo.lshtm.ac.uk/files/project/49-final-report.pdf>

Locker TE, Baston S, Mason SM, Nicholl J. Defining frequent use of an urban emergency department. *Emerg. Med. J.*, Jun 2007; 24: 398 - 401.

Mason S, O'Keeffe C, Coleman P, Edlin R, Nicholl J. The effectiveness of Emergency Care Practitioners working within existing emergency service models of care *Emergency Medicine Journal*. 2007; 24: 239 - 243.

Croft S, Kuhrt A, Mason S. Are today's junior doctors confident managing minor injury patients? *Emergency Medicine Journal* 2006; 23: 867 - 868.

Locker TE, Mason SM. Are these emergency department data real? *Emerg Med J*. 2006 Jul;23(7):558-9

Munro J, Mason S, Nicholl J. Effectiveness of measures to reduce Emergency Department waiting times: a natural experiment. *Emerg. Med. J.*, Jan 2006; 23: 35 - 39.

Mason S, Coleman P, O'Keeffe C, Ratcliffe J, Nicholl J. The evolution of the emergency care practitioner role in England: experiences and impact. *Emerg. Med. J.*, Jun 2006; 23: 435 - 439.

Mason, S; Turpin, G.; Woods, D.; Wardrope, J.; Rowlands, A. Risk factors for psychological distress following injury. *British Journal of Clinical Psychology*, Volume 45, Number 2, June 2006, 217-230(14).

Locker TE, Mason SM. Digit preference bias in the recording of Emergency Department times. *Eur J Emerg Med*. 2006 Apr;13(2):99-101

Mason S, Fletcher A, McCormick S, Perrin J, Rigby A. Developing assessment of emergency nurse practitioner competence - a pilot study. *Journal of Advanced Nursing*, 2005;50(4): 425-432.

Locker T, Mason S, Wardrope J, Walters S. Targets and moving goal posts- Changes in Emergency Department waiting times in a UK Emergency Department. *Emerg Med J*. 2005; 22: 710-714

Locker T, Mason S. Analysis of the distribution of time that patients spend in Emergency Departments. *British Medical Journal*, 2005;330:1188 - 1189

Squires J, Mason S. Developing Alternative Ambulance Response Schemes: Analysis of Attitudes, Barriers and Change. *Emergency Medicine Journal* 2004; 21: 724-727.

Mason S, Wardrope J, Perrin J. Developing a community Paramedic Practitioner intermediate care support scheme for older people with minor conditions. *Emergency Medicine Journal*, 2003;20:196-198.

Cooke M, Arora P, Mason S. Discharge from triage - Modelling the potential in different types of A&E department. *Emergency Medicine Journal*, 2003;20:130-132.

Current & Recent Research Grants

A randomised controlled trial to evaluate the effectiveness of community Paramedic Practitioners managing older people calling 999 with minor conditions. The Health Foundation, 2002. £289,000 (lead applicant)

Measurement of the clinical and cost effectiveness of non invasive diagnostic testing strategies for deep vein thrombosis. HTA, 2002 £116,000 (co-applicant)

An investigation of organisational factors influencing waiting times in the emergency department. NCCSDO, 2003. £210,000 (lead applicant)

National Evaluation Of Emergency Care Practitioners. Changing Workforce Programme, 2004 £22,000 (lead applicant)

The Long Term and Health Care Outcome of Accidental Injury. Source: Department of Health, 2004. Amount: £272,387 (co-applicant)

A Community Intervention Trial to Evaluate the Clinical and Cost Effectiveness of Emergency Care Practitioners. Source: NCCSDO, 2005- £300,000 (lead applicant)

Evaluation of the costs and benefits of computerised on-scene decision support for paramedics to triage older people who have fallen to appropriate care. Source: Department of Health Policy Research Programme, 2006- £372,000 (co-applicant)

Dr Rachel O'Hara - Co-applicant

Degree subject/Profession Qualification

1999 University of Sheffield, PhD Title: 'Occupational health and musculoskeletal pain at work: An investigation of individual and organisational factors'

1991 Open University, Postgraduate Diploma in Psychology

1989 Queens University Belfast, MSc Occupational Psychology

1988 University of Ulster, BSc(Hons) Human Communication, 2.1

Chartered Occupational Psychologist (British Psychological Society)

Present & Previous Positions held

April 2006-present Lecturer in Public Health, School of Health and related Research (SchARR), University of Sheffield.

Feb 2005-Mar 2006 Section Head, Human Factors Group, HSL, Buxton. Sep 1999-Feb 2005

Researcher/Senior researcher, Human Factors Group, HSL, Sheffield/Buxton.

Jan 1997-Aug 1999 Lecturer in Psychology & Communication, Imperial College School of Medicine.

Jan 1994-Dec 1996 Associate Lecturer in Social Psychology (Part-time), Open University.

Oct 1992-Sep 1996 Research Associate, MRC/ESRC Social & Applied Psychology Unit, University of Sheffield.

Feb-Sep 1992 Occupational Psychologist, Employment Department, Sheffield.

Oct 1989-Feb 1992 Occupational Psychologist, Employment Service, Liverpool Employment Rehabilitation Centre.

Relevant Publications

Papers: Weyman A K, O'Hara R, Jackson, J A. (2005) An investigation into issues of egress in the Ladbroke Grove rail disaster. *Applied Ergonomics*. Nov;36(6):739-48. O'Hara R, Dickety N, & Weyman A. (2005). Good Practice in Assessing Workplace Risks by Small and Medium-sized Enterprises (SMEs) *Risk Management: An International Journal*, 7, (1), 31-41.

Book Chapters: Lunt J, O'Hara R and Cummings R (In press). Changing Occupational Health Behaviour. In *Occupational Health Psychology: European Perspectives on Research, Education and Practice* (Vol. 2). ISMAI Publishing: Portugal.

Reports: O'Hara R, Williamson J and Daniels C. (2004). Review of regulators' approach to duty holders' management of health and safety. HSL Report RAS/04/14.
http://www.hse.gov.uk/research/hsl_pdf/2005/hsl0515.pdf

Turner S, E Corbett E, O'Hara R, and White, J. (2004). Heath and safety effects of rail crowding - hazard identification. HSL Report RAS/04/12.
<http://www.rssb.co.uk/pdf/reports/research/T307%20Health%20and%20safety%20effects%20of%20crowding.pdf>

O'Hara R, Williamson J, Collins A and Higginson D. (2004). Health and Safety in Homeworking: Good practice case studies. HSE Research Report 262, HMSO: Norwich, ISBN 0 7176 2888 4. <http://www.hse.gov.uk/research/rrhtm/rr262.htm>

Wright, S, O'Hara R, and Dickety N, (2002) Risk Assessment: The Extent of Adoption by Industry. HSL Report RAS/02/12

O'Hara R and Dickety N. (2000). Communicating Health and Safety Information in Small Firms Using Chemicals. HSL Report RAS/00/16.

Current & Recent Research Grants

Rail Safety and Standards Board (RSSB), Health and Safety Effects of Rail Crowding - Hazard Identification, April - September 2004, £59,760 (co applicant)

Health and Safety Executive (HSE), June - November 2003, Knowledge of Workplace Transport Hazards amongst British businesses, £48,000 (principal applicant)

Health and Safety Executive (HSE), January - December 2003, Health and Safety in Homeworking: Good Practice Case Studies, £57,000 (principal applicant)

Dr Angela Carter - Co-applicant

Degree subject/Profession Qualification

Doctor of Philosophy (PhD). The University of Sheffield Chartered Occupational Psychologist. The British Psychological Society MSc. (Occupational Psychology). Birkbeck College, London University Modules for Assessment and Verification of Competence; National Vocational Qualifications (D32, D33) BPS Certificate of Competence in Occupational Testing (Level I) Certificate in Training and Development. Institute of Personnel Development BSc. Hons. II.I (Psychology). Birkbeck College, London University Teaching Diploma of the College of Radiographers Further Education Teaching Certificate (Distinction) Higher Diploma of the College of Radiographers Diploma of the College of Radiographers

Present & Previous Positions held

1997 to present Independent consultant and Research Fellow at the University of Sheffield
1993-1997 Research Fellow at the Institute of Work Psychology, University of Sheffield
1991-1993 Partner: Strategic Development Partnership - Internal management training and development consultant, North East Thames Regional Health Authority. 1985-1991 Radiotherapy Principal Teacher - St. Bartholomew's Hospital, London. 1980-1985 Various teaching posts in radiography. 1973-1980 Various clinical and managerial posts as a radiotherapy radiographer.

Relevant Publications

Carter, A.J., Mason, S., & Locker, T. (2007). Leadership and autonomy: what is the productive balance? Paper to be presented as part of a leadership symposium (Chair J. Felfe) at the XIIIth European Congress of Work and Organizational Psychology, Stockholm, Sweden.

Carter, A.J. (2006). Can leadership style predict organizational performance? Paper presented as part of a leadership symposium B. Scheins (convenor) at the 26th International Congress of Applied Psychologists, 16-21 July, 2006, Athens.

Carter, A.J. (2006). Spotlight on I-O Organizations: I-O or OP: what's in a name? *The Industrial-Organizational Psychologist*, 43, (2), 33-37.

Carter, A.J. (2006) What does the literature about leadership tell us about developing leader behaviour? Paper given at the British Psychological Society Division of Occupational Psychology Annual Conference as part of a symposium A. Carter (Chair) Practitioner to academic "why does your research NOT tell me anything useful to assist my practice in organizations". January 11-13, Glasgow.

Carter, A.J. (2006). Do you know what to do in your job role? Paper given as part of University of Leicester Occupational Psychology Course Conference 26-28th April 2006.

Carter, A.J, Tse-Hui Chng, J., Hubert, F., & Straw, R. (2005). Role clarity and its implications for managers. Paper presented at the BPS SW Branch conference "Improving organisational and personal health and effectiveness", 26 November, Truro, UK.

Tse-Hui Chng, J., Carter, A.J., & Leach, D. (2005). Dear leader: do I really need you? Paper given at the BPS Division of Occupational Psychology Conference 12-15 January 2005, Warwickshire, UK.

Unsworth, K.L., Wall, T.D., & Carter, A.J. (2005). Creative requirement: A neglected construct in the study of employee creativity? *Group and Organizational Management*, 30, 541-568.

Carter, A (2005, February) (Chair). Influencing Strategic Health Authorities and Trusts. Workshop contribution to NIMHE / BPS conference New ways of shaping and delivering psychological services, 10 to 11 February, Birmingham, UK.

Carter, A.J, Tse-Hui Chng, J., & Leach, D. (2004). Do teams need leaders? An examination of attitudinal and behavioural outcomes from multi-source feedback. Paper presented as part of a leadership symposium (Chair B. Schyns) at the 12th Congress of Work and Organizational Psychology, Istanbul, Turkey.

Carter, A.J., Hubert, F., & Bell, J. (2004). Who is my leader, what do they do? Paper to be presented as part of a leadership symposium (Chair B. Schyns) at the 28th International Congress of Psychology, Beijing, China 8-13 August 04.

Carter, A.J., & Williams (2004). Researchers in the NHS: considering the wide range of research currently being done by occupational psychologists. Given at Working In health: The Occupational Psychology contribution. July 2004. The British Psychological Society.

Bell, J. & Carter, A.J. (2004). Does your team leader lessen or increase your stress? Paper given at the BPS Division of Occupational Psychology Conference 7-9th January 2004, Stratford, UK.

Carter, A.J. (2003). Do Team Leaders encourage effective group behaviour? Paper presented as part of a leadership and management symposium B. Schyns (Chair) Regarding Leadership from the Team and Individual perspective) at the 11th European Congress on Work and Organizational Psychology "Identity and Diversity in Organizations - Building Bridges in Europe", 14 - 17th May 03, Lisboa, Portugal.

Napier, B., & Carter, A.J. (2003). Research: the enduring challenge. Paper presented to the Research and Professional Practice Boards of the British Psychological Society. To be published in the Psychologist.

25th International Congress of Applied Psychologists "Making life better for all: A challenge for applied psychologists", Singapore, July 7-12, 2002 - Making life better for teamworkers: A challenge for interventionists?

Unsworth, K.L., Wall, T.D., & Carter, A.J. (2002). New questions and answers about emotion, creativity and intelligence in the workplace. A symposium held at Academy of Management Conference, August, Denver, Colorado, USA.

10th European Congress of Work and Organizational Psychology, Prague, May 2001 - Teams are good at lots of things: A field study of teamworking in a health care organization.

Carter, A.J., Hayes, A., & Uttridge, J. (2001). Learning from work - the Sesame approach to work-based learning. In H. Lentill and R. Triggs (Eds.) Making it Happen, conference papers from Work-based Learning conference March, 2001: National Extension College and Anglia Polytechnic University: Pilgrim Projects Ltd, Cambridge.

Carter, A.J. (2000, February). New insights into stress management. Employee Health Bulletin, p.2.

Borrill, C.S., Carletta, J., Carter, A. J., Dawson, J.F., Garrod, S., & West, M.A. (2000). The Effectiveness of Health Care Teams in the National Health Service: Final report. Department of Health.

Academy of Management Symposium, Toronto, August 2000 - Teamworking and well-being: Empirical evidence from public and private sector work organizations.

The British Psychological Society, London Conference, December 1999 - Teamwork in healthcare

Carter, A.J., & West, M.A. (1999) Sharing the load: Teamwork in healthcare settings. In R.L. Payne and J. Firth-Cozens (Eds.), Stress in health care professionals. Chichester: Wiley.

Payne, R.L., Wall, T.D., Borrill, C., & Carter, A.J. (1999) Strain as a moderator of the relationship between work attitudes. Journal of Occupational Health Psychology, No. 1, 3-14.

Borrill, C.S., West, M.A., Wall, T.D., Shapiro, D.A., Haynes, C.E., Stride, C. Woods, D., & Carter, A.J. (1998) Stress among staff in NHS Trusts. Published by the Institute of Work Psychology, University of Sheffield.

Wall, T.D., Bolden, R.I, Borrill, C.S., Carter, A.J. et al. (1997) Minor psychiatric disorder in NHS Trust staff, occupational and gender differences. British Journal of Psychiatry, 171, 519-523.

Borrill C.S., Wall T.D., West M.A., Hardy G.E., Shapiro D.A., Carter A., Golya D.A., & Haynes C.E. (1996). Mental Health of the Workforce in NHS Trusts. Published by the Institute of Work Psychology, University of Sheffield.

[Current & Recent Research Grants](#)

2003 - 2006 Co grant holder with Ms Susanne Mason looking at "organisational factors that influence waiting times in Emergency Departments - SDO £300,000

2006 - 2008 Co grant holder with Mr Steve Goodacre looking at "evaluation of National Infarct Angioplasty Pilot Projects" - SDO £300,000.

Mr Colin O'Keeffe - Co-applicant

[Degree subject/Profession Qualification](#)

Degrees

1992 BA (Hons) History (University of London) 1995 MA Applied Social Research (University of Manchester)

[Present & Previous Positions held](#)

Nov 1999 - present: Research Associate, Health Services Research Unit, School of Health and Related Research (SchARR), University of Sheffield

Nov 1997 - Nov 1999: Research Associate, Department of Public Health, SchARR, University of Sheffield

Aug 1995 - Nov 1997: Research Assistant, Department of Public Health, University of Hull

[Relevant Publications](#)

Effectiveness of emergency care practitioners working within existing emergency service models. S Mason, C.O'Keeffe, P.Coleman R.Edlin, J.Nichol. Emergency Medical Journal. 2007; 24: 239-243

The evolution of emergency care practitioners in England - experiences and impact. S Mason, P.Coleman, C.O'Keeffe, J. Ratcliffe, J.Nichol. Emergency Medical Journal. 2006;23:435-439

Effectiveness of screening and monitoring tests for diabetic retinopathy - a systematic review. A Hutchinson, A.McIntosh, J. Peters, C.O'Keeffe, K.Khunti, R.Baker and A.Booth Diabetic Medicine. 200;17; 495-506, 2000

A systematic review of foot ulcer in patients with Type 2 diabetes mellitus. I : Prevention. J. Mason, C.O'Keeffe, A Hutchinson, A.McIntosh, R Young and A.Booth Diabetic Medicine. 1999;16: 801-812

A systematic review of foot ulcer in patients with Type 2 diabetes mellitus. II: Treatment. J. Mason, C.O'Keeffe, A Hutchinson, A.McIntosh, R Young and A.Booth 17, 495-506, 1999

Current & Recent Research Grants

Not applicable

Mr Alan Fletcher - Co-applicant

Degree subject/Profession Qualification

. Med. Sci. (Hons) 2:1 Anaesthesia March 1991 MB. ChB. June 1992 MRCP (UK). Oct 1995 FFAEM Nov 2003 CCST A&E Medicine 1st July 2004 CCST General (Internal) Medicine 1st July 2004

Present & Previous Positions held

Present post Consultant in A&E Medicine and Acute Medicine July 2004 - present Sheffield Teaching Hospitals NHS Trust

Specialist Registrar in Accident and Emergency Medicine SHF/030/202N and General Medicine in North Trent July 1999-July 2004 North Trent Senior House Officer Training Scheme in Anaesthesia Feb 1998 - February 1999

Clinical Lectureship in Medicine April 1996 - February 1998 Clinical Lecturer in Medicine, Endocrinology and Diabetes University of Sheffield, Northern General Hospital, Sheffield

Relevant Publications

Presentation to accident and emergency with crying or screaming and likelihood of child protection registration. A.K. Fletcher and D.P Burke Emergency Medicine Journal, 2002; 19:17-18

3-in-1 femoral nerve block as analgesia for fractured neck of femur in the emergency department: a randomized controlled trial. A.K. Fletcher, A.S. Rigby and F.L.P. Heyes. Annals of Emergency Medicine 2003; 41:227-233

Oxygen therapy in COPD. A.K. Fletcher Respiratory Disease in Practice 2004; 20: 13-15

Developing assessment of emergency nurse practitioner competence. S Mason, A Fletcher, S McCormick, J Perrin, A Rigby Journal of Advanced Nursing, 2005; 50: 425-432

Deep vein thrombosis among injecting drug users in Sheffield. V.A.Cooke, A.K.Fletcher Emergency Medicine Journal, 2006; 23:777-779

Current & Recent Research Grants

Research B. Med. Sci. Thesis: " A review of the management of postoperative pain"

I am an invited peer reviewer for the Emergency Medicine Journal, the McMaster online journal rating initiative, and Blackwell's publishers.

Mrs Beryl Darlison - Co-applicant

Degree subject/Profession Qualification

Teaching certificate 1959

Present & Previous Positions held

Taught in Junior schools 1959 - 1971 (Somerville Junior School, Wallasey) (Cole St Junior School, Birkenhead) (Monteney Junior School, Sheffield)

Worked part time in adult education (Sheffield) 1977 - 1989) Dukeries Training Agency 1989 - 1991

Worked in Acorn Education Centre at Rampton Special Hospital 1991 - 2004) Retired

Relevant Publications

None

Current & Recent Research Grants

None

Professor Gillian Needham - Co-applicant

Degree subject/Profession Qualification

BSc (Hons) Anatomy: First Class - 1978

MBChB(Hons)- 1981

FRCR (UK) *by examination* - 1986

FRCP (Edinburgh) *ad hominem* - 1998

FHEA (previously ILTM) - 2000

FRCS (Edinburgh) *ad hominem* - 2007

BASIC MEDICAL EDUCATION:

Manchester University Medical School 1975 - 81

House Officer Post

Wythenshawe Hospital, South Manchester 1981 - 82

Hope Hospital, Salford

GENERAL MEDICAL EDUCATION:

SHO Cardiothoracic Medicine, South Manchester Rotation 1982 - 83

HIGHER SPECIALIST TRAINING:

NW Regional Radiology Training Rotation

Registrar and Senior Registrar 1983-87

Aberdeen Radiology Training Programme

Senior Registrar 1987 - 89

PREVIOUS CAREER POSTS:

1. Whole-time Consultant and Clinical Senior Lecturer in Diagnostic Radiology Aberdeen Royal Hospital and Aberdeen University. Appointed 1989

Specialist interests- Breast Imaging (including Screening) and ENT and Maxillo-facial Imaging.

2. Flexible Training Adviser (one session) Appointed 1996

N.E. Scotland Postgraduate Centre

Facilitating part-time and flexible training (and working) in the Region.

CURRENT POST:

Postgraduate Medical Dean Appointed 1999

North of Scotland Deanery and

Personal Professor of Medicine and Medical Sciences

[Relevant Publications](#)

Needham G. Making the Best Use of a Department of Clinical Radiology - Guidelines for Doctors. *Health Bulletin* (1996) 54(5)

Needham G. Towards Quality Assurance of Postgraduate Training in Radiology. *Clinical Radiology*, 54:140-143, (1999)

Eccles M, Steen N, Grimshaw J, Thomas L, McNamee P, Soutter J, Wilsdon J, Matowe L, Needham G., Gilbert FJ and Bond S. Effect of audit and feedback, and reminder messages on primary-care radiology referrals: a randomised trial. *Lancet* (2001) 5;357:1406-1409

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Fiona FFiona French, Jane Andrew, Morag Awaramenko, Helen Coutts, Linda Leighton-Beck, Jill Mollison, Gillian Needham, Anthony Scott, Kim Walker. Why do work patterns differ between men and women GPs? *Journal of Health Organization and Management (2006) 20 Number 2: 163-172.*

Current & Recent Research Grants

Grant holder and co-lead for a Scottish Executive Health Department (SEHD)/NES/Health Economic Research Unit re-survey of all trained Scottish Doctors (£87,025) 2005-2007

Grant holder (£126,841) and project lead for 'Towards a Flexible Workforce: a basis for change'(1999-2002). This qualitative and quantitative survey of Scottish Doctors and Dentists continues to inform SEHD policy and planning

Grant holder (£205,178) for an EU Radiology Guideline Development Project (2000-2002) and for the Scottish TeleMedicine Action Forum funded (£424,883) North of Scotland Tele-Education Project (2002-2004), now mainstreamed

Dr Chris Stride - Co-applicant

Degree subject/Profession Qualification

Ph.D. in Statistics, awarded December 1995. Thesis entitled "Semi-parametric Density Estimation", 1992-1995, University of Warwick

B.Sc. Honours, Mathematics and Statistics, 1989-1992, University of Warwick

Present & Previous Positions held

10/96 to present, Institute Statistician at University of Sheffield Institute of Work Psychology (IWP).

Over the past ten years I have worked on over 100 different Institute projects in some form, as well as collaborative projects with the Management School, SCHARR and Clinical Psychology. I have also undertaken statistical analysis, research and presentation of results for several local and national businesses such as Barclays Bank and Centrica, both through the Institute's consultancy unit and as private consultancy work.

10/95 to 09/96, Statistician at The National Foundation for Education Research (NFER).

Relevant Publications

Stride, C.B., Wall, T.D. and Catley, N. (2007) Measures of Job Satisfaction, Organisational Commitment, Mental Health and Job-related Well-being: A BenchMarking Manual, Second Edition. Wiley.

Birdi, K., Clegg, C., Patterson, M., Robinson, A., Stride, C. B., Wall, T. D., and Wood, S. J. (2007). Contemporary manufacturing practices and company performance: a longitudinal study. *Personnel Psychology*.

Van Dierendonck, D., Haynes C., Borrill, C. and Stride C. B., (2007). Effects of upward feedback on leadership behaviour toward subordinates. *The Journal of Management Development*.

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Brown, I., Stride, C. B., Psarou, K., Brewins, L., Thompson, J. (2007). Management of Obesity: survey of the practices, beliefs and attitudes of primary care nurses. *Journal of Advanced Nursing*.

Hutchinson, A., Cooper, K. L., Dean, J., McIntosh, A., Patterson, M., Stride, C. B., Laurence, B. E., Smith, C. M. (2006) Use of a safety climate questionnaire in UK health care: factor structure, reliability and usability. *Quality and Safety in Health Care*.

Eiser, C., Stride, C. B., Davies, H., Jenney, M., Glaser, A. (2006) HRQOL implications of treatment with dexamethasone for children with Acute Lymphoblastic Leukaemia (ALL). *Pediatric Blood and Cancer*.

Wood, S. J., Holman, D., and Stride, C. B. (2006) Human Resource Management and Performance in UK Call Centres. *British Journal of Industrial Relations*.

Leach, D. J., Stride, C.B. and Wood, S. J. (2006). The effectiveness of idea capture schemes. *International Journal of Innovation Management*.

Eiser, C., Eiser, J. R., Stride, C. B. (2005) Quality of life in children newly diagnosed with cancer and their mothers. *Health and Quality of Life Outcomes*.

Wood, S. J., Stride, C.B., Wall, T. D., Clegg, C. (2004) 'Revisiting the Use and Effectiveness of Modern Management Practices', *Human factors and Ergonomics in Manufacturing*.

Van Dierendonck, D., Haynes, C., Borrill, C., & Stride, C. B. (2004). Leadership behaviour and subordinate well-being. *Journal of Occupational Health Psychology*.

Axtell, C., Wall, T. D., Stride, C. B., Pepper, K., Clegg, C. (2002). Familiarity Breeds Content: The Impact of Exposure to Change on Employee Openness and Well-being. *Journal of Occupational and Organizational Psychology*.

Clegg, C. W., Wall, T. D., Pepper, K., Stride, C. B., Woods, D., Morrison, D. (2001). An international study of the use and effectiveness of modern manufacturing practices. *Human factors and Ergonomics in Manufacturing*.

Eiser, C., Molkenboer, S., Stride C.B., and Grimer, R. (2001) QoL implications as a consequence of surgery. *Sarcoma*.

Rees, A., Stride, C. B., Shapiro, D. A., Richards, A. & Borrill, C. S. (2001) 'Psychometric properties of the community mental health team effectiveness questionnaire (CMHTEQ)'. *Journal of Mental Health*.

Haynes C., Wall T. D., Bolden R. I., Stride C. B., and Rick J. E. (1999) Measures of perceived work characteristics for health services research: Test of a measurement model and normative data. *British Journal of Health Psychology*.

Kapur N., Borrill, C, and Stride C. B. (1998) Psychological Morbidity and job satisfaction in hospital consultants and junior house officers. *British Medical Journal*.

Copas J. B. and Stride C. B. (1997) Fitting a Normal Distribution when the model is wrong. *Annals of the Institute of Statistical Mathematics*.

Current & Recent Research Grants

n/A

Finance

Directly incurred costs: Staff details

Name (if known)	Grade	Increment Date	HEI	Starting point on scale	Starting Salary	London Weighting	Other Allowances	Superannuation & National Insurance
Admin Staff								
Joanne Casson	4	01 Jan 2011	Yes	4	£17,651	£0	£0	£3,883
Research Staff								
Patricia Coleman	8	01 Jan 2010	Yes	7	£40,335	£0	£0	£8,874

Joanne Dean	7	01 Jan 2009	Yes	7	£30,012	£0	£0	£6,603
Admin Staff								
Joanne Casson	4	01 Jan 2010	Yes	3	£17,651	£0	£0	£3,883
Research Staff								
Christopher Stride	8	01 Jan 2010	Yes	7	£40,335	£0	£0	£8,874
Admin Staff								
Joanne Casson	4	01 Jan 2009	Yes	2	£16,199	£0	£0	£3,564
Research Staff								
Colin O'keeffe	7	01 Jan 2009	Yes	10	£32,796	£0	£0	£7,215

Name (if known)	Total hours/project life	Total months/project life	HEI	Costs (£)					
				Year 1	Year 2	Year 3	Year 4	Year 5	Total
Admin Staff									
Joanne Casson	732	8	Yes	£0	£0	£8,728	£0	£0	£8,728
Research Staff									
Patricia Coleman	165	12	Yes	£8,636	£0	£0	£0	£0	£8,636
Joanne Dean	452	33	Yes	£3,124	£3,330	£2,636	£0	£0	£9,090
Admin Staff									
Joanne Casson	11	1316	Yes	£0	£15,237	£0	£0	£0	£15,237
Research Staff									
Christopher Stride	250	24	Yes	£3,007	£3,533	£313	£0	£0	£6,854
Admin Staff									
Joanne Casson	825	12	Yes	£10,226	£0	£0	£0	£0	£10,226
Research Staff									
Colin O'keeffe	3613	33	Yes	£34,186	£36,512	£28,910	£0	£0	£99,608
Total Annual Costs									£158,379

HEI staff are shown with the 80% FEC applied.

Travel and subsistence

Item	HEI	Costs					
		Year 1	Year 2	Year 3	Year 4	Year 5	Total
Travel	Yes	£800	£800	£800	£0	£0	£2,400
Attendance at steering group meetings, reading associated documentation £150 per person per meeting (5 steering group meeting anticipated)							
Travel	Yes	£4,000	£6,400	£0	£0	£0	£10,400
Phase I Travel to deaneries and other meetings for consultation exercise(2xpeople, up to 20 journeys, 5 overnight stays) Travel to 4 EDs for in-depth work (2xpeople, up to 4 journeys, 2 overnight stays) Phase II Travel to 12 EDs for setting up study (2xpeople, up to 12 journeys, 4 overnight stay)							
Total Annual Costs							£12,800

HEI travel and subsistence are shown with the 80% FEC applied.

Directly incurred costs: Equipment

Please describe and outline the relevance to the project:

Provision of 2 computers and printers for 1 researcher and 1 clerical assistant during the life of the project.

Item	Expected equipment life (in years)	HEI	Price exc. VAT
Up to £50,000 in total			
Computer	3 year	Yes	£1,600

Total Annual Costs	£1,600
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HEI equipment is shown with the 80% FEC applied.

Directly incurred costs: Consumables

Item	HEI	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Consumables	Yes	£2,400	£11,200	£2,400	£0	£0	£16,000
Total Annual Costs							£16,000

HEI consumables are shown with the 80% FEC applied.

Directly incurred costs: Other directly incurred costs

Item details	HEI	Cost
Advise and expertise throughout the study	Yes	£6,000
External Consultancy	Yes	£97,208
Advise from lay member Beryl Darlinson	Yes	£1,200
Total Annual Costs		£104,408

HEI costs are shown with the 80% FEC applied.

Directly allocated costs: Staff

Name	Role on project	HEI	Total hours/project life	Cost over life of project
Suzanne Mason	Lead applicant	Yes	90	£4,802
Rachel O'Hara	Consultant	Yes	387	£10,681
Total Annual Costs				£15,483

HEI staff are shown with the 80% FEC applied.

Directly allocated costs: Non-staff

Item	HEI	Cost
Infrastructure charge	Yes	£563
Estate Costs	Yes	£14,440
Total Annual Costs		£15,003

HEI items are shown with 80% FEC applied. Estate charges ONLY apply to HEI institutions and will be shown with 80% FEC applied.

Indirect costs

Indirect costs charge (80% FEC applied)

£ 101,171

NHS support costs

This section has not been submitted

Estimated Treatment Costs

This section has not been submitted

Standard alternative treatment costs

This section has not been submitted

Costs of project summary

Full Economic Cost

Higher Education Institution costs @ 80%	
Total of directly incurred costs	£293,187
Total of directly allocated costs	£30,486
Indirect costs	£101,171
HEI total costs	£424,844
Non-Higher Education Institution costs @ 100%	
Total of directly incurred costs	£0
Total of directly allocated costs	£0
Non-HEI total costs	£0
Research grant	£424,844
NHS Support Costs	£0
NHS Excess treatment costs	£0
NHS standard alternative treatment costs	£0
Total NHS Costs	£0
Total Funding Required	£424,844

Annexes

Figure 1: Plan of investigation

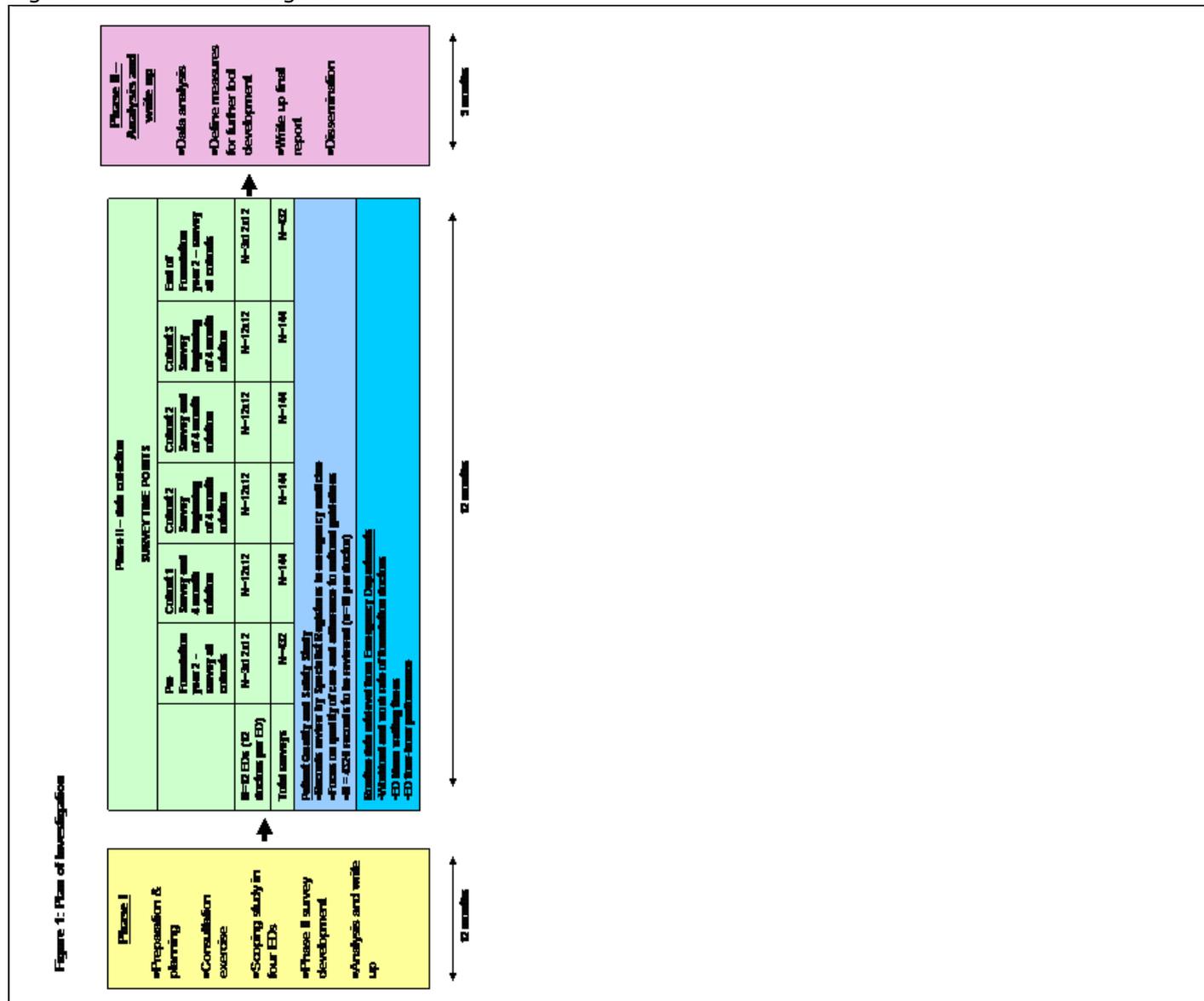


Figure 1: Gant chart

STAGE OF STUDY	1-4	5-8	9-12	13-16	17-20	21-24	25-28	29-31	32-34
Planning and preparation including recruitment of EDs, ethical and R&D applications	Shaded	Shaded	Shaded						
Consultation exercise	Shaded								
Scoping study within four emergency departments		Shaded							
Developing the doctor survey for phase II			Shaded						
Analysis and write up of phase I			Shaded						
Foundation doctor survey				Shaded	Shaded	Shaded			
Safety and quality of care clinical records review				Shaded	Shaded	Shaded			
Routine data collection							Shaded	Shaded	
Final analysis and writing up, dissemination								Shaded	Shaded

The Service Delivery and Organisation Programme is part of the National Institute for Health Research.