



Identifying the work activities performed by doctors in the Foundation Programme

Research conducted for the General Medical Council

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All interpretation and opinion in this report is that of the authors alone and does not necessarily reflect that of the General Medical Council.

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Glossary

Deanery. Historically, a body responsible for the management and quality management of postgraduate medical education within a region of the UK. Since 2013, Deaneries in England have been replaced organisationally by LETBs, but the term is still commonly used. Medical education in Northern Ireland is managed by the Northern Ireland Medical and Dental Training Agency, while Wales and Scotland retain Deaneries as distinct entities.

DGH – District general hospital. Typically the major provider of secondary care for a locality, with patient referrals coming from General Practitioners or its own Accident and Emergency department. There is no easy distinction of a DGH from a teaching hospital, though doctors tend to regard a district general hospital as being smaller and without direct access to certain specialist care services, such as neurosurgery.

Foundation Programme. The first two years of postgraduate medical training undertaken in the UK.

F1 – Foundation Year 1. During the first year of the Foundation Programme F1 doctors are provisionally registered with the GMC, with limitations on their unsupervised practice, and prescribing. During this year they must show that they have met the outcomes specified by the GMC before they are eligible to apply for full registration.

F2 – Foundation Year 2. During the second year of the Foundation Programme F2 doctors still work under supervision but take on more responsibility for patient care. After successful completion of this year trainees may progress into specialty or general practice training in the UK, or elsewhere.

LEP – Local Education Provider. An organisation commissioned by a Deanery or LETB to provide education and training. These may include NHS Foundation Trusts, Health Boards, or primary care facilities.

LETB – Local Education and Training Board. In England LETBs are responsible for the education and training of health and public health workers at a regional level. They are committees of the national body, Health Education England (HEE). All providers of NHS services in England should be a member of, and be involved with the work of their local LETB.

PRHO – Pre-Registration House Officer. The first year of postgraduate work before the introduction of the Foundation Programme in 2005. While the structure of training has changed, some literature looking at the work of PRHOs is relevant to the practice of F1s.

SHO – Senior House Officer. Before the introduction of the Foundation Programme, doctors undertook a number of SHO posts in their second and subsequent postgraduate years in order to gain experience across a number of specialties before embarking on a particular career route. The term SHO is still commonly used to describe the tier of junior trainees above F1 doctors. 'SHO rotas', which include F2 doctors and junior specialty trainees may still be in place.

Registrar. A tier of more senior specialty trainees, generally those who have completed their Membership examinations for medicine, surgery or relevant specialty. The term is still commonly used, although formally it has been superseded by Specialty Training (ST) grades.

Teaching hospital. While there may be no single definition of a teaching hospital, doctors tend to associate this hospital type with provision of both secondary and tertiary care, with referrals direct from the local community and from surrounding DGHs for specialist input. Hence, teaching hospitals are viewed typically as being large centres. The term is generally understood to imply affiliation with a medical school and an associated track record of academic research excellence.

UKFPO – United Kingdom Foundation Programme Office. The UKFPO manages the national application process to the Foundation Programme, issues guidance on Foundation training and promotes the consistent delivery of the Foundation Programme across the UK.

Key points of project

Understanding the work of Foundation Programme doctors is essential for ensuring that undergraduate curriculum guidance will produce doctors with the appropriate skills for today's healthcare practice.

The activities specified as outcomes in GMC policy (formerly Tomorrow's Doctors 2009 and The Trainee Doctor) have not been validated in Foundation Programme doctors' practice until now.

While many of these activities are routinely undertaken by Foundation Programme doctors (for example, interpreting investigations, prescribing), a substantial number are not (for example, basic observations, giving injections).

Activities which are not routine may be required relatively rarely because they relate to infrequent conditions, or may be common in practice but performed by other staff groups.

There is therefore potential for this list of activities to be revised. Possible criteria to prioritise activities for retention in curriculum guidance are:

- (i) Empirical evidence of an activity being a routine part of trainees' work.*
- (ii) An activity that requires a doctor to carry it out.*
- (iii) Potential that an activity may be required in an emergency (life-saving) context.*
- (iv) Potential that an activity may be required when other staff are not immediately present.*
- (v) An activity that may be rare in most circumstances, but is routine in particular specialties or clinical contexts.*

However, any consideration of the removal of activities from curriculum outcomes should proceed cautiously, and seek to identify unintended consequences from such removal.

Foundation Programme doctors are expected to fulfil different functions – of support, practitioner and learner – and perform different activities in different settings. These can vary on local (ward and team) and organisational (setting and specialty) levels.

Policy specifying undergraduate curricula may be made more fit for purpose by:

- Shifting focus to the role or function of the F1 doctor in the healthcare team, rather than discrete activities.*
- Managing student expectations of what F1 work will involve, emphasising the plurality and fluidity of these roles.*
- Foregrounding the importance of appropriate inter-professional education to articulate the doctors' role and function as part of a healthcare team.*
- Situating the role of the F1 doctor within the wider healthcare organisation and emphasising that quality and safe patient care derives from the plurality of roles.*

Executive Summary

Background

Foundation Programme doctors are often the members of medical staff with most regular contact with patients, and are consequently at the forefront of patient safety. It is therefore essential that the curricula they follow as medical students reflect what they will be required to do when they begin work.

The General Medical Council (GMC) specifies the required outcomes of medical school and Foundation Year 1 (F1) training in documents that presuppose the work that is done by F1 doctors. However, little is known about what actually comprises the work of these doctors, and so whether those outcomes are appropriate.

This report examines the work of Foundation Programme doctors from a number of perspectives. Specific questions examined are:

- i) What activities do Foundation Programme doctors carry out in their daily work?
- ii) How do these activities map to the outcomes specified by the GMC?
- iii) What perceptions do key stakeholder groups have of the activities required of F1s?
- iv) How does the regularity of activities vary between F1 and F2 trainees, specialties, types of healthcare organisation or geographical regions?
- v) To what extent are activities routinely carried out by doctors, or by nurses?

What was done

Mixed methods were used to collect data from Foundation Programme doctors and other stakeholders. Data collection involved:

Foundation Programme doctors	<ul style="list-style-type: none">• Questionnaire completed by a national sample of F1 (n=1,819) and F2 trainees (n=1,878), asking about the frequency with which they perform each of 103 activities (97 of which were drawn from GMC documents).• Focus groups in 5 areas of the UK (total n=58 participants).• Telephone interviews with a national sample of F1s (n=13) and F2s (n=8).
Nurses	<ul style="list-style-type: none">• Questionnaire completed by a regional sample from North East England (n=221), asking about the extent to which the 103 activities are generally performed by nurses or by Foundation Programme doctors.• Focus groups in two areas of the North East region (total n=22 nurses).
Supervisors	<ul style="list-style-type: none">• Telephone interviews with a national sample (n=14).
Employers	<ul style="list-style-type: none">• Telephone interviews with a national sample of senior clinicians with deployment responsibility (n=4).• Telephone interviews with a national sample of senior non-medical Trust management staff (n=4).

These stakeholder groups are regarded as having particular insight into the daily work, supervision and employment of Foundation Programme doctors.

Key findings

The data illuminate three inter-related aspects of work: (i) the specific activities performed by Foundation Programme doctors; (ii) the roles fulfilled by Foundation Programme doctors in the workplace, and (iii) the factors which shape the nature of their work.

Activities

Many of the activities specified in policy documents (39% of those specified in GMC outcomes – see table) are ‘routine’ – that is they are performed regularly (at least once or twice a week) by more than 75% of all Foundation Programme trainees (F1 and F2), indicating alignment between policy and practice for these activities. However, while many were identified in interviews and focus groups as being appropriate, some of these activities – particularly those that are regarded as ‘administrative’ (for example, discharge summaries) – are often perceived as unrewarding, even if their contribution to patient care is recognised.

Alongside this, nearly one quarter of the activities specified in policy are ‘rare’: that is performed regularly by less than 25% of trainees. Many of these are practical skills or procedures, such as taking basic observations, or giving an intramuscular injection.

	Regularly performed by 0-24% of trainees	Regularly performed by 25-49% of trainees	Regularly performed by 50-75% of trainees	Regularly performed by 76-100% of trainees	Total
Number of activities within each threshold	22	23	20	38	103
% of all questionnaire items (103 items)	21%	22%	19%	38%	100%
Number of items reflecting GMC-specified outcomes* (97 items)	22	20	17	38	97
% of items relating to GMC-specified outcomes (97 items)	23%	21%	17%	39%	100%

* GMC-specified outcomes are those which were included in *Tomorrow's Doctors 2009* and *The Trainee Doctor*, and constitute the ‘Outcomes for graduates’ and ‘Outcomes for provisionally registered doctors with a licence to practise’, published in 2015.

Two main reasons for activities being rare are identified. Firstly, when there is an infrequent need to perform them (for example, a reaction following blood transfusion is clinically uncommon). Secondly, as a result of a division of labour whereby certain activities are routinely undertaken by non-medical staff (usually nurses).

These findings indicate that activities specified in policy are not always part of Foundation Programme doctors’ work, but there is general agreement amongst stakeholders that doctors should understand and be able to carry out at least some of those activities in situations of particular need. These include

medical emergencies and complex cases, but also occasions where no other competent healthcare professional is immediately available.

Some 'other' activities not specified in policy are also identified in our data. These include practical procedures (notably arterial blood gas sampling and naso-gastric tube placement), end of life discussions with patients, and 'professional skills' that are seen as integral to routine work (task prioritisation and making a 'job list'). Some of these activities are implicit in current policy, but greater specification would be helpful to trainees.

Additionally, some activities may be routine in certain specialties only, and of generally low prevalence in other specialties. General practice placements (currently undertaken only by F2s) contain a distinct set of activities when compared to hospital-based specialties. Data from a small number of other community placements were insufficient to conclude how their required activities may differ.

Roles

The role of the trainee, both from their own perspective and that of others, is key to interpretation of their activities.

Fundamentally, there is a tension between three main elements of the role: as a 'support' who keeps the ward functioning; as an 'independent practitioner'; and as a 'learner' (a role that is implicit in the training status of Foundation Programme posts). This tension is influenced by trainees' subjective definition of what constitutes 'medicine' – typically activities in which the doctor has some autonomy, rather than responding to others' decisions. While both support and independent practitioner roles contribute to patient care, the latter may therefore be more valued by Foundation Programme doctors as it aligns more with this definition. Support roles may lack perceived autonomy and seem less like medical work, though other stakeholders recognise explicitly that the effective function of the organisation and the patient experience are heavily dependent on the detail and effective delivery of these roles.

Both of these patient-oriented roles may also be in tension with the role of a learner. Some F2s are able to identify educational value in these activities, where F1s cannot. F1 is a transitional experience, and may involve a changing perspective on what constitutes learning, from a knowledge-based focus on explicit learning for final exams, to recognition of the implicit learning involved in developing practice.

The function of the Foundation Programme doctor is seen as dynamic and fluid, and activities could relate to any one of the three roles depending on other influences (such as senior medical support, nursing culture, specialty, progression and time of day).

Factors influencing roles and activities

A number of aspects of practice shape the balance and perception of the activities and roles. These are grouped as organisational, nursing and progression-related factors.

Organisational factors, such as specialty, shifts, hospital setting and specific team norms, can all shape what is expected of Foundation Programme doctors. Some circumstances will lead doctors into predominantly support roles, while others will enable them to practise more independently. Some settings have a more explicit learning culture than others.

The relationship with nursing staff, and how work is organised between doctors, nurses and other staff groups, directs the nature and frequency of F1 activities. This is usually informal, and is influenced by the local, ward- or team-level culture.

Finally, there are some differences in the frequency with which some activities are carried out by F1s and F2s. These differences arise in part from F2s working in a wider range of specialties (and especially general practice), and in part from their having more responsibility. However, the majority of activities are equally routine in F1 and F2 years.

Relevance for policy

The study findings have relevance for policy in two main areas: prioritising of activities in undergraduate curricula, and managing student expectations of their future roles.

i) Prioritising activities

- Activities included or potentially to be included in GMC-specified outcomes may be prioritised by considering them against a number of criteria. Criteria proposed from our findings are:
 - i) Empirical evidence that an activity is commonly performed by Foundation Programme doctors.
 - ii) An activity requires the presence or involvement of a doctor, and cannot be done by any other healthcare professional.
 - iii) An activity may be required in an emergency (life-saving) context.
 - iv) An activity may be required when other staff are not immediately present, such as out of hours working.
 - v) The activity may be required with greater frequency in particular specialties because of particular clinical demands.
- By the first criterion, activities that should clearly remain in the curriculum specification are those which are 'routine', meaning that they are a regular part of work for a large number of trainees. The criterion for defining 'routine' cannot be identified objectively, but taking a threshold of 25% of all questionnaire respondents indicating that they perform them at least once or twice a week, there are 81 core, routine activities, of which 75 are in GMC documents.
- Other activities, which are not specified in current outcomes, but are regular for a large number of trainees, are arterial blood gas sampling, naso-gastric tube insertion and addressing decisions not to resuscitate. Time management, writing discharge summaries and letters may also currently be under-specified.
- For activities which are low priority when appraised by these criteria, care should still be taken in considering their deletion, and a more detailed risk analysis made in respect of the

risk of leaving future competency gaps in the clinical workforce, or other unintended consequences.

- Specialty or site-based training in specific activities may mitigate the risks of deleting activities from policy and core curricula, but this may have implications for cost, workload and quality assurance.

ii) **Recognition of roles and expectation management**

- While identifying core activities is a necessary element of specifying curricula, it may be helpful to explicitly address the fluid roles which Foundation Programme doctors must take on.
- Managing medical students' expectations of what these roles entail, and how the balance of roles may vary commonly, and often unpredictably, may be a more effective focus for the transition to practice than developing their confidence, or subjective preparedness, which remains conceptually problematic.
- Undergraduate programmes should also facilitate a transition from knowledge-based learning to skill-based practice, and develop awareness of the implicit learning which takes place in practice.
- Increasing students' awareness of the division of labour in the workplace may help their adaptation – their awareness that it exists, but also that it is variable, and 'doctors' tasks' and 'nurses' tasks' are not constants.
- The Foundation Programme training framework may also benefit from addressing Foundation Programme trainees' expectations of their role.
- Addressing the current mutual lack of awareness of medical and nursing roles, may also be beneficial, possibly through reciprocal shadowing, and inter-professional simulation.
- Organisations which recognise the plural and adaptable role of the newly qualified doctor may be better able to tap their expertise and reap benefits for healthcare delivery and patient safety.
- Educators, and regulators, of different professions, may benefit from joint strategic development of educational strategy at a time when healthcare provision is undergoing prolonged change.
- The Foundation Programme role affords trainees a unique perspective on healthcare delivery, and while awareness of quality improvement processes is a currently specified outcome, trainees' knowledge and insight could be better capitalised upon by healthcare organisations.

Conclusion

Nearly one quarter of activities set out in the GMC's outcomes for undergraduate medical education and full registration are not a routine part of Foundation Programme doctors' work. The question is therefore raised whether those activities are necessary in undergraduate medical education, and whether some, for which omission carries a low risk, may be deleted from policy. However, infrequently performed activities may still be required of trainee doctors in all settings, and dropping some activities may require additional setting-specific training. Deletion of low frequency skills has the risk of undermining perceptions of the doctor as a universal agent of patient care.

Importantly, much of trainees' work is determined by particular contexts, and framed by their perceived role or function in the workplace – which is itself variable. There is not a clear and consistent 'generic' role of the Foundation Programme doctor.

Acknowledging the variability of the F1 role may help to make graduates more able to adapt to a fluid role when they begin practice. Undergraduate medical education should aim not for a graduate to be fit for a single purpose, but rather to be able to fit multiple purposes.

Further questions

There are a number of questions or areas for further examination arising from the findings.

- The criteria for prioritisation are suggestions based on our data, but would require detailed consideration from different clinical specialties in order to be applied. Risk analysis of dropping low priority activities from required outcomes would need to consider in detail, including the likelihood and consequences of Foundation Programme doctors not being able to perform these in different situations.
- The data raise questions about the risk of deskilling where trainees do not regularly carry out activities. The reality of this is worthy of further study, to explore both the likelihood of decline in skills, and the clinical risk arising (ie how likely is it that they will be in that situation and require the competence). If a genuine risk is identified, then employer-led refresher training, with or without formal credentialing, may be indicated.
- Development of effective inter-professional education is a long-standing and unresolved area. New GMC standards increase specification of inter-professional learning and team integration, but strategies that cross undergraduate and postgraduate curricula can ensure that these standards are effectively delivered.
- If low-frequency, specialty-specific activities were judged suitable to be safely dropped from undergraduate curricula, consequences for the work-based training in those activities in specialty curricula would need to be explored.
- Current findings do not allow consideration of roles and activities in varied community settings. As the number and type of community placements increases, further consideration of changing requirements will be necessary. However, a focus on trainee function and adaptability in the workplace will allow policy to remain broadly appropriate for such changes.
- Finally, this work omitted consideration of the patient perspective. Patient expectations of Foundation Programme doctors' roles and capabilities will be an important influence on their work, and should be studied directly.

1 Introduction

1.1 The role of the GMC in specifying the work of Foundation Programme doctors

The General Medical Council (GMC) is responsible for regulation and quality assurance of all stages of medical education in the United Kingdom (UK). This includes setting standards and outcomes for undergraduate curricula delivered at all medical schools in the UK, and for eligibility for full registration at the end of Foundation Programme year 1 (F1). Since merging with the Postgraduate Medical Education and Training Board in 2010, the GMC also sets standards for postgraduate curricula.

Undergraduate curricula are developed and implemented individually by the 33 medical schools in the four nations of the UK, but all must comply with the GMC's requirements, published since 1993 as *Tomorrow's Doctors*. The most recent edition, *Tomorrow's Doctors 2009*¹ (TD09), set out the standards for delivery of undergraduate medical education programmes, as well as the outcomes to be demonstrated by new graduates, which must be covered within curricula. In 2015, following the completion of this research, standards and outcomes were separated^{2,3}, but the outcomes remain those contained in *Tomorrow's Doctors 2009*.

These outcomes are specified within three categories: the doctor as a practitioner; the doctor as a scholar and a scientist; and the doctor as a professional. Although the interrelationship of these categories is implicit, they separate competencies relating to clinical practice (including diagnostic and therapeutic procedures, communication) from those relating to knowledge and understanding of physical and social science, principles of ethical practice, teaching, team-working and patient care. This project is primarily concerned with the outcomes specified under 'doctor as practitioner' as these are most closely linked to clinical practice.

Tomorrow's Doctors serves as a de facto specification of the expected work of the Foundation Year 1 doctor (F1). Additionally, the outcomes required for full registration, achieved through completion of F1, are also set by the GMC⁴ (until 2015 these were published in *The Trainee Doctor*), and are implemented in the Foundation Programme Curriculum by the United Kingdom Foundation Programme Office (UKFPO). Foundation Programme trainees are also required to have 15 core procedures observed and signed off during F1. Of these, 13 are explicitly contained in the GMC's undergraduate outcomes, the others being required for full registration.

1.2 A changing policy context

As described above, generic standards for the implementation of all curricula were under review during the period of this study, and revised standards were published by the GMC in July 2015. Any subsequent revision of the content of undergraduate curricula must be sensitive to on-going changes in healthcare requirements and models of delivery, along with possible changes in education and training.

Two potential changes may have profound consequences for undergraduate curricula in particular. The first relates to the requirements for obtaining a licence to practise. At present, each medical

school sets its own assessments, which are quality assured by the GMC, but otherwise autonomous. Qualification then entitles a graduate to provisional registration with the GMC, and a licence to practise, subject to their fitness to practise in terms of conduct and health. However, after several years of debate^{5,6}, the GMC has approved a plan to work with partners to develop a national UK medical licensing assessment, which will introduce a new level of standardisation in assessment which is outside the direct control of medical schools.

The second change relates to provisional registration itself. At present, provisional registration limits the practice of medical graduates to recognised training posts, of which Foundation Year 1 provides the only instance in the UK (although the GMC can also approve programmes outside the UK for provisionally registered graduates of UK medical schools). Only by successfully completing F1 can trainees gain full registration, which allows them to work in other approved practice settings, and removes restrictions on their prescribing in community settings (including general practice).

However, the Shape of Training Review, published in 2013⁷, while supporting the current structure of Foundation Programme, recommended that full GMC registration be moved to the point of graduation, removing the status of provisional registration. While the full implications of this are currently uncertain, such a move is likely to have implications for the F1 role, and the requirements of undergraduate curricula that feed it.

Patients and the service are likely to expect graduates who have full registration to meet the same competence level as the current threshold. This change will inevitably have a knock-on effect on undergraduate medical education, which will have to ensure graduates meet more advanced outcomes. (Shape of Training, para 65)

As well as these potential longer term changes, the Foundation Programme curriculum is currently under review by an Academy of Medical Royal Colleges (AoMRC) working group. This review, due to report in 2015, follows Shape of Training in accepting the structure of the Foundation Programme, but will consider the appropriate content for the curriculum.

There are other changes within the wider health service, reflecting both the changing nature of population health needs and recommendations for the delivery of quality care, which may also affect the environment in which trainees work^{8, 9, 10}. Moves to greater delivery of healthcare in primary care and community settings are reflected in plans that all Foundation Programme doctors should undertake a placement in a community or integrated setting by 2017¹¹. This will have implications for what is required of doctors, and their training.

The multi-professional workforce context also continues to change. The nursing workforce continues to evolve, with greater numbers of senior, extended nursing roles (for example, a 40% increase in nurse consultant posts in NHS England between 2004 and 2014¹²). Other roles are also growing, such as qualified physicians' assistants/associates and other less qualified 'doctors' assistant' roles (analogous to health care assistants, but with an explicit remit to support medical, rather than nursing staff). Questions of safe and sustainable staffing levels, raised by the Francis report⁸, remain unresolved. A National Institute for Health and Care Excellence (NICE) workstream on safe staffing levels was suspended in June 2015¹³.

All of these factors influence the workforce that new doctors will enter, and consequently the role and work that will be expected of them. Any potential changes to curriculum outcomes will need to understand the role and responsibilities currently expected of both F1s and F2s in order to ensure effective change.

The outcomes specified in earlier editions of *Tomorrow's Doctors* were informed by consultations with stakeholders rather than direct examination of the work being done by junior doctors. While elements of *TD09* were informed by primary research into the preparedness of new graduates¹⁴, this did not aim to elaborate in detail the specific activities undertaken by Foundation Programme doctors. We hope that by providing an evidence base for the fit of the outcomes initially set out in *TD09* with the current work of Foundation Programme doctors, this research will serve that role for future revisions.

1.3 Evidence in the literature

A literature search (detailed in Appendix A) found no studies that had directly examined the work of Foundation Programme doctors at the level of particular activities with sufficient detail to inform policy. Some relevant work was found that predated the Foundation Programme, while other studies from outside the UK had considered training roles such as interns and residents. (Interns are comparable to F1s and occupy a similar position in the workforce, while residents correspond to F2 and specialty training grades). Given the changing policy and staffing context in the UK, care must be taken in extrapolating from any historical or international findings, but these studies do provide some indication of the types of activity, and variability, involved in junior doctors' work.

Much recent work in the UK and elsewhere has been concerned with the preparedness of new graduates for work. A recent GMC-commissioned review considered this and related work¹⁵. Some studies have operationalised preparedness as a global judgement^{16,17} and did not consider specific activities. Others have found mixed evidence for how prepared trainees are for specific activities, such as prescribing, history taking, venepuncture and others. However, 'preparedness' is a problematic concept¹⁸, in that it can be operationalised either as a prospective judgement of anticipated competence, or as a retrospective judgement. The former does not indicate whether, how often or in what circumstances activities are actually experienced. The latter is focused on recall of initial exposure to an activity, and may be confounded by familiarity or anxiety. An F1 could therefore report feeling unprepared for an activity because they had been exposed to it only rarely. An audio diary study completed as part of the same GMC-commissioned work¹⁵ may be less prone to recall bias, but participants were instructed to focus on activities that triggered reflections on preparedness (being well prepared or unprepared), and so may have omitted routine, unproblematic activities.

Some studies have attempted to enumerate the activities carried out by new doctors, but not always directly. A Delphi study carried out before the introduction of Foundation Programme looked at the desirable activities of Pre-Registration House Officers (PRHOs, the predecessor of the F1 grade), as identified by supervisors. This found consensus around a number of activities, such as history taking, prescribing, male catheterisation and intramuscular injections¹⁹. The risk of such a method is that through focusing on what 'should' be done, rather than what 'is done', it is open to bias, and, like questions of preparedness, may overlook some routine activities.

Other studies reduce such risks by focusing more explicitly on actual activities, but do not always report these in fine detail. Several studies distinguish between ‘direct’ and ‘indirect’ care, although the precise definitions can vary. Direct care is typically that by the bedside, such as taking a history and performing examination and procedures, while indirect care is typically away from the bedside, including documentation and communication with colleagues. These terms are problematic, as at least some of the activities away from the bedside may still directly influence or contribute to patient care; conversely, routine phlebotomy involves hands-on patient contact, but may not reflect ‘direct’ care if the resultant blood investigations are neither interpreted nor acted upon by the trainee. Terminology aside, such studies do illustrate the prevalence of different aspects of doctors’ work.

A systematic review of 16 studies of trainees’ work found that 36% of time was spent on ‘patient care’, and 35% on tasks of ‘marginal educational value’, which were defined, based on faculty perceptions, as activities including documentation and discharge planning²⁰. This contrasts with a more recent review that found that indirect care formed a higher proportion of time – as much as 50% – than direct care²¹. This is borne out by other studies, with interns spending as little as 11%²², 12%^{23, 24} or 14%²⁵ of their time in activities categorised as direct patient care. However, because these studies group activities with varying degrees of granularity and use different methodologies, the specific tasks performed, and the reasons for their being performed, cannot be identified or compared.

A diary study that aimed to log the tasks performed by PRHOs reported that 20% of their time was spent in ‘administration’, and 36% on ‘ward tasks’ which were unspecified, but appear to include patient-focused activities²⁶. An observational study of Senior House Officers (SHOs – analogous to F2s, although some may have had more than one year’s postgraduate experience)²⁷ presented figures for time spent on different types of activities. They found similar overall proportions of time spent in activities directly involving patients and those away from the bedside. For example, 22% of time was spent on ‘history, examination and assessment’, 1.5% of time ‘giving treatment’, 5% ‘performing procedures’ and 5% ‘explaining to patients’, compared to 20% of time ‘writing notes’, and 8% ‘discussing with colleagues’.

It is also unclear whether time of day influences the proportions of time spent on different classes of activity. One US study found that in out of hours work residents spent more time in indirect care (24%) than direct care (13%), though the time attributed to direct care was similar to that reported in daytime work in other studies²⁸. Another study of SHOs in the UK found that the proportion of time spent on technical and administrative activities increased at night. The former (which included venepuncture and phlebotomy, but also looking for equipment, nurses or an examination cubicle) increased from 9% to 12% of time, and the latter (which included bleeping other professionals and answering the phone) increased from 3% to 5%. Conversely, ‘clinical activities’ (encompassing history taking, examination, discussion with colleagues and writing notes) reduced from 80% to 72% at night²⁷. The data included in this paper did not allow more detailed comparison of how proportions of specific activities (example, history taking vs discussion with colleagues) varied between day and night.

Work can vary between specialties. One US study found that surgical residents spent more time on procedures than on ‘case management’ (including documentation and discussions with colleagues and patients) when compared to those in emergency medicine and internal medicine²⁹. Similar differences (for example, that surgeons communicate less with patients and families but carry out more procedures) have also been found for more senior clinicians³⁰.

As well as differences arising from the different demands of different specialties, there may also be idiosyncratic differences in the approach of individual clinicians. A study using motion tracking to monitor patterns of movement during a weekly teaching round in a single unit found that overall a third of time was spent in patients' rooms, suggesting direct patient contact. However, there were different patterns identifiable between individuals, indicating different approaches to ward rounds, even in a single location³¹.

Finally, there is often a tension between education and service delivery, with the demands of service limiting the time spent in educational activity, something which has been of particular interest with restriction of working hours³². While there is a body of work examining the effects of such restrictions, no clear effects are demonstrated in the literature³³.

Overall, the literature illustrates the range of activities that are expected of, and performed by doctors in training, but lacks detailed examination of what is done. Assumptions about how different activities styled as 'direct' or 'indirect' care relate to education are apparent, and may not be appropriate in the context of the Foundation Programme.

1.4 The current study

The current study aimed to establish what Foundation Programme doctors actually do – that is, to identify the activities that are routinely part of their work, and consider these against those specified in GMC documents (previously *Tomorrow's Doctors 2009* and *The Trainee Doctor*). Alignment between the documents and practice would suggest that the activities specified are appropriate. Misalignment on the other hand may indicate that F1s are carrying out activities they have not covered in their undergraduate training, or that the activities specified are not relevant in practice.

Specific research questions were:

- i) What activities do Foundation Programme doctors carry out in their daily work?
- ii) How do these activities map to the outcomes specified by the GMC?
- iii) What perceptions do key stakeholder groups have of the activities required of F1s?
- iv) How does the regularity of activities vary between F1 and F2 trainees, specialties, types of healthcare organisation or geographical regions?
- v) To what extent are activities routinely carried out by doctors, or by nurses?

We were not concerned with the composition of a working day, in the sense of a time-and-motion study, but rather with the general prevalence of specific 'routine' activities, and the context in which they arise. Multiple methods were therefore used in order to identify this from different perspectives – those of Foundation Programme trainees themselves, their supervisors, employers, and nurse colleagues. The justification for this is given in the next section.

In exploring these questions, we sought to identify ways in which activities may be prioritised to be part of the Foundation Programme doctors' work, and so part of undergraduate curricula.

2 Methods

The project used a mixed methods approach. Questionnaires, focus groups and interviews gained different types of data from relevant stakeholder groups, as summarised in Figure 2.1.

Figure 2.1. Summary of data collection methods

Method	Strengths of method	F1 trainees	F2 trainees	Supervisors	Employers (clinical / non-clinical)	Nurses
Questionnaires	Allow collection of data from large samples, and quantitative analysis of findings, including comparison of subgroups.	◆ (n=1,819)	◆ (n=1,878)			◆ (n=221)
Focus groups	Allow multiple viewpoints, providing an efficient means of data collection. Group discussion can highlight common experiences, and identify contextual factors that may influence individual experiences.	◆ (6 groups, 1 including F2s, n=55)	◆ (1 group, with F1s; n=3)			◆ (2 groups, n=22)
Interviews	Allow details of individual experiences to be accessed, elaborating contextual and situated elements from a personal perspective.	◆ (n=13)	◆ (n=8)	◆ (n=14)	◆ (n=8)	

2.1 Participants

Doctors in Foundation Years 1 (F1) and 2 (F2) were the primary participant groups. Although the activities specified in the policy documents are assumed to reflect the work of F1s, F2s were also included for several reasons. Firstly, their responses in the questionnaire study would provide a picture across the whole of the Foundation Programme, including those activities F1s may not have yet completed, and potentially include a larger range of specialty placements. Secondly, they could indicate in questionnaire data the extent to which activities vary between F1 and F2. Thirdly, having completed F1 they would be able in interviews and focus groups to draw on their experience of F1 placements and the changes involved in progressing to F2.

‘Supervisors’ comprised clinical and educational supervisors in different clinical settings across the UK. As senior clinicians they know how Foundation Programme trainees can and should fit into the delivery of care, but they have a close awareness of the educational requirements of the Foundation Programme.

The ‘employers’ group was defined to include senior clinicians with responsibility for deployment and allocation of Foundation Programme trainees as well as other senior non-clinical management representatives within healthcare organisations. Employers were expected to have a more strategic view of how Foundation Programme doctors fit into the workforce and wider organisation.

Finally, nurses were identified as a particular group of interest as they work closely with Foundation Programme doctors, share delivery of some activities, and have a de facto, if not formal, educational role. They are the group with the most consistent presence on wards, and can play an important role in supporting trainees' initial adaptation to the workplace³⁴. They also have a role in trainees' formal progression, in completing Foundation Programme curriculum assessments. Overall they were expected to have good insight into the activities undertaken by Foundation Programme doctors, and how they fit into day-to-day ward working.

2.2 Questionnaires

2.2.1 Development

The primary purpose of the questionnaires was to evaluate the extent to which the activities specified in *Tomorrow's Doctors 2009* (under 'doctor as a practitioner') and *The Trainee Doctor* form part of trainees' work. The majority of the questionnaire was therefore made up items drawn from those activities.

There were 103 activity items in total. Of these, 94 mapped to 65 outcomes in *Tomorrow's Doctors 2009* and are also represented in 21 outcomes in *The Trainee Doctor*. A further three were drawn from outcomes in *The Trainee Doctor* that are not explicit in *Tomorrow's Doctors 2009*, and six more not present in either document were added following discussion with the GMC. Appendix B summarises all items, and how they map to the policy documents.

In the questionnaire for Foundation Programme doctors, each of the items was rated on a five-point scale that indicated the frequency of the activity in the 'last four weeks'. Additional items gathered free text responses to questions about 'other' activities that were carried out at least once or twice a week. Demographic details and questions about the current placement were also included. Minor revisions to this questionnaire were made following face-to-face piloting with 30 F1s and F2s.

The nurse questionnaire was adapted directly from the final version of the trainee questionnaire, with a scale to indicate how much each activity is performed by Foundation Programme doctors or nurses in respondents' places of work. Piloting of this also led to revisions, most significantly the addition of a 'not applicable' option, to be used if the activity was done by a more senior doctor, or other health professional. Piloting also clarified that the scale should refer to the 'nursing team' rather than the respondent, as individual skills may vary and not reflect common practice on a given ward.

Figure 2.2 illustrates the scales from the two questionnaires, while text versions of the final questionnaires are included in Appendix C.

Figure 2.2. Item scales used in Foundation Programme doctor and nurse questionnaires**a) Foundation Programme doctor questionnaire****How often have you had to perform each task in the last four weeks?**

Never: I have not had to do this at all in this placement	Rarely: Only once or twice in this placement	Sometimes: Once or twice a week	Often: Several times a week	Constantly: Many times per shift
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b) Nurse questionnaire

If a task is not relevant to your clinical area OR is mostly done by someone else - for example, a more senior trainee (registrar) or a phlebotomist - then please select NOT APPLICABLE.

	This is exclusively done by Foundation Programme doctors (with very occasional exceptions)	This is mostly done by Foundation Programme doctors	This is done fairly equally	This is mostly done by a member of the nursing team	This is exclusively done by a member of the nursing team (with very occasional exceptions)
Not applicable					

2.2.2 Administration of the questionnaire

Both trainee and nurse questionnaires were implemented on the SurveyMonkey platform (www.surveymonkey.com). A link to the trainee questionnaire was distributed by all UK Foundation Schools following an initial email cascade from the Northern Foundation School to Foundation School Directors and Managers. Two formal reminders were also cascaded, while some Foundation Schools contributed further reminders at their discretion. The Health Education North East (HENE) and GMC Twitter feeds also promoted the study. Once the on-line questionnaire had been completed, trainees could download a certificate that confirmed their participation in the survey and could be included in their e-portfolio. Foundation Programme doctors piloting the questionnaire had indicated this may encourage questionnaire completion.

The nurse questionnaire link was cascaded through Directors of Nursing in each of the Trusts in the HENE region. Two reminders were also cascaded via this group.

2.2.3 Analysis

For analysis the scale on the trainee questionnaire was simplified, as indicated in Figure 2.3. This merged the 'Never' and 'Rarely' points, and the 'Sometimes', 'Often' and 'Constantly' points, to provide a clearer focus on the main research questions concerning the prevalence and variability of activities.

Figure 2.3. Simplified response scale for Foundation Programme doctor questionnaire

<i>Rarely part of the job</i>	<i>Regularly part of the job</i>
Never: I have not had to do this at all in this placement Rarely: Only once or twice in this placement	Sometimes: Once or twice a week Often: Several times a week Constantly: Many times per shift

Questionnaire responses regarding the frequency of activities in the last 4 weeks of the job were dichotomised into being 'rarely' or 'regularly' part of the job for analyses.

The rationale for this was two-fold. Firstly, we established early in the qualitative phase that some activities are only performed once or twice in order to gain Foundation Programme curriculum competency sign off, and so in practical terms 'Rarely' can be no different from 'Never'. Secondly, 'Sometimes', 'Often' and 'Constantly' all describe activities that are being carried out with some regularity during a placement. An activity which is carried out once or twice a week was judged to be as much a regular part of the job as something carried out several times daily.

Quantitative analysis was conducted using the R statistical programming language (www.r-project.org). Chi-square tests were used to compare the frequency distributions of responses for individual items between subgroups (such as specialty), and Kendall's rank correlation to provide overall comparison of the order of frequency of activities in different subgroups.

When evaluating the statistical significance of multiple tests the Bonferroni correction was applied. This means that the standard p-value is adjusted proportionally to the number of tests, and so if all 103 items are analysed simultaneously, significance at the 5% level is considered to be indicated by $p < 0.05/103 = 0.00048$.

Another issue in the analysis is that large sample sizes increase the statistical power of these tests. Small differences in frequency distributions may therefore be statistically significant, but of limited practical relevance. Two additional criteria for judging practical interest of significant results were therefore used.

Firstly, we considered the effect size or strength of association between subgroup membership and frequency. Cramer's V is the indicator of effect size for chi-square tests, interpreted using the following convention³⁵: $V < 0.10$, negligible effect; $V = 0.10$ to 0.20 , weak; $V = 0.20$ to 0.40 , moderate; $V = 0.40$ to 0.60 , relatively strong; $V = 0.60$ to 0.80 , strong; $V = 0.80$ to 1.00 , very strong. Secondly, where appropriate, we concentrated on differences where groups have different modal responses, or are on different sides of a threshold frequency (eg 75% of responses). Our reasoning was that if two groups have a statistically significant difference in frequency distributions, but their modal response is the same, the difference is of less practical interest than if there is a difference in mode.

In presenting questionnaire analysis, we will therefore focus on those results which satisfy these criteria of interest: a corrected significance level of 5%; Cramer's V of greater than 0.2 (indicating at least a moderate effect size), and different modal response.

2.3 Interviews

2.3.1 Interview sampling

Trainee interview respondents were sampled from 740 individuals who provided both their name and email address in an online form appended to, but stored separately from, the SurveyMonkey questionnaire. A random sample of 50 was invited by email to take part in a telephone interview.

Because interview volunteer responses were recorded independently of questionnaire data, we could not sample purposefully on the basis of location or specialty. However, questionnaire data originating from the same IP addresses as the interview sign-up forms were inspected, and suggested that the random sample did include a range of Foundation Schools and specialties.

Participants were invited to sign up for a convenient date and time-slot using an online scheduling tool (www.doodle.com). A specific time was then arranged by direct email contact from one of the researchers.

Supervisors and clinical employers were recruited by cascade of an email invitation through Foundation School Managers. Senior non-clinical management participants were recruited by direct invitation from the researchers, through contacts facilitated by Foundation School Directors.

2.3.2 Procedure

A semi-structured interview schedule was developed from the project research questions (see Appendix D for all interview and focus group guides). This was used as a guide for early interviews, allowing individual interviews to be responsive to participants' experiences. Later interviews were also informed by emerging findings in line with standard qualitative methods.

The interview schedule referred to three stimuli, drawn from initial analysis of interim results from the Foundation Programme doctor questionnaire (approximately half way through the period of data collection, with around 2,000 responses). These were three lists of activities (see Figure 2.4), the first of which summarised those which were least frequently reported to be part of Foundation Programme doctors' jobs (the 'rare' list), and the second those that were common aspects of their jobs (the 'regular' list). The third list summarised some of the more frequent references to 'other' activities in the free text responses.

Figure 2.4. Stimulus materials used during interviews

'Rare' activities list	'Regular' activities list	'Other' activities list
Treat a reaction following blood transfusion Communicate with a patient by an electronic method, eg email Direct other team members to carry out cardio-pulmonary resuscitation Perform a pregnancy test Take nose, throat and skin swabs Carry out a nutritional assessment Perform urethral catheterisation (female) Suture skin Report an adverse drug reaction Set up an infusion device for IV fluids Monitor a blood or blood product transfusion for a reaction Give a subcutaneous injection Give an intramuscular injection Start a blood or blood product transfusion following relevant procedures Use an airway adjunct, eg Guedal airway or laryngeal masks Make up a drug for IV administration Perform basic respiratory function tests, including peak flow Carry out wound care and basic wound dressing Advise a patient on how to collect a mid-stream urine specimen Measure blood glucose Carry out cardio-pulmonary resuscitation Clerk a new patient in a clinic setting	Use electronic systems to retrieve patient data including results Use electronic systems to enter patient information, eg discharge plan Provide a safe and legal prescription Maintain handwritten medical notes Interpret the results of investigations Make clinical judgements and decisions in conjunction with colleagues Formulate a plan for treatment and management Interpret findings from history and or examination Plan drug therapy for common indications including pain and distress Make an initial assessment of a patient's problems Establish a problem list and likely diagnosis or diagnoses Communicate with patients of different age groups Prescribe IV fluids Formulate a differential diagnosis Formulate a plan of investigation Perform a full physical examination Take a medical history Provide explanation advice reassurance and support to a patient Access reliable information about medicines Perform venepuncture Take a family social history	Lumbar puncture Chest drains Arterial blood gas sampling Naso-gastric tube insertion Do Not Attempt Resuscitate (DNAR) discussion

Trainee, supervisor and clinical employer interviews were conducted concurrently. Senior management interviews took place after the bulk of data analysis had been completed, meaning they could be asked to reflect on key findings from questionnaire and interview data.

2.4 Focus groups

2.4.1 Sampling

Focus groups were carried out with Foundation Programme doctors across the UK – one each in Wales and Scotland, two in different parts of Northern Ireland, two in South East England, and one in North East England. Arrangements in different locations varied. Some groups were arranged at times away from scheduled teaching sessions, while others were held in place of teaching and one immediately followed a teaching event. There were between four and 18 active participants in the focus groups. In total there were 58 participants, three of whom were F2s.

Nurse focus groups were arranged through Directors of Nursing in two Trusts in the north and south of the HENE region. There were 22 participants (13 and 9, respectively) in these groups.

2.4.2 Procedure

Focus groups followed a guide based on the individual interview schedules. The 'rare' and 'regular' activities lists were referred to, and hard copies were distributed to participants where appropriate.

Groups in two regions used a method based on the 'nominal group technique', where participants individually considered the issues to be discussed first, and wrote thoughts on 'Post-It' notes before discussion. This was not felt to add greatly to the process, and time constraints meant it was dropped for other groups.

2.4.3 Qualitative analysis for interview and focus group data

Iterative thematic analysis was carried out on transcripts. An initial coding frame was agreed by BB, GV and SJ, which was then applied to all transcripts, with codes being reviewed and refined after initial coding. Analytical and emergent themes were then mapped to the *a priori* framework derived from the alignment of activities and policy. Additional themes which fell outside, or cut across, this framework were also identified.

2.5 Ethics

The project was not required to undergo NHS ethical review, but the study protocol and supporting documents were reviewed and given full ethical approval by Newcastle University Faculty of Medical Sciences Ethics Committee (reference number 00845/2014).

2.6 Project Advisory Group

A Project Advisory Group was established to support project operation and enhance rigour through external review of process and findings. The group gave feedback on quantitative and qualitative analyses, to provide a 'sense check' of the research team's interpretation of findings and ensure that the project aims were being met. The group comprised the research team, an academic colleague with qualitative research expertise, a nursing representative, Foundation Programme doctors and patient representatives from the Community Advisory Panel at Newcastle Upon Tyne Hospitals NHS Foundation Trust. The group met three times during the study period. The first meeting considered project set up and draft questionnaire analyses, the second considered initial themes from the qualitative phase and the third the complete, integrated data set and draft executive summary of this report.

3 Findings

The following sections summarise key findings from questionnaire and qualitative analyses. These have been integrated and are presented together, wherever appropriate.

The findings are presented in four main sections:

1. Summary of responses to Foundation Programme doctor and nurse questionnaires.
2. Activities carried out by Foundation Programme doctors. These will be considered in relation to the policy documents *Tomorrow's Doctors 2009 (TD09)* or *The Trainee Doctor (TTD)*.
3. Role of Foundation Programme doctors. This will present a more conceptual perspective on what these doctors are *for*, rather than what they *do*.
4. Contextual factors that shape the nature and balance of both activities and role.

3.1 Summary of questionnaire responses

Key points

The trainee questionnaire was completed by approximately 25% of all F1s and F2s in the UK. Demographics indicate this sample is representative of the population of Foundation Programme doctors.

Medical and surgical specialties were the main placements for 86% of F1 and 58% of F2 respondents.

The main community-based placement was in general practice for 20% of F2 respondents, with only 2% of all respondents reporting 'other' non-hospital placements.

Analysis was conducted on questionnaire data from 3,697 respondents – 1,819 F1s (49% of sample) and 1,878 F2s (51%) – which approximates 25% of the UK Foundation Programme population, as estimated from UKFPO figures³⁶. This is an acceptable response rate for the method of distribution, and comparable to other studies³⁷. There was a very low attrition rate among those who started the questionnaire (95% of those who completed the first page of activity items went on to complete the final page). This indicates acceptability and content validity of the questionnaire for most respondents. Response rates for individual Foundation Schools varied between 9.2% and 79.1%, with a mean response rate of 30% (further details of response rates are given in Appendix E). While some Foundation Schools had a low response rate, that most had a moderate to good response from trainees indicates that the questionnaire was acceptable, and that low response rates were more likely to be the result of issues in dissemination of the invitation, rather than systematic non-response.

3.1.1 Trainee sample characteristics

The majority of our sample (62.8%) indicated they are female, and the modal age was 25-34 years (66.7%). The great majority had qualified in a UK medical school (93%) and had no disability (96%). Most identified as White British (60%). This demographic profile is comparable to that of the trainee population as indicated by responses to the 2015 GMC National Trainee Survey (NTS), which reflects 98.7% of all Foundation Programme trainees. Table 3.1 summarises the frequency distributions on sex, age group, simplified ethnic grouping, place of primary medical qualification and disability. Demographic items in the questionnaire were optional, so the total number of responses varies between variables. Full figures for F1s and F2s are included in Appendix F.

Table 3.1 Comparison of questionnaire and National Trainee Survey sample demographics

a) Gender

	NTS sample		Questionnaire sample	
	N	%	N	%
Male	6593	43.8%	1279	37.2%
Female	8456	56.2%	2164	62.8%
Grand Total	15049	100%	3443	100%

b) Age group

	NTS sample		Questionnaire sample	
	N	%	N	%
20-24	3778	25.1%	1031	29.7%
25-34	10849	72.1%	2315	66.7%
35-44	367	2.4%	111	3.2%
45+	55	0.4%	16	0.5%
Grand Total	15049	100%	3473	100%

c) Ethnic group

	NTS sample		Questionnaire sample	
	N	%	N	%
White	9803	65.1%	2354	68.9%
Asian	3242	21.5%	686	20.1%
Black	398	2.6%	93	2.7%
Mixed	505	3.4%	93	2.7%
Other	368	2.4%	70	2.0%
Prefer not to say	733	4.9%	121	3.5%
Grand Total	15049	100%	3417	100%

d) Place of primary medical qualification

	NTS sample		Questionnaire sample	
	N	%	N	%
UK	14545	96.6%	3227	93.2%
European Economic Area	275	1.8%	102	2.9%
Elsewhere in the world	229	1.5%	135	3.9%
Grand Total	15049	100%	3464	100%

e) Day-to-day activities limited because of a health problem or disability

	NTS sample		Questionnaire sample	
	N	%	N	%
Yes, limited a lot	20	0.1%	8	0.2%
Yes, limited a little	325	2.2%	69	2.0%
Prefer not to say	385	2.6%	50	1.4%
No	14319	95.2%	3348	96.4%
Grand Total	15049	100%	3473	100%

NTS sample data was provided by the GMC, drawing on the National Trainee Survey completed in 2015.

The composition of our sample on these variables is not substantially different to that of the Foundation Programme population. Chi-square tests for all variables indicate differences between distributions are significant, but modal responses are the same and Cramer's V for all tests is very small ($V < 0.1$), and so differences seen are not considered to be of practical relevance.

Analysis of the frequency of activities against these demographic variables found no effects that met our statistical criteria of interest.

3.1.2 Placements, specialty, shift and setting

While respondents were working in all specialties, the most frequent current placements were in either medicine or surgery (86% of F1s, 58% of F2s), as shown in Table 3.2. In addition, 602 respondents reported doing 'on-calls' in either medicine or surgery (319 in medicine, 175 in surgery), when their main day-time placement was in a different specialty/subspecialty. This means that 1,066 F1s (58%) and 912 F2s (48%) had worked in medicine, and 796 F1s (44%) and 380 F2s (20%) had worked in surgery in the four weeks before completing the questionnaire. The most frequent other specialty for F2 respondents was general practice (GP) (378, 20% F2s). There were no F1s in general practice, in keeping with restrictions on their prescribing in community settings. The complete list of response frequency by sub-specialty, including academic placements, is given in Appendix G.

Table 3.2. Current specialty placement of F1 and F2 questionnaire respondents

Specialty group	Current specialty placement (% of total)	
	F1	F2
All medicine	901 (50%)	758 (40%)
All surgery	664 (36%)	337 (18%)
General practice	0 (0%)	378 (20%)
Psychiatry	126 (7%)	122 (6%)
All paediatrics	75 (4%)	107 (6%)
Obstetrics and gynaecology	31 (2%)	91 (5%)
'Other'	22 (1%)	85 (5%)
Total	1,819 (100%)	1,878 (100%)

The table shows the frequency of F1 and F2 respondents according to their reported main specialty placement. F1s and F2s were predominantly currently placed in medicine or surgery specialties. For a full list of frequencies of responses by sub-specialty, see Appendix G.

Respondents were also asked to indicate which shifts they had worked in the last four weeks, to establish that a range of working patterns was represented. Overall, 3,461 (94%) had worked day shifts (long or short days), and 2,604 (70%) had worked weekends or nights. Other unspecified shifts and on-calls were also indicated by respondents.

The majority of respondents were working in hospitals (87% of all respondents; 98% F1s, 77 % F2s) and around 60% of those were in district general hospitals (DGHs), as shown in Table 3.3. These are generally smaller than 'large teaching hospitals'. Community-based placements were predominantly in general practice. 'Other' categories, reported by 2% of all respondents, included other types of

hospital (such as community hospitals), universities (those in academic posts), public health posts, hospices, and community or specialist units (for example, community sexual health service).

Table 3.3. Organisational setting of F1 and F2 placements

	F1	F2
Large teaching hospital (patients are often referred for specialist care from other hospitals)	631 (35%)	516 (28%)
District general hospital (patients are mostly referred from general practice or A&E)	1,046 (58%)	806 (43%)
General practice	0	375 (20%)
Psychiatry: Hospital only	66 (4%)	57 (3%)
Psychiatry: Community and Hospital	29 (2%)	60 (3%)
Psychiatry: Community only	20 (1%)	2 (0%)
Other	21 (1%)	59 (3%)
Total	1,813 (100%)	1,875 (100%)

Responses given to question 'What type of organisation have you been mainly working in over the last four weeks?'

3.1.3 Nurse questionnaire

There were 428 respondents to the nurse questionnaire, of whom 265 indicated that they worked regularly with Foundation Programme doctors. Of these 221 responded to the activity-related items. While there are data on the total population of nurses in the HENE region, we do not know how many of these work regularly with Foundation Programme doctors. A valid response rate cannot therefore be calculated. However, the sample size is sufficient for our analysis.

Data analysis was conducted on data from the 221 respondents who indicated they work with Foundation Programme doctors, and responded to the activity questions. Not all answered demographic questions, but of those that did, 148 (86%) indicated they are female and 24 (14%) male, and the modal age was over 44 ($n=106$; 61% of responses to the question). Most indicated they had qualified in the UK (169; 97%), and five that they had qualified elsewhere.

The majority worked in hospitals (162 in large teaching hospitals, 62 in DGHs), with 21 in psychiatry and just eight in general practice. Table 3.4 summarises the frequencies of responses from those working in different specialties, although not all provided this information. These proportions are similar to those of F1 placements indicated in Table 3.2, with a slightly greater representation from paediatrics.

Table 3.4. Specialty of nurse questionnaire respondents

Specialty group	Number of nurse respondents (% of total)
All medicine	81 (45%)
All surgery	48 (27%)
General practice	4 (2%)
Psychiatry	17 (9%)
All paediatrics	17 (9%)
Obstetrics and gynaecology	8 (4%)
'Other'	6 (3%)
Total	181 (100%)

The table shows the frequency of specialties in which nurse respondents worked with Foundation Programme doctors. For a full list of frequencies of responses by sub-specialty, see Appendix G.

In summary, most F1s and F2s were working in medical and surgical specialties, in hospital settings. F2s had more varied placements, including one fifth in general practice.

3.2 Activities carried out by Foundation Programme doctors

Key points

Over 40% of activities currently specified in policy documents are carried out routinely by Foundation Programme doctors.

However, not all of these activities are regarded as a 'good use of time'.

Conversely, around 30% of specified activities are a relatively rarely part of Foundation Programme doctors' work. This may reflect infrequent clinical need, or that the activity is generally carried out by another healthcare professional, most commonly nurses.

There are a number of other activities carried out regularly by trainees that expand the current policy specification. These include procedures (notably arterial blood gas sampling and naso-gastric tube insertion) and certain communication (for example, making patient referral) and administration (time management) tasks.

Our primary research aim was to identify the activities routinely performed by Foundation Programme doctors as part of their work, and how these align with the requirements set out in policy documents (at the time of the research, *Tomorrow's Doctors 2009* and *The Trainee Doctor*).

We will consider this alignment in terms of how activities map to the quadrants of Figure 3.1. The 'green' quadrant (top left) indicates alignment between policy specification and Foundation Programme doctors' work, meaning that the policy documents are appropriate. The 'red' quadrant (bottom left) indicates that specified activities are not being done routinely, which may suggest that policy is specifying inappropriate activity, or that educational outcomes are not being fulfilled. Finally, the 'orange' quadrant (top right) refers to activities that are not included in the policy documents.

The fourth quadrant, in grey, is assumed to represent appropriate absences from the Foundation Programme doctors' work – activities that they do not do, and are not included in policy. It is possible that other, currently unspecified activities could be carried out by these doctors, but considering such potential extension of their work was outside the scope of this project.

Hereon we refer to 'routine', 'rare' and 'other' activities that map to 'green', 'red' and 'orange' quadrants, respectively.

Figure 3.1. Implications of correspondence and alignment between activities performed by Foundation Doctors and those specified in GMC policy documents

		Activities specified in <i>Tomorrow's Doctors 2009</i> or <i>The Trainee Doctor</i>	
		Yes	No
Activities routinely performed	Yes	Documents are appropriate	Documents may be underspecified, or service demands may be inappropriate
	No	Educational outcomes may not be fulfilled, or documents may be inappropriate	Appropriate absence or additional competency needed

3.2.1 Routine activities

We defined a 'regular' activity as one carried out by an individual respondent a minimum of 'once or twice a week' on the questionnaire scale. 'Routine' activities were defined as those which were reported as regular by more than three-quarters of F1 or F2 respondents.

There were 42 activities that satisfied these criteria, summarised in Table 3.5 (38 of these were routine when F1 and F2 responses were aggregated). These constituted 41% of all questionnaire items. All of these items reflected GMC-specified outcomes, representing 43% of those 97 items. These activities encompassed a range of skill types. Activities involving communication were most frequent (27%; 16 of 42), followed by those relating to clinical judgement (which may be a 'desk-based' activity) (9 of 42), practical skills (7 of 42), prescribing (6 of 42), 'administration' (3 of 42) and 'education' (1 of 42).

Most of these activities were routine for both F1s and F2s. However, there were six items that were routine for F1s only (these were reported as regular by 55%-71% of F2s), and one by F2s only (regular for 63% of F1s). By chi-square test, these seven distributions were all significantly different between F1 and F2 ($p < 0.0001$), but the effect sizes for three were below the threshold of practical relevance (Cramer's $V < 0.20$; see section 2.2.3 of this report for explanation). The four remaining activities that were particular activities of F1 work were: 'perform arterial puncture in an adult', 'take peripheral blood cultures', 'prescribe intravenous (IV) fluids' and 'perform IV cannulation'.

With regard to the prioritisation of activities for retention, this frequency forms the first criterion on which to prioritise:

- **An activity is empirically shown to be commonly performed by Foundation Programme trainees.**

Table 3.5. Routine activities: reported as a 'regular' part of work by at least 75% of F1 or F2 questionnaire respondents

	Type of activity	Frequency regular part of F1 job (%)	Frequency regular part of F2 job (%)	Significant association between F1/F2 and frequency
Use electronic systems to retrieve patient data including results	Administration	1717 (99%)	1740 (98%)	
Interpret the results of investigations	Clinical judgement	1717 (98%)	1753 (97%)	
Seek advice from other health professionals in a situation of clinical uncertainty	Communication with colleagues	1698 (98%)	1706 (96%)	
Seek advice from other health professionals to formulate a plan for treatment management and discharge	Communication with colleagues	1692 (98%)	1648 (93%)	
Plan drug therapy for common indications including pain and distress	Prescribing	1731 (97%)	1760 (96%)	
Provide a safe and legal prescription	Prescribing	1725 (97%)	1777 (97%)	
Interpret findings from history and or examination	Clinical judgement	1701 (97%)	1772 (98%)	
Make clinical judgements and decisions in conjunction with colleagues	Clinical judgement	1704 (97%)	1761 (97%)	
Perform venepuncture	Practical skill	1740 (96%)	1513 (81%)	
Provide explanation advice reassurance and support to a patient	Communication with patient	1667 (96%)	1723 (96%)	
Seek professional opinion from another specialty or professional	Communication with colleagues	1659 (96%)	1627 (92%)	
Use electronic systems to enter patient information eg discharge plan	Administration	1656 (96%)	1628 (91%)	
Access reliable information about medicines	Prescribing	1686 (95%)	1718 (94%)	
Maintain handwritten medical notes	Administration	1648 (95%)	1342 (75%)	
Formulate a plan for treatment and management	Clinical judgement	1645 (95%)	1714 (96%)	
Perform a full physical examination	Practical skill	1648 (94%)	1724 (95%)	
Formulate a plan of investigation	Clinical judgement	1650 (94%)	1748 (96%)	

	Type of activity	Frequency regular part of F1 job (%)	Frequency regular part of F2 job (%)	Significant association between F1/F2 and frequency
Take a medical history	Communication with patient	1646 (93%)	1768 (97%)	
Make an initial assessment of a patient's problems	Clinical judgement	1643 (93%)	1753 (97%)	
Formulate a differential diagnosis	Clinical judgement	1637 (93%)	1750 (96%)	
Establish a problem list and likely diagnosis or diagnoses	Clinical judgement	1635 (93%)	1744 (96%)	
Elicit a patient's questions and understanding about their condition and treatment options	Communication with patient	1608 (93%)	1689 (94%)	
Communicate with patients of different age groups	Communication with patient	1607 (93%)	1680 (94%)	
Prescribe IV fluids	Prescribing	1643 (92%)	1280 (70%)	$\chi^2 = 294.6$, $p < 0.0001$; $V = 0.29^a$
Take a family social history	Communication with patient	1626 (92%)	1758 (97%)	
Perform intravenous cannulation	Practical skill	1655 (91%)	1295 (69%)	$\chi^2 = 281.0$, $p < 0.0001$; $V = 0.28^a$
Take a drug history covering prescribed and other medication including complementary and alternative therapies	Communication with patient	1580 (89%)	1718 (93%)	
Be involved in the prescription of controlled drugs	Prescribing	1573 (88%)	1520 (83%)	
Participate in a multi-disciplinary clinical discussion	Communication with colleagues	1535 (87%)	1569 (86%)	
Take a history from relatives or carers	Communication with patient	1506 (86%)	1649 (91%)	
Identify a patient's preferences for involvement in decision making about their care and treatment	Communication with patient	1497 (86%)	1635 (91%)	
Formulate a discharge plan	Clinical judgement	1481 (86%)	1263 (71%)	$\chi^2 = 107.9$, $p < 0.0001$; $V = 0.18$
Measure pulse rate	Practical skill	1519 (84%)	1579 (84%)	
Help a patient to make decisions about their care including self care and treatment	Communication with patient	1463 (84%)	1623 (91%)	
Take peripheral blood cultures	Practical skill	1504 (83%)	1182 (63%)	$\chi^2 = 179.4$, $p < 0.0001$; $V = 0.22^a$
Give patients information about their medicines	Communication with patient	1473 (83%)	1586 (86%)	
Obtain informed consent from patient for investigations	Communication with patient	1469 (83%)	1618 (89%)	
Access information, for example online, in books or journals, to support patient care, research or education	Education	1436 (83%)	1559 (88%)	
Perform arterial puncture in an adult	Practical skill	1482 (82%)	1034 (55%)	$\chi^2 = 297.3$, $p < 0.0001$, $V = 0.28^a$
Manage a patient with sepsis	Practical skill	1455 (82%)	1214 (67%)	$\chi^2 = 113.7$, $p < 0.0001$; $V = 0.18$
Calculate and record drug doses	Prescribing	1446 (81%)	1407 (76%)	
Discuss sensitive issues with a patient, such as alcohol consumption, smoking or obesity	Communication with patient	1097 (63%)	1422 (79%)	$\chi^2 = 112.1$, $p < 0.0001$; $V = 0.18$

The table shows 42 items from the on-line questionnaire, which was distributed to all F1 and F2s in the UK. The items listed are those reported as a 'regular' (carried out a minimum of once or twice per week) part of the work by more than 75% respondents in either F1 or F2 group. These are shown in order of the proportion of F1 trainees reporting the task as regular. Bold indicates significant difference between F1 and F2 distributions.

^a Cramer's $V > 0.2$ indicates a moderate effect size.

3.2.2 Qualitative exploration of routine activities

In interviews and focus groups, trainees universally agreed that these activities were an accurate reflection of their regular work (“*yeah, that’s the bread and butter*”, Trainee interview 15 – F2), suggesting that these requirements of policy documents were appropriate for what was expected of them.

However, views varied as to whether all of these activities were a ‘good use of time’. The paperwork involved in discharge planning and blood-taking procedures (IV cannulation, phlebotomy – notably reported as regular activities by F1s in particular), were raised as examples of activity regarded as a ‘burden’.

The issue of volume of activity was a common theme, whereby some otherwise appropriate activities were felt to be a poor use of time if they dominated the clinical workload: “*I just felt like a cannula monkey*” (Trainee interview 10 – F1). Cannulation was notable because of requirements in, at least, some hospitals that all cannulas be replaced after three days in order to reduce infection risk, which took significant time during the working day (including out of hours). High volume tasks were felt to be particularly onerous if the trainee felt that they could be done more efficiently by other staff.

You could train someone to become proficient in those skills quite easily and employ someone to do it and it would free up a lot of time to do perhaps other tasks which would make more difference to care. (Trainee focus group 4)

This point was strongly made with regard to some administrative tasks. Although the benefit of such activities was recognised, the trainees associated the merit of an activity with its complexity, how it related to the application of their hard-gained knowledge base, and their own autonomy. These qualities are linked to the perception of what constitutes ‘medicine’.

So does [this work] feel like a good use of my time? I think it’s definitely very useful for the ward; it definitely is helpful for the patients. You know the patients wouldn’t be clerked and admitted and discharged and wouldn’t get their medications and their fluids and all of this without F1s, F2s... but it’s not really what I went to medical school for. (Trainee interview 1 – F1)

Perhaps unsurprisingly in light of this, regular activities that were viewed by trainees as ‘bureaucratic’ were regarded negatively, often getting in the way of work perceived to be of higher priority. However, this contrasted with a wider perspective described by nursing staff, reflecting the service implications of ‘paperwork’ which can have consequences for all patients. For example, if a discharge summary – often seen as onerous by trainees – is not done, then it can have a direct impact on a patient, and on the ward as a whole.

They’re not looking at the wider picture... that’s why [a trainee] doesn’t see the discharge summary as a problem because to him he’s kept his patient safe – from his perspective – but he hasn’t realised it has a knock on effect. [But] it might stop a discharge from his ward and I can’t get a patient out. (Nurse focus group 1)

In summary, trainees in the interviews and focus groups were in agreement about their frequently performed activities as described in policy documents. However, if some of these activities dominate the clinical workload this can be seen as an inefficient use of time. Consideration of the wider clinical team and distribution of activities may need further exploration.

3.2.3 Rare activities

Some activities specified in policy documents were not routinely part of trainees' work. We defined these 'rare' activities as those carried out at least once or twice a week by less than 25% of respondents in F1 or F2. Table 3.6 summarises the 30 activities that fell within this group, 22 of which were rare when F1 and F2 were aggregated. The 30 items constituted 29% of the 103 questionnaire items. Additionally, all were specified in the GMC-specified outcomes, reflecting 31% of those 97 activities. The majority (22 of 30; 73%) related to practical skills.

Three activities were indicated as being rare by F2s, but not F1s. These were significantly different ($p < 0.001$), but only death certification met the statistical criterion of Cramer's $V \geq 0.2$ (see section 2.2.3). Proportionately, this activity was done regularly by twice as many F1s as F2s (36% of F1s compared to 18% of F2s).

Another seven activities were indicated as being rare by F1s, but not F2s. Again these were statistically significant, but only four met our additional criteria of practical relevance (Cramer's $V \geq 0.2$). These were: 'advise a patient on how to collect a mid-stream urine specimen' (regular in 37% of F2s; 13% of F1s), 'perform a urine multi dipstick test' (40%; 16%), 'measure body temperature' (42%; 21%) and 'perform basic respiratory function tests including peak flow' (27%; 10%). These may be linked to their relative prevalence in general practice, where F2s have placements but F1s do not.

Table 3.6. Rare activities: reported as a 'regular' part of work by less than 25% of F1 or F2 questionnaire respondents

Activity	Type of activity	Frequency regular part of F1 job (%)	Frequency regular part of F2 job (%)	Significant association between F1/F2 and frequency
Perform urethral catheterisation (male)	Practical skill	662 (37%)	428 (23%)	$\chi^2 = 81.8$, $p < 0.0001$; $V = 0.15$
Complete a death certificate	Administration	654 (36%)	336 (18%)	$\chi^2 = 152.8$, $p < 0.0001$; $V = 0.20^a$
Set up an electrocardiograph (ECG) monitor	Practical skill	512 (28%)	406 (22%)	$\chi^2 = 20.8$, $p < 0.0001$; $V = 0.08$
Communicate with a patient by a written method eg letter	Communication with patient	410 (24%)	527 (29%)	$\chi^2 = 14.9$, $p < 0.0005$; $V = 0.06$
Measure body temperature	Practical skill	383 (21%)	781 (42%)	$\chi^2 = 179.7$, $p < 0.0001$; $V = 0.22^a$
Start a blood or blood product transfusion following relevant procedures	Practical skill	383 (21%)	222 (12%)	
Look for signs of abuse or neglect in children or vulnerable adults	Clinical judgement	355 (20%)	690 (37%)	$\chi^2 = 135.0$, $p < 0.0001$; $V = 0.19$
Administer an IV medication	Practical skill	340 (19%)	322 (17%)	
Use a local anaesthetic (topical or injected)	Practical skill	339 (19%)	542 (29%)	$\chi^2 = 52.9$, $p < 0.0001$; $V = 0.12$
Perform a urine multi dipstick test	Practical skill	285 (16%)	747 (40%)	$\chi^2 = 266.5$, $p < 0.0001$; $V = 0.27^a$
Make up a drug for IV administration	Practical skill	289 (16%)	231 (12%)	
Measure blood glucose	Practical skill	270 (15%)	342 (18%)	
Monitor a blood or blood product transfusion for a reaction	Practical skill	275 (15%)	175 (9%)	
Advise a patient on how to collect a mid-stream urine specimen	Communication with patient	244 (13%)	687 (37%)	$\chi^2 = 263$, $p < 0.0001$, $V = 0.27^a$
Carry out a nutritional assessment	Communication with patient	211 (12%)	253 (14%)	
Set up an infusion device for IV fluids	Practical skill	221 (12%)	193 (10%)	
Carry out cardio pulmonary resuscitation	Practical skill	219 (12%)	235 (13%)	
Carry out wound care and basic wound dressing	Practical skill	191 (11%)	372 (20%)	
Perform basic respiratory function tests including peak flow	Practical skill	187 (10%)	502 (27%)	$\chi^2 = 162.9$, $p < 0.0001$; $V = 0.21^a$
Give a subcutaneous injection	Practical skill	156 (9%)	186 (10%)	
Perform urethral catheterisation (female)	Practical skill	165 (9%)	127 (7%)	
Report an adverse drug reaction	Administration	155 (9%)	192 (10%)	
Suture skin	Practical skill	145 (8%)	340 (18%)	
Use an airway adjunct eg Guedal airway or laryngeal masks	Practical skill	144 (8%)	219 (12%)	
Give an intramuscular injection	Practical skill	125 (7%)	193 (10%)	
Communicate with a patient by an electronic method eg email	Communication with patient	115 (7%)	165 (9%)	
Perform a pregnancy test	Practical skill	99 (5%)	381 (20%)	
Take nose, throat and skin swabs	Practical skill	99 (5%)	320 (17%)	
Direct other team members to carry out cardio pulmonary resuscitation	Communication with colleague	75 (4%)	126 (7%)	
Treat a reaction following blood transfusion	Practical skill	61 (3%)	42 (2%)	

The table shows 30 items from the on-line questionnaire, which was distributed to all F1 and F2s in the UK. The items listed are those reported as a 'regular' (carried out a minimum of once or twice per week) part of work by less than 25% respondents in either F1 or F2 group. These are shown in order of the proportion of F1 trainees reporting the task as regular. Bold indicates a difference between F1 and F2 distributions that meets criteria of relevance.

^a Cramer's $V > 0.2$ indicates a moderate effect size.

Considering Tables 3.4 and 3.5, there were therefore subtle differences in the type of work being done by F1s and F2s. However, as F1s and F2s differ in terms of placement specialty groups, there is a risk that these differences arise from specialty, rather than progression. Repeating the analysis while limiting the dataset to those respondents working only in the larger groups of medical and surgical specialties, no differences were apparent for medical specialties, and just three for those in surgical placements: ‘use a local anaesthetic (topical or injected)’ (regular for 46% of the F2 sub-sample, and 16% of F1s, $V=0.32$), ‘suture skin’ (regular for 37% of F2s, and 14% of F1s, $V=0.26$), and ‘carry out wound care and basic wound dressing’ (regular for 38% of F2s, and 15% of F1s, $V=0.25$).

Thus, while specialty was a confounding factor in superficial differences between F1 and F2 activities, there were differences in the activities performed in surgical placements, with F2s seemingly taking more of an active role. We will return to consideration of specialty in section 3.4.1.

3.2.4 Exploration of ‘rare’ activities

In interviews and focus groups we explored the reasons for some activities’ rarity, and whether they should remain part of undergraduate medical education despite their rarity in practice. Interview respondents indicated two broad reasons for such tasks not being a regular part of their work – their low frequency, and their being done by others. One focus group participant summarised the difference:

I think there are two types of things on that list. There’s those things that are very rare so that’s why not many people will get an experience of them, then there’s those things that are so common someone else just does them. (Trainee focus group 4)

We will consider each of these in turn.

3.2.5 Infrequently occurring activities

Some activities were less common in practice simply because they are clinically rarely required, and trainees are rarely exposed to situations where they are needed. These included activities that will be rare across specialties (such as ‘treat a reaction following blood transfusion’). Others may be common in one specialty but rare in others (for example, ‘carry out wound care and basic wound dressing’ will be more salient in surgical or trauma contexts). It was recognised that F1 doctors attend new patient clinics infrequently, but commonly clerk patients in emergency or admissions units. Clerking in clinics may be more common in some specialties, such as psychiatry and obstetrics and gynaecology.

Of more surprise to trainees in interviews and focus groups was that ‘carry out cardio-pulmonary resuscitation’ (CPR) was on the ‘rare’ stimulus list. However, it was apparent that exposure to this activity could vary with the employer’s policy. For example, while most trainees reported carrying a ‘crash’ bleep at times, one interviewee reported that in their Trust F1s did not.

In my hospital F1s are not on the bleep rota – even when we’re on-call – for cardiac arrests... I don’t think we get enough exposure to them and I think that’s quite worrying for when we are F2s or SHOs next year and we’ll have had very little experience in arrest situations and [be] expected to know what we’re doing. (Trainee interview 9 – F1)

‘Communication with patients by email’ was not usually expected of F1 doctors. Some thought this was more a role for senior doctors and would be inappropriate for junior trainees.

3.2.6 Division of labour

Rarely performed activities were often attributed to a division of labour, meaning that other staff groups routinely carried out these tasks. Usually this was in reference to nurses, although the issue of division of labour encompassed other medical grades as well as other staff, such as phlebotomists, healthcare assistants, etc.

For some activities, such as ‘carry out wound care’, nurses were felt to be more competent, safe and efficient: *“the nurses do it so well that we would never be asked to do some things”* (Trainee interview 9 – F1). There is a feedback loop here – because they are done well by nurses, there is a greater imperative for these to continue to be done by nurses in the interests of perceived efficiency and safety. Other activities, such as ‘take nose, throat and skin swabs’ and basic observations, were such a routine part of nurses’ initial assessment of patients they had usually been done by the time a doctor saw the patient.

Similarly, while prescribing remains predominantly a medical job, nurses tended to be responsible for the practicalities of administering medication and fluids. Less than 10% of F1s regularly gave injections. This could be problematic as they are among the core procedures required for Foundation Programme curriculum competency sign off.

So to get signed off for that a group of us did each other’s flu jabs at work because there’s just so few opportunities to do it. (Trainee interview 9 – F1)

There were also policy-based reasons for division of labour. For example, it was common that Foundation Programme doctors could not ‘measure blood glucose’ because they did not have log-in access to blood glucose monitors. These policies may be put in place locally due to patient safety issues.

Nurses were not the only other professional group with whom tasks were shared. In some cases activities were identified as done by more senior doctors, or other specialist staff (for example, a dietician for ‘carry out a nutritional assessment’ and lung function technician for ‘perform basic respiratory function tests, including peak flow’).

Division of labour was rarely felt to be negative, but rather it was simply an aspect of the structure of work, which had to be learnt. It was also an integral part of teamwork, and learning how an interdisciplinary team functions. More explicitly, opportunities provided by others doing jobs could be seized, freeing doctors’ time to perform tasks that are perceived to require medical expertise.

When you're so busy you're not going to be sort of saying "oh can I give that drug" because you're busy doing something else at the same time. So when there's something that the nurses can be doing that you don't need to do, you're not going to start volunteering. (Trainee focus group 4)

The division of labour was largely informal and implicit. It was rarely explicitly explained to trainees that some things were nurses' jobs, and others doctors', rather *"that was just the way that it was"* (Trainee interview 18 – F2). Some of the wider issues around the relationship with nursing will be discussed in a later section (section 3.4.3, p.47).

Nurse questionnaire data

In order to directly explore the perceived division of labour, the questionnaire completed by nurses asked respondents to indicate the extent to which each activity is the responsibility – 'exclusively' or 'mostly' – of nurses or Foundation Programme doctors. A 'Not applicable' option was also provided. Table 3.7 presents those items that more than 50% of nurses felt were carried out 'mostly' or 'exclusively' by nurses (full distributions are given in Appendix H), along with the comparable percentage of trainees who indicated each was not a 'regular' part of their job. There appears to be some consistency, with activities that are frequent for nurses being rare for trainees.

To test this hypothesis across all items, the frequencies of being 'not part of the job' on the trainee questionnaire were compared with the frequencies of being 'mostly' or 'exclusively' performed by nurses on the nurse questionnaire using Kendall's rank correlation, a test which compares the order of the items when ranked by frequency.

The analysis found a moderate correlation (Kendall's tau = 0.38), indicating that the higher frequency with which items were 'never' or 'rarely' performed by Foundation Programme doctors was associated with a higher frequency of their being performed by nurses.

Table 3.7. Activities reported by nurse questionnaire respondents as being ‘mostly’ or ‘exclusively’ carried out by nurses

Activity	Not applicable	% ‘Mostly’ or ‘Exclusively nurse’ from nurse questionnaire	% ‘Not part of job’ from trainee questionnaire
Measure blood glucose	12	94%	85%
Give a subcutaneous injection	12	94%	91%
Measure blood pressure	8	92%	55%
Give an intramuscular injection	14	92%	93%
Measure body temperature	14	90%	79%
Perform a urine multi dipstick test	13	90%	84%
Carry out wound care and basic wound dressing	19	90%	89%
Measure pulse rate	10	88%	16%
Take nose, throat and skin swabs	14	88%	95%
Measure transcutaneous oxygen saturation	19	87%	38%
Administer oxygen	21	85%	41%
Advise a patient on how to collect a mid-stream urine specimen	21	84%	87%
Use or direct moving and handling techniques for patients or objects in the context of clinical care	14	84%	66%
Make up a drug for IV administration	36	81%	84%
Set up an infusion device for IV fluids	38	80%	88%
Administer an IV medication	35	79%	81%
Carry out a nutritional assessment	30	74%	88%
Monitor a blood or blood product transfusion for a reaction	52	74%	85%
Start a blood or blood product transfusion following relevant procedures	54	73%	79%
Set up an electrocardiograph (ECG) monitor	31	71%	72%
Perform a pregnancy test	61	67%	95%
Perform a 12 lead ECG	32	66%	64%
Perform basic respiratory function tests, including peak flow	49	64%	90%
Perform urethral catheterisation – female	54	62%	91%
Instruct a patient in the use of devices for inhaled medication	35	52%	74%

The table shows items indicated as being ‘mostly’ or ‘exclusively’ nurse tasks by more than 50% of nurse respondents, with the comparable percentage of Foundation Programme doctor respondents who indicated that the activity was not part of their job.

3.2.7 The need to know versus the risk of deskilling

An important question raised by these low frequency activities is whether they should still be part of undergraduate medical education, if they are not common in Foundation Programme doctors’ actual practice. Trainees and supervisors generally felt that these activities were important for trainees to know and understand, even if they were not skilled.

Often, it was not the specific task that was felt to be necessary (for example, ‘perform a pregnancy test’ or ‘take nose, throat and skin swabs’), but rather the wider context of the activity, including indication, consent, ethics, interpretation and clinical implications.

Even if you don’t know how to do it, it’s important that you know about it and you know the consequences of doing something, like for example monitor a blood or a blood product transfusion for a reaction. (Trainee interview 19 – F1)

As such, there may be a group of activities, each of which may not need to be learnt by medical students, as long as the broad area is covered. For example, 'address risks of hospital acquired infection', could be more encompassing and relevant than the specific activity 'take nose, throat and skin swabs'.

Another criterion for the prioritisation of activities is apparent here:

- **The presence or involvement of a doctor is essential, and it cannot be done by any other healthcare professional, because it may require medical knowledge and judgement, or there is legal restriction on practice.**

This must be balanced though against the risks of a Foundation Programme doctor not being able to perform an activity. Activities associated with care of acutely unwell patients, including CPR and practical skills to support resuscitation may be less expendable, regardless of how rarely doctors have to do them. The imperative here is immediate action that cannot wait for someone else suitably skilled to arrive.

If there is no nurse around and say someone was having an anaphylactic shock you would want to be confident you could give an intra-muscular injection. So I think they are things that should be on our curriculum because it then makes us go and actively do it rather than just constantly relying on the nurses to do these things that are part of their day-to-day tasks. (Trainee interview 10 – F1)

Supervisors agreed that, although infrequent, many activities were still within the medical role. For example, trainees may need to perform subcutaneous injections as part of infiltration for more complex (medical) procedures.

A 'need to know' was also apparent in the case of 'difficult' procedures – often cannulation or male catheterisation. In these cases trainees may be asked to attempt a procedure if nurses have been unable to successfully perform it. Supervisors and clinical employers generally recognised this, and acknowledged that skills such as naso-gastric tubes and urethral catheterisation fell to the F1, whom one consultant described as the 'default'. This illustrates a dynamic hierarchy, and uncertainty in expectations of the nursing and medical roles.

At other times nursing expertise may simply not be available – through being short-staffed, or not having appropriately qualified nurses present. The organisational constraint that nurses may require local training by their employer before performing some activities, regardless of their experience and prior training, may mean doctors have to perform more or fewer of these activities depending on the nursing workforce present. The importance of maintaining a comprehensive and constant skill mix was also noted by non-clinical employers when questioned about the potential deletion of some activities from undergraduate medical education.

A corollary to this 'need to know' was the risk of deskilling if activities were not practised regularly – that the important skills required in an emergency may atrophy if they are *only* rarely used in emergency situations, or as a one-off for Foundation Programme curriculum sign off. This worried trainees, both in terms of patient safety and because they felt they might then have gaps in their skills in the longer term.

I know theoretically how to do it but wouldn't be particularly confident in doing it in five years' time when I got it signed off five years ago. (Trainee focus group 4)

Assessment of this risk requires further insight regarding the generic competencies expected of higher specialist trainees.

Two other criteria are implicit here:

- **The activity may be required in emergency context.**
- **The activity may be required in circumstances of limited workforce, such as out of hours working.**

In summary, around 30% of activities currently specified in policy documents were rarely performed by F1s or F2s (see table 3.5). There were a number of factors that may determine why these activities are rarely performed. They may be infrequently occurring activities, or be performed by other members of the clinical team, in particular nurses. However, two particular situations arise when trainees may still need to retain knowledge and skill in these activities: the 'difficult' procedure, and emergency situations. Trainees need to have adequate skills at these times for safe patient care. Finally, the threat of deskilling is real, and innovative ways of supporting maintenance and development of specific skills and activities may be required.

3.2.8 Other activities not currently specified in policy

So far we have considered activities that can be safely retained on grounds of frequency, and those that require consideration of prioritisation against criteria of need and risk. Another group relates to the third quadrant of our framework – activities that are a routine part of work, but which are not present in policy documents.

Five free text questions were included in the questionnaire to capture these. Four of these asked respondents to list any activities not mentioned earlier in the questionnaire under four headings: practical procedures, communication with patients, relatives or carers, communication with other professionals and administration or paperwork. A final question asked about 'any other regular part of your job that you would like to tell us about?'

Overall, 2,236 individuals (60% of questionnaire respondents) answered at least one of these questions (excluding responses such as 'nil' and 'NA'). Some gave just a single response, others listed

several activities, and others gave more detailed descriptions. To identify frequent responses, a simple content analysis was performed using an iterative search implemented in the R statistical programming language – frequencies of particular terms identified from scrutiny of the responses were summarised, and search terms added or refined from examination of the remaining responses. Responses to all questions were treated together.

While many activities were referred to, the frequencies of individual items were low. Table 3.8 summarises the most frequent, illustrating activities from specific clinical areas as well as those that were more generally common. This table excludes responses that referred to activities which were included elsewhere in the questionnaire (such as venepuncture, cannulation and airway management). There were several general references to end of life care, which is referred to in GMC-specified outcomes, but also many explicit references to ‘do not attempt resuscitation’ (DNAR), which is not specifically referred to in curriculum documents, and so is included in this table. Teaching, home visits and audit were relatively frequent activities in addition to practical procedures.

Table 3.8. Summary of ‘other’ activities F1 or F2 questionnaire respondents

Activity	Total	F1	F2
Practical procedures			
Arterial blood gas	237	154	83
Naso-gastric tube	163	122	41
Lines: arterial line, central line, PICC line	158	88	70
Obstetrics & Gynaecology (eg speculum, vaginal exam, Caesarean)	133	12	121
Lumbar puncture	123	49	74
Ascitic drain, ascitic tap	110	68	42
Chest drain, pleural tap	99	53	46
Surgery (including assisting in theatre, laparoscopic)	89	30	59
Orthopaedic procedures (eg relocation, displacement, backslab)	85	19	66
ENT (including nasendoscopy and nasal packing)	36	11	25
Other activities			
DNAR	135	71	64
Teaching	101	40	61
Home visit	67	1	66
Audit	70	28	42

The table summarises the most common free text responses that described activities not currently in curriculum outcome documents.

These activities were included as a stimulus within interview and focus group topic guides, and participants were also encouraged to describe any other aspects of their work that had not already been raised.

3.2.9 Practical procedures

It was agreed by all Foundation Programme doctors in interviews and focus groups that taking an arterial blood gas (ABG) was a basic skill, and a core part of their unsupervised work from the beginning of F1. Although not in *Tomorrow's Doctors 2009*, trainees generally referred to having been trained in ABG sampling as an undergraduate, and many expressed surprise it was not mandated

currently by the GMC. It was highlighted that in addition to being able to perform the procedure, F1s needed to understand its indication and be able to interpret results.

I'd say [in] both of my jobs if you can't do an ABG then that's dangerous for patients, because it's such important information... so I think ABG should definitely be in. (Trainee interview 9 – F1)

References to naso-gastric tube placement varied. Some saw this as purely a nursing task, others as an important activity for doctors. There were clearly relevant contextual factors, including specialty (being more common in surgery and paediatrics), need for training (determined by local policies) and patient safety issues (in relation to verification of placement). This activity was similar to cannulation and urethral catheterisation in that trainees were often asked to take on a 'difficult' procedure, especially when nursing or other clinical team members had made unsuccessful attempts.

Chest drains and lumbar punctures were identified as more advanced tasks, which trainees would not expect to perform except as explicit supervised learning activities. It was recognised that these were key medical skills, and supervisors were aware that trainees enjoyed the opportunity to practise these procedures.

They're probably not one of their core competencies but they love doing stuff like that don't they, I mean there's always a queue of people to do those. (Supervisor interview 6 – clinical employer)

While local policy was a determinant in other activities, it was overwhelmingly important for chest drain insertion. Differing policies stipulated the level of grade, which specialties, the level of training and knowledge required to perform this procedure. Some organisations provided training, while others specified such procedures should be performed by interventional radiology.

We have a chest drain course and I could do it you know, there are one or two F1s who have done them in my hospital and there are F2s who do them but I, I've not and I feel I would want to be very well trained for that because I don't think it's something that we should be trained for in medical school. (Trainee interview 1 – F1)

Particular opportunities and requirements arising from different specialties were identified. For example, chest drains were more frequent in respiratory medicine; lumbar punctures in infectious diseases placements or Accident & Emergency; ascitic taps or drains in gastrointestinal medicine; speculums/vaginal examination in obstetrics & gynaecology; central lines in anaesthetics.

This highlights another important criterion for prioritisation:

- **The activity may be required with greater frequency in particular specialties because of particular clinical demands.**

3.2.10 Communication and time management

Discussions around ‘do not attempt resuscitation’ (DNAR) orders were among the most frequently reported additional patient communication-focused activities. This is not explicitly referred to in TD09, although it is implicit in outcome 14(j) ‘*Contribute to the care of patients and their families at the end of life, including management of symptoms, practical issues of law and certification, and effective communication and teamworking*’. However, it was described by many respondents as a more precise skill.

Some had direct experience of leading DNAR discussions with patients and relatives, although this experience was dependent on Trust policy and/or the specialty of clinical placement (for example, being more likely in palliative care). Others felt that this had been more part of their learning role – as something to be involved with and gain exposure to – in preparation for future medical responsibility.

I’ve probably done a lot of DNAR discussions but that’s purely because I’m in palliative care at the moment and that’s a big chunk of what is done. I would at first have just sat in and then been supervised and now I am comfortable to do that by myself. (Trainee focus group 2)

One F1 focus group elaborated further on the specific activities associated with end of life care, and highlighted that the ‘living patient’ was the focus of the undergraduate student, such that the practicalities of caring for the terminally ill patient – including specialist prescribing, decisions around nutritional support, death certification and associated paperwork – became ‘new’ activities for an F1.

Yeah, I think a lot of the time in medical school you’re sort of kept away from the dying and the dead and I think you need a lot more exposure to that. I think the nurses and like the doctors when you’re a medical student are like, ‘oh you wouldn’t want to go and see that patient, go and see this nice healthy man in his mid-forties instead’. I think it would make it easier for your first night shift when you’re on your own and you have to go and see a person who has died. (Trainee focus group 6)

The DNAR discussion was described by supervisors and clinical employers as important for the F1 to be aware of, but their function in this activity was seen to be as part of the team discussion, as opposed to having a lead role.

I would be very disappointed if the F1 felt that they were leading that. I would hope that didn’t happen. They should be part of the team discussion but wouldn’t be the prime mover. (Supervisor interview 3)

There were also a range of activities involving communication with colleagues raised as ‘other’ activities. While these relate to outcomes listed in TD09, and indeed, to activities reported as ‘regular’ in the questionnaire (see section 3.2.1, table 3.5 on pp.19-20), trainees described specific and nuanced cases which were identified as particular new skills they had to develop. These included chairing multi-disciplinary meetings, some aspects of asking for advice, and the skill of facilitating clinical opinions from other specialist teams, which was described in terms of being an intermediary between specialties, with a need to ‘appease’ (Trainee focus group 3) both the referring and reviewing consultant.

Supervisors also highlighted the trainee's need to communicate effectively with their colleagues around the negotiation of work activities, and to ensure safe handover. Both trainee and supervisor groups also stressed that the skills of task prioritisation and time management, often supported by various types of 'job list', were integral to their role.

These 'professional' skills were central to the F1's daily work. Trainees identified that these competencies, such as note-keeping and making written/verbal referrals, could be developed as part of on-the-job learning, but many cited a desire to have had prior experience as an undergraduate. These practice-based professional skills will be discussed further in relation to trainee progression (section 3.4.4).

In summary, a number of activities not included in policy documents were performed by trainees. These included clinical skills that were specialty or setting dependent, as well as activities that expanded on the current specification.

Additional clinical skills appear to be ad hoc and linked to specific specialties – with the exception of arterial blood gas sampling and naso-gastric tube insertion. These were considered essential, and may also be part of undergraduate curricula. Active contribution to DNAR discussions was also identified as a fairly frequent activity, constituting a specific skill within the broad outcome of managing patients at the end of life.

Both trainees and supervisors recognised that a number of other activities relating to communication and time management form a key part of the trainee role.

3.3 The variable role of the Foundation Programme doctor

Key points

The Foundation Programme doctor has three inter-related roles: support, independent practitioner and learner

Each role is essential, but trainees' perceptions of the importance of each role vary.

During interviews and focus groups, participants were asked to describe the role of the Foundation Programme doctor from their perspective – trainee, supervisor, employer or nurse. The responses to this question varied, with a number of themes emerging. The key overall finding is the focus on the question ‘what is an F1 *for*?’ rather than ‘what does an F1 *do*?’

Three main roles or functions of an F1 emerged from the data. In practice they can overlap and interact, but each will be described separately. Our analysis identified the three roles as:

- i) **Support** – for the ward and for senior doctors, performing essential tasks which often do not require direct patient contact.
- ii) **Independent practitioner** – delivering hands-on patient care, often in acute circumstances, but also in more everyday situations.
- iii) **Learner** – whose function is to develop new (and to consolidate existing) skills and knowledge.

Understanding the complexity of the trainee role was a challenge from the outset, recognised by supervisors and trainees alike. Trainees’ knowledge of their role was often negotiated in practice, through interactions with others and in response to clinical demands.

There’s definitely an uncertainty, particularly in the beginning of the job. We sit around and ask ourselves ‘what is my actual job, my actual role’ and I think I’ve learnt my role is to fill in the gaps and make sure the jobs get done by whatever means. Whether that means I’m giving the sub-cut injection then I’ll give it. There are definitely blurry lines and I still wouldn’t say it’s clear with certain tasks. (Trainee interview 12 – F2)

Formal induction and shadowing helped with this orientation, and some participants felt that they did understand their role. However, uncertainty was common among trainees about how the ‘ground rules’ of their work were decided.

3.3.1 Support

It was striking that trainees’ dominant perception of their work related to their role as a ‘support’. This trainee role was seen as fundamental for day-to-day ward management, including admission and discharge of patients, jobs arising from ward rounds, including arranging investigations and

prescriptions and liaison with other specialists and primary care. The support element of their role appeared surprising or frustrating to some trainees, while others appeared to be resigned to it. A positive impact on patient care was identified by some, but one that often lacks agency, and a sense of 'ownership' of that patient care.

As the F1 on the team the main priority is to make sure that all the system goes along smoothly. So to ensure... the patient is well looked after on the ward... because after the ward round the F1s are usually the only ones left on the ward. So the job throughout the day for the F1 is to make sure that the patient is improving or being safe on the ward.
(Trainee interview 19 – F1)

Some elements of this role were identified as 'administrative' or 'secretarial' and less satisfying to trainees. Writing discharge summaries was a common complaint, despite its importance to the overall function of the ward. There was a common perception that this was 'not what they signed up for', and hence were 'disappointed' by the job as a consequence.

I can't remember any F1 in my house who would say that the administrative tasks that they do, that most of them should be done by an F1. I think we all agree this is not something we should be wasting time on you know, somebody else could be doing this. It doesn't, you know, this is not required skill. (Trainee interview 13 – F1)

Some trainees who recognised the supporting role as being essential to the wider team function of delivering patient care may have been more satisfied. Some F1s recognised that they are well-placed to identify any changes in patients which may require medical attention, being the "barometer of the patient" (Trainee focus group 1), or act as a channel of communication and information between patient, nurses and more senior doctors.

I think it's a lot of support that I'm providing. But you know, it's important, it's essential stuff the things that I do... and there are times when I'll be the only one on the ward.
(Trainee interview 2 – F1)

This understanding was echoed by ward-based consultants. When describing a 'good F1', one supervisor explained this as follows:

If I turn up to the ward you will be able to say 'these are your patients, this is what's wrong with them, this is what I have done and this is the help I need from you'.
(Supervisor interview 3)

Employers (both clinical and non-clinical) consistently commented on the importance of this supporting role for the effective functioning of the wider organisation. Support from this perspective was not peripheral to patient care, but fundamental.

They are seen as the, to a degree, the work horses of the organisation and we would be in serious trouble without them. (Non-clinical employer interview 1)

Indeed, non-clinical employers recognised that this central role could be a useful resource for quality improvement, were it to be tapped (further considered in section 3.5). Nonetheless, a common perception of trainees was that as a support, they were not fulfilling their capabilities as doctors.

3.3.2 Independent practitioner

By contrast, being an independent practitioner was perceived to be a more central and active clinical role, closely linked to the defining qualities of ‘medicine’ (see section 3.2.2). In this context ‘medicine’ was signified by trainees’ as having responsibility for individual patients, either in terms of performing particular procedures, or making individual judgements that drew on their medical knowledge. Contributing to the emergency care of acutely ill patients was a particular case where trainees felt that there was a clear application of knowledge.

The emergency thing, that’s when again I need to be able to recognise a clearly unwell patient and be able to [treat the patient], using medical knowledge. (Trainee interview 2 – F1)

This direct application of ‘medical knowledge’, and associated decision-making, seemed to be very important to the perceived status of a doctor as an autonomous professional. There was more sense of intrinsic reward in this role than in the general role of supporting the ward.

You get to actually get to go and see your patients, feel a little bit more involved and you’re actually, you know, you’re doing something that you need a medical degree for. Whereas most days you don’t need a medical degree when you’re doing a job. (Trainee focus group 3b)

The extent to which this role was enabled could vary with the consultant (or more senior doctor), and the organisation of clinical leadership in that setting. The running of ward rounds could vary greatly.

So the rest of the ward rounds it was more being almost like a secretary I guess, so following around the consultant, getting the notes out, scribbling in the notes. [But] it was almost like on the first [placement] we were almost leading the ward round... that was quite unique. (Trainee interview 7 – F2)

Senior medical direction on the activities expected from the F1 was very important in defining the F1’s role, and the balance between ‘support’ and ‘independent practitioner’.

3.3.3 Learner

It was to be expected that many trainees would identify being a ‘learner’ as a primary element of their Foundation Programme role, but notably they did not necessarily feel that this was the dominant element of their work. While being a learner was seen as an intrinsic function of the F1 job – ‘What makes F1 different [is] because you’re learning to be a doctor whilst being one’ (Trainee focus group 1) – there was an apparent irony in instances of learning being relatively uncommon. The focus was

sometimes less explicitly on learning per se than on simply passing through F1, as a stepping-stone or 'rite of passage' in a medical career.

The nature of F1 as a transitional role was apparent in references to still feeling like a student. Trainees described a feeling that they are not yet 'doing medicine' or putting learning into practice. Some aspects of the support role were explicitly linked to being a learner in a developmental role, as it provided some protection from more challenging aspects of clinical responsibility and decision-making.

It's boring doing the tasks, but it's a year. You're kind of spoon-fed which you need to be and you're getting straight in the hospital. I think the jump from F1 to F2 is a lot scarier and I'm glad that I don't have the responsibility of an F2 as an F1. (Trainee focus group 5)

However, learning – or at least explicit teaching – could be hampered by the pressure of work itself.

You know because you're so busy... even if [consultants] are keen to teach there's just really no time. (Trainee focus group 3a)

This conflict between 'work' and 'learning' recurred throughout the data, from trainees and supervisors. Some contrasted routine elements of 'service provision' negatively with learning, perhaps indicating a particular and potentially narrow definition of what constitutes learning, but also a genuine frustration with routine and unchallenging activities. Some supervisors acknowledged that some activities may not be educational, but were still important.

That will mean doing certain things that you know may not be deemed to be completely educationally valuable, but [are] very valuable in terms of clinical care as a package. (Supervisor interview 2)

Some employers also highlighted that from the point of view of the healthcare organisation in which trainees are placed, they are employed to deliver service. As one noted, '*you cannot be just a purely training post. If that was the case, don't pay the doctors*' (Supervisor interview 1, clinical employer). Conversely, another employer emphasised the training responsibility of the organisation and that having a reputation as a good training location could attract high quality trainees and enhance the workforce.

We are very aware of the fact that this isn't just about a pair of hands. It's about providing the right level of, of training. (Non-clinical employer interview 1)

There was a conflict at times in helping trainees to learn, and supervisors noted that learning took place in different ways, including both on-the-job and formal teaching opportunities. For some, the essential tension in the F1 post was palpable.

What they want to do is be spending as much time talking to the patients, examining the patients and learning from their consultants, so there is a tremendous tension all the time. I mean, it's not what I would call warfare but there is a subtle balance between service, training and education and not everyone gets it right. (Supervisor interview 8)

The learner role can be difficult to isolate from the other roles, particularly if it is seen as implicit within practice. However, some F2s were able to identify valuable learning in retrospect from activities that had, at the time, seemed unrewarding. This may indicate that their view of learning had changed to see learning as development of expertise, rather than exposure to new tasks or activities; an improvement in, rather than expansion of, their competencies.

I felt at the time that I was predominantly like a PA... but looking back on it you know you gain a massive awareness which you don't [get] as a medical student as [to] what's going on with a patient and what doctors do in the ward. (Trainee interview 21 – F2)

This highlights the importance of modelling and informal learning – the learning gained from simply being in the environment and observing those more experienced. Supervisors appreciated this apprentice-style role and their own important influence, yet acknowledged that this type of learning could not be assessed or indeed stipulated. Nevertheless, it was clear that the wider learning culture was important to all stakeholders, and was within the control of consultants.

Wards have different cultures and that's often set by the consultants and if the ward's culture is of support and teaching it works, and if the ward's culture isn't then it's much more difficult. (Supervisor interview 3)

Overall, being a learner was a central role and function of F1s – indeed their *raison d'être* – but much of their regular work was not recognised as being of great educational value. However, it may be that this is a matter of perspective, and a function of learning being more implicit than trainees have been used to in their undergraduate studies. The key then may be to see the F1 as a transitional role which must bridge student and doctor, and allow that change in perspective to happen.

The role of the Foundation Programme doctor is multi-faceted, and for some at least contains contradictions. There are tensions between supporting the ward function, and developing as an independent practitioner. While both roles can directly contribute to care, their subjective autonomy may differ, with the latter conforming more to perceptions of what 'medicine' is.

Both roles are also in tension with the role of learner, particularly if 'learning' is viewed as the explicit extension of knowledge and skills, rather than implicit development of expertise through practice. Perspectives on learning may change with progression through Foundation Programme, highlighting the transitional nature of F1.

3.4 Contextual influences

Key points

Organisational factors, including the specialty and rota, influence directly the activities and role of Foundation Programme doctors

The hierarchical nature of clinical practice influences activities, and expectations of the role of the trainee can be highly variable.

'Progression' occurs at multiple stages during Foundation Programme training and involves changes in responsibility, decision-making and expectations of trainee and team.

There were a number of cross-cutting, contextual issues which influenced or mediated the nature, frequency and priority of activities and trainee perceptions of their dominant role in the workplace.

These are summarised in the following sections: organisational factors; hierarchies and leadership; working with nurses; and progression.

3.4.1 Organisational factors

The organisational environment in which trainees worked directly influenced their role and pattern of activities. This could be seen at the macro level, defined by Foundation School, hospital setting and specific specialty, and the micro level of working hours. Each of these will be described in more detail.

Foundation School

Analysis of variability between Foundation Schools was limited to those responses from medical and surgical placements, as the representation of other specialties (paediatrics, obstetrics and gynaecology and psychiatry), which may confound the pattern of activities carried out, varied between Foundation Schools. Chi-square tests found significant differences between Foundation Schools on seven items which satisfied our criteria for practical relevance. These items related to practical skills (6 items) and communication (1 item).

Two of those reflecting practical skills ('set up an electrocardiograph (ECG) monitor' and 'perform a 12-lead ECG') indicated a higher frequency of being part of the job in Northern Ireland and Scotland (with >60% responding that this was a 'Regular part of the job', compared to <20% in most other Foundation Schools). Respondents from Northern Ireland also indicated a higher frequency of the other practical skills, intravenous (IV) administration of drugs or fluids (84% compared to <20% for most others on 'make up a drug for IV administration', 'administer an IV medication' and 'set up an infusion device for IV fluids'). They were also more likely to perform urethral catheterisation on a male patient (84%), although other Foundation Schools showed more variability for this item. These differences, explored in qualitative data collection, appeared to stem from local policies.

The final difference in responses between Foundation Schools related to the item 'communicate with a patient who does not have English as their first language'. This showed variability between several Schools, nine having a modal response of 'Not part of job' compared to eleven with a modal response of 'Regular part of job'. This variability may be attributed to different patient populations, with some regions, for example the south west and north east of England, having fewer patients from non-English speaking immigrant communities.

Hospital setting

The frequencies of activities reported in large teaching hospitals and district general hospitals were compared by chi-square tests. These showed no significant differences between hospital settings that satisfied the statistical and practical criteria of interest.

In interview and focus group data, many agreed that the overall work experience was similar, regardless of the specific setting. They felt that the essential role of the trainee remained the same in smaller district and larger teaching hospitals, and that exposure to learning experiences and new procedures could be gained in either setting.

I don't think the size of the hospital or the type of hospital makes that much of a difference. I think sometimes you might have more opportunities to do more procedural things in smaller hospitals but I'm in [a] big city hospital you know... I still have the opportunity to put in ascitic drains if I want to. So I think at my hospital that's not much of an issue. (Trainee interview 2 – F1)

However, a number of trainees did feel that district general hospitals offered more opportunities to engage in some activities, and work with greater independence than in larger teaching hospitals. This experience could be more than the trainee expected, but was rewarding.

You see sick people; you have to do management plans. You have to do a lot here which my friends in other hospitals aren't getting the same exposure to. So it's like terrifying to begin with but I think it's a great [experience]. (Trainee focus group 3a)

Differences in demands in smaller hospitals may not always be driven by educational interests however. Smaller hospitals could have more unfilled posts, not necessarily in F1, but at other levels, which nonetheless lead to gaps in rotas and so left more work to be done by a smaller than intended team (earlier research made a similar finding³⁸). This was a potentially challenging and unsettling position for both trainee and supervisor, and with likely impact on the role and activities of the trainee.

There just weren't enough people who'd applied to the area, GP-wise. And they have huge difficulty filling [F2] across the Trust, with a two-site Trust and they have gaps all across the rota on both sides. (Supervisor interview 10)

It seems that while there can be differences between hospitals based on specific local factors, overall the type of hospital worked in is not, in itself, a major influence on experience gained and work expected of a Foundation Programme doctor compared to other contextual factors.

Specialty

Questionnaire data were also examined to identify whether activities varied between specialties. Due to the low frequency of respondents in some specialties, chi-square analysis examined just those in medicine and surgery. These are the core placements in the Foundation Programme undertaken at some point by all trainees, and were the current placements of 86% of our F1 sample.

There were 30 significant differences between respondents in these two main specialty groups in F1 (Appendix I). Of these, four satisfied our criteria of interest (different modal scores and $V > 0.2$). Two of these related to end of life care ('support families when patients are at the end of life', and 'complete a death certificate'), and two related to vulnerable patients ('perform a mental state examination', 'communicate with a vulnerable patient'). For each of these activities, more trainees in medical placements performed the activity regularly than those trainees in surgical placements, which may reflect medical trainees' greater contact with acutely unwell, terminally ill and vulnerable patients.

Qualitative analysis also highlighted how specialty placements structured work differently. In this way, surgical jobs often offered different experiences compared to medical jobs, with potential for greater autonomy around direct patient care.

Ironically the best departments tend to be very much like surgery rather than medicine... I think they get more responsibility... all the surgeons are in theatre operating away and it does fall back on [trainees] quite a lot. They're responsible for admissions and for on-going day-to-day care. (Supervisor interview 18 – clinical employer)

Some variation depended on the presence of more senior trainees (usually referred to as 'registrars', although the term is now out-dated) or the style of consultant leadership, as well as the clinical environment. However, trainees and supervisors recognised that generally the mix of specialties allowed a breadth of experience, including attainment of different skills and understanding of different clinical approaches.

Some jobs are heavier than others and so, but if you look at it globally over a course of the whole year you're not doing discharges the whole year, you're getting a mixture of shifts. (Supervisor interview 1 – clinical employer)

Consideration of questionnaire data from other specialties found that some 'rare' activities in medical and surgical specialties (those that are reported as 'regular' in less than 25% of placements) were more frequent in other specialties. 'Perform a pregnancy test' was a regular part of 39% of GP and 53% of obstetrics and gynaecology (O&G) placements, 'perform basic respiratory function tests' was a regular activity in 73% of GP placements, while 'perform a urine multi-dipstick test' and 'advise a patient on how to collect a mid-stream urine specimen' were regular activities in 97% and 90% of GP placements, 43% and 35% of O&G placements, and 31% and 33% of paediatrics placements, respectively. 'Communicate with a patient by a written method' was relatively common in GP, O&G and psychiatry placements (regular in 49%, 42% and 37%, respectively), and 'take nose throat and skin swabs' was a regular task in 46% of GP placements.

For certain activities then, there can be substantial differences in their frequency in different specialties. Because GP constituted the only common non-hospital placement, it is considered in more detail below.

General practice

General practice placements were of particular interest as the only non-hospital setting represented in large numbers. Currently, GP placements are only undertaken by F2 doctors, in part due to restrictions on independent prescribing by provisionally registered doctors.

Considering questionnaire data, nine activities were regularly performed in the majority of GP placements but in a minority of all other hospital-based placements (a 50% threshold is considered here). These are summarised in Table 3.9. They reflected investigations that were generally nurse responsibilities in hospital settings (as indicated by our questionnaire data), and more challenging communication with patients – perhaps reflecting the case mix in GP, but also the trainee's front-line responsibility to manage these issues.

Table 3.9. Activities reported as 'regular' in a majority of general practice placements and a minority of other F2 placements

Activity	Percentage 'regular' in GP placements	Percentage 'regular' in other placements	Association between placement and frequency
Measure body temperature	100%	28%	$\chi^2 = 627.0$, $p < 0.0001$; $V = 0.59^a$
Measure blood pressure	99%	49%	$\chi^2 = 310.9$, $p < 0.0001$; $V = 0.42^a$
Perform a urine multi dipstick test	97%	27%	$\chi^2 = 598.4$, $p < 0.0001$; $V = 0.58^a$
Advise a patient on how to collect a mid-stream urine specimen	90%	24%	$\chi^2 = 541.3$, $p < 0.0001$; $V = 0.55^a$
Communicate with a patient presenting with a mental illness	89%	45%	$\chi^2 = 222.1$, $p < 0.0001$; $V = 0.36^a$
Instruct a patient in the use of devices for inhaled medication	88%	31%	$\chi^2 = 386.9$, $p < 0.0001$; $V = 0.47^a$
Perform basic respiratory function tests including peak flow	73%	16%	$\chi^2 = 487.5$, $p < 0.0001$; $V = 0.52^a$
Clerk a new patient in a clinic setting	52%	41%	$\chi^2 = 14.3$, $p < 0.0001$; $V = 0.09^a$
Look for signs of abuse or neglect in children or vulnerable adults	52%	34%	$\chi^2 = 37.5$, $p < 0.0001$; $V = 0.15^a$

The table summarises those activities that are reported to be a regular part of work by more than 50% of F2s in GP placements, and less than 50% of F2s in other placements. These distributions differed significantly, with 7 of 9 activities meeting statistical and practical criteria of interest.

^a Cramer's $V > 0.2$ indicates at least a moderate effect size.

Conversely, 18 activities were performed more frequently in other specialties compared with GP (see table 3.10). These activities reflected the lower incidence of acute care management and invasive procedures in GP (exemplified by cannulation and venepuncture), and the prevalent administration associated with inpatient episodes and discharges (for example, formulating a discharge plan).

Table 3.10. Activities that are reported as 'regular' in a minority of general practice placements and in a majority of other F2 placements

Activity	Percentage 'regular' in GP placements	Percentage 'regular' in other placements	Association between placement and frequency
Assess the severity of a medical emergency	42%	78%	$\chi^2 = 179.5$, $p < 0.0001$; $V = 0.32^a$
Break bad news to a patient	42%	52%	ns
Taken informed consent for a procedure	42%	73%	$\chi^2 = 120.3$, $p < 0.0001$; $V = 0.27^a$
Perform venepuncture	36%	95%	$\chi^2 = 694.1$, $p < 0.0001$; $V = 0.62^a$
Diagnose a medical emergency	34%	72%	$\chi^2 = 179.4$, $p < 0.0001$; $V = 0.32^a$
Manage a medical emergency	22%	71%	$\chi^2 = 285.1$, $p < 0.0001$; $V = 0.40^a$
Manage a patient with sepsis	15%	82%	$\chi^2 = 596.1$, $p < 0.0001$; $V = 0.59^a$
Maintain handwritten medical notes	15%	93%	$\chi^2 = 936.3$, $p < 0.0001$; $V = 0.74^a$
Clerk a new patient in an emergency setting	13%	88%	$\chi^2 = 776.0$, $p < 0.0001$; $V = 0.68^a$
Calculate dose, prescribe route and type of insulin	10%	58%	$\chi^2 = 272.4$, $p < 0.0001$; $V = 0.39^a$
Formulate a discharge plan	9%	89%	$\chi^2 = 915.6$, $p < 0.0001$; $V = 0.73^a$
Clerk a new patient in an inpatient setting	6%	75%	$\chi^2 = 568.8$, $p < 0.0001$; $V = 0.58^a$
Take peripheral blood cultures	5%	81%	$\chi^2 = 725.5$, $p < 0.0001$; $V = 0.64^a$
Perform intravenous cannulation	5%	88%	$\chi^2 = 959.4$, $p < 0.0001$; $V = 0.73^a$
Prescribe IV fluids	5%	89%	$\chi^2 = 992.7$, $p < 0.0001$; $V = 0.75^a$
Administer oxygen	4%	56%	$\chi^2 = 328.2$, $p < 0.0001$; $V = 0.43^a$
Perform arterial puncture in an adult	4%	71%	$\chi^2 = 527.8$, $p < 0.0001$; $V = 0.54^a$
Prescribe a blood transfusion	1%	61%	$\chi^2 = 411.7$, $p < 0.0001$; $V = 0.48^a$

The table summarises those activities that are reported to be a regular part of work by less than 50% of F2s in GP placements, and more than 50% of F2s in other placements.

^a Cramer's $V > 0.2$ indicates at least a moderate effect size.

The opportunity to practise medicine outside of the hospital setting was generally seen as positive in interview data. Trainees commented on their increased level of autonomy, greater use of clinical judgement skills, better induction processes and less hierarchy. They also gained insight into the relationship between primary and secondary care, and the nature and extent of the GP's role.

For patients referred up to clinics for investigation for example, you see all of the work that's gone on in the GP surgery to get it to the stage where they actually need to be referred. (Trainee interview 18 – F2)

Conversely, some supervisors felt that an increase in primary care placements could limit the experience that trainees gain in some subspecialties. Overall though, general practice appears to provide a markedly different experience to hospital placements, but one which is positive and complementary.

Shift patterns

There was agreement among all stakeholders regarding clear differences between the work of trainees during the normal working day, and out of hours (OOH; namely, evenings, overnight and at weekends). Trainees largely described their OOH work as providing direct patient care, with activities commonly focussed on assessing sick patients, both on the wards and in emergency admission units. Trainees and supervisors also recognised the valuable learning that occurred in OOH shifts, most often as informal and experiential learning through being exposed to new activities and responsibilities.

Yeah the on-calls are quite good educationally. It's that moment where you're kind of, right I have to deal with this now, there isn't anyone else, I have to do this now. And yeah you do. (Trainee focus group 3b)

There were training challenges associated with OOH work. The balance of the perceived role shifted towards being the 'independent practitioner', in which trainees could exercise greater autonomy, with greater responsibility for decision-making, but this would often be in new clinical areas at a time of limited senior medical presence. Support was available – from nurses and on-call medical staff – but this could still be stressful. Nurses also highlighted the common situation of small numbers of trainees covering multiple areas in the hospital.

Often they are the only junior doctor that is on the ward on a night or a weekend and I do think that must be quite stressful and daunting for them. (Nurse focus group 2)

Non-clinical employers all recognized the need for F1 support at these times. However, views varied on how support might be delivered. While one employer noted that round-the-clock consultant presence 'would massively improve the quality of education and alleviate some of the out of hours anxieties' (Non-clinical employer interview 4), another noted the practical and financial difficulties associated with such a model. Indeed, a further employer highlighted a training advantage of allowing autonomous clinical decision-making, in keeping with the F1s' definition of a 'doctor'.

I think they do need exposure to slightly less-supported decision-making. We can mollycoddle too much if we're not careful, because otherwise they'll never learn to start to make those decisions if there's always a support structure around them that perhaps takes away their initiative. However they should never be in a situation where they need senior support and they don't feel they can ask for it. (Non-clinical employer interview 2)

In summary, the clinical and organisational environment can influence what is expected of trainees. In particular, different specialties and out of hours working can offer different experiences, and learning opportunities. While overall the Foundation Programme provides similar experiences to all, these local differences can influence the specific experiences of many.

3.4.2 Hierarchy and leadership

As well as the physical environment represented by hospital and specialty settings, the organisational context exerted influence through the operation of clinical teams and their associated hierarchies. The place of trainees at the bottom of the clinical hierarchy – in hospitals at least – was not questioned. This influenced their perceived autonomy and responsibility, and so their wider perceptions of work. Ultimately, the most important influence on the trainee was the medical hierarchy. The relationship with senior medical staff could be highly variable, reflecting individual approaches to clinical leadership. Trainees often undertook activities under explicit direction, without having any input to the clinical decision, or even an understanding of why the task was needed. Trainees viewed this emphasis on the support role negatively.

I think people just don't realise that we're essentially the bottom of the ladder and we get told to do a lot of things that may or may not be indicated and then get the flack for requesting those things when usually we're just doing it on behalf of someone else.
(Trainee focus group 6)

In this respect, there was a contrast with those in GP placements who felt there was a less overt hierarchy, and generally felt more equal.

Yeah the hierarchies change in specialties. So it's my experience in general practice and psychiatry [that] it's more equal... I feel like my patients are mine rather than I'm looking after them on their behalf, if that makes sense. (Trainee interview 15 – F2)

As noted previously, medical leadership could set the tone of the ward implicitly, as well as through explicit direction. Similar to the effect on enabling a learning culture, the nature of the clinical culture stemmed from the senior clinician. Engendering a team mentality and collegiality has benefits, but needs time and effort.

It needs effort and I think you see the rewards because if [trainees] feel like they are part of the team and part of that old firm kind of ethos that exists then generally they go that extra mile and there's a kind of win-win-win that the patients get more out of it, they do and you do. But it does need constant effort and consultant time is just pushed and pushed and squeezed. (Supervisor interview 3)

While the medical hierarchy was central, there were also many references to the interaction of the trainee role with the hierarchy of nursing roles. The F1 was felt, at least at the outset, to be at the bottom of this inter-professional hierarchy, but was also pivotal to the effective functioning of the team.

Often the buck kind of stops with you, in that the information gets filtered down the hierarchy of medicine from the consultant to the registrar to the SHO to you... And equally on the other side things come down the rungs of nurses and then it's the nurses and the F1s [who] kind of discuss things and patient care and try and formulate plans and things. (Trainee interview 8 – F1)

Through this interaction the trainee may be seen as a buffer or channel between medical and nursing teams. The relationship with nursing is discussed in more detail in section 3.4.3.

The need for supervision

An additional element of medical leadership is in the educational role of the supervisor. As discussed earlier, the creation of a learning culture is a consequence of this leadership, but there are also practical consequences. Generally supervisors viewed this role positively, and associated it with being a mentor and teacher.

It's been the best thing that I've done it's very good... It's great talking to young enthusiastic doctors and learning from them and teaching them. They're keen and want to learn, it's great fun. (Supervisor interview 2)

However, they noted that the supervisor role was not without challenge. Supervisors reflected on the changes in medical training over time, and that their personal experiences may have been quite different. This could influence their expectations of what the trainee's role was, and associated activities. There was also an understanding that trainees can differ in the amount of support they require, and that they needed to adjust their expectations of individual trainees accordingly. However, time may not always be available to allow this relationship to develop. Shift working and short placements meant that supervisors felt that they may spend too little time with F1s during their rotation.

References by supervisors to the 'firm' indicate a historical perspective on the nature of the medical team. Historically, the medical or surgical 'firm' was a fixed team consisting of a consultant, registrars and junior trainees. This made trainees answerable to single consultants for the duration of their rotation. Changes to postgraduate medical education since the 1990s have removed the structures from which the firm emerged, but some consultants still seek to inculcate a similar culture and team cohesion.

In summary, clear hierarchies exist and influence the trainee. The senior medical role of the consultant was seen as most influential, but the relationship with the nursing hierarchy was also important.

Supervisors accepted that they were a key influence in supporting how trainees adapted to the F1 role. They were aware of the heterogeneous nature of trainees and noted that they need to be responsive to and accommodating of individual needs and personal differences.

3.4.3 Nursing

Key points

Boundaries between medical and nursing roles are blurred.

Nurses provide significant support for Foundation Programme doctors.

Shared learning and shared support are likely to benefit professionals, patient care and the organisation.

We have referred to the relationship with nursing staff already – in terms of the division of labour around ‘rare’ activities, and in the inter-professional hierarchy. New doctors learn much of the way in which they will work from nurses, both explicitly and implicitly.

In this section the division of labour between Foundation Programme trainees and nurses will be considered in more detail, including how this division is perceived, and how it may manifest in the clinical environment.

Demarcation of roles

When discussing the activities of trainees, a recurring theme amongst all stakeholders related to the division of labour between Foundation Programme doctors and nursing staff. Some saw this as a complementary relationship. However, many referred to a ‘blurred’ line, meaning that the demarcation of which activities belong to each professional group was not clear. This presented a challenge for nurses and trainees in determining expectations of their activities and role.

Boundaries are definitely more blurred than they used to be. There are a lot of people with a specialist role; a lot of people have advanced practice roles. As far as the perspective from the nursing goes those boundaries are getting more and more blurred. (Nurse focus group 2)

This blurring was accentuated further with the higher grade posts of nurse practitioners, nurse specialists and nurse consultants who have advanced levels of training and accreditation, and clinical responsibility. Some nurse specialists have equivalent skill sets to Foundation Programme trainees, and can be included on medical rotas, meaning their formal roles overlap entirely.

Supervisors also noted the blurring of roles, but took the position that jobs should be shared between nurses and trainees in order to provide the best patient care.

They share out the phlebotomy. They share out the administration of IV antibiotics. There is a sharing. There is a dual role – for you have nurses capable of giving, taking blood and giving IV's and the junior doctors capable of doing that. And in an ideal world they would help each other out. (Supervisor interview 18 – clinical employer)

However, in practice there could be confusion around what nurses can do, which could vary by ward, specialty and even time of day. This significantly influenced the activities of Foundation Programme trainees. Within a ward, nurse-led activities could change depending on staffing arrangements and patient needs. At times, the more 'traditional' core nursing activities would require greater attention, meaning that some extended role activities could not be done. F1s' confusion over what nurses can do is reflected in this.

You've got the assumption now from the F1s that the nurses can all cannulate and all will do ECGs but... it's about what the patients need for that day, so if they need a bed bath we can't be doing bloods. We have to explain in real simple terms like that so a lot of the jobs [F1s] have had to take on again. So I think we're back to the old-fashioned nurses do this and doctors do that. (Nurse focus group 1)

Ultimately, it was recognised that even with overlapping roles, the Foundation Programme doctor continues to be the 'default' for complex or difficult procedures, such as cannulation or naso-gastric tubes, or when nursing staff were unavailable for the activity.

So if your staff levels are low and [you're] juggling several other things then you will say – actually let's prioritise, these are the things as a nurse I have to do because nobody else is going to do it. Therefore these other things that I know I potentially could do but actually a doctor can as well. (Nurse focus group 1)

Organisational expectations of what nurses can do were also variable, often limited and heavily regulated by organisational policies. The division of labour may be influenced not just by the competencies of individual nurses, but what they are allowed to do.

It's not just what the universities have taught, it's the expectation of your own employer and what this Trust expects you to have in the competency side of it. Often you have to attend a theoretical session before you can then have your competency or assessment done. (Nurse focus group 1)

F1s recognised that nurses may be more risk-averse because of the constraints of organisational governance. However, a consequence of this was that sometimes tasks were felt to be inappropriately passed on to doctors when they were less experienced in these activities than the nurses.

Having done one male catheter in my life all the nurses ask me to do the really difficult prostate ones which I don't know how we're meant to. What we literally do differently to a nurse is absolutely nothing, but for some reason we get asked to do them. (Trainee focus group 3a)

Finally, there may be differences in the professional cultures of medicine and nursing, with nurses more aware of the systematised nature of care delivery within an organisation, and doctors more focused on individual patient care.

The junior doctors, when they're coming in their primary aim is to keep their patient safe. It's very individual... so that's why he doesn't see the discharge summary as a problem because to him he's kept his patient safe from his perspective, but he hasn't realised it has a knock on effect. (Nurse focus group 1)

The relationship between the Foundation Programme trainee and nurse is clearly of huge importance, for the professionals involved, the organisation, and ultimately the patient. Encouragingly, there were many descriptions of positive experiences of working with nurses: 'We're all there for the patients so we should all be working together' (Nurse focus group 2), while nurses also recognised their own role in supporting the development of F1s to ensure their progress, both as individual doctors, and within the clinical team.

We're conscious of the F1 and F2s. We need to be educating and training them because we want them to be good doctors in the future so they need to do those two years of Foundation effectively and well to give them a good base. (Nurse focus group 1)

However, there were also references to tension at times. Differences across environments, even within one hospital, may lead to unrealistic expectations, confusion, or assumptions on the part of Foundation Programme trainees.

You'll get some of the F2s who'll say 'well I'm not doing that because that's your job' where it has to be stressed to them that we work as a team and it can't just all be palmed off on to us because there is not enough hours in the day. (Nurse focus group 1)

The reciprocal nature of the relationship was key. Nurses could offer support and advice, but the trainee attitude needed to be receptive and willing to work together. Conflict is clearly a two-way phenomenon, with tension also rising among trainees when nurses appeared to expect them to perform at a certain level, whether carrying out specific activities or in decision-making. Expectations were not necessarily unrealistic or inappropriate, but may not always acknowledge trainees' lack of experience.

The nursing staff expect you to immediately be able to do everything. And there's no... 'Oh you've just started so you don't know how to do this' there's a 'What are you going to do doctor?' And they are always friendly, but I think there's a, there's quite a high expectation. Well anyway, I'm sure that's not a problem because we do have these skills, it's just the fact we are not confident at the start. (Trainee interview 5 – F1)

A mutual lack of understanding of each other's roles and capabilities seemed to be prevalent, potentially based in different forms of training. One interview participant had previously trained as a nurse, and noted differences in medical and nursing student training, in terms of the extent of their workplace learning, and how that lends itself to their learning of contextualised skills. Nursing students are placed in wards for longer periods of time, from earlier in their training, and this may give them greater opportunity to learn their role within a team.

I found with the medical student you don't have a role, you try and integrate yourself onto teams and things but you're very transient, it's difficult. And also you don't really have set hours, unlike a nursing student. (Trainee interview 8 – F1)

Interestingly, it may be that senior nurses and nurse practitioners are more engaged with support for F1s and F2s because of their particular insight into medical activities.

I think a lot of [nurses] know more now because we do things like clinical skills assessments, and so we follow the same process that you would expect your doctors to follow... so I think we do have quite a good understanding. (Nurse focus group 2)

As the division of labour blurs further, such shared knowledge of each other's influences and challenges – at a much earlier stage of nursing and medical training – may promote good working relationships.

Close working relationships between nursing staff and Foundation Programme trainees are paramount for individual professional development, for healthcare organisations and ultimately for quality patient care. Nursing staff are a source of significant support for trainees, but this must not be at the expense of their core nursing role, and can only be done with appropriate training and support. As the boundary between nursing and trainee roles is indistinct and can vary unexpectedly from setting to setting, it can be confusing to trainees and trigger tension and potentially conflict. Nonetheless, nurses remain integral to the support and training of Foundation Programme trainees and it is important that this culture is promoted in the workplace. Development of strategies around inter-professional learning may help the professions to understand each other's roles and influence that complementary relationship from an early stage.

In summary, if division of labour is not clearly defined, conflict and tension can appear. This can be detrimental to good working relationships between ward staff. Nurses are able to take on additional responsibilities as part of an extended role, but many contextual factors influence their motivation and capacity, including time, training, indemnity and culture.

Nurses, often senior nurses, have a significant place in supporting Foundation Programme trainees. A culture of encouraging that supportive relationship at all levels is likely to be of most benefit if engrained within training for both nurses and doctors. The difference between medical and nursing training may also influence attitudes and approaches. Targeted inter-professional initiatives may promote a greater understanding of each other's roles and create a more supportive culture.

3.4.4 Progression

The final main influence on Foundation Programme doctors' work was their progression through the programme. Three main points of progression were discussed: the transition from medical school, development during the F1 year, and changes anticipated (or experienced) in the transition to F2. We saw in section 3.2 how the frequency of some activities changed between F1 and F2, but that this was mainly attributable to their working in different specialties (and particularly the presence of GP placements in F2). However, there were more subtle changes perceived during the programme.

The initial shift from student to doctor was seen as a significant event by both trainees and supervisors. Both groups recognised that the start of the F1 year was difficult, not because of competence to perform the required activities, but because of the necessary adaptation to work practices.

Having had a few F1s and looking after them you expect very little of them because a lot of them are so stunned when they start. (Supervisor interview 4)

A key element of the transition to practice was that the F1 was now responsible for patient care. While this responsibility was potentially rewarding (see 3.3.2 for earlier discussion on what constitutes 'medicine'), it was also a marked shift from an undergraduate focus on what is termed in psychology 'declarative' knowledge – that is, knowledge composed of facts – to a more 'procedural' knowledge – or knowledge implicit in action.

I think everything changes when it's your responsibility and I think as a 5th year you know you can make a ten point plan which ends in PCI [Percutaneous Coronary Intervention] for a patient that has come in with chest pain and you know it doesn't matter because you're a med student and it's not going to fall on you, you're not going to be doing this angio in the afternoon. (Trainee focus group 1)

Notably, anxieties were not related to anticipated competence – a common definition of ‘preparedness’. Undergraduate student assistantships helped manage that aspect of the transition, as particularly noted by trainees in Northern Ireland who had undertaken an ‘F zero’ (F0) placement in final year. Rather, anxiety related to dealing with responsibility and uncertainty. Alongside this was the need to adapt to the pressures of work, and develop skills of managing tasks lists, time management and prioritisation. These skills are a core part of practice, but are under-served in undergraduate programmes.

Prioritisation of tasks is something that they struggle with in that transition from fifth year to Foundation. Some of them take to it like a duck to water, they hit the ground running; others take a while. They get overwhelmed by it and they don't know how to prioritise what needs to be done now and what can wait. (Supervisor interview 12)

The development of prioritisation and time management skills was one of the main early developments during F1. The content of the job may not change at this early point, but their ability to cope with it may allow a greater sense of control and autonomy.

When I first started I was like I don't think I'm ever going to be like [the F2s] in a year's time. That was my sort of joke, but certainly you become more organised and you become certainly more efficient at everything and so, and I think prioritising things becomes easier. (Trainee interview 16 – F1)

Supervisors saw a progression in clinical skills during the F1 year, and noted the anomaly that F1s continued to be regarded as the ‘junior’ as they moved from placement to placement, despite this overt progression.

When they start out they are less experienced and they struggle to get the work done in the same way that they would do at the end of the Foundation year. (Supervisor interview 14)

Finally, F1s discussed their expectations of becoming an F2, and F2s their experience of that transition. These were largely related to greater autonomy and responsibility, and discrete changes, such as being allowed to discharge patients without senior review. Some felt changes were incremental, while others felt the change was more pronounced. The change was accentuated in some cases where F2s were on a rota with more senior trainees (a legacy of traditional ‘SHO’ rotas). This meant greater need to manage others’ expectations of their ability, as well as the inherent step-up in responsibility.

I think there's a massive jump between F1 and F2... So I think it's a massive leap and it's just being aware of what your capabilities are and making other people aware of what you're happy with. (Trainee interview 14 – F1)

Across the groups interviewed – trainees themselves, nurses and supervisors – there was broad agreement on the expected characteristics of an F2. Nurses noted the growth of individual doctors, and the importance of early support in the inter-professional team.

We certainly found it when we were working on outreach. They very much appreciated our help when they were newbies in August. Even September they were rabbits in headlights. By the time you meet the same doctor at the end of F2 and they're a different person because they've grown into their own skin and are much more comfortable in being a doctor. (Nurse focus group 2)

Essentially, the key difference between F1s and F2s was not the activities they undertake, nor their competence, but their responsibility and their confidence. The activities may be the same, but the way in which they carried these out was different.

Sometimes it's actually quite hard to spot the difference between the F1 and F2 and it all comes down to the individual and where they are on that competence and confidence. Often they are competent but it's not matched by confidence. (Supervisor interview 3)

Alongside the anxieties associated with upward progression, F2s pointed out the advantages associated with the second year role, and particularly in placements where F1s were also present. They were no longer bottom of the hierarchy, and consequently had less pressure of volume of unrewarding activities.

[In this job] I have F1s which is extraordinary because I don't do any discharges anymore... it's far more management of situations; I manage the list, I take the referrals, I see new patients and so they're doing all of the, kind of, rubbishy things that I hated and life's so much more easy for me because I can walk on to a ward and the nurses treat me differently because there's (an) F1 underneath. (Trainee interview 17 – F2)

From such comments it seems that the F2 year provides more opportunities to work as an independent practitioner, and so 'practice medicine'.

The role of the F1 doctor is multifaceted, with the emergence of different elements of learner, support, and independent practitioner being influenced, facilitated or constrained by different factors.

Organisational factors provide the most direct influence – different specialties and different times of day elicit or afford particular roles and require particular skills. Linked to these, although distinct, are the cultural influences arising from organisational hierarchies and from the nursing workforce. These are both potentially highly variable within individual wards or departments, but the overall influence of these factors appears to be widespread.

Finally, there is a clear but subtle shift in role between F1 and F2, with a perceived greater responsibility and opportunity to be an 'independent practitioner'.

3.5 Workforce perspectives on Foundation Programme doctors

The discussion of role and activities so far has been focused on stakeholder perceptions of trainees as individuals – their practice and their education. However, another perspective was apparent in the interviews with employers, namely the function of the Foundation Programme doctor within the organisation and as a member of the wider workforce.

Foundation Programme training posts are requested by Local Education Providers (LEPs, such as NHS Trusts or health boards and primary care organisations) from their Deanery or Local Education and Training Board (LETB). As such, it is possible for training posts to be moved within education providers, either in response to workforce needs or to benefit educational opportunities. In terms of how posts are deployed, there was a tension between two viewpoints. The first saw trainees as a fundamental part of service delivery, meaning they were often placed in areas of service need.

One [factor] is the needs of the Trust, so there's no point sending them all to dermatology if that's thought to be a great exposure to them, if we don't need Foundation doctors in dermatology. (Supervisor interview 1 – clinical employer)

However, the second view was that trainees' learning needs were also a valid driver of deployment decisions. One employer said 'We are very aware of the fact that this isn't just about a pair of hands, it's about providing the right level of training' (Non-clinical employer interview 1). Employers therefore recognised the complex, varying roles of the Foundation Programme trainee, and that deployment decisions needed to reflect this. However, in practice the deployment of Foundation Programme posts was often a legacy arrangement, with trainees being placed in wards because they had 'always been there'.

In terms of allocation of location, largely they have been built on what were essential historical posts... we moved two of the active posts... because they certainly weren't getting any acute experience at all. (Supervisor interview 18 – clinical employer)

Employers, both clinical and non-clinical, discussed the process of how posts were reviewed. Quality control processes including trainee feedback and the GMC National Trainee Survey may lead to review or even removal of poorly evaluated posts. However, more wide-ranging changes to deployment decisions in response to service needs, or the composition of the wider workforce, seemed rare. One senior manager, reflecting on experience across several organisations, indicated that such review was usually down to the request of clinicians, rather than a strategic review of service requirements.

Employers were also asked to reflect on the place of the Foundation Programme trainee within their organisation. Broadly, trainees were identified as part of a complex system involving team and organisation, of which patient care was the key product.

I don't see any difference between clinical and non-clinical staff in healthcare delivery and I think that the outcome that a patient gets is affected by a whole series of transactions between clinical and non-clinical staff... we all, in every division every day, can do something that affects the outcome for a patient... it's not just about a unique interaction with one patient, those days are gone. (Non-clinical employer interview 2)

However, this employer felt that graduates come into the workplace without an understanding of the organisational systems which are independent of the medical hierarchy. Another senior manager identified a similar issue stemming from organisations' failure to integrate trainees. Rather they are treated as a transitory part of the workforce, and so are not fully assimilated in the way that permanent staff are.

For some reason we treat trainees in a way that they do a lot of the work and... their clinical training and so on, [and] we don't really treat them as a core part of the workforce probably because... they rotate, but actually they're here for a year, sometimes two years, and many of them come back. So I think it's a psychological thing about changing our attitude. (Non-clinical employer interview 4)

This means that trainees are an 'untapped resource' in terms of driving service quality improvement. The service delivery provided by trainees around the clock, and within different environments, places them in the unique position of being able to identify and help solve care delivery processes within the organisation.

Foundation Programme trainees are a vital part of the workforce and their complex role was recognised by both clinical and non-clinical employers. Influences on placement allocation include service need, quality of training and trainee evaluation, although deployment decisions balanced between service need and training may be difficult to achieve. Despite their important role in delivering patient care, the value of Foundation Programme trainees in service quality improvement is under-recognised and should be developed further.

4 Discussion

This study set out to examine five questions by means of questionnaires, focus groups and interviews:

- i) What activities do Foundation Programme doctors carry out in their daily work?
- ii) How do these activities map to the outcomes specified by the GMC?
- iii) What perceptions do key stakeholder groups have of the activities required of F1s?
- iv) How does the regularity of activities vary between F1 and F2 trainees, specialties, types of healthcare organisation or geographical regions?
- v) To what extent are activities routinely carried out by doctors, or by nurses?

To answer the first two questions, a questionnaire completed by nearly one quarter of Foundation Programme doctors across the UK found that while 39% of outcomes specified in the GMC policy documents were routine activities (namely, carried out a minimum of once or twice per week by at least 75% of the sample), 23% were performed rarely (once or twice in the placement, or less). A number of activities not currently specified in policy were regular for a smaller proportion of trainees, but only a very few of these (notably arterial blood gas sampling, naso-gastric tube insertion and discussion of decisions to resuscitate) were commonplace across specialties and hospital setting. The implications of these for the inclusion of activities in GMC requirements are addressed below.

While the various stakeholder groups – trainees, supervisors, nurses and clinical and non-clinical employers – brought different perspectives, there was overall agreement in their views of what were the core activities and role of an F1. This suggests that stakeholders across clinical, managerial and educational boundaries share similar understanding of what is expected of Foundation Programme doctors.

Overall, the questionnaire data showed few differences in the nature or frequency of activities between F1 and F2, and those that were found appeared to be related to specific placements – particularly the presence of general practice posts in F2 but not F1. No other practically relevant differences in activities were found between trainee subgroups (age, gender, ethnicity or disability), specialties or types of healthcare organisation (hospital setting).

The few differences between geographical regions may be attributable to differences in local policies or patient populations, such as a higher number of non-English speakers.

However, while few differences were found across the questionnaire sample, qualitative data indicated that specialty and hospital setting, along with out of hours working, local ward cultures and leadership could all influence what work was done, and how it was perceived.

Finally, division of labour between doctors and nurses was important, with the extent to which activities were part of Foundation Programme doctors' work varying inversely with the extent to which nurses reported them as being mainly or exclusively nursing tasks. The interplay between what is regarded as a 'nurse's job' or a 'doctor's job' is complex, but the end result is a group of activities that

Foundation Programme doctors do rarely, though may be called upon at times to perform. This is discussed further below.

4.1 What are the core activities of Foundation Programme doctors?

In considering the requirements for undergraduate curricula that should be included in future policy documents, the fundamental question concerns what newly qualified doctors need to be able to do from the point of graduation.

Many of the activities required in GMC-specified outcomes were regular parts of most Foundation Programme doctors' jobs. The core set of activities identified was that carried out regularly by at least three quarters of Foundation Programme doctor respondents. That some of these activities were perceived as frustrating, dominating workload, or not of educational value should not be ignored, but as long as new doctors occupy a place in the workforce to carry out these activities, they should be trained to do them.

A second tier of activities was carried out regularly by between 25% and 75% of trainees. There is not a clear empirical criterion of when an activity is routine enough to retain, but we suggest that such proportions indicate these activities are also an important part of work.

A more difficult question concerning core activities relates to those which are not currently in policy, yet were reported as frequent by some of our respondents. Arterial blood gas sampling and naso-gastric tube placement – which are in fact already present in some medical school curricula – were the only two referred to by the vast majority of participants in interviews and focus groups. Others were more varied, and closely linked to specific specialties. Discussion of 'do not attempt resuscitation' (DNAR) decisions with patients and relatives is arguably implicit in current outcomes, but was felt to be a distinct task which would be better brought out as an explicit skill.

4.2 Are some activities expendable?

The key question arising from the findings is whether some activities – those that are rarely performed by trainees – could safely be removed from undergraduate curricula. There is logic in the argument that if a doctor is rarely required to perform a task, then it need not be part of the doctor's training. Furthermore, as undergraduate curricula are already crowded, the deletion of redundant elements could be beneficial for students' learning in other areas.

However, the situation is more complex than the headline figures may suggest. A common view of all participant groups was that even if competence is not required of Foundation Programme doctors in the workplace, then understanding of an activity, including context and limitations, and so the potential for competence, remains important. Conversely, the risk of deskilling – of learned skills atrophying with lack of practice – is a concern when considering infrequent activities, and undermines an argument for their being learned in medical school.

Concerns about the loss of activities from curricula directly relate to safe patient care, if those skills may be required in emergency settings, or if other skilled staff may not be available. There is also a more symbolic point, that doctors may be expected, by patients as well as colleagues, to be able to perform a full range of activities: give injections, dress wounds, etc. These activities could be seen as totems of clinical practice, and so if doctors were unable to do them, especially given their relative simplicity, then their perceived expertise in more exclusively medical domains may be undermined.

4.3 What are F1 doctors for?

Underlying the question of what Foundation Programme doctors *do* is the question of what they are *for*. A key to prioritising the activities that they should be able to perform is to identify the functions, or roles, that they are there to fulfil.

Three aspects of the role were identified, with tension apparent between them all. Firstly, the role of being a support for the ward contrasted with that of acting as an independent practitioner. As a support, trainees performed tasks to keep wards and departments functioning, but the role was often unsatisfying compared to that of an independent practitioner, in which they practised skills more clearly identified as ‘medicine’: applying the knowledge base gained as a medical student, exercising clinical judgement, and operating autonomously in the clinical setting. Administrative tasks, routine practical procedures that can be done by other professionals, and executing others’ rather than one’s own plans, were less clearly part of ‘medicine’.

This perception of what constitutes medical work or non-work may have consequences for trainees’ satisfaction with their work, by disrupting their expectation of what a doctor is *for* after graduation. Such disruption may be a function of their socialisation into the professional role, which has been shown to involve such adaptation to unexpected aspects of practice³⁹.

In tension with both the support and independent practitioner roles was that of learner. The Foundation Programme is a training programme, and all stakeholders were aware that fundamentally trainees are there to learn and develop. However, this is an abstract understanding, and day-to-day it is ‘service provision’ – both as support and independent practitioner – that dominates.

A narrow definition of what constitutes learning may add to this tension. This may stem from new F1s being used to an explicit mode of learning to develop a testable knowledge base and acquire new skills in medical school. In practice however there may be a greater element of implicit or tacit learning leading to consolidation and development of knowledge and skills, rather than expansion. By the time they reach F2, trainees may be more able to identify the importance of this consolidation.

Foundation Programme doctors felt that they were at the bottom of the hierarchy with implicitly minimal contribution to make beyond ‘support’, but employers recognised a potentially untapped source of expertise, at least in part because of their ‘fresh eyes’ in the healthcare system. They have a potential – but largely unutilised – capacity for improving, rather than just contributing to, service delivery and patient safety, but perhaps because of the transitory nature of their rotations, this is not capitalised upon.

This echoes the conclusions of the Keogh review of mortality in 14 English NHS Trusts, which identified as a barrier to high quality:

... the lack of value and support being given to frontline clinicians, particularly junior nurses and doctors. Their constant interaction with patients and their natural innovative tendencies means they are likely to be the best champions for patients and their energy must be tapped not sapped. (Keogh report¹⁰, p.5)

4.4 What shapes F1 work?

Clinical specialty would intuitively seem to be a strong influence on work. However, we found this to have a relatively minor influence on routine activities. Nonetheless, differing opportunities available in particular clinical settings meant that trainees in some specialties gained more experience of some new activities. The organisation of work in different specialties also varied, meaning that while the frequency of activities may not differ, role may. F1s in surgical placements for example, where seniors may be absent in theatre for much of the day, or in GP where they may work as independent practitioners, will experience greater autonomy.

A greater influence on the work of Foundation Programme doctors across specialties may be the individual leadership of senior clinicians. Some consultants may be highly directive (implicitly associating the F1 more closely with the 'support' role), while others may prioritise the 'learner' role and actively provide more new opportunities.

More fundamental still is the workplace culture, and the Foundation Programme doctor's place within the multi-professional workforce. There is often an overlap between the roles, responsibilities and capabilities of trainees and nurses. The division of labour in such circumstances – whose responsibility it is to carry out different activities – can vary with local norms. There is also an apparent underlying norm which can come to the fore when nurses do not have the time or capacity to perform an activity, or when faced with more challenging tasks – a shift from what has been termed a 'pragmatic' hierarchy based on local expertise, to a 'normative' hierarchy based on the 'traditional' division of labour³⁵.

The demarcation of roles may be clearly established by senior nurses, or simply be implicit in the working practices, with some activities seen as 'doctors' tasks', and others as 'nurses' tasks'. The latter appears to be more common. This can be unpredictable for trainees as they move between wards and realise they must adapt to different workplace cultures, as well as the different skills that may be required unexpectedly in different clinical areas. The context of nursing is fundamental to the cultures within which trainees work.

4.5 The inter-professional context

It is important to note that the trainee role has developed through historical changes in policy and practice, not just in medical education, but also in nurse education and the changing composition of the non-medical workforce. The entire workforce is also influenced and constrained by the wider political context. Nurse education has changed radically in recent decades, beginning with Project

2000 in the 1990s, and extending to the fulfilment of the Royal College of Nursing's aim that all entry to nursing be via degree-level programmes⁴⁰. Alongside this change to recruitment and undergraduate training, the growth of extended nursing roles has meant that many activities, and responsibilities, which once rested solely with doctors, can now be within the remit of nurses.

Arguably, medical education has not kept pace with these changes, leaving new doctors less able to adapt to the variable nurse workforce. This is partly because that skill and expertise is highly variable, and partly because detailed, practical inter-professional outcomes have either not been articulated explicitly in policy documents. In the meantime, nurse education has had its own periods of concern about its fitness⁴¹, and continues to consider its future^{42, 43}. There are concerns in nursing that their once core, defining, patient care skills are moving to healthcare assistants⁴⁴, paralleling the concerns that nursing may itself deskill medicine. The time may be right for medical and nurse education to consider a co-ordinated approach to ensuring a safe and effective inter-professional workforce in the future.

This comes back full circle to the Foundation Programme doctor being at the forefront of patient safety. Optimising inter-professional relationships through better understanding of roles and responsibilities will ultimately enhance quality patient care.

4.6 A historical perspective

While there is little directly comparable literature, it is interesting to note how things have, and have not, changed.

Many of the activities identified as essential by experts in 1999, such as history taking and examination¹⁹, remain a core part of F1s' work, but many practical procedures (including cannulation and catheterisation) seen as appropriate PRHO tasks are not now done solely or, for some tasks, even regularly by F1s. However, we do not know for certain whether they *were* actually done by PRHOs, and so whether this actually reflects a change in practice.

With regard to more advanced tasks, the 1999 study found that 97% of respondents felt that insertion of a chest drain under supervision was appropriate for a PRHO. A 2001 study²⁶ found that 46% of respondents (albeit a small sample of 46 trainees) felt that chest drains should be taught at undergraduate level. Those of our interview respondents who expressed an opinion would suggest that this is something that has changed, with none recommending that the procedure be part of medical student training, and many indicating that even supervised practice was uncommon.

Conversely, other studies have recommended that some activities of doctors may be better carried out by other staff groups^{25, 27}. Some of our data regarding frequent but repetitive or unengaging tasks appears to corroborate this view. However, this makes assumptions about 'educational value' and, as some of our respondents noted, there is value that may not be apparent in the short term. As noted above, this may be because their perception of learning itself changes with experience in the workplace.

The informal educational role of nurses has also been noted for many years^{45, 34}, and questions and concerns about the migration of activities from doctors to nurses over the years indicate that anxieties around the division of labour are not new. A 2004 study which asked nurses about their possible contribution to the upcoming Foundation Programme found that they were concerned that their extended roles may risk deskilling junior doctors, in areas such as emergency care, and male catheterisation, which was felt to be 'taken over' by nurses⁴⁶.

Overall, although there have been changes around specific activities over the years, many issues remain pertinent.

5 Relevance to policy

The findings have relevance to policy in terms of informing the potential scope and framing of undergraduate and Foundation Programme curriculum requirements, and education providers' deployment of Foundation Programme trainees

i) Prioritising activities

- Activities included or potentially to be included in GMC-specified outcomes may be prioritised by considering them against a number of criteria. Criteria proposed from our findings are:
 - i) Empirical evidence that an activity is commonly performed by Foundation Programme doctors.
 - ii) An activity requires the presence or involvement of a doctor, and cannot be done by any other healthcare professional.
 - iii) An activity may be required in an emergency (life-saving) context.
 - iv) An activity may be required when other staff are not immediately present, such as out of hours working.
 - v) An activity may be required with greater frequency in particular specialties because of particular clinical demands.
- An example mapping exercise of rare activities identified in this study against these criteria is provided in Appendix J, but there are several contingencies and questions of clinical judgement which place a full mapping outside the scope of this report.
- By the first criterion, activities that should clearly remain in the curriculum specification are those which are a regular part of work for a large number of trainees. Taking a threshold of 25% of all questionnaire respondents, there are 81 core, routine activities, of which 75 are in GMC documents. Appendix K gives frequencies for all items, allowing the effect of different thresholds to be identified.
- Other activities, not specified in current outcomes, which are regular for a large proportion of trainees are arterial blood gas sampling, naso-gastric tube insertion and addressing decisions not to resuscitate. Time management, writing discharge summaries and letters may also currently be under-specified.
- For activities which are low priority when appraised by these criteria, care should still be taken in considering their deletion, and a more detailed risk analysis made in respect of leaving future competency gaps in the clinical workforce.
- Specialty or site-based training in specific activities may mitigate the risks of deleting activities from policy and core curricula, but this may have implications for cost, workload and quality assurance.

ii) Recognition of roles and expectation management

- While identifying core activities is a necessary element of specifying curricula, it may be helpful to explicitly present the fluid roles which Foundation Programme doctors must take on in the wider healthcare system.

- Managing medical students' expectations of what these roles entail, and how the balance of roles may vary commonly, and often unpredictably, may be a more effective focus for the transition to practice than developing their confidence, or subjective preparedness, which remains conceptually problematic.
- Undergraduate programmes should also facilitate a transition from knowledge-based learning to skill-based practice, and develop awareness of the implicit learning which takes place in practice.
- Increasing students' awareness of the division of labour in the workplace may help their adaptation – their awareness that it exists, but also that it is variable, and 'doctors' tasks' and 'nurses' tasks' are not constants.
- The Foundation Programme training framework may also benefit from addressing Foundation Programme trainees' expectations of their role.
- Addressing the current mutual lack of awareness of medical and nursing roles, may also be beneficial, possibly through reciprocal shadowing, and inter-professional simulation.
- Organisations which recognise the plural and adaptable role of the newly qualified doctor may be better able to tap their expertise and reap benefits for healthcare delivery and patient safety.
- Educators, and regulators, of different professions, may benefit from joint strategic development of educational strategy at a time when healthcare provision is undergoing prolonged change.
- The Foundation Programme affords trainees a unique perspective on healthcare delivery, and while awareness of quality improvement processes is a currently specified outcome, their knowledge and insight could be better capitalised upon by healthcare organisations.

6 Conclusion

In this study we have established that the majority of activities presented in GMC policy documents (*Outcomes for graduates*³ and *Outcomes for provisionally registered doctors with a licence to practise*⁴) are reflected in the practice of Foundation Programme doctors, but that around one quarter are performed rarely. Qualitative data suggest that the specific activities can vary considerably with both organisational context and local team culture. Activities which are rarely carried out by doctors are still perceived to be important if they may be necessary in emergency situations or acute settings when other staff may not be present. Prioritisation of activities is possible against empirical and theoretical criteria, but should be approached with caution against unintended consequences.

Activities are also very much perceived in terms of the role or function of the Foundation Programme doctor. The role of support in the ward is accepted, but often not embraced by trainees, whereas that of independent practitioner encapsulates what medicine is perceived to be. Both of these practice-oriented roles often dominate that of learner.

The specific role, and associated activities, which dominate at any time are dependent on a number of contextual factors – from the macro (patient demographics, healthcare organisation and clinical specialty) to the micro (clinical leadership and workplace culture). Newly qualified doctors' ability to adapt to the workplace requires them to have skills which are suitable for a range of settings. Undergraduate medical education should aim not for a graduate to be fit for a single purpose, but rather to be able to fit multiple purposes. They must be prepared to adapt to these environments.

In particular, the relationship between doctors and nurses, and the expertise and skill mix of nursing staff on wards must be understood. The necessity of doctors being able to perform some activities is often contingent on nurses being unable to, unavailable, or being prohibited by local policy – and those factors are highly variable.

Curriculum outcomes specified by the GMC must reflect how medical and nursing workforces interact. Both nursing and medical curricula should emphasise the importance of a mutual understanding of each other's roles and capabilities, and how these may vary between different contexts. New standards published in 2015, following completion of this project, recognise the multi-professional nature of the learning environment. However, the extent and way in which inter-professional learning may be fulfilled in practice should also be considered closely. It is important that clearly defined outcomes relating to gaining experience of inter-professional working are established and that variability in undergraduate learning contexts does not dilute learning about the work of other professions, or integration into a multi-professional team from an early stage.

6.1 Limitations

This project has sought to be comprehensive and rigorous in data collection and analysis. However, as with all research, there are caveats. While our questionnaire sample was of a scale to be expected when using online data collection³⁸, we cannot guarantee a representative response. However, we have no reason to assume any systematic bias in responses, and sample demographics reflect those of

the GMC's National Trainee Survey, which, with a response rate of 98.7%, is a close approximation of the target population.

In our qualitative methods we have tried to address the risk of attentional and recall biases by introducing stimuli based on questionnaire data. Our qualitative sample of trainees is large for interview and focus group methods, and the degree of agreement and triangulation between methods and participant groups gives us confidence in the rigour of our methods and validity of our findings.

6.2 Outstanding questions and further work

A number of questions arise from the results presented here:

- The criteria for prioritisation are suggestions based on our data, but would require detailed consideration from different clinical specialties in order to be applied. Risk analysis of dropping low priority activities from required outcomes would need to consider in detail, including the likelihood and consequences of Foundation Programme doctors not being able to perform these in different situations.
- The data raise questions about the risk of deskilling where trainees do not regularly carry out activities. The reality of this is worthy of further study, to explore both the likelihood of decline in skills, and the clinical risk arising (ie how likely is it that they will be in that situation and require the competence). If a genuine risk is identified, then employer-led refresher training, with or without formal credentialing, may be indicated.
- Development of effective inter-professional education is a long-standing and unresolved area. New GMC standards increase specification of inter-professional learning and team integration, but strategies that cross undergraduate and postgraduate curricula can ensure that these standards are effectively delivered.
- If low-frequency, specialty-specific activities were judged suitable to be safely dropped from undergraduate curricula, consequences for the work-based training in those activities in specialty curricula would need to be explored.
- Current findings do not allow consideration of roles and activities in varied community settings. As the number and type of community placements increases, further consideration of changing requirements will be necessary. However, a focus on function and adaptation in the workplace will allow policy to remain broadly appropriate for these changes.
- This work has omitted consideration of the patient perspective. Patient expectations of Foundation Programme doctors' roles and capabilities will be an important influence on their work, and should be studied directly.

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