Interprofessional collaboration among junior doctors and nurses in the hospital setting

Jennifer M Weller,[1] Mark Barrow[2] & Sue Gasquoine[3]

OBJECTIVES Evidence suggests that doctors and nurses do not always work collaboratively in health care settings and that this contributes to suboptimal patient care. However, there is little information on interprofessional collaboration (IPC) among new medical and nursing graduates working together for the first time in a multidisciplinary health care team. Our aim was to understand the nature of the interactions, activities and issues affecting these new graduates in order to inform interventions to improve IPC in this context.

METHODS We interviewed 25 junior doctors and nurses and explored their experiences of working together. Interviews were transcribed, entered into a qualitative analysis software package and data were coded against a theoretical framework for health care team function.

RESULTS Although interviewees expressed mutual respect, organisational structures often limited the extent to which they could establish professional relationships. Sharing information and agreeing goals were considered fundamental to good decision making, but the working environment and differing perspectives could make this difficult to achieve. Our data suggest that junior doctors and nurses see themselves as having complementary and non-competitive roles in patient care. The establishing of an interprofessional team was seen to require leadership, which was not always apparent. Without leadership, new members were not always well oriented to the team. The need to maintain an environment in which open communication could take place was acknowledged as important for patient safety, but there were some barriers to achieving this.

CONCLUSIONS Our data highlight the professionalism, respect and adaptability of these junior health professionals. We document the types of collaborative activities and tensions relevant in this context and, based on our findings, provide some strategies for improving IPC.

[1]Centre for Medical and Health Sciences Education, Faculty of Medical and Health Sciences, University of Auckland, Auckland, New Zealand
[2]Associate Dean (Education), Faculty of Medical and Health Sciences, University of Auckland, Auckland, New Zealand
[3]Department of Nursing, Unitec New Zealand, Auckland, New Zealand

Correspondence: Associate Professor Jennifer M Weller, Centre for Medical and Health Sciences Education, Faculty of Medical and Health Sciences, University of Auckland, PO Box 92019, Auckland 1142, New Zealand. Tel: 00 64 9 373 7599; Fax: 00 64 9 373 7204; E-mail: j.weller@auckland.ac.nz

INTRODUCTION

'A team is called a team for a very good reason; there is an expectation that there will be sufficient cooperation and communication amongst its members to minimise the risk of harm to the patient. For a team to function as such there must be a sense of collective responsibility for ensuring patient safety.'[1]

According to Reeves,[2] interprofessional education (IPE) 'aims to develop the attributes (attitudes, knowledge, skills and behaviours) required for effective collaborative practice'. There is substantial evidence to suggest that doctors and nurses do not always work collaboratively in health care settings. Observations of clinical teams[3] have identified communication and teamwork failures leading to errors and inefficiencies. The literature on adverse events suggests suboptimal communication and teamwork contribute to patient errors and impact substantially on patient safety and the efficient use of resources.[4–11]

In specific contexts, interventions to promote interprofessional collaboration (IPC) have had a positive impact on health care outcomes.[12] However, there is little published evidence on IPC in the context of new medical and nursing graduates in the hospital setting, and the particular issues they face in working for the first time in a multidisciplinary health care team.

Undergraduate education aims to prepare students for the work they need to do in their first years of hospital practice. A number of studies have explored the preparedness to practise of new health professions graduates as they face the transition from student to practitioner.[13] However, these studies have provided limited information on preparedness for working as a member of an interprofessional health care team.

Exactly what sort of interprofessional interactions and health care team activities are required of new graduates? What are the issues around these interactions and activities? Defining these interactions, activities and issues would provide information on which to base interventions to improve IPC. Potential benefits may include an improved working environment, improved professional relationships and job satisfaction, and improved efficiency and safety in patient care.

Through a series of interviews, we explored the experiences and perspectives of junior doctors and nurses in relation to working in health care teams. Empirical research has provided us with a theoretical framework with which to organise and make sense of these data.[14,15] Our aim was to understand the nature of the interactions, activities and issues affecting junior doctors and nurses working in health care teams in order to inform interventions to improve IPC among junior health professions graduates.

METHODS

Having obtained ethics approval from the University of Auckland and the New Zealand Northern X Regional Ethics Committees, we conducted semi-structured interviews with junior doctors and nurses in their second year of work since graduation. To ensure that the process of data collection from participants was consistent, interviewers used highly specific written guidelines, but allowed opportunities to explore individual responses. During the interviews, participants were asked to describe: their current work and a situation in which they worked in an interprofessional team; their roles as individuals and what they were personally responsible for; the different teams with which they identified and how these teams were structured; their opinions of the advantages and disadvantages of the team approach in the contexts in which they worked; attributes of doctors and nurses that either helped or hindered effective team function; how the different roles and responsibilities were coordinated within the teams and how these were communicated to team members; what each member brought to the team; how information was communicated between doctors and nurses and how decisions were made, and their lines of accountability. They were also asked to describe and reflect on their own experiences of situations in which a team worked well and in which team function was less than optimal.

We used a snowball technique to identify participants. The initial participants were identified locally and they, in turn, were asked to identify other potential participants.[16] Selection was based on availability; participants were required to be working in their second year after graduation. Interviews were conducted face-to-face or, when the participant lived at some distance from the interviewer, by telephone. All interviews were recorded and transcribed. Analysis was based on the written transcriptions. The number of interviewers was limited to the three researchers (SG, MB, JMW) and a research assistant (SN), all of

Table 1 *Coding framework for interviews*

Quality of collaboration	Mutual respect and trust
	Organisational structure or culture creates barriers
Shared mental models	How information is shared
	Shared priorities
Team coordination	Defining roles within the team
	Coordinating decision making across the health care team
	Team leadership
	Orienting new team members
Communication environment	Openness of communication
	Speaking up

whom were experienced in interviewing. Interviewers were inducted into the process by having them observe a primary interviewer to ensure that a consistent questioning approach was taken. The sample size was decided based on data saturation; interviews continued until no new concepts were emerging.

We used an analytical approach to coding against a predetermined coding framework.[17] This framework was based on the teamwork literature[14,15] and is shown in Table 1.

Transcripts were coded into categories using NVivo 8 (QSR International Pty Ltd, Doncaster, Vic, Australia). Coding was undertaken by an investigator (JMW) and a research assistant (MS). Both read all the transcripts, coded a subset of interviews against the framework, and compared their coding of the data until consistent coding was achieved. MS then coded the remainder of the interviews, which were cross-checked by JMW. The final coding was then considered and agreed by the other two investigators (MB, SG). Reports were then generated on each of the nodes in the framework; these are reported on without interpretation in Results.

RESULTS

We conducted 25 interviews with 13 doctors and 12 nurses. All the doctors had worked in hospitals in New Zealand. Three had worked in rural hospitals and the remainder had worked in major urban hospitals. All the nurses were New Zealand graduates who had worked in New Zealand hospitals. One nurse

was working in a private surgical facility, one in a community outreach team and the remainder in public hospitals. The results are presented as an account of participants' stories, using the framework outlined in Table 1 and, where appropriate, using the interviewees' own words. Quotations are ascribed to either nurses or doctors.

Quality of collaboration

Mutual respect and trust

Junior doctors acknowledged the need to respect and value the opinions and perspectives of others and expressed respect for the knowledge and skills of senior nurses. Nurses wanted their contributions to patient care to be valued and acknowledged by doctors, which was not always the case.

Gaining the trust of others that one could do the job in question could take time. Nurses perceived that, as trust developed, doctors were more likely to seek their input and rely on their assessments. Trust also required reliability:

'If they need something done, you know, they need to know it will be done.' (Nurse)

The perceived arrogance of some doctors could be detrimental to building this mutually respectful relationship and was identified as an issue by both doctors and nurses.

Barriers created by the organisational structure or culture

Junior nurses identified primarily with the nursing team; junior doctors identified primarily with the medical team, and both groups indentified only secondarily with an interprofessional health care team:

'The nurses are a team and the doctors are a team and ... they communicate with each other but ... often they don't actually necessarily work together all that well.' (Doctor)

Organisational barriers to the formation of interprofessional health care teams existed. Nursing teams are based in the ward. Nurses are each allocated responsibility for the care of four to six patients, and a charge nurse has overall responsibility for coordinating patient care.

A junior doctor may look after 20 or more patients, spread across different wards, and thus may

potentially work under different medical consultants. Hence, junior doctors are members of many interprofessional and medical teams. Junior doctors found themselves:

'Trying to do jobs for six different bosses who all want different things, who have different patients in different wards and, yeah, that didn't work.' (Doctor)

As the doctors and nurses in any team looking after a particular patient were all members of multiple and different patient care teams, this made it difficult for them to meet together at the same time to share information and make joint decisions about the patient.

Whereas the roles of the nursing component of the patient care team were clear and well defined, this was less true for members of the medical team. This failure to clarify roles could result in delays to patient care and additional costs, as demonstrated by this nurse's comment:

'Sometimes the doctor changed the team; I paged the team, they say, ''Oh this is not my patient.''... I paged two teams, and I paged the third team ... patient waiting whole morning.' (Nurse)

Furthermore, on some rotations it was unclear to the junior doctor which patients he or she might be responsible for:

'So [we] just go round the wards and if there's ... yeah if there's a green magnet by the patient's name ... then we see them.' (Doctor)

Frequent roster changes further impaired the development of a stable health care team. A junior doctor noted:

'Trust takes time to develop... we move around every 3 months or so, whenever you start a new place, it's always a bit nerve-racking... You don't really know the people there and you don't know if you can trust them, and they don't know if they can trust you either.' (Doctor)

Nurses shared this view:

'You don't really know what you expect from them; you don't really know how they [junior doctors] behave in particular situations.' (Nurse)

Although leadership of the different medical and nursing teams was generally clear, that of the interprofessional team was not always apparent to junior doctors. A senior leader could set the scene for teamwork:

'…unite everyone and make, you know, make them realise that they are working as part of a team.' (Doctor)

Although junior doctors described positive examples of how some consultants had taken on this role of team-building and established well-functioning units, they also described the opposite:

'Some registrars sometimes don't realise that they're supposed to take that responsibility, some consultants choose not to take the responsibility... yeah, I think quite often no-one takes the responsibility.' (Doctor)

Shared mental models

How information is shared

The ways in which patient information was shared and treatment plans agreed on within the interprofessional team varied across hospital wards. Junior doctors felt the ward round was where information was shared and decisions made, and felt strongly that the charge nurse and the nurse caring for the patient should be present, although this frequently did not occur. The nurse was perceived as having important information on the patient which could contribute to decisions. Failure to share this information meant that patient discharge could be delayed when:

'…an issue that could have been addressed a week ago suddenly comes to light.' (Doctor)

If the nurse was not present on the round, any medical decisions made were conveyed to the nurse via telephone calls or opportunistic meetings, or were written in notes. This relied on the junior doctor remembering to follow up after rounds:

'So when I see nurse so-and-so I'll remember, ''Oh, yeah, I changed that on the patient's chart therefore I've got to tell them,'' but it's not a, it's not a foolproof system.' (Doctor)

Opportunistic meetings were a frequent mode of information exchange:

'If I see the physio walking past I'll say, ''Oh, how's, you know, how's patient so-and-so going?'''

By contrast, a junior doctor described a particular ward on which:

'…every day I talk to whoever's the charge nurse about all the patients ... we have exactly the same group of patients and that ... really improves communication ... we don't get the sort of problems that you get in some ... wards.' (Doctor)

Interdisciplinary team meetings were seen as an effective way of sharing information and coming to mutually agreed decisions.

Interviewees felt patient care decisions were compromised if not all team members had input into the decision, if there was no team leader, or if a single team member made a decision without listening to others' perspectives. For example:

'There was just a lot of disagreement about how this woman was going to be managed... I think the biggest part of the failure was that we never, really, all had a, a meeting, as a team, in regards to her care.' (Doctor)

Unresolved concerns tended to eventually surface and delay progress.

Sharing information through the patient's notes was problematic. Although some nurses said they referred to doctors' medical care plans, doctors felt that simply writing instructions in the notes was ineffective and that they needed to verbally give the instructions to the nurse. Doctors admitted to not always reading nurses' notes:

'A block of text this thick – it's dense. I can't see any structure to it.' (Doctor)

Doctors likewise assumed:

'…that the nurses are doing the reverse, reading the nursing notes and not the [doctor's] ward round notes.' (Doctor)

Shared priorities

Responding to nurses' calls comprised a significant part of junior doctors' work. Doctors wanted to be given enough clinical information to enable them to prioritise calls and initial actions. For example, doctors perceived that including information on the patient's vital signs:

'…gives me a better idea of whether or not I need to be more in a hurry to quickly see this patient.' (Doctor)

Doctors valued the better information provided by experienced nurses or those moderated by the charge nurse.

Nurses expressed frustration when doctors were slow to respond to calls or failed to acknowledge their concerns or take them seriously 'until they had some hard evidence' (Nurse).

Because the nurses were with patients constantly, they felt they could pick up subtle changes, but could not always adequately convey their concerns to medical staff.

Junior doctors felt that nurses did not always understand the rationale for certain investigations and may therefore have had different priorities when it came to carrying out instructions for investigations or treatment. This led to some frustration when their requests for investigations were not dealt with promptly.

Team coordination

Defining roles within the team

Junior doctors spoke of the vital role played by nurses in recognising changes in a patient's condition:

'Really they're everybody's eyes and ears, so, we need to be able to trust them to work out when there is a problem ... and to let us know ... whether that's urgently or whether that's something that can wait till the next day.' (Doctor)

They also talked of the nurse's role as one of caring for the patient, supporting the patient and family, administering patient treatment and coordinating overall patient care. Junior nurses expressed similar views of their own role, which they described as consisting of: 'standing by the patient'; advocating for the patient; sometimes helping the patient to better communicate his or her story to doctors, and contributing to patient safety, such as by checking consent and ensuring sterility in the operating theatre.

Junior doctors saw their own role primarily as one of providing medical input to patient care, which included diagnostic decision making, technical skills

and the ability to recognise a sick patient and intervene. Indeed, for many, the moment that exemplified becoming a doctor was when they were faced with a sick patient for whose care they had to take responsibility. Junior nurses verified this role, describing how they would call doctors when they had concerns about a patient's medical condition or required a treatment order.

Coordinating decision making across the patient care team

Decisions about patient care were made by medical consultants but were conveyed to the senior nurse by the junior doctor. The hierarchy in this interaction could cause tension:

'You were supposed to ... tell them what the plan was ... you have to be sort of passing on orders, which I found quite difficult particularly as a junior doctor and with the nurses that have been working for 30 years.' (Doctor)

As a result of this asymmetry, junior doctors sometimes felt they were 'pushed around':

'As the junior doctor on the team you kind of bear the brunt of that, 'cos you don't have any authority, but you're supposed to be carrying out orders.' (Doctor)

Team leadership

Junior doctors and nurses agreed that the charge nurse or clinical nurse manager was the leader or the 'boss' of the department or ward, and was in charge of coordinating patient care. However, the medical consultant took overall responsibility for the patient in situations in which the primary issue was medical. He or she had the final say in medical decisions and carried 'overall responsibility' [Doctor] for the patient over the long-term:

'Everyone's responsible in patient care, but really the buck does stop with him [the consultant].' (Doctor)

Similarly, nurses were in charge of running the operating theatre, but the anaesthetist would take charge if there was an intraoperative patient problem. Nurses ran the emergency department and saw the consultants as 'go-to guys' [Nurse] from whom to obtain help with patient problems.

Orienting new team members

Junior doctors described experiences of coming onto a new ward and knowing little about local policies

or procedures. They reported that it might take some time for them to 'get up to speed', but described senior nurses as a major source of knowledge, orienting them to ward policies and protocols.

Nurses described mixed experiences on joining new work environments. There was often a lot to learn and, although they gave examples of occasions when senior nurses provided support and guidance, they also described experiences in which senior nurses discouraged requests for advice, creating potential risks for patient safety:

'I might be too scared to actually ask, because sometimes, you know... she's not particularly supportive. So I'll just wing it.' (Nurse)

Communication

Openness of communication

Doctors felt that 'being approachable':

'…tended to help the whole environment of the team.' (Doctor)

Doctors felt that nurses were, on the whole, quite assertive, but recognised some junior nurses were:

'…very shy, they don't, they don't really want to tell you anything [but] you have to be approachable... if the nurses are worried they should come to you early rather than late.' (Doctor)

However:

'…if you are too approachable, nurses come to you and try to get you to do all ... too many silly things as well.' (Doctor)

A grouchy response was seen as an effective strategy for discouraging nurses' calls, but could delay finding out important clinical information.

One nurse described how:

'I had this big image of doctors as a foreign species and now the more I work with them ... I realised pretty quickly that they were in the same boat as me really.' (Nurse)

Nurses agreed that most doctors were very approachable, in terms of both listening to their suggestions and answering questions.

Speaking up

Nurses found that junior doctors were generally very open to suggestion:

'We know how to do it and the new doctors don't, so we just have to remind them... And often they do it, you don't get any arguments. Some of them might want to see the policy, or some of them might ask you why. As long as you have a good rationale, most of them are willing to do what you say.' (Nurse)

Nurses also described other approaches to challenging a doctor's decision if they didn't agree with it. For example, they could go to their charge nurse:

'If she doesn't agree with it, she'll kick up a fuss... then she'll go to the consultant.' (Nurse)

Alternatively they could produce the ward protocol, offer to call for help from a senior colleague, or call for an external opinion.

One junior doctor described how he or she might challenge a consultant:

'If I feel that ... the decision that was made may not be the best for the patient, I might still mention it ... there is a hierarchy and you do have to follow what your seniors ask you to do, but in the nice kind of way you can still kind of make your influence [felt].' (Doctor)

DISCUSSION

Participants in this study expressed very positive attitudes towards IPC, but these data provide evidence of the degree of improvement required to meet the expectations of authorities such as the New Zealand Health and Disability Commission:[1] 'that there will be sufficient cooperation and communication amongst its members to minimise the risk of harm to the patient.'

Although junior doctors and nurses expressed mutual respect, organisational structures often limited the extent to which they could establish trust and effective relationships within the health care team. Whereas these junior members of the health care team clearly recognised the value of sharing information and their interdependency in making sound health care decisions, the working environment and their differing perspectives often got in the way, with the potential for harm to

patients. Our data suggest that junior doctors and nurses see themselves as having complementary and non-competitive roles in patient care, a perception that represents a sound basis for IPC. Junior doctors see themselves primarily as diagnosticians, with responsibility for directing investigations and pre-scribing treatment. Nurses are essential sources of information about patients; they implement the doctors' management plans and play a broad role in patient care. At a senior level, doctors have final responsibility for medical decisions; on the whole, nurses are in charge of wards and departments.

However, the prerequisites for establishing IPC were not always present. For example, appropriate leadership was often not apparent to participants. Without such leadership, new members were not always well oriented to the team. Moreover, although the need for open communication was acknowledged, there were some barriers to achieving it.

A number of studies have linked specific collaborative behaviours to improved health outcomes.[10,18] Practices as specific as providing information when it is not explicitly asked for (promoting a shared mental model) and reminding senior staff of the need to undertake team leadership have been identified as improving IPC. Evaluation of the recently introduced World Health Organization (WHO) Surgical Safety checklist provides some evidence that formalised team interaction at the beginning of the day, which includes introductions, the clarification of tasks and goals and the identification of potential problems, reduces adverse events.[19]

Potential solutions to building better health care teams can involve educational interventions or organisational change. Our study identifies the types of collaborative activities in which junior hospital staff are involved, the factors impacting on the quality of these activities, and the tensions embedded in the hospital working environment. This provides some clear direction for interventions to improve IPC.[20,21]

Educating new graduates for IPC

That some doctors are perceived as arrogant is recognised as a problem by both professions and impedes the development of collegial relationships. Is this perceived arrogance a personality trait, a coping strategy or a learned behaviour? This might be an interesting focus for an interdisciplinary workshop aimed at helping participants to build mutual respect and trust. The explicit acknowledgement of the contributions of others

can help to build a sense of team. This might represent a simple strategy to implement at the individual level, and an awareness of the need to do this may be the starting point.

When junior doctors, acting with the authority of their consultants, are expected to convey orders to senior nursing staff, tension may arise as a result of the differential in seniority and experience, and cause a potential dysfunction in IPC. Explicit acknowledgement of this tension and joint strategies to manage it may go some way towards building the sense of team.

Challenging actions that may be dangerous, unethical or unwise is crucial for patient safety. Although nurses described some very effective strategies for escalating challenges utilising well-defined team structures, this can be difficult for junior health professionals; for the junior doctor, such a strategy involves challenging the consultant. Specific training in speaking up may help to reduce the incidence of adverse events. Examples from the literature on simulation-based medical education provide some examples of how this might be done.[22–24]

The relatively recent advent of simulation-based education as a way of actively engaging health professionals in learning about teamwork and collaboration may go some way to addressing historical tardiness to adopt interdisciplinary educational initiatives.

A call for organisational change

One interpretation of our findings may be that the system is perfectly designed to prevent effective IPC and the building of effective health care teams. Getting to know the individual members of the team was seen as a prerequisite for building trust, working out capabilities and developing respect. Short and disjointed junior doctor rotations were seen by both groups as a major obstacle. Although the development of proactive strategies to establish new teams and induct new team members may help, organisational change seems necessary.

It appears to take a long time for new members to feel part of the team. A simple strategy used in the operating theatre which involves all members of the team introducing themselves to the other members

Table 2 Recommendations for improving interprofessional collaboration

	Recommendation for change	Approach
Quality of collaboration	Develop formal strategies for inducting new members into the team	Organisation
	Devise interdisciplinary interventions focusing on improving collaborative practice	Interprofessional learning
Shared mental models	Recognise the changing hospital environment and the need to re-establish new formal processes for information sharing	Organisation
	Develop educational interventions to teach about the experience, capabilities and knowledge frameworks of other health professionals	Interprofessional learning
Team coordination	Develop training in teamwork processes; engage teams through active and relevant programmes, potentially incorporating innovative and effective educational strategies such as simulation	Interprofessional learning
	Understand the tasks required to establish and maintain a team	
	Recognise the role of leadership in establishing the team	
	Clarify roles and team member capabilities	
	Share mental models and decision making	
Communication	Establish formal processes for sharing concerns, decision making and priorities	Organisation
	Develop interprofessional communication skills training focused on communication between health professionals	Interprofessional learning
	Focus on clear, concise, closed-loop communication	
	Devise structured approaches to information transfer	
	Encourage speaking up to challenge dangerous actions	

seemed to be effective. Recognising and valuing the role of team members in inducting new team members to the task may be a useful component of team training. A simple induction pack with information on staff members, ward policies and practices may help junior doctors more rapidly come to grips with the working environment of a new ward.

These issues are summarised in Table 2, along with recommendations for improving the function of health care teams.

CONCLUSIONS

This study looks at the experiences of junior doctors and nurses as they enter the health care environment and provides some insights into how IPC works at a grassroots level. On the whole, our data are very reassuring in that they demonstrate the professionalism, thoughtfulness, mutual respect and adaptability of these junior members of the profession. We offer potential solutions, both educational and organisational, which may go some way towards addressing the issues we have identified. The ultimate goal is to build stronger health care teams through improved IPC.

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