

It's not just what you know: junior trainees' approach to follow-up and documentation

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CONTEXT In teaching hospitals, junior trainees (first-year residents and third-year medical students) are responsible for patient follow-up and documentation under the supervision of senior team members. In order to support trainees in their role, supervisors need to understand how trainees approach these tasks and how they can be coached to develop best practices.

OBJECTIVES The purpose of our study was to explore the range of practices used by junior trainees in clinical settings.

METHODS Constructivist grounded theory was used to guide the collection and analysis of data on follow-up and documentation during 34 observation periods with 17 junior trainees. Data sources included field notes, field interviews and de-identified copies of patient charts. We also held two focus groups with four attending physicians in each.

RESULTS We were able to describe three interrelated characteristics that influenced a trainee's approach to and ability to perform the tasks of patient follow-up and

documentation: (i) diligence; (ii) relationship to the team (dependent, independent, collaborative), and (iii) level of performance (*Data Gatherer, Sensemaker, Manager*). Diligence and relationship to the team appeared to influence the quality and focus of a trainee's approach at all levels of performance. Level of performance was felt, by focus group attending physicians, to reflect a developmental progression of knowledge and skills.

CONCLUSIONS Our findings contribute to the existing literature in three ways. Firstly, they extend our understanding of how junior trainees approach the task of in-patient follow-up and clinical documentation and the value of those activities. Secondly, they provide new insights to support formative and summative assessment. Finally, they contribute to a growing body of literature exploring the factors that impact trainees' roles and interactions with the team. Future research should focus on validating our findings and exploring their utility in the development of novel assessment strategies.

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 INTRODUCTION

In North America, internal medicine patients are frequently cared for by medical teaching teams (MTTs) in the setting of an academic health science centre. Although levels of responsibility may differ among centres, in this setting, junior trainees (first-year residents and third- and fourth-year medical students [i.e. clinical clerks]) under the supervision of a senior medical resident (second- or third-year resident) and an attending physician are responsible for day-to-day patient care follow-up and clinical documentation. Medical teaching teams use a series of written and oral communication practices to support continuity of care and, perhaps more importantly, the progressive refinement of their patients' diagnoses and management plans.¹ Unfortunately, neither continuity nor progressive refinement are consistently achieved in practice and this may compromise the team's ability to provide safe care.¹ Gaps in achieving progressive refinement may relate to poor follow-up and documentation practices, as well as to variability of practice.¹ Supervisor characteristics may also play important roles,² particularly in the context of variability in expectations and the extent to which supervisors are willing and able to provide direct and guided feedback to their trainees.

In their provision of patient care, MTTs are faced with numerous challenges including those imposed by shorter rotations,^{3,4} team instability and discontinuity of care,^{1,3,5} and complex patients with multiple medical problems.⁶⁻⁹ As such, MTTs are highly dependent on their communication practices for supporting safe and effective patient care.¹ Over time, different members of the team contribute to patient care by supporting the collection, interpretation and documentation of information from a myriad of sources including the bedside, the laboratory, patient records and input from other health care providers. When done well, the practices of collection, interpretation and documentation support a process that has been referred to as 'progressive collaborative refinement' (PCR).¹ The end results of PCR include the creation of clinical documents that outline the current best understanding of the active problems a patient is dealing with, a summary of key investigation results and a list of outstanding investigations, and plans for addressing patient issues that include reference to how these differ from prior strategies. Progressive collaborative refinement is a process and not a point in time.

In addition to collection, interpretation and documentation, the process for achieving PCR requires that team members: (i) effectively communicate their current understanding of a patient's active medical problems and management plans; (ii) identify gaps in their understanding and seek to remedy these, and (iii) update documentation as new information becomes available or new problems arise.

In practice, junior trainees may inadvertently interfere with PCR when they struggle to determine their role on the team, are reluctant to seek guidance for fear of judgement by the team, or fail to recognise the limits of their knowledge.¹⁰⁻¹² As trainees experience progressive independence in providing patient care, it is vital that they ask for help when a situation exceeds their clinical knowledge and skill in order to ensure the provision of safe and effective care.^{11,13} Although supervisors value trainees who collect patient information, develop a plan and confirm this plan for implementation,¹³ trainees may struggle with meeting these expectations while balancing their desire to maintain professional credibility.¹³ They may also alter their practices to meet their perceptions of the supervising physician's expectations. Multiple factors other than clinical knowledge influence a trainee's willingness to ask for help, including the availability and approachability of supervisors and the impact the trainee perceives on his or her professional credibility.¹³

The ways in which junior trainees perform daily patient follow-up and clinical documentation may also interfere with PCR.¹ However, research related to junior trainee follow-up and documentation practices has been limited.¹⁴⁻¹⁶ Studies have largely focused on the amount of time spent on particular tasks and the perceived value of these tasks from an educational perspective.¹⁵ Studies have also explored limited aspects of the trainee role, such as in Sharma's exploration of the quality of the admission history and physical examination of resident physicians.¹⁷ Unfortunately, little research has explored how junior trainees carry out the daily tasks of patient follow-up and clinical documentation, how their skills in performing these develop over time and how their daily practices compare with best practice. Addressing this gap is important for improving the practices themselves, as well as for informing the teaching and assessment of these practices, which are increasingly recognised as core competencies and for which there exist few empirical data to guide clinical supervisors or trainees.¹⁸ The purpose of this study, therefore, was to explore

how trainees approach the tasks of patient follow-up and documentation. More specifically, we wanted to study their approaches to and rationales for doing these tasks. We also wanted to map the range of practices used by trainees in clinical settings and the extent to which they could serve to support or hinder PCR.

METHODS

We used a constructivist grounded theory methodology¹⁹ with sensitising concepts from Paré and Smart's framework for studying workplace-based communications²⁰ to identify emerging themes and build on existing theoretical knowledge. The Paré and Smart framework was used because it helped draw attention to four dimensions of communication practice: reading practices, composing practices, textual features, and social roles performed by readers and writers.²⁰

We focused on junior trainees' clinical documentation and follow-up practices to gain an understanding of the variations in practice and how clinical documentation shapes patient care. Consistent with our methodological approach, data were collected and analysed in iterative cycles in which the findings from each cycle informed the collection of data in the following cycle.¹⁹ The study was approved by the University of Western Ontario Health Sciences Research Ethics Board.

Setting and sample

Data were collected from the internal medicine clinical teaching unit (CTU) at an academic centre in Ontario, Canada during the periods of June–August in 2012 and 2013. During the first data collection period, 22 observations were made of 11 junior trainees who were purposefully sampled based on factors that may influence practices, such as level of training, amount of time on the rotation and familiarity with the patient. Data analysis informed the selection of an additional 12 observations of six trainees during the second data collection period. This allowed for the purposeful selection of trainees at the very beginning of their first year of residency or the end of their third year of clinical clerkship. Trainees across both study periods included third-year medical students ($n = 7$) and first-year residents from internal medicine ($n = 7$), obstetrics and gynaecology ($n = 2$) and family medicine ($n = 1$). This distribution is typical of the mix of trainees seen at any one time on the internal medicine

teams. In the invitation letter and in the process of obtaining consent, trainees were told only that the purpose of the study was to learn how they approached the tasks of follow-up and documentation.

Data collection

Two second-year medical student research assistants (NA and DCC) collected data through direct observation and audio-recorded field interviews. Second-year medical students were chosen for this task because they could understand the context, had no prior relationship with the trainees being observed, could easily establish rapport with trainees and could foster a non-evaluative observation environment. NA and DCC were supervised and trained in grounded theory research methodology by the senior author (MG). Each trainee was observed on two separate occasions (34 observation periods) as they saw patients (new and previously known to them) and documented their care. Observation periods for each trainee were separated by periods of 1–28 days (median: 2 days). Each observation period lasted a median of 1.5 hours (range: 0.5–4.0 hours) and trainees saw a median of two patients (range: one to four patients). For each observation period, the research assistant would conduct and audio-record one or two brief field interviews (median length: 8 minutes; range: 2–14 minutes) to explore specific observed actions and the motives for these actions, and to gain a better understanding around particular observed practices. Our data include a total of 74 observation hours and 296 minutes of interview audio, yielding 212 transcript pages. To facilitate triangulation as our understanding of documentation practices emerged, a selection of clinical documents were sampled and de-identified. Individual charts were selected based on data analysis of observation field notes and interviews when the research team felt that they needed to see what was documented in order to better make sense of the observed practices. Of the 42 patient cases observed, the progress notes and orders sections of 15 patient charts from 10 trainees were copied and de-identified to provide an additional 385 pages of clinical documentation for analysis. Table 1 presents the level of training and level of performance of all trainees in the study across both field observations.

Data analysis

Field visit observation notes and transcripts were coded using constant comparison and Paré and

Table 1 Level of training and level of performance of all trainees across both observation periods

Participant	Level of training	Level of performance		Days between observations
		Observation 1	Observation 2	
IM1-127	End of PGY-1	Manager	Manager	2
CC-147	End of Year 3 Clerkship	Manager	Manager	5
IM1-143	End of PGY-1	Manager	Manager	2
IM1-192	Beginning of PGY-1	Manager	Manager	1
IM1-113	End of PGY-1	Manager	Manager	5
OB1-119	Beginning of PGY-1	Sensemaker	Manager	1
FM1-121	Beginning of PGY-1	Sensemaker	Manager	16
IM1-187	End of PGY-1	Sensemaker	Sensemaker	2
OB1-134	Beginning of PGY-1	Sensemaker	Sensemaker	23
CC-122	End of Year 3 clerkship	Sensemaker	Sensemaker	1
CC-155	End of Year 3 clerkship	Data Gatherer	Sensemaker	1
CC-110	End of Year 3 clerkship	Data Gatherer	Data Gatherer	1
CC-175	End of Year 3 clerkship	Data Gatherer	Data Gatherer	6
CC-140	End of Year 3 clerkship	Data Gatherer	Data Gatherer	6
IM1-196	End of PGY-1	Data Gatherer	Data Gatherer	1
IM1-101	Beginning of PGY-1	Data Gatherer	Data Gatherer	1
CC-108	End of Year 3 clerkship	Data Gatherer	Data Gatherer	28

CC = third-year clinical clerk; FM = family medicine; IM = internal medicine; OB = obstetrics and gynaecology; PGY = postgraduate year

Smart's framework for studying workplace-based communication as a sensitising concept.^{20,21} Initial codes were developed by MG, a general internist with both a clinical practice and a research practice focused on team communication practices, and DCC, a second-year medical student who participated in data collection during the second study period. DCC applied these codes to the transcripts in consultation with MG to further develop, revise and refine the codes. Once all of the transcripts had been coded, narrative summaries that highlighted reading and composing practices, textual features, social role, motives and agency were created for each of the 34 observation periods. The analysis of the direct observation field notes, field interviews and textual features of the clinical documentation allowed for within-case data triangulation to compare what trainees spoke about doing and the motives behind these actions with the practices actually observed.²² Summaries from each of the two observation periods were also compared to explore how trainees may have differed over time and with different patients.

To verify and elaborate study findings, two 60-minute return-of-findings focus group sessions were held with eight internal medicine attending physicians (length of practice: 1–17 years). Key categories and themes were shared with participants, who were asked whether they accurately reflected their experiences of supervising trainees. Other issues explored included: experiences of working with different trainees, accuracy of the descriptions, potential discrepancies, preference, and trainee developmental considerations. Both sessions were audio-recorded and transcribed.

RESULTS

Based on field observations, field interviews and the attending physician focus groups, we were able to describe three interrelated characteristics that influenced a trainee's approach to and ability to perform the tasks of patient follow-up and documentation: (i) diligence, (ii) relationship to the team, and (iii) level of performance (Table 2). Whereas level of

performance was felt to reflect a developmental progression of knowledge and skills, diligence and relationship to the team appeared to have powerful influence at all levels of performance on the quality of the trainee's performance and on which aspects of the tasks the trainee performed. In the next three sections, we will describe the variations in diligence and relationships to the team we observed. We will then describe the levels of performance with emphasis on how diligence and relationship to the team influenced trainee follow-up and documentation practices within each level. We will end the results with findings on trainee progression and development in relation to level of performance. Key insights from our study, related to the least and most effective practices observed in trainees across all three levels of performance are described in Table 3.

Diligence

Within the context of patient follow-up and clinical documentation, we define diligence as indicated by

the taking of a comprehensive (as opposed to narrowly focused) approach to generating a problem list, paying careful attention to detail (e.g. ensuring the past medical history and medication list are accurate) and persistently pursuing information that is unclear or incomplete. Diligent trainees were observed to seek out clinical information from multiple sources (e.g. family physicians, patient family members and other team members), to purposefully read current and older clinical documents in order to better understand the clinical picture, and to ensure that all required tasks were completed. As this trainee explained:

The first thing is the nursing note especially from overnight because basically, they will write if there are any issues overnight. . . I'll be looking at her vital signs in the morning and if the nurse had any concerns. . . I'll be looking in her chart for what we've done so far in the hospital, like what's the management, what was the active issues and what was the plan. . . another thing that we usually miss is the medication because we

Table 2 Definitions of the characteristics that influenced a trainee's approach to and ability to perform the tasks of patient follow-up and documentation

Diligence	The extent to which trainees take a comprehensive approach to generating a problem list, pay careful attention to detail (e.g. ensuring the past medical history and medication list are accurate and up to date) and persistently pursue information that is unclear or incomplete
Relationship to the team	
Dependent	Reliant on team members and rules for directing practice and clinical decision making. Rarely seeks to find answers to clinical questions independently prior to reviewing with team
Independent	Participates in minimal review or discussion with other members of the team regarding patient care and clinical decision making outside of team rounds. Documentation practices reflect less recognition of the need for others to be able to use the trainee's notes during overnight call or when taking over care
Collaborative	Performs tasks independently within the scope of his or her ability, seeking assistance when necessary. Develops tentative approach to managing patient issues for review with the team. Communication practices (written and oral) support progressive collaborative refinement
Level of performance	
Data Gatherer	Follows rule-based approach to follow-up history, physical examination and documentation regardless of patient familiarity or complexity. Identifies issues to be addressed but does not consistently contextualise them in relation to existing problems. May not fully understand the reasoning behind investigations into and management plans for patients
Sensemaker	Engages in the activity of making sense of his or her patients through the development and elaboration of problem lists, diagnosis and differential diagnosis. Tries to contextualise physical findings and diagnostic information in relation to the patient's active and chronic active issues
Manager	Uses strategic and comprehensive follow-up and documentation practices, purposefully contextualising information to identify all of the issues that need to be addressed at the bedside. Develops a prioritised differential diagnosis and management plan for active issues and chronic problems

Table 3 Selected examples of least effective and most effective practices across all levels of performance

Situation	Least effective practices	Most effective practices
Reading practices	<ul style="list-style-type: none"> • Selective reading practices including: <ul style="list-style-type: none"> ◦ The most recent progress note and laboratory values ◦ Neglects notes written by nursing and other allied health providers • Depends on other team members to advise on active issues to follow up on • Searches for specific information requested by the team 	<ul style="list-style-type: none"> • Comprehensive reading practices including: <ul style="list-style-type: none"> ◦ Admission documents ◦ Notes from nursing and allied health professionals ◦ Previous team progress notes ◦ Overnight orders ◦ Clinical documentation from previous encounters • Seeks out individuals to verbally discuss the patient and receive updates (nurses, allied health, senior medical resident) • Looks for progression, patterns and trends of issues over time • Screens for and anticipates potential complications and side-effects of current and proposed treatment • Reviews active issues and medications when trying to determine the causes of abnormal investigations or physical findings
Patient encounter	<ul style="list-style-type: none"> • Does not utilise chart review prior to seeing the patient to guide the clinical encounter • Conducts generic history and physical examination regardless of active issues or patient familiarity 	<ul style="list-style-type: none"> • Pre-reads patient chart and reviews new laboratory results to identify active issues to address at the bedside • Conducts a focused history and physical examination pertaining to active issues and patient complaints
Composing practices	<ul style="list-style-type: none"> • Responds to abnormal laboratory values without necessarily understanding/identifying a cause • Documents physical examination findings that were not personally observed, but were previously noted • When covering a peer's patient, defers responsibility of advancing patient care until team member returns • Does not investigate or follow up on unclear information 	<ul style="list-style-type: none"> • Reviews and refines active issue list • Seeks out missing or unclear information to clarify • Double-checks the accuracy of previously documented information • Independently studies the literature and reviews patient cases to address knowledge gaps before seeking assistance • Consolidates information from various sources into a comprehensive problem-based note that reflects refinement of active issues in the context of the patient's chronic problems
Textual features	<ul style="list-style-type: none"> • Includes all issues into a single SOAP note • Uses the same format for all patients regardless of clinical complexity 	<ul style="list-style-type: none"> • Problem-based documentation with a separate SOAP or equivalent headings for each active issue • Documentation reflects progressive collaborative refinement of active issue
Informal notes	<ul style="list-style-type: none"> • Inconsistent approach for keeping track day to day • Takes notes on his or her patients only • Uses notes to record information in case trainee is 'pimped' by the team 	<ul style="list-style-type: none"> • Writes key information from morning review for his or her own patients, as well as for those being cared for by other members of the team • Uses personal notes with checkboxes on patient list to keep track of completed tasks and reminders for the day • Keeps an additional set of notes on each patient being followed, listing chronic and active problems, medications, results of key investigations and other pertinent information to track progress over time

start and stop some medications when the patient comes so I usually look at the medical list, what was held at admission and does the patient need this medication now, when do we need to restart it. . . also I was looking [to see] if the patient was assessed by another service like [home care], physiotherapy, occupational therapy, because they will give you an idea about the patient status in hospital and any possibility of discharge. (IM [internal medicine] 1-143)

Diligent trainees also invested effort in tracking patient information on informal notes (e.g. patient lists, cue cards) and writing comprehensive progress notes. By contrast, less diligent trainees were less strategic and effortful, often using a superficial approach to their daily tasks. This could result in non-purposeful variation in the problem list (e.g. dropping issues that were currently inactive but required ongoing follow-up, adding issues based on isolated laboratory values without trying to relate them to pre-existing issues) and minimal contextualisation of issues within the patient's clinical context:

I didn't even put CHF [congestive heart failure], so I missed that one because I knew all those medications were on hold. . . I didn't do hyponatraemia or hypokalaemia because those were all normal for right now. . . [INR [International Normalized Ratio]] was high when she came in and I don't know why it's high but basically Gen Surg said reverse it so I said to make sure we watch that. (IM1-196)

When I'm looking after a patient that I don't know I definitely read the notes from the med students and to be honest I don't read the notes from any nurses ever. . . I know that my staff will read [my notes] in the bullet form but I know the nurses probably don't and I definitely don't read what they write ever. (IM1-101)

Relationship to team

We defined a trainee's relationship to the team based on observed practices and espoused beliefs. Relationships could be observed through documentation practices and interactions with the team. They could also be inferred and partially explained based on field interviews in which trainees described their motives or intentions for particular observed actions. We observed a range of relationships, which at one extreme involved high degrees of dependence and at the other involved what might be

construed as representing excessive independence. Trainees who exhibited a dependent relationship appeared to follow basic rules such as writing a SOAP [subjective, objective, assessment and plan] note each day or conducting a full physical examination on all patients. Otherwise, they were highly reliant on team members to direct their practices and clinical decision making. Although they might ask questions, they would rarely try to find their own answers prior to reviewing with the team. Focus group attending physicians commented that these trainees are more commonly new clinical clerks just starting on service or international medical graduates who are transitioning into the Canadian medical system:

They are trying to absorb and are overwhelmed by trying to learn about how the system works, about how the hospital system works. . . at that point they are just barely trying to stay alive and what that means is, getting to know their patients a little bit, doing what the attending/senior residents want them to do and reporting back. (Focus Group 2)

Trainees at the opposite extreme, those we deemed to be excessively independent, were observed to participate in minimal review or discussion with other members of the team outside of team rounds. Their documentation practices also reflected less recognition of the need for others to be able to use their notes during overnight call, post-call days or when changing rotations, as this student acknowledged:

I find [in] my assessment/plan that I don't really summarise what happened, I usually say, like for this, I said aspiration pneumonia I said he completed antibiotics but still hypoxic. . . I think like because the team, like the whole team isn't changing over tomorrow I probably wouldn't be too stressed about it but I probably could be a bit more detailed tomorrow. (CC [clinical clerk]-108)

Some trainees appeared to be motivated by a wish to get the work done with the least amount of effort. For others, motivation for not asking questions was related to assessment concerns and the belief that not asking questions and acting independently conveyed the appearance of competence.

As was consistent with our observations and confirmed by the attending physicians participating in the return-of-findings focus groups, the third relationship style – collaborative – reflected an effective

balance between dependence and independence. This reflected the trainee's ability to independently perform tasks within the scope of his or her ability, to seek assistance from the team when necessary, and to come prepared with at least a tentative approach. The communication practices of such trainees reflected key features required for supporting PCR. Trainees at all levels of performance could describe their intentions as collaborative, but not all of them approached the task in ways consistent with this relationship.

Levels of performance

We defined level of performance in relation to the knowledge and skills a trainee exhibited when enacting the tasks of patient follow-up and documentation. We identified three levels of performance – *Data Gatherer*, *Sensemaker* and *Manager* – to reflect the range of abilities we observed across the dataset and described to us by attending physicians. Trainees within each level of performance could be further distinguished based on the diligence with which they approached the tasks and their relationship to the team.

Data Gatherer

The *Data Gatherer* level of performance represents trainees whose practices were largely guided by a formulaic or rule-based approach to performing the follow-up history, physical examination and documentation, and who strayed outside their standard approach only if instructed to do so. Trainees at this level were observed to review clinical documents, to seek out specific information they were instructed to report on and to identify abnormalities flagged by the electronic medical record. More diligent trainees were more thorough in doing this, as well as in trying to maintain the active problems list as defined by the team. Although they could identify new issues that needed to be addressed, they typically did not contextualise them in relation to the existing problem list. When composing clinical documents, trainees tended to use a SOAP note format, regardless of their familiarity with the patient or the patient's complexity. This was observed to result in an incomplete active issues list and minimal elaboration regarding the reasoning behind plans for the further investigation and management of their patients:

[Regarding orders requested by the senior resident] so this is for... essentially for proteinuria, so albumin to creatinine ratio gives you how much protein they're peeing out compared to how much creatinine, so you can use that ratio to

estimate their total daily protein output in their urine. Umm... if they had diabetes which he... [flips to admission note] diabetes or any kind of renal... so he has hypertension... Yeah, so I mean it's to assess for proteinuria so for whatever causes you might have. For him I guess for his hypertension is what [the senior] is looking for but that's the first I heard of it so I don't know what actually prompted her to do that. (CC-175)

The progress note was described as representing a daily task that needed to be completed, but not as a form of communication for supporting patient care or PCR:

With the one patient I have there's been lots of talk about his disposition... I put some of it in the chart but a lot of it's just like, I remember the whole conversation in my head and so I don't necessarily write it all down... because I'm taking care of him every day anyways. (CC-155)

At the *Data Gatherer* level of performance, the relationship to the team was predominantly dependent: trainees relied heavily on others to guide their actions and decision making. Informal notes were generally used as tools for recording the daily tasks assigned to them, and for documenting specific information that was requested by the team. We also observed trainees at this level of performance with an independent relationship to the team. In the few trainees in whom this occurred, it appeared to reflect issues with diligence or collaborativeness:

While reading a patient's chart [the trainee] turns to the orders to see if nephrology ordered anything. She sees that the patient's morphine was changed, notes the change on her patient list and comments that 'as a clerk' she doesn't know much about this but will 'assume it's safe'. (CC-140, field observation)

Sensemaker

We defined the *Sensemaker* level of performance as representing those who engaged in the activity of making sense of their patients through the development and elaboration of problem lists, diagnosis and differential diagnosis. They would also try to contextualise physical findings and diagnostic information in relation to the patient's active and chronic active issues. In trainees we identified as having effective strategies, informal notes often included daily annotations on their patient list regarding tasks assigned for the day, as well as

separate informal notes, such as cue cards or templates, documenting the detailed clinical history of patients they were following:

It's a card for me so that when the residents or the consultants are asking me questions, like it's impossible to remember all the stuff about all your patients, so if you have a quick reference then you can just list it off. (CC-122)

Within this level, we observed two predominant relationships with the team: collaborative/dependent and independent. Trainees with a collaborative/dependent relationship were comprehensive and strategic in their data collection. The more collaborativeness a trainee espoused, the more he or she also appeared to take a diligent approach to information gathering. Although they could identify issues to be included in the problem list, these trainees were observed to still depend on more senior team members to confirm their articulation of the problem list, diagnosis and differential diagnosis, and their development of management plans.

Compared with those with a collaborative/dependent relationship, those with an independent relationship often followed a rule-based approach to patient follow-up and clinical documentation. The degree of diligence exhibited was not necessarily employed for the purpose of collaboration, but to ensure the trainee was meeting the expectations of the team. This type of relationship was observed in those who described wanting to portray an image of competence for the purpose of assessment. According to focus group attending physicians, quieter or 'introverted' trainees could also exhibit an independent relationship to the team. They further elaborated that this could lead to missed opportunities:

They see all the patients, they know the patients by heart, they know everything about that patient but they just won't contribute verbally to the team unless specifically probed. They are not actually sharing with the group to support group work, they are just doing it quietly and independently. (Focus Group 1)

Additionally, we noted that those at the *Sensemaker* level with an independent relationship to the team tended to omit documentation of active issues with which they personally felt familiar. It appeared that familiarity could lead to complacency in documentation, which was not surprising to the focus group attending physicians:

If they know the patient well and are following the patient every day, they may not feel the need to document the same thing again and again and again knowing very well that they are the ones who are going to follow the patient every day... because they are confident that they know what's going on, they may not think of the next step of, you know what if I'm not here. (Focus Group 2)

Manager

We defined the *Manager* level of performance as representing trainees who were strategic and comprehensive in their follow-up and documentation practices, and who purposefully contextualised information to identify all of the issues that needed to be addressed at the bedside. Additionally, these trainees were able to develop a prioritised differential diagnosis and management plan for active issues and chronic problems. The dominant relationship style observed at this level of performance was collaborative. Although trainees at all levels of performance spoke about the value of maintaining comprehensive problem-based notes in order to support continuity of care and PCR, those at the *Manager* level with a collaborative relationship consistently documented in this way. Informal notes also reflected a collaborative approach to patient follow-up, whereby trainees were observed to document information for patients they were not personally following in order to 'support the team'.

Similarly to those at the *Sensemaker* level, an independent relationship to the team was also observed in that trainees could be strategic and comprehensive in their follow-up, but their clinical documentation practices did not appear to reflect their knowledge in a way that supported PCR:

You speak to somebody and they seem to have a really good grasp of the patient, discuss the issues with you and have an intelligent plan in mind about where that patient is going and a potential discharge plan and you go and look at their note and go, well where is all that? (Focus Group 2)

Diligence for trainees at the *Manager* level also appeared to be targeted, strategic and impactful. As part of their follow-up, these trainees were observed to undertake actions such as additional data collection to screen for complications in anticipation of the team's or the patient's future needs:

[For a patient with continued melena] IM1-127 ordered a CBC [complete blood count] and then

turned to the computer to look at the patient's current medications paying special attention to any that may cause bleeding. IM1-127 saw the patient was on Plavix; she then remembered that the patient had a PCI [percutaneous coronary intervention] done. IM1-127 searched the computer to determine the type of stent that was used as she said it would impact how long the patient needed to remain on Plavix. IM1-127 finds that a bare-metal stent was used and adds this information to the admission note. (IM1-127, field observation)

According to focus group attending physicians, select individuals in the *Manager* level of performance were seen as representing the top 5% of trainees:

You know in sports they talk about the "it" factor? To me it just seems like they are somebody who, they just seem to have it together. They know what they are doing, they seem to have a clear head and plan and are able to articulate that appropriately, they can rally the troops and they can accomplish things without seemingly getting bogged down. (Focus Group 2)

The unresponsive learner

Focus group attending physicians identified another issue with a select group of trainees that we did not observe. The *Unresponsive Learner* describes a trainee who, regardless of his or her level of performance, appears to be disengaged and whose actions may be seen as self-serving in that they maximise personal efficiency and minimise workload. In view of their actions and statements, these trainees were described as having an independent relationship to the team and were not responsive to feedback. One focus group attending physician commented:

It's just people who are not professional... it usually indicates a really poor attitude towards the whole process and lack of respect. If someone is not interested in medicine let's say and they are on the medicine rotation and they have the attitude that I don't like it I'm not doing it, it's more of an attitude thing than a knowledge thing. (Focus Group 2)

Trainee progression and development

According to focus group attending physicians, there is an assumption that all trainees will progress from being *Data Gatherers* to becoming *Sensemakers*. At the junior trainee level, however, they are not all

expected to progress to *Manager* level. However, of the seven trainees we observed performing at the *Data Gatherer* level, five were medical students towards the end of the clerkships and two were internal medicine residents, one at the beginning and one at the end, of their first year of residency (Table 1). Moreover, least and most effective practices when performing patient follow-up and clinical documentation were distributed throughout all three levels of performance and appeared to be most associated with variations in diligence and relationship to the team. Selected examples of the least and most effective practices observed are shown in Table 3.

Focus group attending physicians commented that level of performance could vary based on other external factors, such as time pressures, patient load and familiarity with the patient:

Obviously there is some overlap. A particular individual on a particular day may be more one way than another. You know, no sleep for the last 2 weeks, so I'm just going to be [*Data Gatherer*] and the heck with everything.

I think the really important consideration is whether or not they see themselves as the primary person responsible for that patient. So if they are covering... "It's not my patient," right? (Focus Group 1)

Our observations suggested that each trainee demonstrated a fairly consistent approach to patient follow-up and documentation across individual patient encounters and observation periods. We observed changes in the level of performance in only three trainees, all of whom progressed from our first to second observations to a higher level of performance (Table 1). However, although we purposefully sampled on two occasions to ensure a mix of patient types seen, the spacing between observation periods was not purposeful. Rather, it was based on scheduling constraints and trainee availability. For most trainees, observations took place only a few days apart (Table 1).

DISCUSSION

To our knowledge, this is the first study to describe how junior trainees approach the tasks of in-patient follow-up and clinical documentation. This description contributes to the existing literature in three important ways. Firstly, it extends our understanding of how junior trainees spend their time and the

value of the activities they spend it on.^{14–16} Secondly, it provides new insights to support formative and summative assessment. Finally, it contributes to a growing body of literature exploring the factors that impact trainees' roles and interactions with the team.^{10,11,13,16,23}

Typically, in most situated learning environments,²⁴ as junior trainees progress in their clinical training, they move from peripheral tasks to tasks that are increasingly meaningful for patient care. Not surprisingly, all aspects of the junior trainee's role are not viewed equally by trainees or their preceptors. In particular, tasks related to administrative activities, which include clinical documentation, have at times been identified as having minimal educational value.^{14–16} Although trainees in our study appeared to spend a considerable amount of time on clinical documentation, this did, when performed well, appear to contribute meaningfully to both patient care by supporting PCR and trainee education. Greater degrees of both collaboration and diligence appeared to lead to this. Being diligent and collaborative requires trainees to spend substantial time and mental effort on collecting, analysing and integrating information as they seek to understand the complexity of the patients they are caring for. This was observed for trainees at all levels of performance to the degree they were able. At higher levels of performance – *Managers* – trainees were also observed to spend time anticipating and planning for next steps in patient care. By contrast, some trainees, also across the three levels of performance, appeared to spend their time and effort in meeting anticipated assessment requirements including 'preparing to be pimped'. Although we did not study outcomes of care, we did note differences in practices that could support or interfere with PCR. We also see similarities between our description of diligence and what Ashton *et al.*¹⁶ described as 'data gathering' residents. In that study, patients being cared for by residents who spent twice as much time on data gathering as they did on other activities appeared to receive better patient care.¹⁶ It may well be that, in the case of clinical documentation, both the actual value of the work and its perceived value depend on how it is performed.

Attending physicians and senior residents need to assess and provide meaningful feedback on their junior trainees' ability to perform patient care follow-up and documentation. This requires an ability to explicitly describe current practice and strategies for improving that practice.²⁵ Although we did not set out to further validate or expand on any of the

current assessment frameworks, as our analysis progressed we were struck by the similarities between our findings and Pangaro's RIME [reporter, interpreter, manager, educator] framework.²⁶ We also identified several notable extensions to RIME.

Our description of the *Data Gatherer*, *Sensemaker* and *Manager* align well with the first three levels of RIME (reporter, interpreter and manager). Although components of the fourth level (educator) were seen, they were not the focus of our study and cannot be further commented on. At the first two levels, we chose different terminology. This reflects differences in both the focus of our work and nuances that we think might add to the RIME framework descriptors. The choice of the term *Data Gatherer* largely reflects the focus of our study, which referred to observations of the practices involved in follow-up and documentation. Although the trainees observed also reported on their findings, what seemed to define their activities at this level of performance was the gathering of data they were not always able to fully make sense of. Similarly to the RIME framework, this represented a relatively novice approach.

At the *Sensemaker* level, in addition to interpreting for a diagnosis, trainees were observed, and personally reflected on, expending considerable effort on what Klein – a naturalistic decision-making researcher – and colleagues would term 'sensemaking', 'the deliberate effort to understand events... [and serve] a variety of functions, such as explaining anomalies, anticipating difficulties, detecting problems, guiding information search, and taking effective action'.²⁷ This was especially true for those trainees at this level of performance who were diligent and collaborative. It is our belief that this contribution to the RIME framework helps to elaborate on a set of observable behaviours that contribute meaningfully to PCR and extend beyond the facets included by RIME under the heading of 'interpreter'. In particular, this included developing a problem list and evolving it over time to reflect greater understandings of the problems themselves and their connections with one another. At the *Manager* level, as in the RIME framework, trainees continued this activity but with greater capability for generating and evolving the list, as well as for developing plans for the management of each problem.

The issue of diligence and collaborativeness represents another expansion to the RIME framework. In some ways, the RIME framework appears to assume that the starting point for all trainees is diligence and collaborativeness and that each level builds

upon that base. Our findings, although in a small sample of trainees, suggest there is considerable variability at all three levels of performance, variability that is observable and probably ameliorable. Many of the trainees whom we observed performing at the *Sensemaker* level commented on being unsure as to what was expected or what excellence looked like. At the *Manager* level, some trainees appeared to function too independently, believing that this was an expectation on which they would be assessed, a finding consistent with the work of Kennedy *et al.*¹³ on preserving professional credibility.

Although further research is needed, we would envision the development and validation of formative and summative assessment forms with explicit attention to assessing diligence and relationship to the team in trainees at each level of performance. These may even be created within a milestones and entrustable professional activities competency-based framework.^{28,29} We would also suggest that, given the level of specificity around actual practices observed, they would lend themselves well to the development of more narrative-based assessment, a form of assessment that is increasingly called for in medical education as a result of its ability to provide trainees and programmes with a greater degree of understanding around performance and ways by which it can be improved.^{30–32}

Trainee assessment around follow-up and documentation could potentially take place within the context of routine supervisory practices. Given the potential heavy assessment burden related to the introduction of competency-based medical education, this is essential.³³ At the minimum, we would recommend supplementing observations from admission case review with ongoing case review on a combination of patient types, including patients whom trainees admitted and followed, and patients whom trainees took over from a peer and covered for the day. Review of trainees' clinical notes would be essential, a practice that would entail change for some faculty attending physicians.³⁴ We would also recommend reviewing the trainee's use of informal notes for keeping track of his or her patients, and the trainee's 'to do' lists. In all of these tasks it would be important to assess the extent to which the trainee's activities support or fail to support PCR.¹ Ideally, this would also include opportunities for direct observation; however, we recognise that finding time for these opportunities may be more difficult.³⁵

Understanding a junior trainee's approach to follow-up and documentation can help to guide

supervisors in tailoring their feedback and in developing interventions if necessary. Such feedback and interventions should bear in mind that the approach used by a trainee is not defined according to his or her level of training alone. Rather, a trainee's approach is likely to arise as a result of a combination of trainee, supervisor and environmental factors. As Ginsburg *et al.*¹⁸ point out: '...some of the competencies (like systems-based practice) are so dependent on other individuals and external forces that it may not be possible to evaluate a resident separate[ly] from the system in which the resident is functioning.' Rapidly changing team membership,^{1,3,5} varying supervisor expectations,² and an emphasis on progressive independence may all play a role in shaping current practice.^{10,11,23}

We would also argue that the level of responsibility and independence entrusted to trainees should not be based solely on level of training. Level of training was only one factor that appeared to explain a trainee's approach. Additionally, trainees varied in their ability to align their ideals of practice with their actual actions, which again highlights the importance of observing trainees' actions as they engage in follow-up and documentation, as their goals of practice were not always achieved. Special attention should be paid to those with less diligence, as some of their behaviours and attitudes may represent potentially unprofessional practices. According to a study by Hemmer *et al.*, the inpatient setting may represent an important context for identifying and remediating trainees with professionalism issues.³⁶ Moreover, such remediation may be essential as failure to resolve the issue can lead to ongoing performance gaps throughout a student's or resident's training.³⁷ We would concur with Hemmer *et al.*³⁶ that these trainees should be identified and supported. Our description of least and most effective practices (Table 3) may be a good place to begin to clarify what is expected and how to perform it well. Additionally, barriers that prevent trainees from recognising the importance of the tasks of follow-up and documentation should be explored.

For those interested in taking up our findings, we would urge them to do so in the context of our methodology – constructivist grounded theory – and the location in which they were studied – a Canadian academic health sciences centre. We cannot comment on how other contexts, with different rules and regulations around medical student involvement, for example, might further modify our findings. Additionally, there appear to be

many contextual features of the situation that influence trainee actions; we sought to map the range of practice and not its frequency or flexibility within a particular individual. Through purposeful sampling, we were able to observe a wide range of practices, both positive and negative, despite this being a voluntary study that may have selected for a certain set of trainee traits. We attempted to mitigate for this by offering sufficient incentive for participation (Can\$50 gift card) and minimising insecurities by having field visits completed by a second-year medical student rather than a more authoritative figure.

Despite these limitations, our findings contribute meaningfully to the existing literature by providing new insights into the multiple characteristics, beyond medical knowledge, that influence how trainees perform patient care and communicate within a team. Future research should focus on the validation of our findings and should explore their utility in generating a novel strategy to assess, evaluate and provide feedback to junior trainees.

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