

‘Doing questioning’ in the Emergency Department (ED)

Eliciting information from patients is fundamental to medical professionals’ capacity to deliver good healthcare outcomes in Emergency Departments (EDs). There are different kinds of utterances that ‘do questioning’ (Ehrlich & Freed, 2009, p. 6), and health professionals can variously attend to the medical agenda and the interpersonal aspects of their interactions with those attending the ED in the way that they construct these utterances. We investigate a corpus of ED interactions to determine the prevalence and range of utterances produced by doctors and directed at patients that ‘do questioning’. We developed a questioning utterance typology, informed by previous research on the formulation of such utterances and extended according to observations of our data. We subsequently manually coded 4,355 questioning utterances and report the variety of forms that such utterances can take, considering how these are distributed across doctors at different levels of seniority. We found that doctors at different seniority levels favoured similar questioning utterance types and the most frequently used appeared to restrict the contributions of patients. We conclude that our extended typology of questioning utterances has value for understanding the ways in which doctors may encourage patients to provide more extensive responses.

Keywords: emergency department; questions; doctor-patient interaction; information gathering.

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Introduction

Health practitioners are tasked with gathering information to make reasoned healthcare decisions on the part of their patients. Across healthcare settings, doctor-patient interactions can be conceptualised as ‘information exchange’ (Cegala, 1997) with healthcare encounters characterised as “a genre of questions and answers” in which question-answer sequences represent “the preferred format for institutional and professional information and advice provision” (Sarangi, 2009, p. 235). Guidance on effective question design suggests that practitioners can formulate their questions in terms of being ‘open’ or ‘closed’, however this distinction is not straightforward. In this study, we investigate interactions that have taken place across five different Emergency Departments (EDs) in Australian hospitals to examine how doctors present questions to patients and how their design facilitates open information exchange.

The Emergency Department (ED) is a dynamic environment, “characterized by its fast pace, staff turnover and 24/7 nature” (Khan et al., 2017, p. 5), posing particular challenges for effective health communication (Eisenberg et al., 2005). One characteristic feature of the ED is the coming and going of staff members, which means that patients could be asked to give their history a number of times to different health practitioners (Kilner & Sheppard, 2010). As Slade et al. (2015, p. 35) explain, junior doctors will “take the patient’s history and explore their condition then formulate their test plans and an initial diagnosis”, before consulting with a senior doctor, who may then “conduct another consultation with the patient, either with or without the junior doctor, to confirm the junior doctor’s initial assessment”. Furthermore, since patients typically present to the ED without immediately accessible medical records or

established relationships with staff, “ED clinicians rely heavily on spoken communication with patients and their family members to assess each patient’s condition” (Pun et al., 2016, p. 3398). Gathering information about the injury/illness as well as wider details about the patient is key to providing effective healthcare. With respect to eliciting information in the ED context, the clinical role as well as the level of seniority of the healthcare practitioner is likely to have an influence on the types of questioning utterance they use (Slade et al., 2015). This might reflect the stage at which the practitioner appears along the patient journey through the ED, as well as different levels of experience, and adherence to a rote checklist (Slade et al., 2015, p. 95).

This study uses corpus-based discourse analysis (Baker, 2006) to investigate forms of questioning utterance in spoken interactions between health professionals and patients to consider how doctors manage the topic and focus of interactions in the ED, variously affording patients the opportunity to provide their perspective and guiding the addressee in how they respond. In particular, we seek to observe and report what different types of questioning utterance may be found and which are the most commonly used by doctors, taking into account different levels of seniority. The study has three key objectives: First, to provide a comprehensive account of the complex nature of information-gathering in a major medical context (the ED) thereby contributing to the understanding of this critical area of medical communication. Second, to do this, we draw on and extend the existing form and function-based classifications used in quantitative studies of questions in medical setting, offering this framework as a foundation for future research into questions in medical encounters. Finally, in terms of practical implications, the detailed account of questions in the ED setting can serve as a source of evidence and authentic examples for guidance on medical communication and can contribute to the development of clinical

communications training materials. We offer some critical reflections on how such a contribution can be achieved.

‘Doing questioning’

Patients and medical professionals alike draw on various linguistic and contextual cues to manage the exchange of information in interaction with a broad scope of the kinds of utterances that can invite other speakers to provide information. Indeed, it is not only ‘questions’, that is, utterances that are explicitly asking for information, that elicit the kinds of details that healthcare providers rely upon. Ehrlich and Freed (2009, p. 4) write that, “While the communicative function of questioning is typically associated with a particular syntactic form – the interrogative – it is a well-documented fact that there are other kinds of syntactic forms that routinely ‘do questioning’”. Van Thiel et al. (2000, p. 7) note that “most people only need a declarative sentence (‘It is a problem?’), a paraphrase (‘Uncomfortable?’), or a literal repetition (‘Bothersome’) as an invitation to tell more and a patient may perceive a question where one was not intended” (and *vice versa*). The interplay between form and function has been fundamental to how questioning utterances have been documented and analysed in linguistic research, with many typologies discerning question utterance types according to the type of response they (are designed to) elicit. Quirk et al. (1985), for instance, distinguish i) Questions requiring yes/no answers; ii) Wh-Questions which require an answer from a range of possible answers; and iii) Alternative questions which expect a reply from two or more options presented in the question. Typically, researchers have set out to attend to aspects of both form and function, recognising that the functions realized by questions are “inextricably connected to the questions’ form” (Ehrlich & Freed, 2009, pp. 8-9) and that the design of the questioning utterance can limit the ways in which interactants can appropriately respond.

In the wider research literature on medical communication, questions are typically described as either ‘open’ or ‘closed’ (e.g., Cegala, 1997; Silverman et al., 2013; Takemura et al., 2007), demonstrating that rather than a focus on form (yes/no questions, wh-questions etc.), there is an emphasis on the type of response they are expected to elicit. ‘Open-Ended’ or ‘exploratory’ questions (Ranjan et al., 2015) are characterised as allowing the patient to describe their illness and personal experiences using their own vocabulary and are indicative of a ‘patient-centred’ approach that is reported to be more effective at eliciting a greater amount of information from the patient (Takemura et al., 2007). In contrast, ‘closed’ questions are associated with the ‘doctor-centred’ approach: providing structure, managing the flow of information and attending to the medical agenda of the consultation (Hak & Campion, 1999). A combination of ‘open’ and ‘closed’ questions is advised to optimise information gathering. The Calgary-Cambridge guide (CCG), which provides instruction for communication in clinical contexts and which is widely used across Europe, the USA and Australia (Ammentorp et al., 2021) for example, advises practitioners to “[Use] open and closed questioning techniques, appropriately moving from open to closed” (Silverman et al., 2013, p. 22). Takemura et al. (2007) recommend the ‘open-to-closed cone’ – the “gradual narrowing of focus from an initial nondirective approach to a more direct exploration of a specific diagnostic hypothesis” (p. 122) – as an effective strategy for maximising the amount of information obtained in medical consultations.

In these discussions, the distinction between ‘open’ and ‘closed’ appears to rely predominantly on the type of response the question formulation encourages from the addressee. However, given the complexity of question forms and the range of responses that questioning utterances can elicit, the extent to which the dichotomy of ‘closed’ versus ‘open’ questions is tenable is itself questionable. Seuren and Huiskes (2017)

have shown that even utterances that, on the basis of their form, would only appear to warrant a yes/no response (and, as such, could be characterised as ‘closed’) can elicit various kinds of elaboration from the addressee and Oxburgh et al. (2010) point out that ‘wh’ questions (i.e., questions beginning with *who*, *what*, *when*, *where*, *why* or *how*) “can function as ‘open’ or ‘closed’ depending on how they are used” (p. 55).

Deppermann and Spraz-Fogasy’s (2011, p. 115) observations of history-taking in German doctor-patient interactions lead them to conclude that the contrast between open-ended and closed questions is “ideologically overrated” and does not take into account “the patients’ power to negotiate what was made relevant by a question and their capacity to resist narrow expectations”. Indeed, patients can highlight the insufficiency of the question formulation, problematising – for example – the restricted response options or presuppositions of a questioning utterance, as demonstrated by Erkelens et al. (2021). Ultimately, a ‘closed’ question does not necessarily entail a minimal response and using an ‘open’ question does not guarantee that the respondent will say more.

The reported studies show the complex nature of ‘doing questioning’ in medical contexts and the challenges of classifying different question forms in a manner that is both valid and meaningful from the perspective of medical communication. They highlight, in particular, the problems with operationalising questions as ‘open’ and ‘closed’ and with expectations regarding the patient response (e.g., brief/elaborate) that these question types are likely to elicit. This study, therefore, seeks to go beyond the form-based categorisation of questions to establish a comprehensive questioning utterance typology based on authentic interactions in Australian Emergency Departments, documenting and quantifying the different ways in which health professionals gather information. Our approach offers “a highly structured set of

resources for classifying and interpreting language features” (Taylor & Marchi, 2018, p. 2). This enables us to accurately describe, interpret and quantify the components of questioning utterances as used in practice. By investigating the ways in which the observed questioning utterance types offer degrees of ‘openness’, we set out to expand the discussion on how doctors might encourage patients to provide more information pertaining to their points of view.

Materials and Methods

The ED Corpus

The study follows the corpus-based approach to the analysis of language (Baker, 2006; Taylor & Marchi, 2018) to enable the automatic identification of linguistic patterns in an electronic database (a corpus) coded according to speaker, situational and linguistic properties. Our data consists of a corpus of 72 transcripts, providing over 650,000 words captured during interactions across five EDs in New South Wales and the Australian Capital Territory. The data were collected in 2007–2009 by the Communication in Emergency Departments project, led by Diana Slade, ANU Institute for Communication in Health Care, for a study combining two complementary modes of qualitative analysis: “discourse analysis of authentic interactions between clinicians and patients; and qualitative ethnographic analysis of the social, organisational, and interdisciplinary clinician practices of each department” (Slade et al., 2015, p. 11). Audio recordings were made *in situ* and individual consent to participate was obtained first verbally and then in writing.

These 72 transcripts represent 72 different patients, documenting their journey from the moment they enter the ED until a decision is made about their treatment or they are discharged. In their ethnographic study of the ED data, Slade et al. (2015)

discuss different stages of the patient journey in terms of triage, nursing admission and medical consultation, which includes diagnosis, treatment and disposition. Slade et al. (2015, p. 36) estimate that, given the complex networks of care in the ED, between 8–15 staff members can be involved in the care of an individual patient and so each transcript reflects the multiple interactions that one patient had with various members of the ED over a number of hours. Patients with immediate or imminent life-threatening conditions (triage categories 1 and 2 on the Australasian Triage Scale) were not approached for inclusion. Those that were included presented with a range of ‘urgent’ (triage level 3), ‘semi-urgent’ (4) and ‘non-urgent’ (5) concerns including broken toes, rectal bleeding, dizziness, fractures and insect bites were included in the study. The average duration of the patient journey was 262 minutes (SD=195.66). Patient characteristics pertaining to gender, age, and language background (English speaking background, Non-English speaking background) were recorded; Table 1 represents the participants in the roles of Patients, Doctors, and Nursing staff according to these characteristics.

	Patients	Doctors	Nursing staff
Participants <i>n</i>	72	114	229
Gender (female male unrecorded)	41 31 0	48 59 7	162 29 38
Age <i>n</i> (%)			
18-29	10 (13.9)	10 (8.9)	55 (24.0)
30s	8 (11.1)	33 (28.9)	30 (13.1)
40s	18 (25.0)	29 (25.9)	30 (13.1)

50s	8 (11.1)	1 (0.9)	9 (3.9)
60s	10 (13.9)	0 (0.0)	1 (0.4)
70s	9 (12.5)	0 (0.0)	0 (0.0)
80+	8 (11.1)	0 (0.0)	0 (0.0)
Unknown	1 (1.4)	41 (36.0)	104 (45.4)
Language (ESB NESB unrecorded)	62 8 2	9 20 85	40 2 187

Table 1. Participant characteristics.

Identifying and coding questioning utterances

Following the aim of the study to offer a comprehensive descriptive account of the range of questioning utterances in the ED context, an inclusive approach to the coding of the data was adopted that went beyond recording conventionalised forms of questions. Working with the transcribed data, all utterances in the dataset that were marked with a question mark, and thus perceived as performing some form of ‘questioning’ (by the transcriber), were included in the analysis. While, at the point of analysis, it was not possible to discuss specific transcribing decisions with the transcriber, it is clear from the data that question marks were systematically used to identify both utterances that have a conventional interrogative component (example 1) as well as declarative statements (example 2) and shorter fragments that were perceived (by the transcriber and/or by the recipient in the interaction) to function as questioning (example 3):

(1) Have you had an ultrasound?

(2) You’re thirsty?

(3) No?

This inclusive approach to marking questioning utterances allowed us to investigate the range of formulations that can act as ‘doing questioning’, to test the coverage of established question categories and to explore the questioning utterance design as facilitating varying degrees of ‘open’ and ‘closed’ response.

The operationalisation of the transcript data as a corpus (for details, see Collins & Hardie, 2022) enabled us to identify the frequency of question marks and their distribution according to participant roles (Patients, Doctors, etc.). To investigate the effect of seniority on the use of different types of questions, the 114 doctors in the data were classified into the following categories:

- Junior doctors: medical students, residents, interns etc. 35 participants.
- Mid-Level doctors: registrars, medical officers etc. 29 participants.
- Senior doctors: consultants, staff specialists etc. 14 participants.
- Unidentified: insufficient information to determine seniority. 36 participants.

We developed a coding scheme based on existing models (Stivers & Enfield, 2010; Van Thiel et al., 2000) and initial observations of the data, which resulted in six different categories of question forms. The first three categories consist of the three most well-documented and commonly reported questioning utterance types in English language research: A) content questions (alternatively labelled ‘Q-Questions’, ‘wh-questions’ or ‘constituent interrogatives’); B) alternative questions; and C) polar questions (Biber et al., 1999; Quirk et al., 1985; Stivers, 2010). Each of these could be characterised as ‘closed’ in the way that they limit the response options for the addressee; however, drawing on principles of interactional linguistics, we can identify elements that can be introduced to make them more ‘open’. Furthermore, since these have been defined according to formal features, we can refer to linguistic components to distinguish

between ‘conventional’ realisations and ‘less/non-conventional’ versions.

A) Content questions are characterised by the use of an interrogative lexical item, *who, what, where, when, why* or *how* and the conventional form uses one of these *wh-* words followed by an auxiliary verb (i.e., forms of *be, do, have*), the subject, and a main verb, as in the following example:

(4) Where do you live?

Less conventional forms disrupt this sequence, for instance placing the interrogative word at the end:

(5) You’ve been having these problems since when?

B) Alternative questions are characterised by interrogative morpho-syntax and disjunction, serving to “offer an unbiased choice between alternatives” (Biezma & Rawlins, 2012, p. 362) and presenting the addressee with two (or more) discrete options that are equally plausible, e.g.,

(6) Were you still hot or had you cooled down?

Less conventional forms could omit the interrogative element, e.g.,

(7) Twice a day or once a day?

C) A polar question is “any question that makes relevant affirmation/confirmation or disconfirmation” (Stivers & Enfield, 2010, p. 2621), typically characterised as warranting a yes/no response. This includes tag questions (see example 8), Yes-No Interrogatives (example 9), and Yes-No Declaratives (example 10).

(8) That’s hurting your head, is it?

(9) Did you have an operation?

(10) You’re happy to take the antibiotics by mouth?

The conventional tag question comprises an ‘anchor’ (generally, a declarative statement) plus a tag element, which typically consists of an auxiliary verb followed by

a pronoun (typically corresponding with the subject of the anchor; McGregor, 1997). Less conventional tag questions would disrupt the correspondence between the anchor and the tag element, examples of which are discussed in our results. In conventional Yes-No Interrogatives, a copula/auxiliary verb appears before the subject i.e. *Do you..? Is she..? Has he..?* (Quirk et al., 1985). The less conventional form would likely manifest from some element of the clause being omitted as the result of structural ellipsis, which is not exclusive to this type of utterance – it is prevalent across spoken interaction and performs significant interactional functions (White, 2013). For example, we can understand the questioning utterance *Any allergies?* to be a contracted form of (e.g.) ‘Do you have any allergies?’, and the elements that appear to have been omitted are what would index this as a polar question. Finally, Yes-No Declaratives appear as statements, without the features associated with interrogative forms, such as lexis (*What*), or syntax (they state *She is..*, rather than ask *Is she..?*). This further demonstrates the difficulty with separating form and function, since Yes-No Declaratives are to a large extent signalled by the (yes/no) response they prompt. This also highlights the potential ambiguity of questioning utterances in that speaker response can indicate whether an utterance has been perceived as a question rather than a statement (for example, through paralinguistic aspects like intonation).

In addition to the main question types characterised by the conventional form and function, we identified the following three categories of questioning utterances: D) non-interrogative questions; E) response tokens; and F) sub-clausal phrasal questions.

D) Non-Interrogative questioning utterances would not normally be categorised as ‘questioning’ based on their morpho-syntactical features, in that they do not feature an interrogative element, nor do they constitute Yes-No declarative statements. Since their status as ‘questioning utterances’ is not explicitly marked in their form, it is

usually some paralinguistic feature(s) that can prompt the addressee to recognise such utterances as ‘questioning’, as documented by their response. These utterances can in some cases also serve to mark stance, such as expressing uncertainty, which nonetheless creates the interactional space for a response such as confirmation:

(11) They’ll probably do it in here?

E) Response tokens are verbal components of non-floor-holding listener response activities, which also capture non-verbal signals indicating listenership (O’Keefe & Adolphs, 2008). The potential to ‘do questioning’ extends across these forms. Since they are ‘non-floor-holding’, i.e., they indicate to the addressee that the speaker is not intending to assume a full speaking turn, arguably they meet the requirement of ‘eliciting a response’ that we have established is associated with questioning utterances, though this would typically constitute a continuation for someone who has already been speaking. The following types of response tokens are traditionally recognised in Conversation Analysis approaches (see for example, Drew, 1997; Jefferson, 1981):

- Continuer: tokens that encourage the speaker to continue and which can explicitly signal listenership, e.g., *Mm-Hm?*, *Yeah?*.
- Newsmark: tokens that operate as ‘news receipt’, demonstrating to the addressee the ‘newness’ of their contribution, e.g., *Really?*, *Oh is it?*.
- Repair Initiator: requests that the addressee repeat (or elaborate on) something they previously said, e.g., *Sorry?*, *What?*, *Huh?*.
- Repeat: response tokens that repeat the words of the prior utterance and serve to check successful information receipt as well as potentially invite the addressee to elaborate on their choice of words. Distinct from ‘continuers’, the form of these

questioning utterances is determined by the participant to whom the conversational turn is returned.

F) Finally, Sub-Clausal phrasal questions (Kärkkäinen & Thompson, 2018) are questions that can be considered ‘incomplete’ in terms of constituting a recognisable question type but do not constitute full clauses, e.g.:

(12) A bit sore?

(13) Heart disease?

(14) And since then?

In addition to the six main categories, the instances where the transcriber was not able to determine what was actually said but was able to discern a questioning turn were labelled ‘Undetermined’. The seven questioning utterance types coded in the data are summarised in Table 2.

Main question types	Sub-Categories of questions
A. Content questions	
B. Polar questions	A1: Tag questions; A2: Yes-No Interrogatives; A3: Yes-No Declaratives
C. Alternative questions	
D. Non-Interrogatives	
E. Response tokens	E1: Continuers; E2: Newsmarks; E3: Repair initiators; E4: Repeats
F. Sub-Clausal phrasal questions	
G. Undetermined	

Table 2. Typology of questioning utterances.

The coding scheme described above constituted the manual by which two independent raters each coded a random sample of 500 (11.5%) questioning utterances. Since we were able to identify specific components of the questioning utterance types, the coding is low-inference and inter-coder agreement results show that classification of the questioning utterance types and sub-types produced Krippendorff's α above 0.94 (89.8% raw agreement). The raters also coded Content questions, Alternative questions, and Polar questions as 'conventional'/'non-conventional', with Krippendorff's α above 0.93 for agreement. One of the coders then proceeded to code the remaining utterances, covering the full dataset.

We report the number of occurrences of each type of questioning utterance, according to each seniority level, to illustrate their general use and distribution across the corpus. Furthermore, we standardised the raw frequencies to number of questioning utterances per 100 words, to account for differences in how much talk was recorded for participants in each category. However, given the complexity of the interactions, we cannot treat the seniority level as a factor that is independent of the context. In any given interaction, there may be multiple doctors present and the doctor participants in our data were present across multiple patient cases. Our reported figures, therefore, are provided to facilitate our contextualised observations of how doctors of different seniority levels showed preferences for particular kinds of formulation, even if there were other health professionals – including other doctors – present. We then refer to specific examples to discuss the interactional contexts that can account for the use of particular questioning utterance types.

Results

We identified 15,937 questioning utterances in the data across various types of interactions, i.e., between doctors and patients, between patients and family members, between nurses and administrators, etc. As the primary focus of this study is on the doctor-patient interaction, only the questioning utterances by doctors with an identified level of seniority directed towards either a patient and/or the relative/friend that escorted them to the ED were analysed further. This generated 4,355 instances, distributed across the different seniority levels as shown in Table 3.

Doctor seniority	No. of QU	QU per 100 words	Mean/100 words	Range/100 words	SD/100 words
Junior	2446	3.50	3.74	1.57–7.47	1.79
Mid-Level	1629	3.79	3.90	0.00–6.91	1.69
Senior	280	2.57	2.02	0.00–4.64	1.83
Total	4355	3.52	3.49	0.00–7.47	1.87

Table 3. Number of questioning utterances according to seniority level.

The values for range show that some of the Mid-Level and Senior level doctors recorded in the data were documented as using zero questioning utterances. Indeed, five out of fourteen Senior doctors generated zero questioning utterances towards patients (compared with one case among the Mid-Level doctors and none of the Junior doctors). Based on the transcripts, the Senior doctors with these zero counts did not appear to have any direct interaction with patients, so we must consider whether a Senior doctor is more likely than their Mid-Level and Junior colleagues to be present in the ED without directly interacting with (i.e., eliciting information from) patients. Slade et al. (2015, p. 34) explain that a central part of the work of senior clinicians is supervising junior

colleagues and that there are proportionately fewer senior staff in relation to the staff they supervise. For example, one senior doctor is quoted as saying that over the course of a shift, they saw eight of their own assigned patients, reviewed twenty patients assigned to junior doctors, and discussed another 15 or 20 (Slade et al., 2015, p. 35). The cases that featured Senior doctors eliciting information directly from the patient were triaged as either ‘urgent’ (level 3) or ‘semi-urgent’ (level 4) and also featured a high number of questioning utterances from a Junior and/or Mid-Level doctor (minimum: 62 occurrences, maximum: 145 occurrences) occurring earlier in the transcript. This demonstrates that there are fewer opportunities for Senior doctors to directly elicit information from patients, and that it may even be a Junior doctor who asks the questions when a Senior doctor is present to hear the responses.

The results of our coding showed that Junior, Mid-Level and Senior doctors used the different question types in very similar proportions (see Table 4). For all three categories of doctors, Polar questions were the dominant category, with over 60 percent of questioning utterances were coded as Polar and, within that category, over half were Yes-No Interrogatives (YNI). Fewer than one in five questioning utterances were Content questions and only around 3% were alternative questions.

QUESTION TYPES	SENIORITY LEVEL							
	All levels		Junior		Mid		Senior	
	Freq.	Perc.	Freq.	Perc.	Freq.	Perc.	Freq.	Perc.
Content	797	18.30	442	18.07	316	19.40	39	13.93
Polar	2723	62.53	1519	62.10	990	60.77	214	76.43
<i>Tag</i>	436	16.01	250	16.46	146	14.75	40	18.69
<i>Yes-No Declarative</i>	788	28.94	403	26.53	328	33.13	57	26.64
<i>Yes-No Interrogative</i>	1499	55.05	866	57.01	516	52.12	117	54.67

Alternative	118	2.71	59	2.41	51	3.13	8	2.86
Non-Interrogative	63	1.45	10	0.41	26	1.60	2	0.71
Response token	242	5.56	156	6.38	79	4.85	7	2.50
Sub-Clausal	384	8.82	225	9.20	149	9.15	10	3.57
Undetermined	28	0.64	10	0.41	18	1.10	0	0.00
<u>Total</u>	4355		2446		1629		280	

Table 4. Number and proportion of questioning utterances by category and seniority

The prominence of Polar questions demonstrates the extent to which doctors would appear to potentially restrict the contributions of patients, by formulating their questioning utterances as propositions to be confirmed or denied. In particular, doctors frequently appear to offer only yes/no options. These restricted response options reflect a practice of information verification, which is also indicated in the relatively high proportion of Sub-Clausal phrasal questioning utterances and Response tokens. The Sub-Clausal phrasal question category reflects a practice of picking out singular elements that are of significance to the medical agenda of the consultation, e.g., relevant treatments (*ibuprofen?*), particular circumstances (*when you pass urine?*), and the traits and locality of symptoms (*Brown? In your leg?*). We found that in this data, sub-clausal phrasal questions could be categorised according to grammatical function i.e., adjectival (*Soft? A bit sore?*), adverbial (*Every night? In your tummy?*), nominal (*Blood pressure? Your mother?*), prepositional (*Because of this? With me?*), and verb-related (*Playing football?*). This offers a way of categorising this questioning utterance type according to clearly delineated aspects of form. The production of sub-clausal phrasal questions is arguably the result of a more general use of ellipses (*High blood pressure, diabetes?*) and sub-clausal phrasal questions were coded as distinct from other utterances that may be subject to ellipses, but which could still be identified as conforming to a question

category type. For example, *Any questions?* was coded as a Yes-No interrogative polar question, since the negative polarity item ‘any’ is recognised as a common feature of questioning utterances (Heritage & Raymond, 2021), while *Questions?* was coded as a sub-clausal phrasal question (nominal). This kind of ellipsis was particularly common in the routine questioning aspect of history-taking – presumably to avoid too much repetition (‘Do you have any history of...’) – which could account for the low occurrence among Senior doctors, who are rarely involved with this type of history-taking.

The Response token category reflects the extent to which interaction in the ED context focuses on reiterating information that has already been introduced (i.e., confirmation or verification). Table 5 shows that, within this category, questioning utterances tend to mainly be repetitions (Repeats, Repair Initiators) of what the previous speaker had said and, again, that this appears particularly prevalent among Junior and Mid-Level doctors, who are generally responsible for history-taking.

RESPONSE TOKEN	SENIORITY LEVEL							
	All levels		Junior		Mid		Senior	
	Freq.	Perc.	Freq.	Perc.	Freq.	Perc.	Freq.	Perc.
Repeat	118	48.76	70	44.87	46	58.23	2	28.57
Newsmark	50	20.66	27	17.31	20	25.32	3	42.86
Repair initiator	32	13.22	27	17.31	5	6.33	0	0.00
Continuer	42	17.36	32	14.10	8	10.12	2	28.57
<u>Total</u>	242		156		79		7	

Table 5. Number and proportion of questioning utterances within the Response token category, by seniority

Repetitions are also a way in which practitioners can validate the patient’s contributions, acknowledging that they have been heard. These response tokens can prompt elucidation, as well as verification. Similarly, Continuers and Newsmarks are likely to facilitate more ‘open’ responses from patients, as they encourage them to elaborate and mark the ‘tellability’ of their contribution (*Oh really?*). These features point to more subtle ways that doctors elicit the patient perspective. Furthermore, such features would not be captured in existing question typologies driven by previously-documented question forms, demonstrating that our exploratory approach has enabled further identification and description of the range of utterances that do questioning.

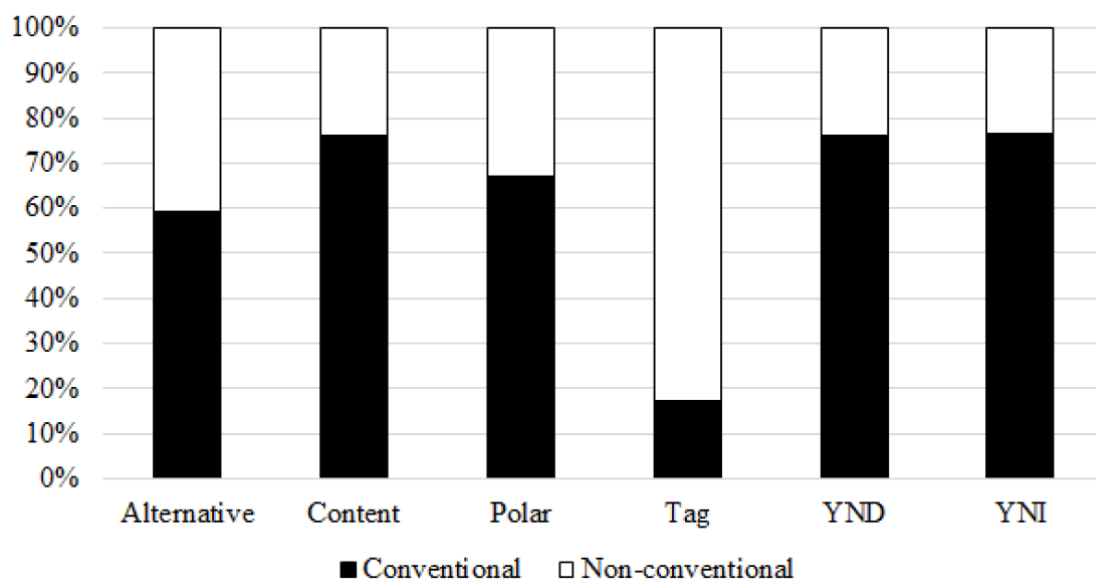


Figure 1. Proportion of ‘conventional’ and ‘non-conventional’ questioning utterance forms, by type.

To gain further insight into the types of questioning utterances used by doctors in the ED context, we coded all Content questions, Alternative questions, and Polar questions with respect to ‘conventionality’ of form. Results showed that doctors tended to use the conventional form (see Figure 1). The key exception was Tag questions, which in over 70 percent of instances took the ‘non-conventional’ form. Questioning

utterances were coded as ‘non-conventional’ tag questions if they did not follow the form of an anchor plus tag element. This applied to the tags *okay?* and *alright?* when there was some separation of the tag from an ‘anchor’, which might be a full stop (example 15) or an interceding turn (example 16).

(15) D: We’ll let him know that you’re in hospital and his team will
contact you. Okay?¹

(16) D: So, it will really be guided by them.

Relative: Sure.

D: Okay?

Instances such as those in example 16 are particularly distinct from the ‘conventional’ tag question, in that the addressee has already acknowledged and responded to what would be the ‘anchor’ statement. This raises the question of whether such questioning utterances are strictly tied to the preceding statement or represent an inquiry more applicable to the broader interaction. These questioning utterances tend to appear after longer conversational turns by the doctor, explaining some procedure or the provisional next steps. They also seem to be a common part of the ‘closing stages’ of the interaction, akin to the ‘Final check’ of the consultation described, for example, the Calgary-Cambridge guide, where practitioners are explicitly advised to ask about any corrections, questions, or other issues, in addition to checking patient understanding throughout (Silverman et al., 2013, p. 25). This type of ‘progression check question tag’ has also been documented in other contexts, such as academic lectures, where it was argued that this type of question does not necessarily warrant a verbal response

¹ We understand the use of a full stop to be different to the use of a comma, indicating a more discernible pause between the statement as ‘anchor’, since this would also be discernible to the patient and, potentially, an opportunity to respond (however brief).

(Othman, 2010). However, while the lack of a response might be taken as the absence of a need for clarification, it does not necessarily indicate understanding and may actually obscure moments when patients are reticent to express concerns.

Ultimately, while these forms of *alright?* or *okay?* can still be viewed as ‘tags’, it is worth distinguishing them from more ‘conventional’ tag questions. In our data, they accounted for 253 (70.3%) of non-conventional tag questions. Since they open up the interactional space to patients, they elicit various kinds of responses (including no response), which would also complicate their identification in investigations of ‘conventional’ question forms. However, tag questions can be particularly ‘conductive’ (Kimps, 2007), and this could potentially inhibit important opportunities to check understanding about the treatment plan, including what happens next.

Discussion

In investigating the patterns of questioning utterance types across a corpus of ED interactions, this study sought to address what Ainsworth-Vaughn (2005, p. 461) identified as “two fundamental problems” in the current research on questions in medical context: i) the difficulty of defining a speech activity such as ‘doing questioning’, and ii) the difficulty of generalizing on the basis of what is fundamentally a situated talk, depending on a number of contextual variables.

In response to the tendency to classify questioning utterances in medical contexts as either ‘open’ or ‘closed’ (e.g., Cegala, 1997; Takemura et al., 2007), we have set out to elaborate on that classification and have applied a typology that is informed by linguistic approaches to categorising questioning utterances according to formal features (Stivers & Enfield, 2010). The results of this study brought further evidence that problematise the validity and usefulness of this common distinction

(building on, for example, Deppermann & Soraz-Fogasy, 2011; Seuren & Husikes, 2017), demonstrating that a significant proportion of questioning utterances do not fit with the more widely recognised question types of Content, Alternative, and Polar. Furthermore, providing further insight into question forms, we have shown that, often, questioning utterances within these categories take a ‘non-conventional’ form. Adopting an inclusive approach to the analysis of the data allowed us to include a broader spectrum of forms that can act as questions in our analysis and provide a more comprehensive account of what language forms can serve as questions in medical interactions. This in turn has allowed us to begin to document the non-conventional forms of recognised questioning utterance types, as well as those types that are less well-documented, i.e., non-interrogatives, response tokens, and sub-clausal phrasal questions.

Descriptive statistics indicate that the distribution of questioning utterance types was relatively consistent across seniority levels. However, the complexity of the data – in terms of the potentially overlapping presence of doctors in any given interaction and their attendance to multiple patients – precluded us from making inferences based on measures of statistical significance, both of the proportion of questioning utterances according to type and the overall number of questioning utterances in the data. Thus, while the data (see Table 3) suggest that Junior doctors ask more questions than Senior doctors, further work is required to determine if the patterns we have observed here are generalisable across different healthcare interactions. Future research might also consider practitioner and patient in terms of their social characteristics, to enrich our understanding of how questioning utterance design might be related to the speakers’ age, gender, language background, etc.

The high frequency of questioning utterances in our data supports the view that they play a critical role in information gathering during medical encounters, directly affecting the quality of care. Their central role is also acknowledged in the guidance on and training of medical communications skills. Roter and Larson (2002, p. 248) stress that the ability to structure data gathering, “particularly the use of open to close-ended question cones, is identified as a key data gathering skill that is often the target of interview training curricula”. For instance, the Calgary-Cambridge guide (CCG) to the medical interview (Silverman et al., 2013) was developed on the basis that communication skills training can improve clinical practice and, consequently, health outcomes for patients. It is used extensively across communication skills programmes in the UK, USA, Canada and Europe and has been widely translated (Burt et al. 2014). Questions feature across the various tasks outlined in the CCG framework, including gathering information, explanation and planning, and closing the session. It is also likely that tasks such as “screen[ing] for further problems”, “check[ing] for understanding”, “elicit[ing] patient’s beliefs, reactions and feelings” (Silverman et al., 2013, p. 22) – all of which are forms of eliciting information – involve questioning utterances. Our observations, which are based on real-life ED interactions and provide a rich description of the different strategies for questioning utterance design, could therefore be used in pursuit of increasing authenticity in communications training materials for practitioners, as has been demonstrated by, for example, the Conversation Analytical Role-Play Method (CARM; Pilnick et al., 2018). This would also enable trainee practitioners to assume the role of the patient and critically reflect on the tenability of the ‘open’/‘closed’ question dichotomy, based on whether they feel restricted in their response to particular questioning utterance types.

Our study has some limitations related to i) the nature of the data and ii) the scope of the analysis. First, the data analysed in the study was recorded in 2007-2009 and may not reflect current ED practices. Nevertheless, authentic data collected in the ED context is scarce and this dataset represents “one of the largest corpora internationally of actual patient-clinician communication in hospital contexts” (Slade et al., 2015, p. 12). Furthermore, the study relied on the transcribed form of audio data without direct access to paralinguistic features such as intonation, gesture, facial expressions, etc., which are likely to have contributed to the meaning of the questioning utterance in context.

The stage of the patient journey was related to the type of information-gathering as well as the seniority of the doctors involved; this in turn was likely to further affect the types of questions asked and their distribution among different staff members. Including the information about these stages (e.g., by coding them within each text and including them as a variable) in the analysis could offer further useful insights into the complex dynamics of ‘doing questioning’ in the ED context. Finally, another logical extension of the current study would be to investigate the responses to the various questioning utterances, since although polar questions are the most prevalent in the data, patients would not appear to be responding with only yes/no responses. Such an investigation would contribute to a more holistic understanding of the open or close-ended questions in medical setting and would serve as further empirical groups for evaluating the usefulness of this distinction in medical communication. Nevertheless, our current work can itself add to the evidence base that informs clinical communications guidance, providing a robust descriptive account of the ‘reality’ of interactions in the ED.

Conclusions

We found that questioning utterances were frequent in the contributions of doctors at each level of seniority, with only minor differences in the use of particular

forms and features that we can associate with the history-taking aspects of the consultation. Our findings point to the overwhelming preference to use polar question forms (at all seniority levels), which would provisionally indicate a frequent use of what would be considered ‘closed’ questions. Furthermore, the results have indicated that a preoccupation with key details accounts for a high proportion of sub-clausal phrasal questions, which further narrows the focus of the interaction and, thereby, the opportunities for more expansive responses. However, we have also shown that ‘opening’ up the dialogues – and the opportunities for (longer) contributions from the patient – can be as simple as repeating their words back to them, or ‘newsmarking’ their response as ‘tellable’. Overall, this study used a corpus-based approach to provide a comprehensive account of different ways in which ‘questioning’ takes place in authentic ED interactions, contributing to the understanding of this complex environment. In doing this, the study also provided a robust and detailed typology for investigating questions in medical encounters that involve information-gathering. The linguistic findings generated from this type of approach can offer an evidence-base for understanding and improving medical communication.

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