Development and face validation of an instrument to assess and improve clinical consultation skills

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Abstract

Context: Development of medical students' consultation skills with patients is at the core of UK General Medical Council's (GMC) Tomorrow's Doctors guide (2009). Teaching and assessment of these skills must therefore be a core component of the medical undergraduate curriculum. The Calgary Cambridge guide to the medical interview and the Leicester Assessment Package (LAP) provide a foundation for teaching and assessment, but both have different strengths.

Objective: To develop and validate a comprehensive set of generic consultation competencies.

Design: The Calgary Cambridge guide to the medical interview was revised to include 'clinical reasoning', 'management', 'record keeping' and 'case presentation'. Each section was populated with competencies generated from Tomorrow's Doctors (2009), the LAP and the Calgary Cambridge guide to the medical interview. A Delphi validation study was conducted with a panel drawn from hospital and general practice clinical tutors from eight UK medical schools.

Main outcome measures: A priori consensus standards for inclusion (or exclusion) of an element were: at Stage 1 ≥70% agreement (or disagreement) that the item should be included; at Stage 2 ≥50% agreement (or disagreement) that the item should be included. If more than 10% of respondents suggested a thematically similar new item (or rewording of an existing item) in Stage 1, it was included in Stage 2.

Results: The design stage resulted in a set of 9 categories of consultation skills with 58 component competencies. In the Delphi study all the competencies reached 70% agreement for inclusion, with 24 suggested amendments, all of which achieved consensus for inclusion at Stage 2.

Conclusion: We have developed a **ge**neric **co**nsultation **s**kills assessment framework (GeCoS) through a rigorous initial development and piloting process and a multi-institutional and multi-speciality Delphi process. GeCoS is now ready for use as a tool for teaching, formative and summative assessment in any simulated or workplace environment in the hospital or community clinical setting.

Introduction

The UK General Medical Council's (GMC) Tomorrow's Doctors guide (2009) has laid new emphasis on the importance of the 'Doctor as a practitioner' and, in paragraphs 13 to 15, describes the skills the medical graduate needs to acquire to consult with patients [1]. These are a complex amalgam of cognitive, psychomotor, communication and interpersonal skills which, like any other set of high level skills, need sustained repeated deliberate practice [2, 3], with support from tutors through formative assessment. Such formative assessment should be congruent with both the curriculum and with summative assessment.

The Calgary Cambridge guide to the medical interview is used by many medical schools worldwide as the basis of their communication skills curricula [4, 5]. However, it does not address the additional cognitive skills required for making a diagnosis or identifying appropriate management options and, although some congruent assessment schedules have been developed, they are context specific and have not been widely evaluated [4]. Conversely the Leicester Assessment Package (LAP) [6, 7] was developed and used to support both formative and summative assessment of undergraduates [8, 9] trainees [10, 11] and established practitioners [12, 13, 14] in the UK and internationally, and has been utilised to promote congruence between assessment and the curriculum [8]. Furthermore, it contains a series of generic strategies for improvement of skills mapped onto each of its competencies which can be used by tutors as the basis for preparing feedback [15], thus addressing the problem of specificity of the content of feedback [15, 16]. It does not, however, map onto a particular model of the consultation and, as the published version is almost 20 years old, it may be dated.

We consider that the Calgary Cambridge guide to the medical interview and the LAP each have strengths which compliment the other's weaknesses, and that they could be usefully combined. We now describe a modification of the Calgary Cambridge guide to the medical interview and the development and face validation of a **ge**neric **co**nsultation **s**kills assessment tool (GeCoS) which would be evaluated for use in formative and summative assessment in both workplace and simulated environments, such as the 'clinical skills laboratory' and in OSCEs.

Methods

<u>Development</u>

Modified Calgary Cambridge framework for the consultation: Keele University School of Medicine has adopted an integrated model for consultation skills [16] (Figure 1) which brings together communication, physical examination, patient management, clinical problem solving, information management and procedural skills. With advice from Dr Jonathan Silverman (Cambridge University, UK) we adapted the Calgary Cambridge guide to the medical interview to the needs of our curriculum by adding a clinical reasoning stream (in the background throughout the consultation), recording the consultation and presenting the patient to colleagues. The visual representation of clinical reasoning emphasises its contribution to gathering information, performing the physical examination, choosing investigations, formulating a diagnosis, negotiating a management plan, making a clinical record and presenting the case. The framework also draws attention to the processes and content of each stage of the consultation. The final version of the framework can be seen in Appendix 1.

Figure 1: An integrated model for consultation skills [16]; At Keele University School of Medicine the skills used in encounters with patients are taught and assessed as an integrated skill set. For example, communication, physical examination and problem solving skills are taught and can be assessed together with clinical procedural skills
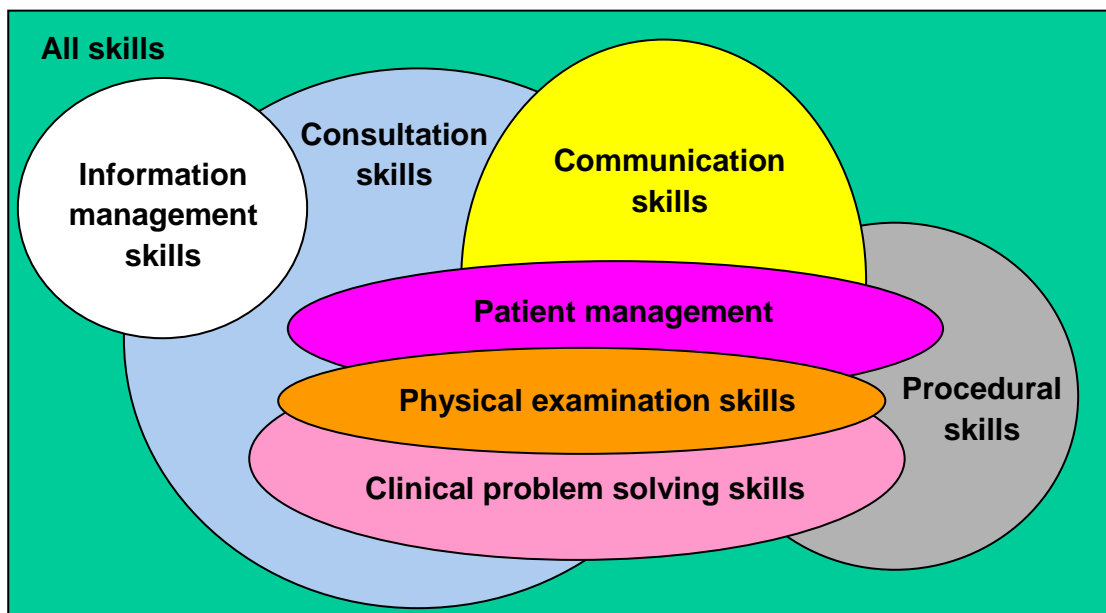
Generic consultation skills instrument (GeCoS): The development of GeCoS was undertaken by the authors (four general practitioners and one paediatrician) with advice from Dr Jonathan Silverman (Cambridge University, UK). We systematically identified similarities and differences between the 42 competencies in LAP [7], the 71 in the Calgary Cambridge guide to the medical interview and the GMC's Tomorrow's Doctors guide (2009) [1]. Component competencies identified from each were allocated to the categories in the revised framework, condensing them when possible to keep the list concise. The terminology of LAP was updated to match that in the Calgary Cambridge guide to the medical interview where this was felt helpful. The conventional term "Management" was chosen for the Calgary Cambridge stage "Explanation and Planning" as we felt it included aspects of selection of therapy. This was an iterative process involving each of the authors initially reviewing and condensing the list of skills, discussing their changes and reaching consensus with the rest of the team and then piloting of successive versions of the instrument in formative assessment of students in the skills lab with simulators, and in the workplace with real patients. This resulted in an instrument with 9 categories of consultation skills and 58 component competencies (Table 1).

Validation study

Questionnaires: A two round modified Delphi process was used to establish the face validity of GeCoS. The first round Delphi questionnaire was based on that used for the original face validation of the LAP [7] and of other skills assessment tools [17, 18, 19], but we modified the response scale to that of McIlwaine et al [20] ("very relevant and succinct", "relevant but needs minor alteration", "unable to assess relevance without item revision or item in need of such revision that it would no longer be relevant" and "not relevant").

The questionnaire offered participants the opportunity to express an opinion on the relevance of all nine categories and 58 component competencies, to suggest rewording of any element, to add categories and competencies, to move competencies between categories and to reorder categories. The questionnaire was loaded on a commercial questionnaire administration website [21], piloted amongst clinical staff at Keele University and modified where necessary. The questionnaire contained 79 questions and in piloting took participants between 20 and 45 minutes to complete.

The second round questionnaire accompanied the results of the first round questionnaire, which are outlined below. Elements which entered the second round were proposed rewordings of original elements or new elements. Respondents were asked to choose between inclusion or exclusion of new elements, or between the old and new wording of reworded elements using the same response format as in stage 1. This 27 item questionnaire was piloted amongst clinical staff at Keele University and modified as necessary.

Definition of consensus: We used the same *a priori* consensus standards as previous Delphi studies [17, 18, 19]: 70% or greater agreement (the "very relevant and succinct" or "relevant but needs minor alteration" responses) or disagreement (the "unable to assess relevance without item revision or item in need of such

revision that it would no longer be relevant" and "not relevant" responses) for inclusion or exclusion respectively in the first round, and 50% or greater agreement for inclusion or exclusion respectively in the second round. If 10% or more of respondents suggested a thematically similar additional element or rewording of an existing category or component in the first round, it would be included in the second round.

Participants: The panel was drawn from hospital and general practice clinical tutors who are assessors of medical students, in order to include experts in a broad range of consultation types. To obtain a multi-institutional view of what should be assessed, clinical skills tutors from other undergraduate Medical Schools were invited to participate via a key contact at each school. We aimed to recruit from schools which used the Calgary Cambridge guide to the medical interview, the Leicester Assessment Package and schools which had no affiliation to either instrument.

Recruitment of panel members was by email invitation. The invitations, study participant information leaflets and consent forms were sent:
1. To selected expert clinical tutors at Keele University considered representative of the speciality groups. Recruitment continued until 50 had agreed to participate (25 from hospital specialities, 25 from general practice)
2. Via a contact person at each of the other Medical Schools asking them to recruit up to 10 clinical skills tutors with affiliation to the university, who were considered to be experts in the field, and would be willing to participate.

Potential participants were asked to contact one of the authors (JL), following which a web link to the questionnaire would be sent to them. All potential participants were sent three reminders, the final reminder being from their institutional contact person. Responses were anonymous unless the participant expressed a desire to receive the results, in which case they included their email address and were also sent the link to the second round questionnaire with a request to continue to participate and, subsequently three follow-up reminders if necessary.

Data processing: All categorical data and the free text responses from each question were downloaded from the website. Categorical data was imported into SPSS for analysis; free text responses were sorted by question and printed for analysis.

Analysis: Response to the Agreement / Disagreement scale was analysed using simple descriptive statistics. Free text responses (suggested modifications to existing elements or additional elements) were closely thematically analysed by pairs of the research team. Subsequently the research team met to discuss each pair's analyses and to agree a consensus between the pair, and the rest of the team, on the themes identified by respondents. The number of respondents who suggested each theme was noted.

Results

Stage 1: Of the 96 people who consented to participation and were sent the survey link, 82 (85%) started and 59 (61%) completed the questionnaire. Of these 48 (59%) were male, 48 (59%) described themselves as general practitioners, 1 as practising in both general practice and hospital and 10 gave no reply. 55 (67%) described themselves as undergraduate teachers, 19 (23%) as postgraduate teachers, whilst 8 gave no response. 45 requested the results of Stage 1 and were invited to participate in Stage 2.

Responses to the questions seeking opinions on the relevance of the categories and individual competencies are summarised in Table 1. The nine broad categories were considered either 'relevant but needs minor alteration' or 'very relevant and succinct' by 94 to 100% of respondents, with 'Building the relationship' having the lowest agreement (94%) with 4.5% of respondents considering it 'not relevant'.

Table 1. results of Stage 1 validation questionnaire

	Not relevant (%)	Unable to assess relevance (%)	Relevant but needs minor alteration (%)	Very relevant and succinct (%)	Agreement (%)	Revision suggested (n)
Category 1: OPENING	**0.0**	**0.0**	**22.4**	**77.6**	**100**	**14**
1.1. Introduces self	0.0	0.0	18.8	81.3	**100.0**	12
1.2. Establishes identities of patient and third parties and preferred forms of address	0.0	1.6	12.5	85.9	**98.4**	6
1.3. Establishes agendas	1.6	9.4	31.3	57.8	**89.1**	23
Category 2: HISTORY	**0.0**	**1.5**	**25.4**	**73.1**	**98.5**	**16**
2.1. Enables patient to fully elaborate presenting problem(s)	0.0	1.7	13.6	84.7	**98.3**	9
2.2. Listens attentively	1.7	1.7	8.5	88.1	**96.6**	8
2.3. Skilled use of questioning	0.0	5.1	33.9	61.0	**94.9**	21
2.4. Clarifies words used and/or symptoms presented by patient as appropriate	0.0	0.0	10.2	89.8	**100.0**	5
2.5. Recognises and responds appropriately to verbal and non-verbal cues	3.4	1.7	8.5	86.4	**94.9**	7
2.6. Sequence of events	1.7	5.1	13.6	79.7	**93.2**	10
2.7 Symptom analysis	1.7	5.1	22.0	71.2	**93.2**	13
2.8 Effect on the patient	0.0	6.8	18.6	74.6	**93.2**	14
2.9 Patient's ideas, concerns and expectations	0.0	0.0	11.9	88.1	**100.0**	6
2.10 Background information including physical, social and psychological factors	1.7	1.7	18.6	78.0	**96.6**	11
Category 3: EXAMINATION	**0.0**	**0.0**	**9.0**	**91.0**	**100**	**7**
3.1. Obtains initial and ensures continuing consent	0.0	1.7	15.3	83.1	**98.3**	10
3.2. Displays competent practice of infection prevention	0.0	0.0	8.5	91.5	**100.0**	5
3.3. Displays sensitivity to patient's needs and dignity	1.7	0.0	6.8	91.5	**98.3**	5
3.4. Gives clear instructions and explanations of process	0.0	1.7	5.1	93.2	**98.3**	5
3.5. Performs examination competently	1.7	0.0	10.2	88.1	**98.3**	8
3.6. Elicits the physical signs	1.7	1.7	20.3	76.3	**96.6**	14
Category 4: PATIENT MANAGEMENT	**1.5**	**1.5**	**29.9**	**67.2**	**97**	**21**
4.1. Relates explanations to patient's perspective	0.0	1.7	18.6	79.7	**98.3**	10
4.2. Gives clear information in small chunks	1.7	0.0	15.3	83.1	**98.3**	9
4.3. Negotiates a mutually acceptable plan with patient and/or third parties	0.0	0.0	8.5	91.5	**100.0**	6
4.4. Reassures appropriately	1.7	0.0	13.6	84.7	**98.3**	8
4.5. Checks understanding	0.0	0.0	6.8	93.2	**100.0**	5
4.6. Gives key evidence-based information	1.7	0.0	25.4	72.9	**98.3**	15
4.7. Explores available options, risks and benefits	0.0	0.0	6.8	93.2	**100.0**	3
4.8. Gives appropriate advice on self care and lifestyle modification	1.7	0.0	6.8	91.5	**98.3**	6
4.9. Investigates appropriately	1.7	1.7	11.9	84.7	**96.6**	8
4.10. Prescribes rationally	1.7	0.0	20.3	78.0	**98.3**	14
4.11. Refers appropriately	1.7	0.0	10.2	88.1	**98.3**	6
4.12. Makes appropriate use of opportunities for health promotion	5.1	1.7	8.5	84.7	**93.2**	9
4.13. Agrees appropriate follow-up	1.7	1.7	13.6	83.1	**96.6**	10
Category 5: PROBLEM SOLVING	**3.0**	**0.0**	**13.4**	**83.6**	**97**	**12**
5.1. Seeks relevant and specific information from patient's record or third parties	3.4	0.0	8.5	88.1	**96.6**	7
5.2. Generates appropriate working diagnoses or problem list	0.0	0.0	5.1	94.9	**100.0**	3
5.3. Seeks relevant and discriminating information from history, examination and investigations to help confirm or refute working diagnoses	1.7	0.0	6.8	91.5	**98.3**	4
5.4. Correctly interprets information obtained	3.4	0.0	3.4	93.2	**96.6**	2
5.5. Applies basic, behavioural and clinical sciences to solution of patient's problem	5.1	1.7	8.5	84.7	**93.2**	4
5.6. Recognises limits of competence and acts accordingly	0.0	1.7	6.8	91.5	**98.3**	4

Table 1. (continued)

	Not relevant (%)	Unable to assess relevance* (%)	Relevant but needs minor alteration (%)	Very relevant and succinct (%)	Agreement (%)	Revision suggested (n)

Category 6: BUILDING THE RELATIONSHIP	**4.5**	**1.5**	**14.9**	**79.1**	**94**	**15**
6.1. Develops and maintains a professional relationship with patient	1.7	1.7	6.8	89.8	**96.6**	4
6.2. Respects the patient's ideas, beliefs and autonomy	1.7	1.7	6.8	89.8	**96.6**	5
6.3. Responds empathically	5.1	0.0	1.7	93.2	**94.9**	2
6.4. Fosters co-operation	8.5	5.1	20.3	66.1	**86.4**	18
Category 7: ORGANISATION	**0.0**	**0.0**	**16.4**	**83.6**	**100**	**10**
7.1. Optimises the setting	8.5	11.9	10.2	69.5	**79.7**	11
7.2. Uses third parties appropriately	5.1	6.8	20.3	67.8	**88.1**	14
7.3. Exhibits a well-organised approach to gathering and giving of information	0.0	1.7	8.5	89.8	**98.3**	7
7.4. Makes organisation of consultation overt to patient	11.9	8.5	11.9	67.8	**79.7**	11
7.5. Prioritises agendas appropriately	1.7	8.5	18.6	71.2	**89.8**	13
7.6. Summarises appropriately	1.7	0.0	10.2	88.1	**98.3**	6
7.7. Uses time appropriately	3.4	0.0	8.5	88.1	**96.6**	7
Category 8: RECORD-KEEPING	**1.5**	**0.0**	**19.4**	**79.1**	**98.5**	**14**
8.1. Makes concise and accurate notes without interfering with dialogue or rapport	1.7	0.0	8.5	89.8	**98.3**	6
8.2. Diagnoses/problems	0.0	5.1	13.6	81.4	**94.9**	10
8.3. Relevant history and examination	0.0	1.7	10.2	88.1	**98.3**	6
8.4. Outline of management plan, investigations, referral and follow up	0.0	0.0	5.1	94.9	**100.0**	2
8.5. Information, instructions and special precautions given to the patient	0.0	0.0	10.2	89.8	**100.0**	4
Category 9: CASE PRESENTATION	**3.0**	**0.0**	**9.0**	**88.1**	**97**	**6**
9.1. Engages and orientate colleague	5.1	0.0	23.7	71.2	**94.9**	14
9.2. Delivers relevant detail with clarity and logical order	1.7	0.0	6.8	91.5	**98.3**	3
9.3. Transparent interpretation of data	3.4	1.7	27.1	67.8	**94.9**	15
9.4. Purposeful conclusion	3.4	0.0	20.3	76.3	**96.9**	13

* Full wording of item "Unable to assess relevance without item revision or item in need of such revision that it would no longer be relevant"

Agreement as to the relevance of the individual competencies varied from 80% (for items numbered 7.1 and 7.4) to 100%. All but six competencies were considered relevant by more than 90% of respondents. These were items numbered 1.3 'Establishes agendas', 6.4 'Fosters co-operation', 7.1 'Optimises the setting', 7.2 'Uses third parties appropriately, 7.4 'Makes organisation of consultation overt to patient' and 7.5 'Prioritises agendas appropriately'. It is of note that four of these six were from Category 7: "Organisation".

There was no consensus for changing the order of categories or moving components between categories.

There were a total of 608 free text comments on the 67 categories and components, with a median of eight (range 0 to 23, interquartile range 5 to 13) comments. Our prior definition of consensus included the statement that if 10% of respondents suggested a thematically similar change to the text of GeCoS we would include the change in a second round. With 59 respondents completing the questionnaire, we took a cut-off of five respondents making a similar suggestion as the threshold to include a suggestion. There were four suggestions made by five or more respondents (listed in Table 2). We considered that 17 other suggestions better encapsulated competencies than our original statements and these were also included in the second round (Table 3). Of these 21, three were for renaming Categories 4 'Patient management', 5 'Problem solving' and 6 'Building the relationship', and six were suggestions to increase the patient centred approach of the instrument (items numbered 2.8, 3.1, 3.3, 6.4, 7.2 and 7.3). An additional two competencies were suggested by more than 5 respondents (Table 4). Although there was no consensus to remove competencies in the main part of the study, three respondents had identified an overlap between items 4.8 'Gives appropriate advice on self care and lifestyle modification' and 4.12 'Makes appropriate use of opportunities for health promotion' so we offered Stage 2 respondents the opportunity to exclude the latter.

Table 2. Rewordings suggested by 10% or more of respondents and results of Stage 2 validation questionnaire.

Category	Original	Revision	Suggested by N respondents	N(%)of 27 respondents preferring revised wording
HISTORY: Process	*2.3:* Skilled use of questioning	Skilled use of questioning including open and closed questions	13	19(70)
HISTORY: Content	*2.8:* Effect on the patient	Effect on the patient's life	5	15(56)
EXAMINATION	*3.6:* Elicits the physical signs	Elicits normal and abnormal findings	5	23(85)
PATIENT MANAGEMENT	PATIENT MANAGEMENT	MANAGEMENT	5	20(74)

Table 3. Rewordings suggested by fewer than 5 respondents but which might encapsulate competencies better than the original statements and results of Stage 2 validation questionnaire

Category	Original	Revision	N(%)of 27 respondents preferring revised wording
HISTORY: Process	*2.7:* Symptom analysis	Details of symptoms	16(59)
HISTORY: Content	*2.10:* Background information including physical, social and psychological factors	Relevant background information including: Past Medical, Drug, Family and Social History; Systems review; Factors influencing health ***or*** Relevant background information	12(44) 7(26)
EXAMINATION	*3.1:* Obtains initial and ensures continuing consent	Obtains and maintains consent	21(78)
	3.2: Displays competent practice of infection prevention	Displays competent practice of infection control	25(93)
	3.3: Displays sensitivity to patient's needs and dignity	Displays sensitivity to patient's needs and dignity; offers chaperone if appropriate	20(74)
PATIENT MANAGEMENT	*4.10:* Prescribes rationally	Prescribes rationally and accurately	23(85)
PROBLEM SOLVING	PROBLEM SOLVING	CLINICAL REASONING	22(81)
	5.3: Seeks relevant and discriminating information from history, examination and investigations to help confirm or refute working diagnoses	Seeks discriminating information from history, examination and investigations to help confirm or refute working diagnoses	18(67)
BUILDING THE RELATIONSHIP	BUILDING THE RELATIONSHIP	BUILDING AND MAINTAINING THE RELATIONSHIP	23(85)
	6.4: Fosters co-operation	Fosters collaboration	25(93)
ORGANISATION	*7.1:* Optimises the setting	Considers and optimises the setting	16(59)
	7.2: Uses third parties appropriately	Involves third parties appropriately	25(93)
	7.3: Exhibits a well-organised approach to gathering and giving of information	Exhibits a well-organised approach to gathering and sharing of information	24(89)
RECORD KEEPING	*8.4:* Outline of management plan, investigations, referral and follow up	Outline of management plan; therapy, investigations, referral and follow up ***or*** Outline of management plan	15(56) 10(37)
CASE PRESENTATION	*9.2:* Delivers relevant detail with clarity and logical order	Delivers clear and relevant detail in a logical order	18(67)
	9.3: Transparent interpretation of data	Communicates interpretation of data transparently	21(78)
	9.4: Purposeful conclusion	Draws purposeful conclusion	18(67)

Table 4. Additional competencies suggested by fewer than 5 respondents but considered important to include in second round and results of Stage 2 validation questionnaire

Category	Suggested new competence	Suggested by N respondents	Agreement with inclusion N(%)of 27 respondents
ORGANISATION	7.8 Closes consultation appropriately	3	25(93)
RECORD KEEPING	8.6 Identification of the author and date of record	2	21(78)

Stage 2: In the Stage 2 questionnaire the 21 suggested rewordings and the original version of each item, one suggested amalgamation and two suggested additional items, were presented and participants asked for their opinion.

Of the 45 respondents in Stage 2, 27 completed the questionnaire (60%); 68% were male, 54% general practitioners and 61% undergraduate teachers. All the suggested changes were selected by a majority of respondents (Tables 2, 3 and 4) and 19 (70%) agreed with the deletion of item 4.8.

The validated version of GeCoS (9 categories and 59 component competencies) is shown at Appendix 1.

Discussion

What we found: We have modified the Calgary Cambridge guide to the medical interview as a consultation skills model by incorporating a 'Clinical reasoning' core which runs through the framework in parallel with the 'Organization' and 'Building and maintaining the relationship' pillars. We have developed an assessment framework (tool) from the LAP which maps onto the modified Calgary Cambridge guide through a rigorous initial development and piloting process and a multi-institutional and multi-speciality Delphi process and achieved consensus on the inclusion of all its elements. The level of agreement reached by stage 1 of the study was sufficient for GeCoS to satisfy the *a priori* consensus standards: all the broad headings and all their component competencies were considered "very relevant and succinct" or "relevant but needs minor alteration" by over 70% of respondents. Indeed, 91% of the elements were deemed relevant by over 90% of respondents. However, consideration of the free text suggestions has enabled us to further refine GeCoS through rewording and subsequently validating three of the broad category headings and 18 competencies.

Strengths and weaknesses: The initial development of GeCoS was rigorous with careful mapping of the competencies in the Calgary Cambridge guide and LAP to identify overlaps and gaps between each of them and Tomorrow's Doctors (2009) [1], a careful consensus between members, and initial piloting of the instrument before embarking on the Delphi study. The study used the same *a priori* definitions of consensus as previous studies. We took care to recruit the panel from a range of clinical specialties and Medical Schools which use one or neither of the parent documents. The thematic analysis of the free text responses was similarly rigorous with each group of text being considered by pairs of the research team and the final decision reflecting the consensus of all. We remained open to further revision of the tool.

We set the limit for inclusion of any item in stage 2 at five (rounding down from 5.9 rather than up to six) similar responses and included any suggestion we felt represented an improvement. The Delphi method brings the advantages of obtaining a consensus from a panel of content experts whilst minimizing the influence of more forceful personalities [22]. The panel size was similar to that in other Delphi studies [7, 23] and the response rate was modest, but better than that in others [17, 19]. The stage 1 questionnaire was long, but despite this, 61% of respondents completed all 79 items in the survey and a median of eight free text comments were made about each item. We consider that this reflects a high level of engagement by respondents and that their responses are likely to have been considered.

Other literature: Variations of the Delphi method have been used previously for the identification and face validation of assessment criteria in health care [7, 17, 18, 19, 23] and other disciplines [24]. The LAP has been validated for teaching in general practice, but has never been formally validated for hospital teaching [7]. We have not been able to find another instrument which is designed for the assessment of generic (as opposed to context specific) consultation skills and is mapped to a clearly defined consultation skills curriculum.

How GeCoS can be used: GeCoS is now ready for use in formative and summative assessment of the consultation skills of medical students in any simulated or workplace, hospital or community clinical setting. Since it is generic, not all of its elements will be used in any one consultation. Some of the broad categories such as opening, building and maintaining the relationship, organization, record keeping and clinical reasoning will be pertinent to most consultations, even though not all the competencies within these categories will. The other categories (history, examination, management and case presentation) will not all be relevant to every consultation.

The GeCoS assessor judges which of the categories and components are relevant to each consultation and makes a global assessment of how the student responds to the specific challenge presented by the consultation in each category and, if desired, the case overall. Ideally, the assessor's judgment is made over a series of consultations so that all categories and most competencies are assessed. Assessment can result in both a global rating for each category of skills and also in a note of the specific skills which were done well or require improvement.

Being generic, GeCoS lends itself to providing a basis for the second stage of formative assessment, namely constructive feedback. We have also developed a GeCoS tutor / assessor support tool. This is a set of 'Strategies for Improvement' modeled on those for the Leicester Assessment Package [15] which contains suggested strategies for improvement of each of the GeCoS competencies. The assessor / teacher (and student) can use this to pick strategies which are likely to assist the student to develop the skills which s/he most needs to improve. A carefully worded "educational prescription" can be provided without the busy workplace-based assessor needing to re-think the wording of each piece of advice.

What next: Evaluation of the experiences of teachers and learners (and peer assessors) in using GeCoS will inform the refinement of the processes for formative and summative assessment. The development of software to support clinical teachers in formative assessment may be the next step in the development of GeCoS. A study of its reliability as an assessment instrument will be an important sequel.

Conclusion

We reviewed the Calgary Cambridge guide to the medical interview and the Leicester Assessment Package (LAP) and identified concepts common to both or only represented in one or the other. We revised the Calgary Cambridge guide to include concepts it did not contain ('Clinical reasoning', 'Management', 'Record keeping' and 'Case presentation') and populated it with competencies generated from the GMC's Tomorrow's Doctors guide, the LAP and the Calgary Cambridge guide. We validated this in a two-stage Delphi study across eight UK medical schools. The resulting instrument, the **Ge**neric **Co**nsultation **S**kills assessment framework (GeCoS), is ready for use in teaching, formative and summative assessment.

Declarations

The authors have no financial or other interests to declare in relation to this paper.

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Generic Consultation Skills (GeCoS) - overview of skills to be assessed
Keele University School of Medicine

OPENING
- Introduces self
- Establishes identities of patient and third parties and preferred forms of address
- Establishes agendas

HISTORY
PROCESS
- Enables patient to fully elaborate presenting problem(s)
- Listens attentively
- Skilled use of questioning including open and closed questions
- Clarifies words used and/or symptoms presented by patient as appropriate
- Recognises and responds appropriately to verbal and non-verbal cues
  ### CONTENT- obtains the following:
- Sequence of events
- Details of symptoms
- Effect on the patient's life
- Patient's ideas, concerns and expectations
- Relevant background information including: Past Medical, Drug, Family and Social History; Systems review; Factors influencing health

EXAMINATION
- Obtains and maintains consent
- Displays competent practice of infection control
- Displays sensitivity to patient's needs and dignity; offers chaperone if appropriate
- Gives clear instructions and explanations of process
- Performs examination competently
- Elicits normal and abnormal findings

MANAGEMENT
PROCESS
- Relates explanations to patient's perspective
- Gives clear information in small chunks
- Negotiates a mutually acceptable plan with patient and/or third parties
- Reassures appropriately
- Checks understanding
  ### CONTENT
- Gives key evidence-based information
- Explores available options, risks and benefits
- Investigates appropriately
- Prescribes rationally and accurately
- Refers appropriately
- Makes appropriate use of opportunities for health promotion
- Agrees appropriate follow-up

CLINICAL REASONING
- Seeks relevant and specific information from patient's record or third parties
- Generates appropriate working diagnoses or problem list
- Seeks discriminating information from history, examination and investigations to help confirm or refute working diagnoses
- Correctly interprets information obtained
- Applies basic, behavioural and clinical sciences to solution of patient's problem
- Recognises limits of competence and acts accordingly

BUILDING AND MAINTAINING THE RELATIONSHIP
- Develops and maintains a professional relationship with patient
- Respects the patient's ideas, beliefs and autonomy
- Responds empathically
- Fosters collaboration

ORGANISATION
- Considers and optimises the setting
- Involves third parties appropriately
- Exhibits a well-organised approach to gathering and sharing of information
- Makes organisation of consultation overt to patient
- Prioritises agendas appropriately
- Summarises appropriately
- Uses time appropriately
- Closes consultation appropriately

RECORD KEEPING
PROCESS
- Makes concise and accurate notes without interfering with dialogue or rapport
  ### MINIMUM CONTENT includes:
- Diagnoses/problems
- Relevant history and examination
- Outline of management plan; therapy, investigations, referral and follow up
- Information, instructions and special precautions given to the patient
- Identification of the author and date of record

CASE PRESENTATION
- Engages and orientates colleague
- Delivers clear and relevant detail in a logical order
- Communicates interpretation of data transparently
- Draws purposeful conclusion

A FRAMEWORK FOR THE CONSULTATION INCORPORATING CONTENT AND PROCESS SKILLS

CLINICAL REASONING

Organisation

Building and maintaining the relationship

OPENING

HISTORY

PHYSICAL EXAMINATION

MANAGEMENT

CLOSING

RECORD KEEPING

CASE PRESENTATION