

## Modification of Calgary-Cambridge Observation Guide, a more simplified and practical communication guide for daily consultation practice

DOI: 10.22435/hsji.v8i2.7906.111-117

Herqutanto

Department of Community Medicine, Faculty of Medicine, University of Indonesia

Corresponding address: Herqutanto

Email: hqtanto@gmail.com

Received: November 18, 2017; Revised: December 12, 2017; Accepted: December 15, 2017

### Abstrak

**Latar belakang:** *The Calgary-Cambridge Observation Guides (CCOG) adalah panduan yang telah digunakan di banyak negara untuk menilai keterampilan Komunikasi Dokter-Pasien. Panduan terdiri dari 56 poin yang terbagi dalam enam kategori dan menggambarkan proses konsultasi rutin, ditambah 15 poin opsional dalam memberikan penjelasan dan perencanaan. Karena panduan ini terdiri atas poin yang jumlahnya cukup banyak, sangat tidak praktis untuk menggunakannya dalam praktik konsultasi sehari-hari. Oleh karena itu, versi yang lebih sederhana dan praktis akan memberikan manfaat yang lebih besar.*

**Metode:** *Tujuh orang ahli dari berbagai latar belakang kepakaran klinis dan komunikasi dokter pasien diminta mengevaluasi dan menganalisis 56 poin CCOG berdasarkan tingkat kepentingan dalam praktik sehari-hari. Dua putaran Delphi digunakan dalam penelitian ini, putaran pertama untuk mengevaluasi tingkat kepentingan, dan putaran kedua untuk mengevaluasi poin-poin yang memiliki kesamaan makna sehingga dapat digabungkan. Hasil dari dua putaran itu kemudian disirkulasikan kembali kepada semua anggota tim ahli untuk mendapatkan konfirmasi versi modifikasi akhir dari CCOG tersebut.*

**Hasil:** *Versi modifikasi terakhir dari CCOG yang terdiri dari 35 titik telah terbentuk. Langkah pertama proses konsultasi yaitu Memulai sesi terdiri dari 5 poin (awalnya 7 poin). Langkah Mengumpulkan Informasi terdiri dari 5 poin (awalnya 11 poin), Menyediakan Struktur 3 poin (awalnya 4 poin), Membangun Hubungan 7 poin (awalnya 10 poin), Penjelasan dan Perencanaan 11 poin (awalnya 20 poin), dan Menutup Sesi terdiri dari 4 poin. Versi CCOG yang dimodifikasi tetap komprehensif, namun lebih praktis untuk latihan sehari-hari.*

**Kesimpulan:** *Modifikasi versi CCOG dapat digunakan sebagai panduan praktis sederhana untuk menilai Komunikasi Pasien Dokter dalam praktik konsultasi sehari-hari. (Health Science Journal of Indonesia 2017;8(2):111-7)*

**Kata Kunci:** *The Calgary-Cambridge Observation Guide, Komunikasi Dokter Pasien, Modifikasi*

### Abstract

**Background:** The Calgary-Cambridge Observation Guides (CCOG) is a guide that is widely used to assess Doctor-Patient Communication. The guide consists of 56 points divided into 6 categories that describe a routine consultation process, plus 15 optional points in giving explanation and planning. Due to its quite numerous points, it is quite impractical to use the guide in daily consultation practice. Therefore, a more simplified and more practical version would be favourable.

**Method:** Seven experts from different background evaluated and analysed the 56 points of CCOG based on the level of importance in daily practice. Two rounds of Delphi were used in the study, the first round to evaluate level of importance, and the second to obtain the possibilities to join items that may have similar meaning. The result of the two rounds was then recirculated to all members of the team for confirmation of the final modified version of CCOG.

**Results:** A final modified version of CCOG consisting of 35 points was formed. The first step of a consultation process, *Initiating the session* consists of 5 points (originally 7 points). *Gathering information* step consists of 5 points (originally 11 points), *Providing structure* of 3 points (originally 4 points), *Building relationship* of 7 points (originally 10 points), *Explanation and Planning* of 11 points (originally 20 points), and *Closing the Session* consisting of 4 points. The modified CCOG version is still comprehensive, yet more practical for daily practice.

**Conclusion:** Modified version of CCOG can be used as a simple, practical guide to assess Doctor Patient Communication in daily consultation practice. (*Health Science Journal of Indonesia 2017;8(2):111-7*)

**Keywords:** The Calgary-Cambridge Observation Guide, Doctor Patient Communication, Modification

Good doctor-patient communication offers patients tangible benefits. Many studies have found positive associations between doctors' communication skills and several factors: increased understanding & recall, symptom relief, adherence & concordance, improved health outcomes and physiological outcomes, patient safety, patient satisfaction and doctor satisfaction. Several studies and reviews also show correlation between effective doctor-patient communication and decreased cost, complaints and malpractice litigation.<sup>1-3</sup>

However, doctor patient communication is difficult to learn because of its delicate process, therefore it needs a clear and systematic guide and assessment tool.<sup>1</sup> There are several examples of communication assessment tools: Kalamazoo Checklist,<sup>4</sup> SEGUE Framework,<sup>5</sup> MAAS Global Communication tool,<sup>6</sup> etc. One of the guides that is widely used in many countries is The Calgary Cambridge Observation Guide.<sup>1,2</sup> The guide was developed by a team from The University of Calgary in Canada and The University of Cambridge in England. It describes one approach for delineating and organizing the specific skills that research supports for communicating effectively with patients. The guide consists of 56 points divided into 6 categories that describe a routine consultation process: Initiating the Session, Gathering Information, Providing Structure, Building The Relationship, Explanation and Planning, and Closing the Session, plus 15 options points in giving explanation and planning.<sup>1,2</sup>

The guide provides a comprehensive approach to assess doctor patient communication in a consultation process. It delineates and briefly defines the 71 core communication process skills. Yet, in daily consultation practice in many countries in which time constraint is present and the number of patients is very big, it is quite impractical to use CCOG. One of the main reasons is its quite numerous points. A comprehensive guide less number of points and easy to remember would be of benefit. Therefore, a more simplified and more practical version would be favourable. The objective of this study is to obtain a modified version of CCOG that is more simplified and more practical.

## METHODS

The study is a type of study known as instrument development. This type of study usually consists of several processes, including developing, testing, and using the instrument. In this study we conducted modification of existing guide in doctor-patient communication.

We invited 7 experts from different background (1 professor expert of doctor-patient communication field, 2 professors of internal medicine, 1 professor of pulmonology, 1 professor of psychiatry, 1 PhD in Occupational Medicine). They are clinical experts in their field of work as well as senior lecturers from the Faculty of Medicine Universitas Indonesia/Cipto Mangunkusumo National Central General Hospital in Jakarta, Indonesia. They are also members of Doctor-Patient Communication Trainer team in the Faculty of Medicine Universitas Indonesia. Past President of Indonesian Medical Association was invited to join the team because once the modification is completed, it can be used for medical doctors, members of the Indonesian Medical Association, who practice in health facilities across the nation. The team was asked to evaluate and analyse the 56 points of CCOG based on the level of importance in daily practice.

During the process, cultural competence according to Indonesian condition was used. This includes consideration on the number of patients a doctor would see in a session, time limitation for each session, and types of patients (new patients vs. follow up patients).

Two rounds of Delphi method were used in the study, in the first round expert gave scores based on Likert scale of 1 to 5 (1 being least important, 5 being most important) to the 56 points of CCOG. The result of this step is a shorter list that contains points regarded as important by the experts. Experts also stated that some points need to be combined because they refer to similar steps/points. In the second round, experts were asked which of the CCOG points (result of round 1) combined and modified. This round resulted some points be combined and modified, thus making the points in CCOG even more compact and shorter.

The result of the two rounds was then recirculated to obtain confirmation of the final modified version of CCOG.

## RESULTS

A final modified version of CCOG consisting of 35 points was formed. The first step of a consultation process, *Initiating the session* consists of 5 points (originally 7 points). *Gathering information* step consists of 5 points (originally 11 points), *Providing structure* of 3 points (originally 4 points), *Building relationship* of 7 points (originally 10 points), *Explanation and Planning* of 11 points (originally 20 points), and *Closing the Session* consisting of 4 points. The following diagram describes the changes.

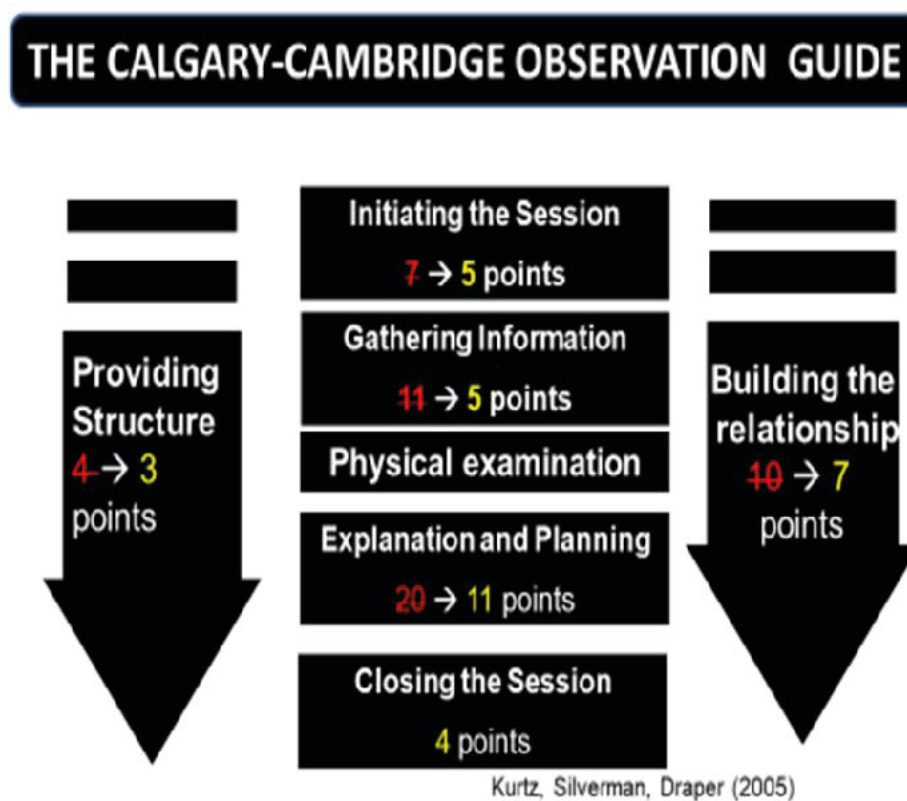


Diagram 1. Changes in Number of Points in Each Step of CCOG

## DISCUSSION

There are other communication assessment tools besides the CCOG, that has been used in many countries.<sup>8,9</sup> Medical Profession in the USA uses Essential Communication Skills in the Medical Encounter adapted from The Kalamazoo Consensus Statement. The consensus consists of 7 key elements of communication in clinical encounters: build the relationship, open the discussion, gather information, understand the patient's perspective, share information, reach agreement, and provide closure.<sup>4</sup> It was reported to be a reliable method of assessing the communication skills of multidisciplinary learners within the learning environment.<sup>10,11</sup>

SEGUE Framework is a research-based checklist of medical communication tasks. As an instrument for the observation of provider-patient interviews.<sup>5</sup> It has 32 items with yes/no options divided in six domains. Topics covered by this instrument are: Set the stage, Elicit information, Give information, Understand the patient's perspective, and End the encounter. SEGUE Framework is the most widely used structure for communication skills teaching and

assessment in North America. It has a high degree of acceptability, can be used reliably, has evidence of validity, and is applicable to a variety of contexts.<sup>5</sup>

In the Netherland MAAS-Global (*Maastricht History-taking and Advice Scoring*) that was developed in Maastricht University has been widely used to evaluate clinical communication skill.<sup>12</sup> It is an instrument to rate communication and clinical skills of doctors in their consultations. This Instrument for the observation of provider-patient encounters includes three sections: section 1: communication skills for phases of the encounter; section 2: general communication skills that include communication skill that may take place in each consultation phase or during a consultation process; and section 3: medical aspect that is meant to assess the content of a consultation during history taking, physical examination, diagnosis, and treatment; There are 17 items of the instrument, Rating is done using a 7-point scale. The MAAS-Global-D instrument, which measures communicative and medical skills, has recently been translated into German and used in a research to assess communication skill of Primary Care Physician.<sup>13</sup>

Table 1. The Original Calgary-Cambridge Observation Guide

<p><b>INITIATING THE SESSION</b></p> <p><b>Establishing initial rapport</b></p> <ol style="list-style-type: none"> <li><b>1. Greets</b> patient and obtains patient's name</li> <li><b>2. Introduces</b> self, role and nature of interview; obtains consent if necessary</li> <li><b>3. Demonstrates respect</b> and interest, attends to patient's physical comfort</li> </ol> <p><b>Identifying the reason(s) for the consultation</b></p> <ol style="list-style-type: none"> <li><b>4. Identifies</b> the patient's problems or the issues that the patient wishes to address with appropriate <b>opening question</b> (e.g. "What problems brought you to the hospital?" or "What would you like to discuss today?" or "What questions did you hope to get answered today?")</li> <li><b>5. Listens</b> attentively to the patient's opening statement, without interrupting or directing patient's response</li> <li><b>6. Confirms list and screens</b> for further problems (e.g. "so that's headaches and tiredness; anything else.....?")</li> <li><b>7. Negotiates agenda</b> taking both patient's and physician's needs into account</li> </ol> <p><b>GATHERING INFORMATION</b></p> <p><b>Exploration of patient's problems</b></p> <ol style="list-style-type: none"> <li><b>8. Encourages patient to tell the story</b> of the problem(s) from when first started to the present in own words (clarifying reason for presenting now)</li> <li><b>9. Uses open and closed questioning technique</b>, appropriately moving from open to closed</li> <li><b>10. Listens</b> attentively, allowing patient to complete statements without interruption and leaving space for patient to think before answering or go on after pausing</li> <li><b>11. Facilitates</b> patient's responses verbally and non-verbally e.g. use of encouragement, silence, repetition, paraphrasing, interpretation</li> <li><b>12. Picks up</b> verbal and non-verbal <b>cues</b> (body language, speech, facial expression, affect); <b>checks out and acknowledges</b> as appropriate</li> <li><b>13. Clarifies</b> patient's statements that are unclear or need amplification (e.g. "Could you explain what you mean by light headed")</li> <li><b>14. Periodically summarises</b> to verify own understanding of what the patient has said; invites patient to correct interpretation or provide further information.</li> <li><b>15. Uses concise, easily understood questions and comments</b>, avoids or adequately explains jargon</li> <li><b>16. Establishes dates and sequence</b> of events</li> </ol> <p><b>Additional skills for understanding the patient's perspective</b></p> <ol style="list-style-type: none"> <li><b>17. Actively determines and appropriately explores:</b> <ul style="list-style-type: none"> <li>• patient's <b>ideas</b> (i.e. beliefs re cause)</li> <li>• patient's <b>concerns</b> (i.e. worries) regarding each problem</li> <li>• patient's <b>expectations</b> (i.e., goals, what help the patient had expected for each problem)</li> <li>• effects: how each problem <b>affects</b> the patient's life</li> </ul> </li> <li><b>18. Encourages patient to express feelings</b></li> </ol> <p><b>PROVIDING STRUCTURE</b></p> <p><b>Making organisation overt</b></p> <ol style="list-style-type: none"> <li><b>19. Summarises</b> at the end of a specific line of inquiry to confirm understanding before moving on to the next section</li> <li><b>20. Progresses</b> from one section to another using <b>signposting, transitional statements</b>; includes rationale for next section</li> </ol> <p><b>Attending to flow</b></p> <ol style="list-style-type: none"> <li><b>21. Structures</b> interview in <b>logical sequence</b></li> <li><b>22. Attends to timing</b> and keeping interview on task</li> </ol> <p><b>BUILDING RELATIONSHIP</b></p> <p><b>Using appropriate non-verbal behaviour</b></p> <ol style="list-style-type: none"> <li><b>23. Demonstrates appropriate non-verbal behaviour</b> <ul style="list-style-type: none"> <li>• eye contact, facial expression</li> <li>• posture, position &amp; movement</li> <li>• vocal cues e.g. rate, volume, tone</li> </ul> </li> <li><b>24. If reads, writes notes</b> or uses computer, does <b>in a manner that does not interfere with dialogue or rapport</b></li> <li><b>25. Demonstrates</b> appropriate <b>confidence</b></li> </ol> <p><b>Developing rapport</b></p> <ol style="list-style-type: none"> <li><b>26. Accepts</b> legitimacy of patient's views and feelings; is not judgmental</li> <li><b>27. Uses empathy</b> to communicate understanding and appreciation of the patient's feelings or predicament; overtly <b>acknowledges patient's views</b> and feelings</li> <li><b>28. Provides support:</b> expresses concern, understanding, willingness to help; acknowledges coping efforts and Appropriate self-care; offers partnership</li> <li><b>29. Deals sensitively</b> with embarrassing and disturbing topics and physical pain, including when associated with physical examination</li> </ol> <p><b>Involving the patient</b></p> <ol style="list-style-type: none"> <li><b>30. Shares thinking</b> with patient to encourage patient's involvement (e.g. "What I'm thinking now is....")</li> <li><b>31. Explains rationale</b> for questions or parts of physical examination that could appear to be non-sequiturs</li> <li><b>32. During physical examination</b>, explains process, asks permission</li> </ol>
---



**EXPLANATION AND PLANNING****Providing the correct amount and type of information***Aims:*

- to give comprehensive and appropriate information
- to assess each individual patient's information needs
- to neither restrict or overload

33. **Chunks and checks:** gives information in manageable chunks, checks for understanding, uses patient's response as a guide to how to proceed

34. **Assesses patient's starting point:** asks for patient's prior knowledge early on when giving information, discovers extent of patient's wish for information

35. **Asks patients what other information would be helpful** e.g. aetiology, prognosis

36. **Gives explanation at appropriate times:** avoids giving advice, information or reassurance prematurely

**Aiding accurate recall and understanding***Aims: to make information easier for the patient to remember and understand*

37. **Organises explanation:** divides into discrete sections, develops a logical sequence

38. **Uses explicit categorisation or signposting** (e.g. "There are three important things that I would like to discuss. 1st..." "Now, shall we move on to.")

39. **Uses repetition and summarising** to reinforce information

40. **Uses concise, easily understood language,** avoids or explains jargon

41. **Uses visual methods of conveying information:** diagrams, models, written information and instructions

42. **Checks patient's understanding** of information given (or plans made): e.g. by asking patient to restate in own words; clarifies as necessary

**Achieving a shared understanding: incorporating the patient's perspective***Aims:*

- to provide explanations and plans that relate to the patient's perspective
- to discover the patient's thoughts and feelings about information given
- to encourage an interaction rather than one-way transmission

43. **Relates explanations to patient's illness framework:** to previously elicited ideas, concerns and expectations

44. **Provides opportunities and encourages patient to contribute:** to ask questions, seek clarification or express doubts; responds appropriately

45. **Picks up verbal and non-verbal cues** e.g. patient's need to contribute information or ask questions, information overload, distress

46. **Elicits patient's beliefs, reactions and feelings** re information given, terms used; acknowledges and addresses where necessary

**Planning: shared decision making***Aims:*

- to allow patients to understand the decision-making process
- to involve patients in decision making to the level they wish
- to increase patients' commitment to plans made

47. **Shares own thinking as appropriate:** ideas, thought processes, dilemmas

**48. Involves patient:**

- offers suggestions and choices rather than directives
- encourages patient to contribute their own ideas, suggestions

**49. Explores management options**

50. **Ascertains level of involvement patient wishes** in making the decision at hand

**51. Negotiates a mutually acceptable plan**

- signposts own position of equipoise or preference regarding available options
- determines patient's preference

**52. Checks with patient**

- if accepts plans,
- if concerns have been addressed

**CLOSING THE SESSION****Forward planning**

53. **Contracts** with patient re next steps for patient and physician

54. **Safety nets,** explaining possible unexpected outcomes, what to do if plan is not working, when and how to seek help

**Ensuring appropriate point of closure**

55. **Summarises session** briefly and clarifies plan of care

56. **Final check** that patient agrees and is comfortable with plan and asks if any corrections, questions or other items to discuss

Table 2. The Modified Version of The Calgary-Cambridge Observation Guide

<b>INITIATING THE SESSION</b>	
1	Greets patient and obtains patient's name.
2	Introduces self, role and nature of interview; obtains consent if necessary.
3	Identifies the patient's problems or the issues that the patient wishes to address with appropriate opening question (e.g. "What problems brought you to the hospital?" or "What would you like to discuss today?" or "What questions did you hope to get answered today?").
4	Listens attentively to the patient's opening statement, without interrupting or directing patient's response.
5	Confirms list and screens for further problems (e.g. "so that's headaches and tiredness; anything else.....?").
<b>GATHERING INFORMATION</b>	
6	Encourages patient to tell the story of the problem(s) from when first started to the present in own words (clarifying reason for presenting now).
7	Uses open and closed questioning technique, appropriately moving from open to closed.
8	Listens attentively, allowing patient to complete statements without interruption and leaving space for patient to think before answering or go on after pausing.
9	Facilitates patient's responses verbally and non-verbally e.g. use of encouragement, silence, repetition, paraphrasing, interpretation, Picks up verbal and non-verbal cues (body language, speech, facial expression, affect); checks out and acknowledges as appropriate.
10	Clarifies patient's statements that are unclear or need amplification (e.g. "Could you explain what you mean by light headed").
<b>PROVIDING STRUCTURE</b>	
11	Summarises at the end of a specific line of inquiry to confirm understanding before moving on to the next section.
12	Structures interview in logical sequence.
13	Attends to timing and keeping interview on task.
<b>BUILDING RELATIONSHIP</b>	
14	Demonstrates appropriate non-verbal behaviour <ul style="list-style-type: none"> <li>• eye contact, facial expression</li> <li>• posture, position &amp; movement</li> <li>• vocal cues e.g. rate, volume, tone</li> </ul>
15	If reads, writes note or uses computer, does in a manner that does not interfere with dialogue or rapport.
16	Accepts legitimacy of patient's views and feelings; is not judgmental.
17	Uses empathy to communicate understanding and appreciation of the patient's feelings or predicament; overtly acknowledges patient's views and feelings.
18	Provides support: expresses concern, understanding, willingness to help; acknowledges coping efforts and Appropriate self-care; offers partnership.
19	Deals sensitively with embarrassing and disturbing topics and physical pain, including when associated with physical examination. Explains rationale for questions or parts of physical examination that could appear to be non-sequiturs.
20	During physical examination, explains process, asks permission.
<b>EXPLANATION AND PLANNING</b>	
21	Chunks and checks: gives information in manageable chunks, checks for understanding, uses patient's response as a guide to how to proceed.
22	Assesses patient's starting point: asks for patient's prior knowledge early on when giving information, discovers extent of patient's wish for information.
23	Gives explanation at appropriate times: avoids giving advice, information or reassurance prematurely.
24	Uses concise, easily understood language, avoids or explains jargon.
25	Uses visual methods of conveying information: diagrams, models, written information and instructions.
26	Checks patient's understanding of information given (or plans made): e.g. by asking patient to restate in own words; clarifies as necessary.
27	Relates explanations to patient's illness framework: to previously elicited ideas, concerns and expectations.
28	Provides opportunities and encourages patient to contribute: to ask questions, seek clarification or express doubts; responds appropriately.
29	Explores management options .
30	Negotiates a mutually acceptable plan <ul style="list-style-type: none"> <li>○ signposts own position of equipoise or preference regarding available options</li> <li>○ determines patient's preference .</li> </ul>
31	Checks with patient <ul style="list-style-type: none"> <li>○ if accepts plans,</li> <li>○ if concerns have been addressed.</li> </ul>
<b>CLOSING THE SESSION</b>	
32	Contracts with patient re next steps for patient and physician.
33	Safety nets, explaining possible unexpected outcomes, what to do if plan is not working, when and how to seek help.
34	Summarises session briefly and clarifies plan of care.
35	Final check that patient agrees and is comfortable with plan and asks if any corrections, questions or other items to discuss.

Certainly each instrument has its strength and weaknesses. Compared to the other instruments, CCOG can be used as a framework for communication process as well as an instrument for evaluation. An example of its use is during an OSCE to assess communication skill, and during a training in which participants receive feedback for their performance during a consultation process.<sup>14</sup> *The Kalamazoo consensus statement* is a brief instrument consisting of 7 items, however its use as an instrument to assess communication skill is more difficult, since most of its points are quite general for a consultation process. One difficulty of using the SEGUE framework in real situations is the duration of the interviews. Within the 25-minute interviews, the parameters of the SEGUE framework applied to encounters with Standardized Patients in controlled situations more easily than to encounters with Real Patients.<sup>15</sup> MAAS Global is actually quite brief, because it consists of 17 items. However, a closer look at the instrument will reveal that each item may contain 3-4 indicators, which eventually lead to quite numerous guide too. This is why CCOG is more preferable to use, because it can describe a consultation process comprehensively from the beginning to the end of a consultation process.

In conclusion, CCOG can be used as a simple, practical guide to assess Doctor Patient Communication in daily consultation practice. The guide has been modified and made simple, containing 35 points. It is expected that the modified guide will be used widely as an instrument to guide and assess doctor patient communication in daily consultation practice.

### Acknowledgments

The researcher wishes to thank Prof. Dr. dr. Endang Basuki, MPH, Prof. Dr. dr. Samsuridjal Djauzi, SpPD, KAI, Prof. Dr. dr. Sarwono Waspadji, SpPD, KEMD, dr. Muchtaruddin Mansyur, MS, SpOk, PhD, Prof. dr. Anwar Yusuf SpP (K), Prof. Dr. dr. Irawati Ismail SpKJ (K), Prof. Dr. dr. Fachmi Idris, M.Kes, for their expertise, advice and contribution during the study. May Allah The Almighty bless them.

### REFERENCES

1. Kurtz S, Silverman J, Draper J. Teaching and learning communication skills in medicine. 2<sup>nd</sup> ed. Oxon: Radcliffe Publishing Ltd; 2005.
2. Kurtz S, Silverman J, Draper J. Skills for communicating with patients. 2<sup>nd</sup> ed. Oxon: Radcliffe Publishing; 2005.
3. Stewart MA. Effective physician-patient communication and health outcomes: a review. *Can Med Assoc J.* 1995;152:1423-1433.
4. Makoul G. Essential elements of communication in medical encounters: the Kalamazoo consensus statement. *Acad Med.* 2001;76(4):390-393.
5. Makoul G. The SEGUE Framework for teaching and assessing communication skills. *Patient Educ Couns.* 2001 Oct;45(1):23-34.
6. Van Thiel J, Ram P, van Dalen J. MAAS-Global Manual 2000, guidelines to the rating of communication skills and clinical skills of doctors with the MAAS-Global. Maastricht: Maastricht University Netherland; 2003.
7. Waltz CF, Strickland OL, Lenz ER. Measurement in Nursing and health research. Springer Publishing Company; 2005.
8. Dambha H, Griffin S, Kinmonth AL. Patient-centred care in general practice. Downloaded from ino.sagepub.com on October 2, 2014. Available from: <http://ino.sagepub.com/content/early/2014/08/07/1755738014544482>
9. Hudon C, Fortin M, Haggerty JL, Lambert M, Poitras ME. Patient-centered care: a systematic review of tools for family medicine. *Ann Fam Med.* 2011;9:155-164.
10. Joyce BL, Steenbergh T, Scher E. Use of the Kalamazoo essential elements communication checklist (adapted) in an institutional interpersonal and communication skill curriculum. *J Grad Med Educ.* 2010 Jun;2(2):165-169.
11. Peterson EB<sup>1</sup>, Calhoun AW<sup>2</sup>, Rider EA<sup>3</sup>. The reliability of a modified Kalamazoo consensus statement checklist for assessing the communication skills of multidisciplinary clinicians in the simulated environment. *Patient Educ Couns.* 2014 Sep;96(3):411-8.
12. Hammersen F, Goetz K, Soennichsen A, Emcke T, Steinhäuser J. Effects of communication training with the MAAS-Global-D instrument on the antibiotic prescribing for respiratory infection in primary care: study protocol of a randomized control trial. Nov 17, 2017. Available from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4818904/>
13. Van Es JM<sup>1</sup>, Schrijver CJ, Oberink RH, Visser MR. Two-dimensional structure of the MAAS-Global rating list for consultation skills of doctors. *Med Teach.* 2012;34(12):e794-9.
14. von Fragstein M, Silverman J, Cushing A, Quilligan S, Salisbury H, Wiskin C. UK consensus statement on the content of communication curricula in undergraduate medical education. *Medical Education.* 2008;42:1100-1107.
15. Carvalho IP, Pais VG, Silva FR, Martins R, Figueiredo-Braga M, Pedrosa R, et al. Teaching communication skills in clinical setting: comparing two application of a comprehensive program with standardized and real patients. *BMC Medical Education.* 2014;14:92.