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GREATER GREEN TRIANGLE
University Department of Rural Health

Developing the PC PMOS, a Primary-Care Patient Measure Of Safety

A. Hernan

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Australian Primary Health Care Research Institute

Research School of Population Health

The Australian National University

Acton ACT 0200 Australia

T 61 2 6197 0075

F 61 2 6125 7551

E Dagmar.ceramidas@anu.edu.au

http://aphcri.anu.edu.au

CONTENTS

Background

EMERGENCE OF THE PC PMOS

There is been an increasing awareness by health care providers, organisations and policy advisors that patient safety and quality is an important issue, since primary care is the first point of contact with the healthcare system for most patients. Patient safety is generally not considered to be a problem in primary care but there is evidence that this is not the case. Patient safety incidents have been predicted to occur from 2% [1] to 10% [2] of consultations. The majority of errors in primary care fall within the categories of medication errors [3], diagnostic errors [4] and communication errors [5]. Getting patient opinions is one approach to address these errors as evidence suggests that patients are able to identify potential primary-care errors [6–8]. Patients have a different perspective on safety and patient harm, and can provide insights to prevent errors [9, 10] as well as identify factors contributing to patient safety incidents [8, 11].

A questionnaire, the Patient Measure Of Safety (PMOS), has been developed to collect patient feedback on the factors contributing to safety incidents in secondary care [11, 12]. This was based around the Yorkshire Contributing Factors Framework [13] that identified 20 factors contributing to safety incidents. In primary care, however, patient feedback tends to focus on experience and satisfaction [14], or on after-event reporting and incident disclosure [15]. Patient-safety questionnaires for primary care do exist [16, 17] but no questionnaire has been explicitly developed that comprehensively measures factors contributing to patient safety-incidents.

Health-care professionals in primary care could use patient feedback to improve safety in the same way health professionals do in hospital settings. Therefore, the principle aim of this study was to adapt the PMOS into a primary-care patient measure of safety (PC PMOS) questionnaire to be used as a basis for proactively managing safety and service improvement in the primary-care setting; and test the PC PMOS in regional general practices.

Methods

GENERATION OF THE PC PMOS

A modified Delphi technique [18] with an expert panel was used to reach consensus on the domains and items to include in the PC PMOS questionnaire. The multidisciplinary expert panel contained members from Australia, the USA and the UK, who had extensive experience and knowledge in patient safety in primary care. It included four general practice academics, a consumer representative, a representative from the Australian Commission on Safety and Quality in Health Care, and four researchers in nursing, sociology, health systems and safety.

In the modified Delphi process, three rounds of rating and review were undertaken over a 3-week period, followed by two round tables discussion by the expert panel to facilitate final consensus on the questionnaire domains and items. The round-table discussions applied a nominal group technique (NGT) [19] approach, in which reasons for member choices are discussed, to agree on the final domains and items to be included in the draft PC PMOS.

Responses were analysed by the facilitator and presented back to the panel during the first round-table discussion. The facilitator used the panel's consensus on which domains to include to generate example questions on each domain where an existing PMOS question did not exist. During the second round-table discussion, panel members considered the draft PC PMOS questionnaire items and refined these until consensus was reached.

ACCEPTABILITY OF THE PC PMOS

The acceptability of the PC PMOS was assessed by two groups, one of patients and one of healthcare professionals, managers and administrators from primary care settings within Australia and the UK, selected from various patient demographics and different professional groups.

A 'think aloud' methodology [20] was employed in which twenty interviews were conducted with eleven patients and nine staff members. Staff included general practitioners, practice nurses, community pharmacists, practice managers and administration staff. The 'think aloud' method asked participants to talk aloud about their thoughts and feelings, and perceived barriers to questionnaire completion, time taken to answer the questionnaire and the questionnaire format as they read and decided how to respond to each question in the draft PC PMOS questionnaire. Interviews were digitally recorded and transcribed verbatim.

Patient transcripts were analysed to identify when participants were able to understand and respond to the questions on the draft questionnaire while staff transcripts were analysed to identify the relevance and importance of each item. Any particular issues with questions from both patients and staff were also considered. Revisions were made to the questionnaire on the basis of these analyses.

VALIDITY OF THE PC PMOS

A validation study of the PC PMOS in primary care was planned to be undertaken with approximately 50 patients and their carers in ten regional general practices across western Victoria. Ethics approval was obtained from the Flinders University Human Research Ethics Committee.

Clinics in the Greater Green Triangle region were identified and the project investigator approached them about participating in the study. The project investigator visited clinics that expressed an interest to provide detailed information on the study. Following these information sessions, eight clinics agreed to participate in the study. Study-information sheets and patient-consent forms were prepared. Each clinic agreed to recruit five to ten patients to complete the PC PMOS.

Results

GENERATION

The rounds of rating and review and discussion meetings with expert panel members resulted in a draft PC PMOS with 24 domains and 77 questions.

ACCEPTABILITY

Patient participants felt that patients would be willing and able to complete the PC MOS. It took about 15 minutes on average to complete, but patients expressed some concern about its length and the level of attention required to remain engaged while completing it. Some of the wording would need to be addressed as some participants were unfamiliar with the some of the terminology used, such as ‘adherence’ and ‘after hours’. Participants also suggested that the elderly and those with low literacy levels would need help to complete the questionnaire; and that negatively worded items could be a problem for some patients.

These findings were used to access each of the 77 questions in the draft PC PMOS with the intention of reducing its length while keeping its effectiveness. Some 27 questions were deleted, leaving 50 in the final PC PMOS (Table 1). The wording of 13 questions was changed to improve clarity. A mix of both positive and negatively worded items was retained to minimise acquiescent response bias. The original 24 domains in the draft PC PMOS were also revised and regrouped, reducing these to just 15 (Table 2).

Table 1. PC PMOS questions and domains, whether the question was retained (Yes/No) and the reason that a question was not retained.

Question	Domain	Retained	Reason
1. The diagnosis or treatment plan recommended by my doctor, nurse or other health professional was right for me*	Patient related factors	Y	
2. I did not receive an apology when something went wrong	Desire for an explanation and apology	N	1
3. The doctor, nurse or other health professional always considered what I want for my care	Patient related factors	Y	
4. On at least one occasion a member of staff was not able to use the necessary equipment	Staff training	Y	
5. I was always treated with dignity and respect	Dignity and respect	Y	
6. I am responsible for my health	Patient related factors	N	2
7. The doctor, nurse or other health professional did not have the skills, experience or knowledge to correctly manage my health condition	Provider performance	Y	
8. I have needed urgent treatment and there was no-one available to do it	Organisation and Care Planning	N	2
9. Staff didn't seem to know what they were meant to be doing	Team-work	Y	
10. I see my doctor as the person who coordinate all my care with specialists and hospitals*	Coordination of care	Y	
11. Inexperienced staff seemed to find it hard when they were left to do things on their own	Staff training	N	3
12. I could not remember what my doctor, nurse or other health professional recommended about my treatment	Patient related factors	Y	
13. I always felt that staff listened to me about my concerns	Communication	Y	
14. I have an ongoing relationship with this practice	Continuity of care	N	1
15. I was involved in all the decisions about my care	Communication	Y	
16. When staff talked about my care with others the information they shared was correct	Communication	N	3
17. I knew what the different roles of the people caring for me were	Staff roles and responsibilities	N	4
18. My care changed and other health professionals outside the practice did not know about it*	Organisation and Care Planning	Y	
19. My test results were always available when required e.g. scans, blood tests, x-rays	Information flow	Y	
20. Nurses interacted with me in a manner I found acceptable	Communication	Y	

21. I always felt that other health professionals listened to what I had to say about my illness / symptoms / treatment	Communication	Y	
22. I got answers to all the questions I had regarding my care	Communication	Y	
23. If I was referred important information about my care was passed on / made available*	Referrals	Y	
24. I always felt that doctors listened to what I had to say about my illness / symptoms / treatment	Communication	Y	
25. I was always given enough information that I could understand about my care and treatment	Communication	Y	
26. I did not receive an explanation when something went wrong	Desire for an explanation and apology	N	1
27. When necessary staff undertook a thorough examination of me during the consultation*	Provider performance	Y	
28. The doctor or nurse had to leave the room to get equipment / supplies that should have been available	Access to resources	N	4
29. I feel I cannot speak up about certain things with health professionals at the practice	Vulnerability	Y	
30. My treatment/ procedure did not always happen on time	Access	N	4
31. I was able to access the after hours service when needed*	Access	Y	
32. Staff always knew everything they needed to know to care for me. e.g. allergies, other conditions, medical history, medications	Information flow	Y	
33. I have an ongoing relationship with health care professionals	Continuity of care	N	1
34. My referrals have always been appropriate*	Referrals	Y	
35. My carer or family member was involved in making decisions about my care where appropriate	Communication	N	3
36. The practice was very clean	Type and layout of practice	Y	
37. My carer or family member was provided with enough information that they could understand about my treatment/care plan where appropriate	Communication	N	3
38. I found the process of getting referred to a specialist/hospital/other health professional difficult	Referrals	N	3
39. I think there are safety risks are at the practice	Risk awareness	N	3
40. Staff gave me conflicting information about my treatment/care	Organisation and Care Planning	Y	

41. I understood what staff were explaining to me about my care	Communication	Y	
42. Staff were always able to get help from other staff when they asked for it	Team-work	Y	
43. I have not always followed the recommended treatment*	Patient related factors	Y	
44. A doctor or nurse changed my treatment and other doctors or nurses in the practice did not know about it	Organisation and Care Planning	N	4
45. Information about me that my health care team needed was always available e.g. discharge summary, referral letters, test results*	Information flow	Y	
46. I was given the opportunity to voice my concerns	Vulnerability	N	4
47. I knew where to go at the practice if I had a complaint	Patient involvement in safety	N	4
48. I have always known which doctor and nurse are responsible for my treatment	Staff roles and responsibilities	N	3
49. Seeing the same doctor, nurse or other health professional is important to me	Continuity of care	Y	
50. Staff did not work together as a team here	Team-work	N	3
51. My doctor always seemed to have the right information after I received treatment elsewhere*	Primary – Secondary Care Interface	Y	
52. Equipment needed for my care was always working properly	Equipment (design and function)	Y	
53. Doctors and nurses were always able to get advice from within the practice when needed	Team-work	N	4
54. I was able to make an appointment with a health professional of my choice	Access	Y	
55. The doctor was interrupted during my consultation	Access to resources	Y	
56. I know about the health conditions I have	Patient related factors	N	1
57. I knew who to go to in the practice if I needed to ask a question	Organisation and Care Planning	Y	
58. Once I had been referred there was a delay*	Primary – Secondary Care Interface	Y	
59. I noticed that staff had different ways of doing the same thing e.g. performing tasks, prescribing medication, following care plans	Staff training	N	2
60. I had enough time during the consultation with a health care professional	Time during consultation	Y	
61. Where necessary my doctor, nurse or other health professional regularly monitors/reviews my health condition*	Organisation and Care Planning	Y	
62. I always felt that nurses listened to what I had to say about my illness / symptoms / treatment	Communication	Y	
63. The physical environment made it difficult	Type and layout of	N	1

for staff to do their jobs e.g. poor lighting, consulting room layout, examination equipment, clutter and untidiness	practice		
64. The cost of seeing a specialist or other health professional prevented me from accessing these services when it was recommended by my doctor	Medicare system and structure	N	2
65. The practice has opportunities for patients to be involved in improving safety e.g. patient representatives on committees, complaint systems	Patient involvement in safety	N	3
66. When I accessed the after-hours service it was useful*	Access	Y	
67. Administration staff interacted with me in a manner I found acceptable	Communication	Y	
68. I trust staff at the practice	Trust	N	1
69. There were enough staff at the practice to get things related to my care and treatment done	Organisation and Care Planning	N	3
70. The cost of seeing a doctor, nurse or other health professional at the practice prevented me from seeking care when I needed it	Medicare system and structure	Y	
71. I was able to make an appointment at a time that suited me	Access	Y	
72. The practice has opportunities for me to be involved in my own safety	Patient involvement in safety	N	3
73. Sometimes there was no-one available to deal with aspects of my care	Access	Y	
74. Doctors interacted with me in a manner I found acceptable	Communication	Y	
75. The doctor made a mistake prescribing a medication	Provider performance	N	1
76. The cost of medications prevented me from filling a script when I needed medication	Medicare system and structure	Y	
77. Trainees were supervised appropriately	Staff training	N	4

** Question wording changed after the "think-aloud" process.*

Reason for discarding a question:

1. The item was considered not to be a direct contributing factor to patient safety.
2. The item was considered difficult for primary care organisations to respond to or take action towards.
3. Patients had no knowledge or experience of the particular item, such as communication that occurred outside a consultation and did not involve the patient.
4. The item was considered to be repetitive, or clearly phrased elsewhere in another item.

Table 2. PMOS domains and whether they were included in the PC PMOS.

Domain	**Domain included in final questionnaire**	**Number of questions in domain**
Access	Y	6
Access to resources	N	
Communication	Y	12
Continuity of care	Y	1
Coordination of care	N	
Desire for an explanation and apology	N	
Dignity and respect	Y	1
Equipment (design and function)	Y	1
External policy context*	Y	2
Information flow	Y	3
Medicare system and structure	N	
Organisation and Care Planning	Y	4
Patient involvement in safety	N	
Patient related factors	Y	6
Physical environment*	Y	1
Primary – Secondary Care Interface	Y	2
Provider performance	N	
Referrals	Y	2
Risk awareness	N	
Staff roles and responsibilities	N	
Staff training	N	
Task Performance*	Y	6
Team-work	N	
Team Factors*	Y	2
Time during consultation	N	
Training and Education*	Y	1
Trust	N	
Type and layout of practice	N	
Vulnerability	N	

** Collapsed or renamed domains*

Validity

Clinics had commenced recruiting the 50 patients to undertake the testing of the PC PMOS in a primary-care setting, but the study had to be terminated when the investigator had to go on immediate and extended leave. Clinics were advised to cease recruitment and to advise any of their recruited patients that the study was not proceeding at this time.

Discussion

People attending general practice expect their care to be safe but this is not necessarily the case. Patients are an excellent source of information about safety in this setting, but a suitable questionnaire needs to be developed to extract necessary information from patients. The PC PMOS is one such questionnaire. It added the four domains of continuity of care, external policy context, primary–secondary interface and referrals to the hospital-based PMOS from which it was developed. These domains reflect the structural diversity and broader scope of primary care that are contributing factors in safety incidents in primary care.

Monitoring patient safety is a challenge in healthcare [21] and so the PC PMOS may provide useful information for primary-care staff to improve safety and to monitor their changes over time, especially as they report that they struggle to make changes based on patient survey feedback alone [22]. The PC PMOS was designed to have space for free text in which patients could provide additional responses on each item.

Recruitment of patients to complete any questionnaire is always a barrier to data collection. This study suggests that patients preferred to receive the questionnaire in a variety of different formats. Particularly vulnerable patient groups, such as those with low literacy or visual impairment, may experience difficulties completing the questionnaire, and a facilitator may be required, adding further difficulties to recruitment.

Not all factors contributing to patient safety incidents are included in the PC PMOS and so practitioners should use it in conjunction with other safety measurement tools, such as significant event analysis.

Conclusion

The PC PMOS was adapted from the hospital-based PMOS questionnaire to collect systematically patient feedback on the safety of care within a primary care setting and to allow patients to identify various factors contributing to safety incidents. A small sample of patients and primary-care staff assessed the draft PC PMOS. Their comments and feedback allowed the draft PC PMOS to be refined. This study was designed to test the PC PMOS questionnaire in a primary-care setting to assess its reliability and validity. General practices in regional towns were recruited and recruitment of participants had begun when the study had to be terminated at short notice.

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