

Safety netting for primary care: evidence from a literature review

Abstract

Background

Ensuring patient safety is vital in primary care. One mechanism to increase patient safety is through a practice known as safety netting. Safety netting is widely recommended in national guidelines; however, a variety of definitions exist with no consensus on when safety netting should be used and what advice or actions it should contain.

Aim

This study aimed to identify different definitions of safety netting to provide conceptual clarity and propose a common approach to safety netting in primary care.

Design and setting

Literature review and evidence synthesis of international articles relating to safety netting in primary care.

Method

An electronic database and grey-literature search was conducted using terms around the theme of safety netting with broad inclusion criteria.

Results

A total of 47 studies were included in the review. Safety netting was defined as a consultation technique to communicate uncertainty, provide patient information on red-flag symptoms, and plan for future appointments to ensure timely re-assessment of a patient's condition. Safety-netting advice may include information on the natural history of the illness, advice on worrying symptoms to look out for, and specific information on how and when to seek help. In addition to advice within the consultation, safety netting includes follow-up of investigations and hospital referrals. Safety netting was considered to be particularly important when consulting with children, the acutely unwell, patients with multimorbidity, and those with mental health problems.

Conclusion

Safety netting is more than solely the communication of uncertainty within a consultation. It should include plans for follow-up as well as important administrative aspects, such as the communication of test results and management of hospital letters.

Keywords

consultation; primary care; safety netting; uncertainty.

INTRODUCTION

Patient safety is a vital component of healthcare provision and is receiving increased attention worldwide.^{1,2} Patient safety is key to primary care, and although primary care is considered to be essentially safe³ it is estimated that 1–2% of consultations may lead to harm.⁴ Safety netting can potentially improve diagnostic and care pathways, and, as a result, is receiving increased attention, particularly in the areas of early diagnosis of cancer and in consultations with children. Cancer Research UK (CRUK),⁵ Macmillan Cancer Support,⁶ and the Royal College of Paediatrics and Child Health⁷ have issued safety-netting guidelines. In addition to this, the National Institute for Health and Care Excellence (NICE) includes safety netting in guidance on the recognition and referral of suspected cancer,⁸ management of feverish children,⁹ meningitis,¹⁰ gastroenteritis,¹¹ and self-limiting respiratory tract illnesses.¹² This has resulted in an increasing number of definitions of safety netting and its components, along with calls for more research on what recommended safety-netting advice should incorporate.¹³

Safety netting was formally introduced nearly 30 years ago by Roger Neighbour,¹⁴ who defined it as a process whereby the GP answers three questions: *'If I'm right, what do I expect to happen? How will I know if I am wrong? And what would I do then?'*

Safety netting is included in Neighbour's own model of the consultation as well as the Calgary–Cambridge model, which includes safety netting in the section 'closing the session'.¹⁵

Bankhead *et al* were among the first to attempt to provide recommendations for safety netting in primary care. They aimed to identify the components of safety netting related to cancer diagnosis and were the first to suggest that safety netting may be more than a consultation technique.¹⁶ The aim of this review was to build on the research by Bankhead and colleagues to collate and summarise the evidence on safety netting for all patients. Specific objectives were to identify definitions of safety netting and develop a summary to provide conceptual clarity and propose a common approach to safety netting for all consultations, including when it is required and the information it should include.

METHOD

The focus of this literature review was to explore varying definitions and content of safety netting, which is currently poorly understood, with limited research on the definition, content, and effectiveness of the concept. As a result a narrative synthesis approach was undertaken in this review using methodology as described by Arai *et al*.¹⁷ The ENTREQ checklist for reporting the synthesis of qualitative research was used as a guideline when reporting the results.¹⁸

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How this fits in

Safety netting is best practice, an important aspect of patient safety, and is widely recommended in national guidelines. Despite this, there is no agreement on when safety netting should be used, what information it should contain, or even how best to define it. This literature review has identified definitions and the key components of safety netting.

Identification of literature

An electronic database search using MEDLINE, PsycINFO, CINAHL, EMBASE, the Cochrane Library, Web of Science Core Collection, and Google Scholar was undertaken from commencement to April 2018. The concept of safety netting is relatively imprecise as it can be used in different patient groups, in a wide variety of patient settings, and can include different actions. Search terms around the words 'safety netting' such as 'safety net*' were used in order to capture as much of the relevant literature as possible without predetermining the individual components of safety netting. Searches of the grey literature database, Open GREY, and websites including the Department of Health, NICE, the National Patient Safety Agency, CRUK's National Awareness and Early Diagnosis Initiative, and the National Cancer Registration and Analysis Service were conducted to identify relevant unpublished work. Citation searches of all included articles were undertaken.

Inclusion criteria

The present review had broad inclusion criteria. Citations were included if they focused on patients, carers, or healthcare professionals and provided a definition of, or information on, safety netting for any patient group in any healthcare setting. Only English-language articles were included as were studies using any research design. Educational articles and opinion pieces were included as these could potentially include detailed information on the definition and content of safety netting.

Selection of studies

Search results were screened using title and abstract by either of two reviewers, with approximately 10% independently screened by both to ensure consistency. The full text of any potentially relevant study was obtained and independently assessed for eligibility. Disagreements were resolved by a third reviewer. Data were extracted by one reviewer using a standardised form.

Information was collected on setting, design, population, the definition of safety netting used, the components included, and recommendations as to the timing and circumstances under which it should be used.

Data synthesis

Arai *et al* describe the process for undertaking a narrative synthesis.¹⁷ In the present review, synthesis was undertaken using tabulation and grouping to enable data to be compared across different citations and patterns to be established across the included literature. This process led to the development of the definitions and components of safety netting using categorisation. Following this, a process of 'idea webbing' and 'conceptual mapping', also described by Arai *et al*, was used to explore the relationship between the included citations and to develop the model of safety netting discussed below. During this stage, safety-netting components were mapped to both models of the consultation and consultation outcomes.

RESULTS

The search strategy retrieved 9949 articles, with 106 full-text articles undergoing detailed review. After excluding articles that were not about safety netting ($n = 21$), articles that were not available ($n = 11$), articles not in English ($n = 2$), and those that mentioned safety netting but did not provide any related information ($n = 25$), a total of 47 studies were included in the review. The majority were from the UK with the remainder from Australia, Belgium, the Netherlands, Sri Lanka, and the US. All the included articles discussed safety netting in a 'first patient contact' setting, which was most often in primary care, the emergency department (ED), or an out-of-hours (OOH) setting. The patient groups included all patients in the majority of articles; some focused on consultations with children whereas others dealt with specific conditions or symptoms, such as melanoma, or fever. Figure 1 shows the PRISMA diagram; a supplementary table contains further information on the included articles, which is available from the authors on request.

Over half of the citations were classed as expert opinion including 20 educational articles^{5,6,8,9,14,15,19-32} and five editorials or commentaries.^{13,33-36} Twelve citations were studies using qualitative methods including five interview methods,³⁷⁻⁴¹ two questionnaire methods,^{7,42} and five mixed-method studies.⁴³⁻⁴⁷ Of the remaining

studies, five were audit or case reviews,^{48–52} three were systematic reviews,^{53–55} one was a Delphi study,¹⁶ and one was a protocol for a randomised controlled trial.⁵⁶

Current definitions of safety netting

Of the included citations, 30 offered a definition of safety netting.^{5,6,8,9,13,14,16,19–23,25,27–29,33,36–38,41,43,44,46,47,49,51–53,55} Although this differed among included articles, several themes were common throughout the literature. These data are presented in Table 1.

Management of uncertainty was frequently mentioned, suggesting that safety netting may act as a contingency plan by providing patients with information on prognosis and ways of organising follow-up. Cancer Research UK states that safety netting can be used to support the management of diagnostic uncertainty, helping to ensure patients are re-evaluated in a timely manner.⁵ Follow-up and review are also considered to be important aspects of safety netting. *Hirst et al* states that ‘one of the main safety netting approaches is to ask patients to return if symptoms persist’.⁴⁴ Similarly, a model of the consultation introduced by *McKelvey* states that ‘an agreed follow-up or review date is set’.²¹ Safety netting was also discussed in terms of providing medical

legal protection to healthcare professionals; the Medical Defence Union (MDU) states that, if a complaint is received, the doctor’s actions will be scrutinised.²²

Other definitions highlighted the need to review and act on results of investigations as an essential part of safety netting. This was described in definitions as ‘active monitoring of patients’, the ‘follow-up and monitoring of investigations and urgent referrals’, and an ‘administrative process’.^{5,8,55} This important aspect of safety netting was not originally discussed by *Neighbour* but would seem to be a vital aspect of future good patient care. Box 1 contains a proposed definition of safety netting, developed using the evidence explained previously.

Timing and recipients of safety netting

Of the included citations, 24 provided advice on when safety netting should be used.^{5,7,8,13,16,20,24–26,30–33,36–38,40,42,44,45,49,52,54,55} It was recommended when there is diagnostic uncertainty and the differential diagnosis includes serious illness or illness that may progress rapidly. The MDU states that ‘safety netting is important where a patient may have risk factors for a specific disease or where specific complications are recognised as part of the illness’.²²

The use of safety netting when managing children was frequently noted to be important, as a result of often early and non-specific presentations of acute illness in children and the small proportion of children with serious illness.³⁰ Other patient factors such as an older age, multimorbidity, or mental health problems may increase the risk of the illness being or becoming serious, and therefore were felt to require careful safety netting.¹³

Three articles stated that safety netting should be done at each and every contact between a healthcare professional and patient. It was also acknowledged that safety netting is particularly important in acute settings, such as in ED, OOH centres, and when using telephone consultations.^{16,31,52}

Components of safety-netting advice

Two-thirds of articles in the review ($n = 38$) provided suggestions for what safety-netting advice should include (Table 2).^{5,6,8,9,13–16,19–23,25–29,31–34,36,38,39,41,43,44,46–53,55,56} The most frequently recommended components were: communicating uncertainty; advice on worrying symptoms and red flags; the likely time course of the illness; how and when to seek further medical care; arranging planned follow-up; primary care investigations and safety netting; and organisational components. Table 2 shows the frequency of the recommendations.

Figure 1. PRISMA flowchart of article selection.

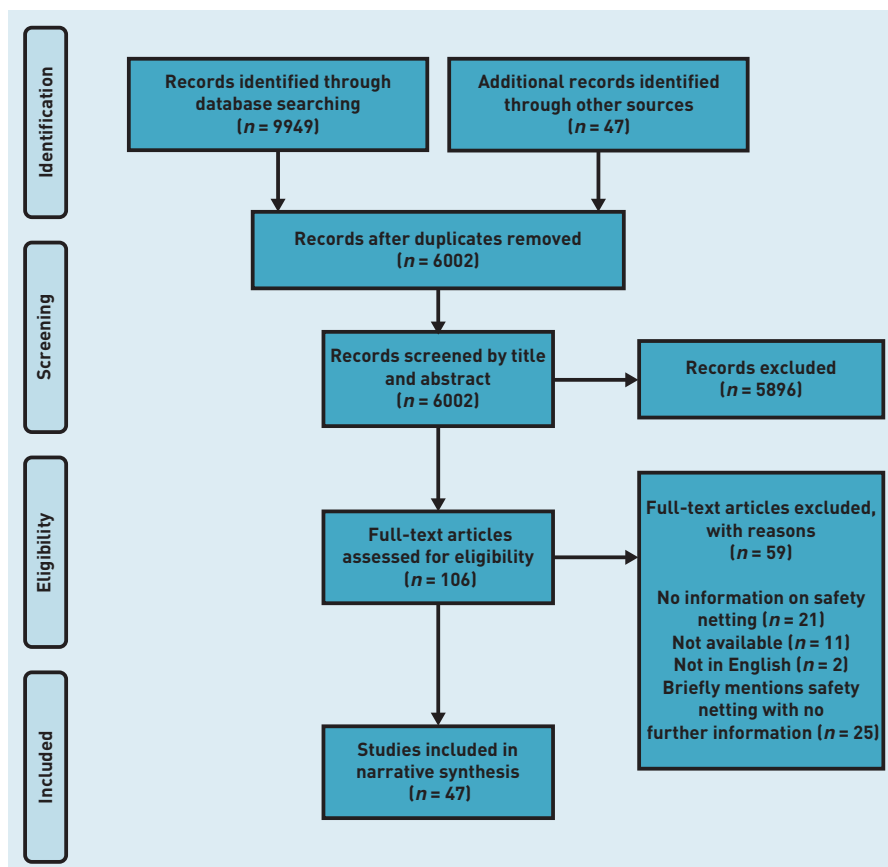


Table 1. Safety netting as defined in the literature

Definition	Citation
Consultation technique	Walter, 2014 ⁴¹
Tool to manage diagnostic uncertainty	● Singh, 2016 ²⁹
Mechanism to inform patients of red-flag symptoms	● RCGP, 2011 ²⁸
Contingency plan or patient review	● Roland, 2014 ³³
Provision of information to ensure patients re-present	● Rees, 2017 ⁵²
Means of empowering patients	● Pearson, 2007 ²⁷
Observation for/following potentially serious illness	● Nicholson, 2016 ⁵⁵
Active monitoring of patients	● NICE, 2013 ⁹
Follow-up and monitoring of investigations	● NICE, 2015 ⁸
Follow-up and monitoring of urgent referrals	● Neighbour, 1987 ¹⁴
Administrative process	● NPSA, 2010 ⁵¹
Medicolegal protection for doctor	● Morgan, 2014 ²⁵
	● Mitchell, 2013 ⁴⁹
	● MDU, 2018 ²²
	● MDDUS, 2012 ²³
	● McKelvey, 2010 ²¹
	● Kaufman, 2008 ²⁰
	● Jones, 2014 ⁴⁷
	● Jones, 2013 ⁴⁶
	● Hirst, 2018 ⁴⁴
	● de Vos-Kerkhof, 2015 ⁵³
	● Chater, 2003 ¹⁹
	● CRUK, 2016 ⁵
	● Campion-Smith, 2017 ⁶
	● Buntinx, 2011 ³⁶
	● Berthelot, 2016 ³⁸
	● Bankhead, 2011 ¹⁶
	● Balla, 2012 ²⁷
	● Almond, 2009 ¹³
	● Ablett-Spence, 2012 ⁴³

CRUK = Cancer Research UK; MDDUS = Medical and Dental Defence Union of Scotland; MDU = Medical Defence Union; NICE = National Institute for Health and Care Excellence; NPSA = National Patient Safety Agency; RCGP = Royal College of General Practitioners.

Box 1. A proposed new definition of safety netting

Safety netting is an essential process to help manage uncertainty in the diagnosis and management of patients by providing information for patients and organising follow-up after contact with a health professional. This aims to empower patients and protect healthcare professionals. Safety netting may be performed at the time of the contact between health professional and patient, or may happen after the contact through active monitoring and administrative systems to manage results and referrals.

Communication of uncertainty. A discussion with the patient around uncertainty was highlighted as an element of safety netting. Almond *et al*'s Delphi study described this well, stating:

*'If the diagnosis is uncertain, that uncertainty should be communicated to the patient [or parent/carer] so that they are empowered to re-consult if necessary.'*¹³

Similarly, in his advice to GP registrars, Singh states:

*'If you are not sure of the aetiology, explain this to the patient. This reduces the risk of false reassurance and most patients appreciate the honesty.'*²⁹

The Medical and Dental Defence Union of Scotland (MDDUS) states that diagnostic uncertainty may occur due to patients presenting very early in the illness process, making medically unexplained symptoms more likely.²³

None of the included studies gave advice on how uncertainty is communicated to patients. Both Bankhead¹⁶ and Nicholson⁵⁵ state that further research is needed to explore how this is most effectively undertaken by healthcare professionals.

Advice on worrying symptoms and 'red flags'. In order to know when to represent or seek further medical care, it is necessary for patients to know the 'red flag' or worrying symptoms they should look out for.

This component of safety netting was described well by Almond *et al* who stated that:

*'If there is a recognised risk of deterioration or complications developing then the safety-net advice should include the specific clinical features (including red flags) that the patient [or parent/carer] should look out for.'*¹³

This could include a description of symptoms of serious illness such as meningitis in an unwell child, or signs that may be suggestive of cancer in a patient presenting with non-specific symptoms, for

example, a patient may be warned about rectal bleeding or diarrhoea if they present with unexplained vague abdominal pain.

The likely time course of the illness. Persistent or non-resolving symptoms may warrant further investigation or consultation and may be considered as a 'red flag'. In order to know when a symptom is persistent or non-resolving, healthcare professionals need to communicate a likely time course to patients. However, Almond *et al* recognise that this information may not be known for all presentations and state that this should not delay help-seeking if the patient or carer has concerns.¹³ For example, a systematic review found that acute cough in children could last over 2 weeks.⁵⁷ Safety-netting advice could inform parents of this likely time course, but red flags and worrying symptoms, such as a rash or worsening fever, should also be discussed to prompt an earlier review if needed.

How and where to seek further medical care. Once patients understand the potential red flag or worrying symptoms and the likely time course of the symptoms, they need to know how and where to seek further medical care if symptoms persist or red-flag symptoms present. This element of safety netting was the most frequently included component and included: signposting to other services such as OOH, or the ED;^{29,47} advice on how to make a follow-up appointment if needed, and who should do this;^{19,55} and legitimising repeat visits so that patients felt able to return if symptoms persist or worsen.⁴⁶

The key element of this component of safety netting ensures that patients know how, and where, to seek help if things do not go as planned or expected. This was felt to be a separate component from planned follow-up, which is discussed further on and may not be needed in every situation. For example, Bankhead and colleagues described this component as:

*'Specific information about when and how to re-consult if symptoms do not resolve in the expected time course.'*¹⁶

Buntinx *et al* state safety netting should include:

*'Clear information and advice on re-contacting the GP in specific situations.'*³⁶

This suggests the advice should include a description of the specific situations and how to go about seeking help in these situations.

Arrange planned follow-up. As well as advising patients on how to seek help should things not go as expected, arranging planned follow-up may be a part of safety netting. This was felt to be a distinct element to safety netting and would normally involve a review in a similar setting, often with the same healthcare professional. The NICE suspected-cancer guidelines make this distinction clear, stating that reviews may be planned, or patient-initiated if new symptoms develop.⁸

Planned follow-up may be encouraged after having investigations (discussed below), or in groups of patients who may be less likely to re-present without planned follow-up. In their safety-netting advice, Morgan *et al* state:

*'Arranging appropriate follow-up for patients is an essential element of the consultation ... We encourage having a low threshold for asking patients to return for a review.'*²⁵

Similarly, Macmillan's safety-netting leaflet advises the following:

*'If you feel a patient needs to be reviewed, offer to make an appointment for them, rather than asking them to do it.'*¹⁶

Primary care investigations and safety netting. Safety netting around investigations may include arranging patient follow-up as discussed above, but could also include an explanation of the purpose of tests, how they are undertaken, and how results can be obtained. Much of the safety-netting advice around cancer diagnosis focuses on investigations. The National Patient Safety Agency states that patients should be *'enabled to follow up test results relating to their own care'*.⁵¹ The NICE suspected-cancer guidelines state in the safety-netting advice that results of investigations should be reviewed and acted upon appropriately.⁸

Nicholson *et al* also highlight that patients often assume 'no news is good news' following investigations and suggest that healthcare professionals retain responsibility for reviewing and acting on the results of investigations they have requested.⁵⁵

Organisational components. In addition to the contents listed above, included articles gave advice on other actions as part of safety netting, including a recommendation to document safety-netting advice in the patient's notes,^{16,22} have administrative systems in place to ensure abnormal

results are dealt with,⁶ and ensuring patients' contact details are up to date.⁵ Written safety-netting instructions were suggested by a number of articles.^{6,22,23,50,55} The MDU advises careful documentation in the medical notes and providing written advice, stating:

*'Document specific advice given, rather than simply "advice given".'*²²

Nicholson agrees, stating:

*'Ensure patients understand safety netting advice, with written instructions if needed.'*⁵⁵

Despite many of the articles suggesting provision of written advice to patients, none of the sources gave information about what advice should be given, or about which group of patients may benefit from written advice.

DISCUSSION

Summary

Safety netting was described as an essential component of the consultation in 1987,¹⁴ and it continues to be advocated by national guidelines. This review included 47 citations on safety netting with the aim of clarifying the concept, use, and content of safety netting. The present review has included citations on safety netting in a variety of settings and for different patient groups. Despite this, the definitions of safety netting and its possible component parts seemed to be largely universal. This suggests that, whether given to the patient or parent, in the emergency department or general practice, safety netting can be defined and component parts conceptualised, universally. The definition of safety netting has developed from that first described by Neighbour,¹⁴ and the literature suggests that it should include a discussion with the patient on the problem of uncertainty, advice on potential red-flag symptoms, the likely time course of the illness, advice on accessing further medical care, follow-up, and the management of investigations. Safety netting may also include other factors such as providing written information and documenting advice in the medical notes.

The most recognisable part of safety netting — managing uncertainty — still occurs within the consultation. And although this may centre on the diagnosis, as Neighbour suggested in his question, *'How will I know if I am wrong?'*, it may now also include prognostic and management uncertainty. Although many of the included citations suggest discussing uncertainty,

none provides advice or evidence on how best to do this in practice. Uncertainty exists in the majority of consultations, but without the first step of recognising and communicating uncertainty, the actual need for safety netting may be lost. The rest of the component parts discussed previously can help to provide a safety net in the management of uncertainty by providing information to patients and organising, or legitimising, a follow-up visit to ensure patients do not 'slip through the net'. Alam *et al* conducted a conceptual review on managing diagnostic uncertainty in which safety netting is listed as just one technique in a group of cognitive factors that may help practitioners manage uncertainty. Their review suggests that the management of uncertainty in primary care is complex and that safety netting may be just one of a number of factors to be considered.⁵⁸

The present literature review has focused on safety netting from the point of view of the healthcare provider; however, it is also important to consider the importance of safety netting for patients and carers. Only a few of the included citations in this review were patient focused,^{39,41,42,44,47} with the majority discussing safety netting from the perspective of the healthcare providers. More research is needed on what patients understand and want from safety-netting advice and how they wish to receive the advice.

Strengths and limitations

This was the first review of safety netting in all age groups and settings, and brought together insights from a variety of sources. The data have led to a new definition of safety netting as well as a description of its component parts. However, the review was subject to some limitations. Given the largely undefined nature of safety netting, compiling a comprehensive search strategy was difficult. A broad search around the terms 'safety net' or 'safety netting' was therefore used, rather than a focused search for all the possible individual components of safety netting. The most important limitation of the study was the lack of research evaluating the effectiveness and the optimal components of safety netting. Over half of the included citations could be classed as 'expert opinion' and did not draw on empirical research. The findings of this review should, therefore, be treated with caution. It is hoped that this review may provide a basis to inform future safety-netting research.

Comparison with existing literature

Little research has sought to define and

assess safety netting before this review. The Acutely Sick Kid Safety Netting Interventions for Families research programme has undertaken a number of research projects looking specifically at safety netting in children, and relevant published work from this programme has been included.^{33,46,47,54} Similarly, a widely referenced, unpublished report on safety netting was produced by the University of Oxford, the findings of which are also included¹⁶ in this study.

Implications for research and practice

The consultation advice found in the present review, as Neighbour¹⁴ suggested, is one part of a larger array of actions that safety netting may include. It is clear that safety netting, while still considered to be an essential process to help manage uncertainty in diagnosis, has now been expanded by many authors to include dealing with uncertainty in management by providing information for patients and organising follow-up after contact with a health professional. It aims to empower patients to recognise serious illness and seek timely and appropriate continued health care. The features of safety netting include advice on how and where to seek help, red flags, the organisation of follow-up, and the natural history or time course of an illness. It may be performed at the time of contact between the health professional and the patient, or after, through active monitoring and administrative systems to manage results and referrals. Safety netting appears to have moved away from simple advice at the end of a consultation to a plethora of actions in a variety of settings undertaken by different members of the healthcare team. The results of this review highlight different aspects of safety netting that have been suggested and may provide some conceptual clarity.

The most compelling finding of this review is the lack of empirical research on safety netting and its components. The citations included have allowed the development of a definition of safety netting and provided a list of possible component parts. In clinical practice the individual components may serve as a reminder when conducting safety netting; however, the findings are largely based on expert opinion and, as such, caution should be used when interpreting the results. Further research is needed on many aspects of safety netting, including how it is implemented, the needs and understanding of patients subject to safety netting, and to evaluate the effectiveness of safety netting, both its component parts and the patient groups for whom it is important.

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