Safety netting in Healthcare settings: what it means, and for whom?

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Introduction

The concept of a safety net, originating from the physical nets used by performers, is now used across many organisations and branches of government. In healthcare, safety netting refers to the provision of information to help patients or carers identify the need to consult a health care professional if a health concern arises or changes. The relevance of this advice is most obvious with acute childhood illnesses, as their dynamic nature, with symptoms and signs emerging at different times and in different combinations, makes safety netting particularly important. A number of organisations, including the National Institute for Health and Clinical Excellence (NICE) and the Royal College of Paediatrics and Child Health, recommend that clear safety net advice should be given to parents of febrile children at the end of consultations, and there is evidence that when this happens re-presentation rates are reduced [1]. However safety netting also applies to chronic illnesses such as mental health, as well as other groups of patients.

A conceptual framework detailing the mechanism of effective safety netting in healthcare settings has yet to be described, and there is increasing evidence that parents want guidance on when to seek medical advice (a key part of safety netting) and how to manage symptoms at home prior to initial consultation [2-5]. This article explores current understanding of safety netting in child health and argues that there is a need to develop a standardised approach.

What is safety netting?

The concept of safety netting for children has become much more prominent since the publication of the NICE fever guideline [6] which explicitly defined the need for post consultation advice [see table one] and this has been utilised in subsequent guidance on Gastroenteritis and Meningococcal Disease [7,8,]. However a form of safety netting has been used implicitly by health care professionals for some time [9].

Table 1: Core components of NICE safety net advice for management of febrile ilnness

The safety net should be one or more of the following:
Provide the parent or carer with verbal and/or written information on warning symptoms and how further healthcare can be accessed
Arrange a follow-up appointment at a certain time and place
Liaise with other healthcare professionals, including out-of-hours providers, to ensure the parent/carer has direct access to a further assessment for their child

National Institute for Health and Clinical Excellence (2013) Feverish illness in Children. [CG160]. London: National Institute for Health and Clinical Excellence)

Although safety netting is an audit standard for the NICE fever guidelines, it does not specify whether the documentation of any discussion of a 'safety net' (i.e. in global terms) is enough or whether a list of specific signs and symptoms needs to be given. The NICE 2012 Meningococcal Quality Standard [10] makes reference to specific safety net advice [table 2] and England's proposed commissioning system, which rewards their implementation, will raise the need for a formal definition and content.

Table 2: Safety net quality standard from the NICE guideline on bacterial meningitis and meningococcal disease

'Safety netting' information comprises oral and/or written information on what symptoms to look out for, how to access further care, likely time course of expected illness and, if appropriate, the uncertainty of the diagnosis. Information on warning symptoms should include a specific instruction for parents and carers looking after a feverish child to seek further advice if any of the following occur:

- The child develops a non-blanching rash.
- The parent or carer feels that the child is less well than when they previously sought advice.
- The parent or carer is more worried than when they previously sought advice.
- The fever lasts longer than 5 days.
- The parent or carer is distressed, or concerned that they are unable to look after the child.
- The child is lethargic or irritable.
- The child stops feeding (infants only).
- The child has a fit.

National Institute for Health and Clinical Excellence (2012) Bacterial Meningitis and Meningococal Septicaemia in children and young people [QS19]. London: National Institute for Health and Clinical Excellence

A more detailed explanation of the content of safety net advice was provided by Almond et al. in relation to general practice [11]. Consensus was reached amongst General Practitioners and Paediatric Emergency Department consultants on five statements, based on a modified Delphi approach (table 3). The authors found no consensus about how this advice should be provided (e.g. verbal, written, or other formats).

Who should safety netting be used for?

Although safety netting has been typically considered for acute conditions, we believe it applies to a wide range of clinical scenarios.

- **Acute febrile Illness**

Everyday large numbers of acutely ill children are presented to health care practitioners by concerned parents. An even greater number of parents worry about their child's illness at home without seeking medical help. Health care professionals use safety nets to ensure children who have more serious illnesses, but present initially with no clear key features, are not missed. In a child health context a balance of clinical signs, intuition and cognitive reasoning [12] contribute to the formulation of a proposed diagnosis e.g. a fever is presumed to be of viral aetiology. Confirmation of most acute conditions is rare, particularly in primary care, owing to their typically self limiting nature. The presumptive nature of most consultations is why safety netting is so important. Even key signs of serious illnesses [13] may be missed and for this reason the concept of 'red flags' has been increasingly used in guidelines and educational tools. These are specific clinical signs or symptoms that are highly specific for serious (bacterial) illness. For example: the appearance of a rash that does not blanch on pressure is something parents can identify and has therefore been promoted by awareness campaigns for recognition of meningococcal septicaemia. However, most red flag features, while highly specific, have very low sensitivities in most frontline paediatric settings, so the absence of red flags is not useful for ruling out serious infections. Moreover, even specific features such as petechial rash are far from 100% specific, so even in emergency department settings a large proportion of children with petechial rashes will not have invasive bacterial disease. [14] As serious bacterial infections become even more rare, the diagnostic value of red flags falls further.

- **Other medical problems**

Children often present with non- specific, non- acute signs and symptoms. 'Safety nets' to support parents, to know when to re- present to a health professional for further assessment, and also for professionals, to know when to refer the child for further investigations, are needed. For example, the UK is known to have one of the longest time intervals in Europe from first presentation to diagnosis of brain tumour in children. The HeadSmart campaign (http://www.headsmart.org.uk) aims to reduce the time to diagnosis by providing parents and health professionals with a set of key features that should trigger prompt action in children presenting with headache. The aim of the campaign is to reduce the length of time between initial presentation and subsequent diagnosis [15,16,17]. In its first year there has been reduction in time to diagnosis from 9.3 to 7.5 weeks [18]

- **Chronic Illness and mental health**

Safety netting may also be used to improve early recognition of mental health problems or chronic illness. Recent attention on the high suicide rate in young adults, particularly men, has highlighted the need for clear guidance in this area. For example, some young people with mental health problems have presentations and interactions with health care services extending back over potentially significant periods of time [19]. This may be particularly prominent for mental health problems where confusion with normal development occurs, but also with conditions such as Crohns where initial symptoms may be overlooked, intermittent and not troubling enough to prompt referral. Reducing

time to diagnosis involves health care professionals at first contact, regardless of the reason for presentation, being aware of specific presentations and symptomologies which may increase risk of subsequent deterioration. Failure to recognise these symptoms means health care professionals are unable to give individuals and their families features to look out for which may demonstrate a worsening of their condition.

How and when is safety netting used?

There is a lack of evidence regarding the optimal format for delivering safety netting advice. It can be delivered in a variety of forms including verbal communication, visual display via an electronic device, written information or referral to other services such as community nurses. With the advances in technology, new methods need to be considered, especially when supporting families and children with low literacy or where language is a barrier to communication.

Although there are differing opinions on the best form of safety net advice [11], with parents most commonly reporting receiving verbal advice [20], little is known about parents' understanding related to the information provided. New forms of obtaining information, primarily the internet, are increasingly used by the public and health care professionals [21, 22,] but this may increase uncertainty for parents in regard to acute illness [23]. Smart phones can now deliver a vast quantity of information, some peer reviewed, others non-evidenced based. This technology will increase the possibility to develop of 'pull' rather than 'push' information with information instantly available to families. However it is important to recognise not all patient groups have access to these devices.

Roger Neighbour [24] highlighted three key questions General Practitioners should ask themselves once a diagnosis had been reached in regard to safety netting.:

1. If I'm right what do I expect to happen?
2. How will I know if I'm wrong?
3. What would I do then?

These questions are for the benefit of clinicians rather than for patients or parents. The contemporary concept of safety netting is now much more widely focused on the provision of safety net advice and/or services for the patient/parent.

The aspects of safety netting content for which Almond et al. [11] found clinical consensus are shown in table three.

Table 3 – What should safety net advice include?

What should safety net advice include?
• The existence of uncertainty. If the diagnosis is uncertain, that uncertainty should be communicated to the patient (or parent/carer) so that they are empowered to reconsult if necessary. • What exactly to look out for. 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. • How exactly to seek further help. Safety-net advice should give specific guidance on how and where to seek further help if needed. • What to expect about time course. Where information about the likely time course of illness is known, safety-net advice should include this information. However, it should be made clear that if a patient (parent/carer) has concerns they should not delay seeking further medical advice.
What should be recorded?
• Safety-net advice should be documented in the medical notes. • There was no consensus on when and whether safety-net advice should be given in written format rather than verbally.

These findings were drawn from professionals rather than from the recipients of safety netting (i.e., parents, children, young people). What the recipients want in such advice is as yet unknown, presenting an important area for collaborative research [9]. Furthermore, given that parents are likely to consult when they feel their capacity to cope with their child's illness has been reached [25], their understanding of information is central to any safety netting intervention. It is also important for professionals to understand that there are social factors which affect parents' ability to use knowledge to assess the acuity of their child's illness. These include the outcome of past experiences of illness, the parent's own state of health, extent of the child's distress, and perceptions of the availability of social support [4]. Currently health care professionals must make judgements on the information needed, but there is little guidance on tailoring this information or what minimum required standard would be.

Current knowledge on the quality and effectiveness of safety netting

The clearest supporting evidence of effect is from the RCPCH fever study [1] which demonstrated a reduction in re-consultation rates in families who remembered having received safety net advice. A small study has also shown that giving safety net advice for fever does not increase return in an emergency department setting [26]. This is in a defined group of individuals with a very common condition and it is not obvious whether this would apply to children with other acute conditions or less common conditions. A review of the literature surrounding safety net provision has demonstrated those which focused solely on one symptom were less likely to result in reduction in consultation rates [27]. It is important to note the re-attendance is only one measure of the effectiveness of safety netting as an intervention. Even in these studies the acuity of the child of the returning child was not captured. Obviously some returns are entirely reasonable. A parent delaying necessary re-presentation on the basis of poor safety netting is a poor outcome, in fact potentially more so, than an unnecessary re-attendance.

Health care contacts for children are rarely if ever a 'one time' situation. Whether or not parents receiving safety netting during a consultation have different information needs to those receiving safety netting for future health care problems ("pre-consultation"), has not been explored. Concepts and outcomes, as applied to the delivery of the post-consultation safety net, may be entirely inapplicable to the pre-consultation intervention. Yet both are inextricably linked, particularly for common and recurrent health problems in children such as acute infections, as parents retain information given during a previous consultation and may use it pre-consultation in the future. The evidence supporting pre-consultation safety netting is equally sparse. NHS 111, or its predecessor NHS direct, may be considered such an intervention, but the safety netting information provided is generic and not tailored to the individual family or child's needs. Although a popular resource receiving 4 million phone calls per year [28] its effects on parental health-seeking actions have been equivocal [29]; although preventing presentations may not be the ultimate goal of safety netting. There are a myriad of information sources currently available for parents, which have increasingly shifted from paper (e.g. child care books for parents) to web based resources - some of which are endorsed by NHS bodies or recognized professional bodies, whilst others are potentially erroneous or dangerous.

The health economic argument for publically available pre-consultation safety netting must include the assessment of the potential outcomes of these risks. It is recognised that some population based strategies at a public health level already have an evidence based and conceptual models. Safety netting in a pre-consultation context is potentially quite family focused and additional to, rather than competitive with, campaigns as the tumbler test for meningococcal disease. The family focus is complex as there are other factors, not just those related to the medical condition, which may alter the decision to give safety net advice and what re-consultation threshold is given. The social context of the consultation and the healthcare professionals' perception of the capacity of parents to understand and interpret the advice given to them may alter the type of safety net provided. It is not clear, however, what the overall effect of

family and social factors is in respect of safety netting and further qualitative and quantitative investigation may be needed.

What we do not know and what is needed

The research framework around safety netting is not particularly strong although it has been identified in the children and young persons' outcome framework as a key indicator [30]. The following are some key gaps in existing evidence:

The effects of safety netting on outcomes relevant to patients, parents and the health service are not known. It will be important to define the key metrics including measures of acuity, outcome and parental satisfaction which will all need to be objectively determined. These are not always easy to obtain as, for example, determining whether safety netting has taken place depends on the accuracy of health care professionals' written notes and/or the recall of the family. Furthermore *the supply of written information to families does not guarantee engagement or understanding*.

The Health Foundation define co-production as As a delivery model for health services, co-production is based on the sharing of information and on shared decision making.[31] In this respect co-production of safety net information with parents, carers, children and young people is needed, potentially using learning theory and behavioural pyschologists rather than just the exchange of knowledge. between the service users and providers

although it would be useful to determine how many patients were appropriately prevented from re-consulting, or returned earlier than they would have done if safety netting had not been given in the presence of serious bacterial illness, the practical evaluation of these measures due to the low incidence of disease makes trial design difficult.

- Many doctors may consider that they have provided safety netting advice, the discrepancies between what doctors say and the understanding and retention of this by recipients remain poorly described [32]

- The effect of different methods of delivering safety netting advice on implementation and use is not clear. Furthermore there may be degrees of quality in its delivery which mean there are different outcomes

- Finally parents and healthcare professionals may want different outcomes from safety netting [33] e.g. reduced re-attendance for non-serious illness being potentially more important to healthcare professionals. Conversely parents and carers may not wish to bother their doctor, or undertake the inconvenience of taking their child to be seen, potentially resulting in delayed presentations.

Conclusion

The need for safety netting to ensure the physical and mental health of children and young people is well-recognised; however it is not clear by which mechanism it should occur. In order to create a research paradigm for safety netting that controls for the complexity of consultations in both health and social care, systematic evaluation of interventions with clearly defined outcome measures is needed. In order to ensure high quality care given the increasing utilization of services for children and young people, greater attention will need to be paid to the relative utility and efficacy of safety netting, based on an understanding of parents' help-seeking behaviours and interventions which are co-produced.

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