The Incident Decision Tree: Guidelines for Action Following Patient Safety Incidents

Sandra Meadows, Karen Baker, Jeremy Butler

Abstract

The National Patient Safety Agency has developed the Incident Decision Tree to help National Health Service (NHS) managers in the United Kingdom determine a fair and consistent course of action toward staff involved in patient safety incidents. Research shows that systems failures are the root cause of the majority of safety incidents. Despite this, when an adverse incident occurs, the most common response is to suspend the clinician(s) involved, pending investigation, in the belief that this serves the interests of patient safety. The Incident Decision Tree supports the aim of creating an open culture, where employees feel able to report patient safety incidents without undue fear of the consequences. The tool comprises an algorithm with accompanying guidelines and poses a series of structured questions to help managers decide whether suspension is essential or whether alternatives might be feasible. The approach does not seek to diminish health care professionals' individual accountability, but encourages key decisionmakers to consider systems and organizational issues in the management of error. Initial findings show the Incident Decision Tree to be robust and adaptable for use in a range of health care environments and across all professional groups. It is hoped that applying the tool throughout the NHS will encourage open reporting of actual and prevented patient safety incidents and promote a uniformly fair and consistent approach toward the staff involved.

Introduction

The National Patient Safety Agency (NPSA) was established in 2001 to facilitate and coordinate changes in culture and practice across the United Kingdom (U.K.) National Health Service (NHS), with the aim of promoting and improving patient safety.[1, 2] Its key roles include:

- Raising awareness of patient safety issues.

- Improving understanding of the causes of adverse incidents and near incidents.

- Creating a National Reporting and Learning System (NRLS) both to capture incidents affecting patient safety and to learn from them.

- Developing practical tools and guidance to assist in the above.

The NHS was established in 1948 to provide free health care to all citizens at the point of need. It is the largest organization in Europe, employing more than 1 million staff.[3] These comprise:

- 700,000 professional clinical staff

- 350,000 clinical support staff

- 200,000 infrastructure support staff

- 90,000 family doctor (general practitioner) practice staff (excluding nurses)

Patient safety solutions in the NHS must therefore be sufficiently robust and adaptable to address the diversity of need and function of the local organizations operating within its framework.

Why the tool has been developed

More than a million people are treated safely and successfully in the NHS every day. However, health care delivery is an increasingly complex and high-risk activity. Despite the dedication and professionalism of staff, things can and do go wrong. Research shows that approximately 10 percent of patients admitted to U.K. hospitals suffer some kind of patient safety incident.[1] Most of these incidents are minor and transient, but a very small number prove severe and fatal. It is estimated that up to half of all incidents may be preventable.[1] The way in which such incidents are handled is of critical importance to the future safety of patients and to the effectiveness of the NHS.

Integral to an improvement in patient safety is the need to analyze and learn from adverse incidents. Historically, however, patient safety incidents have been infrequently reported, particularly where patients have suffered no lasting harm. When submitted, reports have been discussed locally only and not used as learning tools to prevent similar occurrences elsewhere.

One of the primary reasons for low reporting levels has been the predominance of a "blame culture," where the likelihood of disciplinary action by the employer and/or regulatory body, coupled with the growing threat of litigation, has conspired to keep health care professionals from speaking out. David Marx, an international consultant in human error management, explains how anxiety inhibits most U.S. health care workers from reporting incidents:

> *"Few people are willing to come forward and admit to an error when they face the full force of their corporate disciplinary policy, a regulatory enforcement scheme, or our onerous tort liability system."[4]*

Marx further asserts, "Today, most corporate disciplinary systems literally prohibit human error. That is, mere human error, when coupled with harm to a patient, will raise the specter of social condemnation and disciplinary action."[4] Recognition of the futility of this position has been pivotal to changes in safety culture seen in sectors such as aviation.

Dr. Lucian Leape, professor at the Harvard School of Public Health, explains that a punitive work environment and the widely held belief that errors are

evidence of personal carelessness push many health care workers into reporting only what they cannot conceal. As Dr. Leape argues, "The single greatest impediment to error prevention is that we punish people for making mistakes."[5]

In 2001, a joint declaration by the U.K. Government and the British Medical Association called for the NHS to be more open in the way it deals with professional errors and "to recognize that honest failure should not be responded to primarily by blame and retribution but by learning and by a drive to reduce risk for future patients."[6]

However, there is no such thing as a blame-free culture, and as David Marx states:

> *"No one can afford to offer a 'blame-free system' in which any conduct can be reported with impunity—as society rightly requires that some actions warrant disciplinary or enforcement action. It is the balancing of the need to learn from our mistakes and the need to take disciplinary action (that must be addressed)."* [4]

Anecdotal evidence suggests many NHS decisionmakers are confused about where to draw the disciplinary line. Their understanding of the crucial role systems failures play in most patient safety incidents may be very limited.

In 80 percent of U.K. serious patient safety incidents that are identified, the employee is suspended from duty, pending investigation, in the belief that this is the "safest" option to minimize the threat of future risk to patients and other staff.[7] At the moment, the default position is to remove the individual from the work environment and keep him or her removed until proven innocent. The focus is not on what happened, but on who did it.

Long-held concerns regarding the inappropriate use of suspension were borne out in a report published by the U.K. Government's National Audit Office (NAO) in November 2003.[8] Although not focused exclusively on patient safety incidents, the report highlights that more effective handling of suspensions would save the NHS approximately £24 million per annum.

Although legally a "neutral act" by the employer, evidence from the NAO underlines the fact that suspension is perceived by the employee as highly distressing and unfair. While the cost of excluding clinicians is significant, because staff are being paid to stay at home and are not normally allowed to treat patients, there is also a loss of clinical skills that results from the enforced absence. For the clinician, exclusion can result in reduced self-esteem and depression; in some cases, the clinician may feel suicidal. The clinician's family can also be adversely affected as a number of clinicians never work again, even if they are exonerated by enquiries. Clinical staff may have undertaken expensive training. With shortages of many staff across the NHS, unnecessary exclusions or cases where clinicians consider they have been driven out of the health service are of concern, both in terms of personal fairness and equity and as a waste of scarce resources.[8]

Problems are compounded by concerns that the various professional groups working within the NHS are treated differently following a patient safety incident. This has been borne out by our preliminary findings. Although doctors tend to remain on suspension for longer periods, the likelihood of them being removed from duty in the first place is much slimmer than for nurses. The received wisdom is that "Doctors can throw scalpels, but nurses can't bang a door." Although trite, this underlines the problem of individuals being treated primarily on the basis of their profession, rather than on the circumstances of the case.

Wayne Gault, head of Risk Management at NHS Grampian, states, "The Government has placed great emphasis on reducing blame in the NHS, yet little guidance on how to do this is currently available."[9]

With this concern in mind, the NPSA has created the Incident Decision Tree to provide a clearer framework and methodology for managers to make decisions on suspension and disciplinary action following a patient safety incident. It prompts the consideration of alternatives to suspension and is intended to stimulate decisionmakers into thinking about systems and organizational issues in the management of error.

The Incident Decision Tree is one of a range of tools being developed by the NPSA to promote a virtuous circle of safety and to move the NHS toward a more open, fair, and accountable culture.[7]
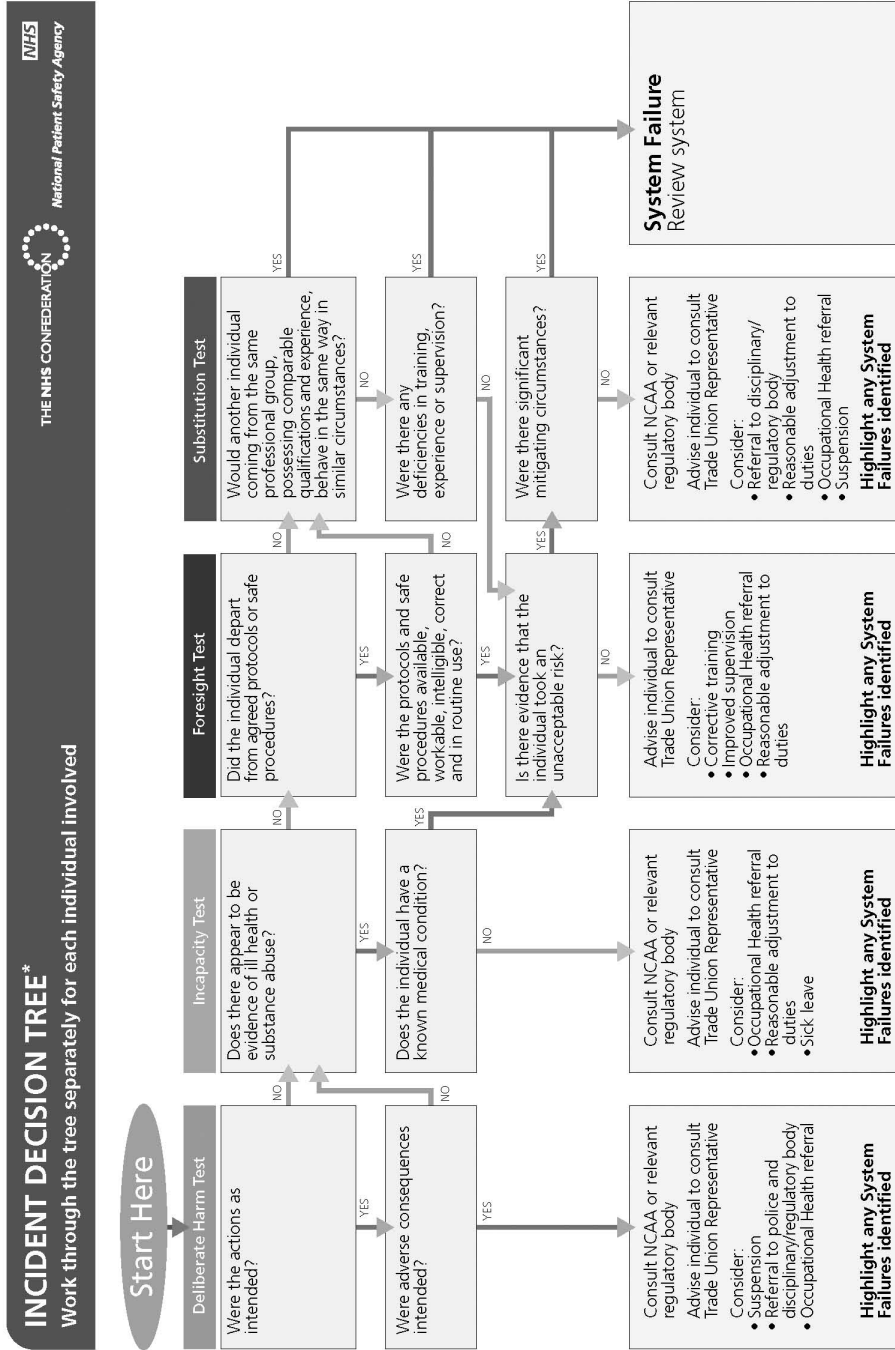
How the tool has been developed

The Incident Decision Tree is based on an algorithm for dealing with staff involved in safety errors in the aviation industry. This model, called the "Culpability Tree,"[10, 11] was developed by chartered psychologist Professor James Reason, currently professor emeritus at the Department of Psychology, University of Manchester. For more than 25 years, Professor Reason's principal area of research has been the management of human error and systems failures in complex and high-risk arenas, such as aviation, nuclear power, processing plants, transportation, and health care.

The NPSA was attracted to the Culpability Tree model because of its simplicity and ease of use as a practical management tool. The idea was tested with two large groups of senior health care decisionmakers. Real case studies were worked on, first without and then with the Culpability Tree. The value of a clear, logical framework met with a positive response, and it was agreed that an NHS-specific model should be developed. This was renamed the Incident Decision Tree (Figure 1) to dispense with any lingering association of unwarranted blame.

Work on the tool has been guided by a group of senior stakeholders from a variety of health care organizations, including the NHS Confederation (the NHS managers' body), the National Clinical Assessment Authority (an NHS body set up to help organizations consider alternatives to the suspension of doctors), the

Figure 1. The National Health Service's Incident Decision Tree for responding to patient safety events

INCIDENT DECISION TREE*
Work through the tree separately for each individual involved

THE **NHS** CONFEDERATION   **NHS** National Patient Safety Agency

Start Here

Deliberate Harm Test

Were the actions as intended?

Were adverse consequences intended?

Consult NCAA or relevant regulatory body

Advise individual to consult Trade Union Representative

Consider:
• Suspension
• Referral to police and disciplinary/regulatory body
• Occupational Health referral

Highlight any System Failures identified

Incapacity Test

Does there appear to be evidence of ill health or substance abuse?

Does the individual have a known medical condition?

Consult NCAA or relevant regulatory body

Advise individual to consult Trade Union Representative

Consider:
• Occupational Health referral
• Reasonable adjustment to duties
• Sick leave

Highlight any System Failures identified

Foresight Test

Did the individual depart from agreed protocols or safe procedures?

Were the protocols and safe procedures available, workable, intelligible, correct and in routine use?

Is there evidence that the individual took an unacceptable risk?

Advise individual to consult Trade Union Representative

Consider:
• Corrective training
• Improved supervision
• Occupational Health referral
• Reasonable adjustment to duties

Highlight any System Failures identified

Substitution Test

Would another individual coming from the same professional group, possessing comparable qualifications and experience, behave in the same way in similar circumstances?

Were there any deficiencies in training, experience or supervision?

Were there significant mitigating circumstances?

Consult NCAA or relevant regulatory body

Advise individual to consult Trade Union Representative

Consider:
• Referral to disciplinary/ regulatory body
• Reasonable adjustment to duties
• Occupational Health referral
• Suspension

Highlight any System Failures identified

System Failure
Review system

* Based on James Reason's Culpability Model

391

royal medical colleges, the trade unions representing NHS staff, and patient representative bodies.

The tool is available in electronic and paper formats. Considerable effort has gone into producing guidelines on framing questions and assessing evidence, complete with many practical examples taken from real-life situations. The version currently being launched is for use in secondary and tertiary care. In response to heavy demand, a primary care-specific model is now under development.

How the tool works

The user is guided through a series of structured questions about the individual's actions, motives, and behavior at the time of the incident. These may need to be answered on the balance of probability—i.e., determining the most likely explanation—taking into account the information available at the time, although the importance of pausing to gather data is emphasized. The questions move through four sequential "tests":

- Deliberate harm

- Incapacity

- Foresight

- Substitution

Possible reasons for the individual's action are reviewed and the most likely explanation identified. A list of recommended options is then provided for the manager's consideration. The further the route traveled through the Incident Decision Tree, the more likely the underlying cause is to be a systems failure.

The tool does not seek to take away the manager's judgment by imposing firm answers or solutions. Rather, it emphasizes that the outcome of a particular incident needs to be based on the investigation of individual circumstances. Indeed, the importance of the manager applying judgment rather than slavishly following the tool is emphasized.

The tool can be used for any employee involved in a patient safety incident, whatever his or her professional group. Ideally it should be applied as soon as possible after the incident, while the facts are still fresh in people's minds. If new information comes to light, it can be worked through again and may or may not indicate a different outcome.

The four tests

The deliberate harm test

In the overwhelming majority of patient safety incidents, the individual had the patient's well-being at heart. However, the deliberate harm test helps to identify at the earliest possible stage those rare cases where harm was intended.

The test asks the manager to consider whether the individual's actions were as intended and whether the outcome was as intended. In the majority of cases, the actions will be as intended, but the outcome will not.

The Incident Decision Tree is not a "wrongdoer's charter." When it appears deliberate harm was intended, the importance of immediate suspension, together with referral to the police and/or the relevant disciplinary and regulatory bodies, is flagged.

The incapacity test

If intent to harm has been discounted, the incapacity test helps to identify whether ill health or substance abuse caused or contributed to the patient safety incident. The tool can be used whether or not the individual is absent on sick leave. Advice is given on assessing the degree of impact illness might have had on the individual's behavior. The whole spectrum of substance abuse is considered, including inappropriate self-medication.

The manager is asked to consider whether the employee was aware of their condition at the time, whether they realized the implications of their condition, and whether they took proper safeguards to protect patients.

The foresight test

If intent to harm and incapacity have been discounted, the foresight test examines whether protocols and safe working practices were adhered to. Our preliminary findings indicate the majority of patient safety incidents involve protocol violation. Users tend to find this section the most challenging to work through, and the need for careful judgment and assessment of the facts is emphasized.

The test asks the manager to consider whether the incident arose because:

- No protocol or safe procedure existed.

- The protocol was poor.

- There were conflicting protocols.

- Good protocols were misapplied, routinely violated, or not in regular use.

- The individual decided to ignore protocols.

In particular, managers are alerted to the fact that what at first sight appears to be a workable protocol may be problematic in practice.

Where the individual violated a sound protocol, the manager is advised to look at a range of factors, such as motivation, information available at the time, the speed with which a decision had to be reached, and the degree of awareness the individual had of the risk being created. Generally, the more control the individual had over the situation, the more likely it is that the risk was unacceptable. Conversely, in emergency situations where the individual was

under extreme pressure and had little time to think through the consequences, the more understandable their action is likely to be.

Guidance is also provided regarding situations where the individual violated a sound protocol for no apparent reason. Such cases often involve a "perceptual slip," such as picking up the wrong medication or ticking the wrong box on a form.

It is emphasized that there are some circumstances where no further action is required, such as when the individual acted heroically in extreme circumstances or when nothing could have prevented the mishap. In other situations, the incident highlights the need for the individual to receive corrective training, improved supervision, medical support, or adjustment to his or her role.

The substitution test

Finally, if protocols were not in place or proved ineffective, the substitution test helps to assess how a peer would have been likely to deal with the situation. James Reason advises:

> *"Substitute the individual concerned, for someone else coming from the same domain of activity and possessing comparable qualifications and experience. Then ask the question 'In the light of how events unfolded and were perceived by those involved in real time, is it likely that this new individual would have behaved any differently?'"*[10]

This test also highlights any deficiencies in training, experience, or supervision that may have been a factor in the patient safety incident and helps to assess whether the individual was properly equipped to deal with the situation.

Managers are advised to avoid deducing behavioral norms from blanket judgments and prejudices, such as "All surgeons have temper tantrums," or "Radiographers find talking to patients difficult," and to consider what a "reasonable" peer acting sensibly, maturely, and sensitively would have done.

Unacceptable risk

The Incident Decision Tree has one purpose—to guide initial management action following a patient safety incident. It does not explore the standards of proof legally required to support claims of "recklessness," "reckless behavior," or "negligence." The term "unacceptable risk" has been used instead to describe the concept of an individual taking a risk that would normally be considered unreasonable. This has been found to help users focus on the employee's motivation and circumstances rather than on the potential consequences of their action.

Practical alternatives to suspension

Managers are urged to consider alternatives to suspension in all cases other than those where patients appear to have been deliberately placed at risk. Examples of alternative action might include:

- Placing restrictions on an individual's practice.

- Moving the individual to another work area.

- Placing the individual under more intense supervision.

- Requiring the individual to obtain a second opinion on certain cases.

The importance of considering the individual's attitude and previous behavior when deciding whether suspension is necessary is also highlighted. For example, the manager might be more inclined to suspend if the individual has lied about the incident or appears unwilling to learn from it.

Testing the model

In order to test the feasibility, effectiveness, and usability of the tool, its application was piloted by five NHS secondary health care organizations for a 5-month period between July and November 2003. The pilot covered a total staff population of 35,000 and 350 decisionmakers with the potential power to suspend.

Training was delivered onsite by a dedicated NPSA project manager, and users were offered ongoing telephone and e-mail support. Valuable feedback was gained during the training sessions, particularly regarding terminology and concepts such as "recklessness" and "unreasonable risk."

As cases arose, managers were interviewed regarding the tool's usability and effectiveness by Dr. Jenny Firth-Cozens, an occupational psychologist working with the NPSA team. Her findings were fed back at a pilot site workshop in December 2003. Professor James Reason joined delegates in working to further refine the model for the secondary health care environment.

Feedback has been consistent throughout the testing and evaluation process. The Incident Decision Tree has been seen as:

- Robust, applicable, and helpful.

- An aid to focus and fairness.

- An effective framework for dialogue between line managers and human resources professionals.

The model has also been tested out by the Royal Pharmaceutical Society, which has consequently reported a significant reduction in the number of suspensions imposed by its inspectors.

Modifications

Through a high degree of testing with pilot site members and other stakeholder groups, it has been possible to significantly refine the model to improve both relevance and ease of use. Modifications have included:

- Reframing of several questions.

- Major revision of accompanying guidelines.

- Incorporation of many more practical examples and illustrations.

- Data input and bookmarking facilities for the electronic version.

Preliminary findings

Although there has been widespread enthusiasm regarding the tool, dialogue with pilot sites and other health service organizations has revealed broader cultural issues relating to staff suspension and discipline of a sometimes troubling nature. The following findings are based on anecdotal evidence and possibly may not be replicated across a larger sample.

- The more junior and inexperienced the manager, the more likely he or she is to err on the side of caution and suspend, particularly if the situation involves an employee from a profession other than the manager's own.

- Nurses are, indeed, significantly more likely to be suspended and to impose suspension than other clinical groups.

- The majority of incidents appear to involve protocol violation. This finding might help to explain the preponderance of nurse suspensions, as nurses seem to be bound by more protocols than other staff groups. The likelihood of violation is therefore increased for them.

- Of particular concern are incidents where protocols are either ineffective or routinely violated, and suspension of an individual is used to teach other staff a lesson and frighten them into compliance. Our view is that this contributes significantly to the blame culture and creates a Russian roulette effect, where being in the wrong place at the wrong time becomes the greatest predictor of punishment.

- Many cases appear to go awry from the outset because of failure to differentiate between formally suspending the individual to protect patient care and sending the individual home from duty in the immediate aftermath of a distressing incident. Once suspended, the individual often finds him- or herself on an inexorable path toward a disciplinary hearing. Only at this late stage is the matter properly reviewed. However, the NAO report shows that 60 percent of doctors and 56 percent of other clinical staff never return to their jobs following suspension.[8]

- Several managers reported that the practicalities of identifying alternatives to suspension can be difficult. For example, where efforts have been made to restrict an employee's practice, resentment of the additional burden placed on other employees sometimes leads to the employee taking long-term sick leave. The Incident Decision Tree promotes the concept of managers striking a balance between honoring confidentiality and ensuring that temporary arrangements are understood by colleagues.

- There was a marked preference among users for the paper-based version of the tool. This was attributable to a variety of causes including:

  - Lack of confidence with computer technology.

  - Difficulty accessing a CD–ROM drive.

  - Desire to have the complete flowchart on view in front of them, rather than focus on questions sequentially.

  Of concern, however, were situations where managers stated overtly that they wished to select a preferred outcome and then plot a course backwards: *"I decided immediately to suspend and then used the Incident Decision Tree to build my case."*

- Of equal concern were those users who liked the tool because they felt it shielded them. *"I told her, it's not me—it's the Incident Decision Tree."* This highlights the need to emphasize management "ownership" of decisions during training.

Where managers decided not to use the tool

Use of the tool was not mandatory during the pilot, and there were situations where managers chose not to apply it. The most common reason was forgetfulness. Use was highest among nurse managers and lowest among doctors. Specific concerns included:

- Use of an algorithm might diminish professional credibility.

- Algorithms are for weak or inexperienced managers.

- Working through the tool separately for each individual concerned is too time-consuming.

Most worrying were several cases reported informally where organizations had decided not to apply the Incident Decision Tree because they would then feel forced to deal with a situation they were trying to "brush under the carpet." These cases all involved senior medical staff.

The path forward

Focus is now on promotion of the tool across the NHS secondary-care sector and on training employees in its use. The NPSA's patient safety managers (field workers) have launched a package of training in "open and fair culture" toolkit products, helping managers to focus on the "what" rather than the "who" and to explore ways of minimizing systems failures.

Development of a specific Incident Decision Tree model for primary care, particularly for independent contractors (who are not direct employees of the NHS but provide services for it), is now underway. These contractors include family doctors (general practitioners) and their nurses, pharmacists, optometrists, and dentists.

Pilot sites have been keen to build on their learning from the exercise, and several have already incorporated changes to their disciplinary policies and procedures and taken measures to raise corporate awareness of staff suspensions. It is hoped that their experience can be used to spread better practice among other health care providers.

The initiative has highlighted the underrecognized role of the human resources (HR) practitioner in patient safety. The NPSA is opening debate on the issue at this year's HR in the NHS National Conference with a patient safety master class for HR directors.

Pilot site findings highlight the inherent weakness of many clinical protocols. This is a massive area for exploration and potential improvement.

The NPSA will be commissioning research into the application of the Incident Decision Tree and other decisionmaking tools in patient safety to build an evidence base for practice and to further develop and hone the infrastructure required to enhance patient safety.

Conclusion

Preliminary results suggest the Incident Decision Tree is an effective tool to guide decisionmaking around patient safety incidents in health care organizations. The tree is sufficiently robust and adaptable to be used in a range of local settings and across a range of different professional groups.

The Incident Decision Tree is proving to be a valuable component of the NPSA's National Reporting and Learning System, helping to promote a virtuous circle of patient safety. With increased learning comes increased opportunities to develop solutions to improve systems and organizational structures. A safer NHS is a better NHS for staff and patients alike.

Acknowledgments

Author affiliations

All of the authors are affiliated with the National Patient Safety Agency, London, U.K.

Address correspondence to: Sandra Meadows, National Patient Safety Agency, 4–8 Maple Street, London, W1T 5HD, U.K; phone: 44 20-7927-9563; fax: 44 20-7927-9501; e-mail: sandra.meadows@npsa.nhs.uk.

References

1. U.K. Department of Health. Building a safer NHS for patients—implementing an organisation with a memory. 2001 Apr.

2. U.K. Department of Health/National Patient Safety Agency. Doing less harm. 2001 Aug.

3. U.K. Department of Health. Staff in the NHS 2002. Available at: www.doh.gov.uk/public/staffinthenhs2202.htm.

4. Marx D. Patient safety and the "just culture": a primer for health care executives. New York: Trustees of Columbia University; 2001.

5. Leape LL. Testimony, United States Congress, House Committee on Veterans' Affairs; 1997 Oct 12.

6. Hansard (United Kingdom House of Commons Daily Debates). 2001 June 27.

7. National Health Service Confederation/National Patient Safety Agency. Creating the virtuous circle: patient safety, accountability, and an open and fair culture; 2002.

8. Comptroller and Auditor General. The management of suspensions of clinical staff in NHS hospital and ambulance trusts in England. Report HC 1143; 2002 Nov 3.

9. Gault W. Tackling the NHS blame game; 2002 [unpublished].

10. Reason J. Managing the risks of organizational accidents. Aldershot: Ashgate Publishing Group; 2003. pp. 191–222

11. Reason J, Hobbs A. Managing maintenance error: a practical guide. Aldershot: Ashgate Publishing Group; 2003.