


Preparation for the next major incident: are we ready? A 12-year update

Jamie A Mawhinney ,¹ Henry W Roscoe,² George A J Stannard,³ Sophie R Tillman,³ Thomas D Cosker²

► Additional material is published online only. To view please visit the journal online (<http://dx.doi.org/10.1136/emmermed-2019-208436>).

¹Academic Department of Vascular Surgery, Guy's and St Thomas' NHS Foundation Trust, London, UK

²Nuffield Orthopaedic Centre, Oxford University Hospitals NHS Foundation Trust, Oxford, UK

³Medical Sciences Division, University of Oxford, Oxford, UK

Correspondence to

Dr Jamie A Mawhinney, Academic Department of Vascular Surgery, Guy's and St Thomas' NHS Foundation Trust, London SE1 7EH, UK; jamiemawhinney12@gmail.com

Received 22 January 2019

Revised 31 May 2019

Accepted 28 June 2019

Published Online First

12 August 2019

ABSTRACT

Objectives A major incident is any emergency that requires special arrangements by the emergency services and generally involves a large number of people. Recent such events in England have included the Manchester Arena bombing and the Grenfell Tower disaster. Hospitals are required by law to keep a major incident plan (MIP) outlining the response to such an event. In a survey conducted in 2006 we found a substantial knowledge gap among key individuals that would be expected to respond to the enactment of an MIP. We set out to repeat this survey study and assess any improvement since our original report.

Methods We identified NHS trusts in England that received more than 30 000 patients through the emergency department in the fourth quarter of the 2016/2017 period. We contacted the on-call anaesthetic, emergency, general surgery, and trauma and orthopaedic registrar at each location and asked each individual to answer a short verbal survey assessing their confidence in using their hospital's MIP.

Results Of those eligible for the study, 62% were able to be contacted and consented to the study. In total 50% of respondents had read all or part of their hospital's MIP, 46.8% were confident that they knew where their plan was stored, and 36% knew the role they would play if a plan came into effect. These results show less confidence among middle-grade doctors compared with 2006.

Conclusions Confidence in using MIPs among specialty registrars in England is still low. In light of this, we make a number of recommendations designed to improve the education of hospital doctors in reacting to major incidents.

INTRODUCTION

A major incident is any emergency requiring the implementation of special arrangements by the emergency services and will generally involve large numbers of casualties.¹ To respond appropriately to such events, all hospitals are required to keep a major incident plan (MIP) under the Civil Contingencies Act of 2004.² The plan covers the strategic, tactical and operational management of such scenarios and identifies key commanding members of the emergency team, including the anaesthetic/intensive treatment unit (ITU), emergency medicine, general surgery, and trauma and orthopaedic registrars and consultants.

In 2006, following the 7/7 London bombings, we conducted a survey assessing confidence using MIPs among registrars in specialties that would be

Key messages

What is already known on this subject

- Major incident plans are documents produced by hospitals in order to lay out the medical response to serious events.
- In a previous study conducted in 2006 among NHS trusts in England, we demonstrated that understanding of the major incident plan among hospital registrars was low, highlighting the need for improvement in this area.

What this study adds

- A repeat survey has found that confidence among registrars for responding to and using major incidents plans remains poor, and suggests that more education on this topic is required.

expected to respond to a major incident³ and found that many had not even read their hospital's MIP nor knew where to find it, demonstrating the need for significant improvement. Similar conclusions have been drawn by other studies in the UK.^{4,5} We concluded by highlighting the importance of educating doctors about MIPs. Since our previous report, several large-scale events (including the Manchester Arena bombing and Grenfell Tower disaster) have demonstrated that major incident planning is more relevant now than ever. We have therefore revisited our earlier research and set out to determine whether there has been a substantive change in knowledge and confidence compared with our original report.

METHODS

We identified NHS trusts in England that received more than 30 000 patients through the emergency department in the fourth quarter of 2016/2017 using publicly available data from NHS England.⁶ In each of these trusts we contacted the on-call registrars (middle-grade doctors in specialty training) in anaesthetics, emergency medicine, general surgery, and trauma and orthopaedics via the hospital switchboard. After gaining verbal consent to participate, we conducted our questionnaire on the phone (online supplementary figure 1). This survey is the same as the one used in our original study and has only three questions in order to maximise response rate. Two contact attempts were made for each individual. Results were then compiled for the group as a whole and by specialty.



► <http://dx.doi.org/10.1136/emmermed-2019-209037>



© Author(s) (or their employer(s)) 2019. No commercial re-use. See rights and permissions. Published by BMJ.

To cite: Mawhinney JA, Roscoe HW, Stannard GAJ, et al. *Emerg Med J* 2019;**36**:762–764.



Table 1

Specialty	Total responses (%)	Have you read your hospital's major incident plan?			Do you know where you can access your hospital's major incident plan guidelines?			Do you know what role you would play if a major incident plan came into effect while you are on call?		
		All (%)	Part (%)	None (%)	Yes (%)	Unsure (%)	No (%)	Yes (%)	Unsure (%)	No (%)
Anaesthetics	49 (66.2)	12 (24.4)	15 (30.6)	22 (44.9)	28 (57.1)	16 (32.7)	5 (10.2)	23 (46.9)	17 (34.7)	9 (18.4)
Emergency medicine	37 (50.05)	17 (45.9)	10 (27.0)	10 (27.0)	24 (64.9)	12 (32.4)	1 (2.7)	19 (51.4)	17 (45.9)	1 (2.7)
General surgery	46 (62.2)	9 (19.6)	8 (17.4)	29 (63.0)	14 (30.4)	17 (37.0)	15 (32.6)	11 (23.9)	15 (32.6)	20 (43.4)
Trauma and orthopaedics	54 (73.0)	8 (14.8)	14 (25.9)	32 (59.3)	21 (38.9)	21 (38.9)	12 (22.2)	14 (25.9)	20 (37.0)	20 (37.0)
Total	186 (62.8)	46 (24.7)	47 (25.3)	93 (50.0)	87 (46.8)	66 (35.5)	33 (17.7)	67 (36.0)	69 (37.1)	50 (26.9)

We determined that three response categories for each question were appropriate for analysis and that the nuance between the 'in-between' answers was not substantially different in practice. This also allowed us to compare results with the 2006 paper, where the same process was employed. All data are shown to one decimal place.

RESULTS

We identified 76 NHS trusts in England that matched our search criteria. Two of these were community healthcare trusts, only accepting minor injuries, and were excluded. We then attempted to contact 296 registrars across the 74 remaining hospital trusts. One hundred and eighty-six (62.8%) individuals consented to being included and gave their responses to the survey, while the remaining 110 (37.2%) either did not consent or were uncontactable after two attempts (online supplementary figure 2).

The responses of our survey are detailed in table 1 and figure 1. Trauma and orthopaedics had the highest response rate, while emergency medicine had the lowest. Half of the responding individuals had read their hospital's MIP, with 46.8% being confident they knew where the guidelines were kept. Only 36% of individuals were sure of the role they would play if an MIP came into effect while they were on call. The greatest number of responses came from trauma and orthopaedic registrars, while emergency medicine registrars were generally the most confident in using the MIP. Results were broadly similar to our previous study, although fewer individuals were confident in their role in the MIP (figure 2).

DISCUSSION

Since 2004 all hospitals in England have been required to keep an MIP, and the importance of planning for such events has been exemplified in recent tragedies. We did not investigate the content of the MIPs as this would not be practical. Instead the purpose of this study was to assess the propagation and effectiveness of this information, and how it is understood by the individuals it involves rather than an evaluation of the MIP itself. We found that just half of the doctors contacted had read their hospital's guidelines. Of concern, we found no improvement since 2006: indeed fewer individuals were confident in the role they would play if an MIP came into effect while they were on call. Perhaps unsurprisingly, emergency medicine registrars were the most familiar with their hospital's protocol. They were closely followed by anaesthetics, with surgical specialties being least familiar. Importantly, doctors had no prior warning of our contact, as would be the case in the real-life enactment of an MIP.

Limitations

The response rate for the study was 63%. A major issue was being connected to the correct individual via the telephone switchboard system; for feasibility it was necessary to limit each potential participant to two call attempts. This may mean 'busier' individuals were less represented in our results, although it is likely that our selected group would be representative of the whole. We also found that some individuals were reluctant to

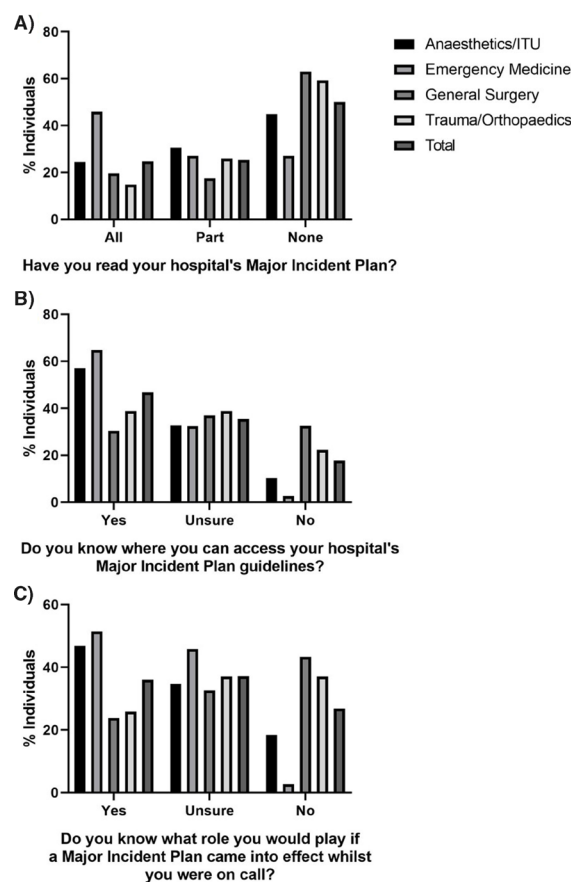


Figure 1 Questionnaire responses separated by question and specialty. (A) Responses to 'Have you read your hospital's Major Incident Plan?'; a total of 46 individuals (24.7%) had read all, 47 (25.3%) part and 93 (50.0%) had read none. (B) Responses to 'Do you know where you can access your hospital's major incident plan guidelines?'; a total of 87 (46.8%) responded yes, 66 (35.5%) were unsure and 33 (17.7%) responded no. (C) Responses to 'Do you know what role you would play if a major incident plan came into effect while you were on call?'; 67 (36.0%) responded yes, 69 (37.1%) were unsure and 50 (26.9%) responded no. ITU = Intensive treatment unit

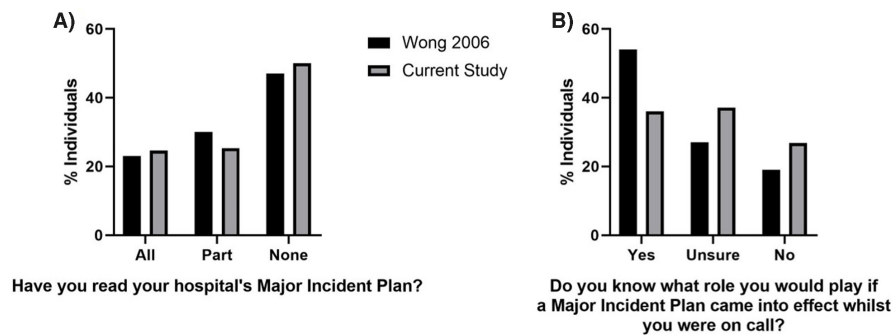


Figure 2 Comparison of results with our previous study (Wong *et al*³). (A) Responses to 'Have you read your hospital's Major Incident Plan?'; 23% vs 24.7% had read all, 30% vs 25.3% had read part, and 47% vs 50.0% had read none (Wong *et al*³ vs current study, respectively). (B) Responses to 'Do you know what role you would play if a major incident plan came into effect while you were on call?'; 54% vs 36.0% responded yes, 27% vs 37.1% were unsure, and 19% vs 26.9% responded no (Wong *et al*³ vs current study, respectively).

answer questions over the phone and found it inappropriate for us to be contacting them in this manner. However, this method allowed us to ensure we were speaking to the correct person and ascertain the individual's 'spot response'. We did not routinely collect data on why individuals refused to answer, although some were reluctant to discuss such matters with individuals outside of their own trust.

The study concentrated on registrars, who at the time would likely have been in the position of leading the emergency response. However, major trauma centres are moving towards 24/7 consultant cover, so registrars may be less likely to lead the response in future.

Recommendations

A number of methods may be employed to improve dissemination of MIPs. Some hospitals produce 'action cards' to summarise roles for key individuals, and we recommend these are also included in staff induction packs (clinical or otherwise) nationwide (online supplementary figure 3).^{5,7} We also encourage simulation and specialist seminars, especially at 'high risk' hospitals. Some individuals (who tended to be from major trauma centres) had taken part in 'disaster drills', and those who did reported that these were very beneficial. Other research has investigated the use of virtual training environments and simulators, a practice which is likely to increase with further technological developments and the advent of augmented reality.⁸

We will also be investigating the possibility of introducing this survey methodology as a regular audit and hope that other NHS trusts will do the same, partly to address the issue of individuals being reluctant to take calls from outside their own trust.

We would like to emphasise that our aim in completing this study was not to demean an already overstretched workforce but to assess how successful our approach to major incident preparation is as an organisation and what remains to be done.

CONCLUSION

We have demonstrated that confidence in using MIPs among registrars in England has not improved since 2006. We have made several suggestions, including the addition of succinct action cards in all trust inductions.

Contributors JAM planned the study, collected data for the study, performed data analysis and wrote the manuscript. HWR planned the study, collected data for the study and reviewed the manuscript. GAJS and SRT collected data for the study and reviewed the manuscript. TDC designed the study, oversaw the running of the study and reviewed the manuscript.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient consent for publication Not required.

Provenance and peer review Not commissioned; externally peer reviewed.

ORCID iD

Jamie A Mawhinney <http://orcid.org/0000-0002-7851-7953>

REFERENCES

- NHS England National Emergency Preparedness Resilience and Response Unit. *NHS England Emergency Preparedness, Resilience and Response Framework*, 2015:1–38.
- HM Government. Civil Contingencies Act 2004. www.legislation.gov.uk/ukpga/2004/36/contents (Accessed 14 Oct 2018).
- Wong K, Turner PS, Boppana A, *et al*. Preparation for the next major incident: are we ready? *Emerg Med J* 2006;23:709–12.
- Milkhu CS, Howell DC, Glynne PA, *et al*. Mass casualty incidents: are NHS staff prepared? An audit of one NHS foundation trust. *Emerg Med J* 2008;25:562–4.
- Hobson JM. Will our junior doctors be ready for the next major incident? A questionnaire audit on major incident awareness across three NHS Trusts in Wales. *BMJ Open* 2011;1:e000061.
- NHS England. NHS England Hospital Data 2016/17. www.england.nhs.uk/statistics/statistical-work-areas/ae-waiting-times-and-activity/statistical-work-areas/ae-waiting-times-and-activity/ae-attendances-and-emergency-admissions-2016-17/ (Accessed 20 Feb 2018).
- Carley S, Mackway-Jones K. Are British hospitals ready for the next major incident? Analysis of hospital major incident plans. *BMJ* 1996;313:1242–3.
- Pucher PH, Batrick N, Taylor D, *et al*. Virtual-world hospital simulation for real-world disaster response: Design and validation of a virtual reality simulator for mass casualty incident management. *J Trauma Acute Care Surg* 2014;77:315–21.

Half of key hospital doctors remain ill prepared to respond to major incidents in UK

Specialist trainees who are likely to be involved less confident about what to do than in 2006, survey suggests

Half of key hospital doctors who are likely to be involved in responding to a major incident in the UK aren't properly prepared to do so, reveal the results of a phone survey, published in ***Emergency Medicine Journal***.

If anything, they are less prepared than their peers were in 2006, when the last survey looking at this issue was carried out, the findings suggest.

Since 2004 all hospitals in England have been required to keep a major incident plan, or MIP for short, to respond to an incident involving a large number of casualties.

Plans cover the strategic, tactical, and operational management required, as well as key members of the response team: specialists in anaesthetics, intensive care, emergency medicine, general surgery, trauma and orthopaedics.

Recent major incidents in the UK, including the Manchester Arena bombing and the Grenfell Tower fire in London, exemplify the need for a major incident plan, say the researchers.

They wanted to find out if the relatively low levels of preparedness they found in 2006, when middle grade hospital doctors were last surveyed about this issue, had changed.

They contacted 296 specialist trainees (on call registrars) in emergency medicine, trauma and orthopaedics, anaesthetics and general surgery from 74 hospital trusts that had dealt with more than 30,000 patients in emergency care in the first three months of 2017.

Nearly two thirds (186; 63%) responded; the rest either didn't respond or didn't consent to being included in the survey. Some doctors were reluctant to discuss this issue on the phone. The highest response rate was from trauma and orthopaedics (73%), and the lowest from emergency medicine (50%).

Half the specialist on call registrar respondents (50%) hadn't read the plan at all, while around one in four (25%) had read only part of it.

Less than half the respondents (47%) knew where to find a copy of the plan; one in six (just under 18%) didn't know where to locate it, while the rest were unsure.

When asked what role they would have in a major incident response, only just over a third (36%) knew what they would be required to do. A similar proportion (37%) weren't sure; and around one in four (27%) didn't know.

Among those responding, emergency medicine doctors were, perhaps unsurprisingly, the most well prepared. But the fact that the overall situation hasn't changed in 12 years is worrying, say the researchers.

"Of concern, we found no improvement since 2006: indeed fewer individuals were confident in the role they would play if an MIP came into effect while they were on call," they note.

This is an observational study, and the findings need to be taken in light of the response rate of just under 63%, say the researchers.

And the study included only specialist registrars who would currently be expected to lead the emergency response, but major trauma centres in the UK are moving towards 24/7 consultant cover, the researchers point out.

Nevertheless, given the lack of improvement since the last survey, the researchers suggest that hospital doctors need to be better informed about their organisation's major incident plans. They suggest its inclusion in induction packs; 'disaster drills'; and role play events.