

## RESEARCH

# Establishing the aims, format and function for multidisciplinary team-driven care within an inflammatory bowel disease service: a multicentre qualitative specialist-based consensus study

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## ABSTRACT

**Objective** To obtain a specialist-based consensus on the aims, format and function for MDT-driven care within an inflammatory bowel disease (IBD) service.

**Design** This was a prospective, multicentre study using a Delphi formal consensus-building methodology.

**Setting** Participants were recruited nationally across 13 centres from July to August 2014.

**Participants** 24 participants were included into the Delphi Specialist Consensus Panel. They included six consultant colorectal surgeons, six gastroenterologists, five consultant radiologists, three consultant histopathologists and 4 IBD nurse specialists.

**Interventions** Panellists ranked items on a Likert scale (1=not important to 5=very important). Items with a median score >3 were considered eligible for inclusion.

**Main outcome measures** Consensus was defined with an IQR ≤1. Consensus on categorical responses was defined by an agreement of >60%.

**Results** A consensus on items (median; IQR) that described the aims of the MDT-driven care that were considered *very important* included: *advance patient care* (5;5-5), *provide multidisciplinary input for the patient's care plan* (5;5-5), *provide shared experience and expertise* (5;5-5), *improve patient outcome* (5;5-5), *deliver the best possible care for the patient* (5;5-5) and *to obtain consensus on management for a patient with IBD* (5;4-5). A consensus for being a core MDT member was demonstrated for colorectal surgeons (24/24), radiologists (24/24), gastroenterologists (24/24), nurse specialists

(24/24), dieticians (14/23), histopathologists (21/23) and coordinators (21/24).

**Conclusions** This study has provided a consensus for proposed aims, overall design, format and function MDT-driven care within an IBD service.

This can provide a focus for core members, and aid a contractual recognition to ensure attendance and proactive contribution.

## INTRODUCTION

The concept of MDT-driven care has been widely implemented for the clinical decision-making and management of complex diseases. The basic premise of MDT-driven care is to involve all key professional groups in the consideration of complex patients and/or diagnostic dilemmas to create a clear care plan.<sup>1</sup> It is a forum where clinical cases can be discussed among a variety of healthcare professionals and care recommendations are made.<sup>2</sup>

In the UK, the Calman-Hine report was carried out in 1995 in the cancer setting to ensure a change from a generalist model of care to a specialist model.<sup>3</sup> Although there has been some criticism in the implementation of this change,<sup>4 5</sup> the presence of specialist care has demonstrated an improvement in survival across various cancer specialties.<sup>3 6–10</sup> Efforts have been made to standardise the organisational structure and design of MDT-driven care to further improve this effect.<sup>11 12</sup> A recognition of core and extended members has been suggested in the cancer setting.<sup>13</sup>

## Significance of this study

**What is already known on this topic?**

- ▶ MDT-driven care is now being introduced into inflammatory bowel disease (IBD) centres.
- ▶ The UK National IBD Audit demonstrated that 75% of participating institutions undertake a weekly MDT meeting for IBD patients.
- ▶ The UK national report for the audit of IBD service provision demonstrated that up to 73% of institutions do not meet current standards.

**What this study adds?**

- ▶ The Delphi Expert Consensus Panel represented by a multidisciplinary sample of 24 expert participants determined a consensus for the aims, key specialist role, case eligibility and overall design for an MDT-driven care within an IBD service provision.
- ▶ Consensus has been achieved for defining the primary objective for MDT-driven care in IBD to advance patient care, provide multidisciplinary input for the patient's care plan, provide shared experience and expertise, improve patient outcome, deliver the best possible care for the patient and to obtain consensus on management for a patient with IBD.
- ▶ Core members (a regular attendee with a contractual obligation to participate in the IBD MDT) are colorectal surgeons, radiologists, gastroenterologists, IBD nurse specialists, dieticians, histopathologists and the MDT coordinator.
- ▶ Eligible cases for discussion in the IBD MDT include complex cases requiring surgery, all patients on biological agents, all new diagnoses and all patients who have undergone recent IBD surgery.

**How might it impact on clinical practice in the foreseeable future?**

- ▶ This preliminary evidence base for these consensus-derived statements will encourage the provision of resource into clinical processes, by recognition of the roles of the MDT's core members in job planning, and focusing on the MDT by establishing case eligibility and providing focused aims for the overall purpose of improving patient-related outcomes in IBD.

MDT-driven care is now being introduced into inflammatory bowel disease (IBD) centres.<sup>14</sup> European centres have demonstrated variability in MDT-driven care.<sup>15</sup> The UK National IBD Audit demonstrated that 75% of participating institutions undertake a weekly MDT meeting for IBD patients.<sup>16–17</sup> There is little evidence of its efficacy in this context and currently there is no guidance on how this intervention may be standardised and used effectively.<sup>16–18</sup> Variability in the workings of the cancer MDT have been demonstrated and protocols for the structure of this meeting are being designed and implemented.<sup>19–20</sup> Providing a standardised framework for the MDT-driven care may enhance its capacity to establish effective quality improvement.

In 2013, the IBD Standards were established in the UK, with the primary aim to ensure that IBD patients receive consistent, high quality care. Furthermore, European consensus guidelines have recognised IBD multidisciplinary team-driven care in the management of complex IBD cases.<sup>18–21</sup> The UK national report for the audit of IBD service provision demonstrated that up to 73% of institutions did not meet current standards. A formal footing is therefore required to ensure that IBD multidisciplinary meetings (MDMs) occur regularly and with appropriate structure and resource.<sup>22</sup> Although some institutions claim that they have IBD MDMs, the way they work is not well understood and cannot be defined or evaluated based on any standards. Providing consensus-derived standards for

MDT-driven care in IBD can guide managers, policy makers and departmental leads to adhere to standards.

The purpose of this study is to obtain a specialist-based consensus on the aims, format and function for MDT-driven care within an IBD service.

**METHODOLOGY****Delphi survey (September 2014–October 2014)**

This was a prospective, qualitative study using a standard Delphi methodology. This methodology used a systematic process of consulting, collecting, evaluating and tabulation of expert opinion on a specific topic without bringing experts together. Questions and statements are posed to panellists and answered anonymously within a round, the benefit being it can sample the opinion of a group of specialists without being altered by the opinions of influential persons. Exposure to the replies are provided and members revise their opinions on consecutive rounds until convergence and consensus are reached.<sup>23–24</sup> This method has been applied by the authors of this study with success to complex surgical issues.<sup>25</sup>

Items incorporated into the Delphi survey were developed on the basis of themes that emerged from semistructured interviews. Interviews were carried out using a standardised and piloted interview protocol. The interview protocol explored key themes encompassing key elements for an effective IBD MDT, including an understanding of the role and purpose of the IBD MDT, structural inputs required

<u>Eligibility Criteria</u>	
1.	Colorectal surgeon OR gastroenterologist OR histopathologist OR radiologist (all with a current consultant substantive contract) OR IBD nurse specialist (with a current substantive contract).
AND	
1.	Peer reviewed publications in IBD (5 papers minimum) OR accredited academic appointment
OR	
2.	Active or recent role (within last 5 years) on any one of the following committees on IBD management:
	<ul style="list-style-type: none"> <li>➤ National standards group</li> <li>➤ National audit</li> <li>➤ Registry group</li> <li>➤ IBDQIP (Inflammatory Bowel Disease Quality Improvement Programme)</li> <li>➤ Groups dealing with guidelines or commissioning member of BSG (British Society of Gastroenterology) IBD Section</li> <li>➤ NICE (National Institute for Clinical Excellence) guidance working groups on IBD related drugs or disease specific e.g. the recent CD and UC NICE appraisal groups.</li> <li>➤ ECCO (European Crohn's and Colitis Organisation) Guidelines European working groups</li> <li>➤ National pharmacological advisories</li> </ul>
OR	
3.	IBD clinical leads for each NHS trust OR national IBD audit lead or medical advisor to local NACC (National Association for Colitis and Crohn's Disease) group

**Figure 1** Eligibility criteria for inclusion as an expert Delphi panellist. CD, Crohns disease; IBD, inflammatory bowel disease; NHS, National Health Service; UC, ulcerative colitis.

for an effective IBD MDT meeting, logistical considerations for an effective IBD MDM and the overall design of an effective IBD MDT. Thematic saturation was achieved after 28 semistructured interviews (six consultant colorectal surgeons, six IBD nurse specialists, seven consultant gastroenterologists, five consultant gastrointestinal radiologists and four consultant GI histopathologists). Themes were then refined into items and incorporated into the Delphi survey.<sup>26</sup>

The protocol for the study was reviewed by a by a Research Ethics Committee in London, UK, and approval was given prior to data collection (Research Ethics Committee reference: 13YH 0175).

#### **Eligibility criteria for establishing the multidisciplinary specialist consensus panel members**

Forty-seven specialists (n=47) were invited by members of the research team to participate in the first round of the Delphi process including 12 gastroenterologists, 13 colorectal surgeons, 7 radiologists, 7 IBD nurse specialists and 8 histopathologists. Thirty participants responded and included six gastroenterologists, seven colorectal surgeons, five IBD nurses, five histopathologists and seven radiologists. Participants were asked if they met any of the following eligibility criteria (figure 1). This eligibility criterion was established to ensure that the final panel members had recognised expertise in the field of IBD. This would also ensure credibility of the consensus study.<sup>27</sup>

#### **Survey design**

The survey was designed using an online survey tool freely available to our research team (Qualtrics). The survey was designed to obtain the specific information from participants in Likert and categorical entry format (ie, yes/no). Successive rounds were carried out, with participants being informed of aggregated responses, until formal consensus was reached.

The survey was emailed to a multidisciplinary specialist sample. Participants responded to statements about what should the aims of the IBD MDT be, structural requirements for the IBD MDT to function effectively, the role of key specialists' and patients in the context of the IBD MDT, eligibility criteria for case discussion, overall design format and outcome measures to monitor the effectiveness of the IBD MDT. In addition, space for free text comments was made available. Reminders were issued to all non-responders at 2 and 4 weeks after initial contact. The response rate was 63.8% (30/47).

A 'core member' was a regular attendee with a contractual obligation to participate in the IBD MDT. An 'extended member' has a contractual obligation to contribute to the IBD MDT if invited to participate by a core member while a 'non-member' is someone who can attend and participate, without obligation, if invited by a core member.

### Data analysis

Survey responses were analysed using the Statistical Package for the Social Sciences (SPSS) V.22. Descriptive analyses were performed. Panellists were asked to rank each item with a Likert scale which was categorised from 1 (= not important) to 5 (= very important). Consensus was defined with an IQR  $\leq 1$ . Items with a median score  $>3$  were considered eligible for inclusion. Consensus was defined a priori by a predefined agreement of greater than 60% across panellists. Standards agreement of the cut-off for Delphi studies is set at 70% across panellists. For multinomial outcomes, rather than continuous scales, this cut-off has been recommended to be set at 60%.<sup>23–25 27</sup>

## RESULTS

### Multidisciplinary specialist consensus panel members

A final 24 participants were recruited into the Delphi Specialist Consensus Panel, from 12 institutions across the UK (three community, rural centres and nine urban, academic centres). They consisted of six consultant colorectal surgeons, six consultant gastroenterologists, five consultant radiologists, three consultant histopathologists and four IBD nurse specialists recruited, and had a median number of years in post of 9.5 years.

All specialist panel members met the eligibility criteria (figure 1). Twenty-three panellists met eligibility criterion 1 (has at least five peer review publications or an accredited academic position), 16 met eligibility criterion 2 (has recent or current involvement in national or international IBD committees) and 12 met criterion 3 (is an IBD clinical lead or a national IBD audit lead, or a local advisor to the National Association for Colitis and Crohn's Disease charity). The mean number of years of experience in the field of IBD was 11 years (SD=7.1). There were six participants from the original 30 who were excluded from the specialist panel on the ground that they did not meet the eligibility criteria and were excluded from the analysis (one colorectal surgeon, two consultant radiologists, two consultant histopathologists, one IBD nurse specialist).

### The aims of the IBD MDT

A consensus on items that described the aims of the IBD MDT that were considered very important (Likert rating 5) included to advance patient care, provide multidisciplinary input for the patient's care plan, provide shared experience and expertise, improve patient outcome, deliver the best possible care for the patient and obtain consensus on management for a patient with IBD. A consensus on stems that were considered important (Likert ranking 4) included reducing emergency surgical procedures and providing a forum for research and education. Providing a safety net so patients are not missed obtained consensus for having some importance (table 1).

**Table 1** Likert ratings for items that describe the aim of the inflammatory bowel disease multidisciplinary team—10 items were incorporated into the Delphi and consensus for inclusion (Likert ranking  $>3$ ; IQR  $\leq 1$ ) was obtained for nine items (shaded blue and green). Seven items achieved consensus and ranked as 'very important' (shaded blue), two items achieved consensus and ranked as 'important' (shaded green)

		Likert rating (median; IQR)
Items identified from stage 1—semistructured interviews <sup>28</sup>	Advance patient care.	5; 5–5
	Provide multidisciplinary team input for the patient care plan.	5; 5–5
	Provide shared experience and expertise.	5; 5–5
	Improve patient outcome.	5; 5–5
	Deliver the best possible care for the patient	5; 5–5
	Obtain consensus on management for a patient with IBD.	5; 4–5
	Provide a basis of support and shared decision making.	5; 4–5
	Reduce emergency surgical procedures.	4; 3–4
	Provide a forum for research and education.	4; 3–4
	Provide a safety net so patients are not missed.	3; 3–4

### The role of key members in the IBD MDT

After two iterations, a consensus for being a core IBD MDT member was demonstrated for colorectal surgeons, radiologists, gastroenterologists, IBD nurse specialists, dieticians, histopathologists and the MDT coordinator. A consensus for being an extended IBD MDT member was demonstrated for the paediatrician, the research fellow, the junior doctor, the pharmacist, the dermatologist and the rheumatologist. The patient was considered as a non-member of the IBD MDT (table 2).

### Structural and organisational requirements for an effective IBD MDM

A consensus on items that described structural necessities required for an IBD MDM that were considered *very important* (Likert rating 5) included *a clear electronic documentation of the MDT discussion outcome in the patients clinical records, organisational recognition of the IBD MDT and implementation into the job plan for core members, a specific question to be addressed, a designated MDT coordinator with designated administrative responsibilities, working and regularly maintained technological resources*. A consensus on items that were considered *important* (Likert rating 4) were *a confidential meeting space (bleep free environment, away from public or clinical areas), a chair person who is also a core member of the IBD MDT, a priority to discuss urgent cases and/or IBD inpatients*



**Table 2** Items and respective responses (N (%)) for specialist and patient role as core, extended or non-inflammatory bowel diseasemultidisciplinary team members—14 items were identified for inclusion within the Delphi and consensus ( $\geq 60\%$ ) was achieved following two iterations. Specialists considered as core members are shaded in blue. Specialists considered extended members are shaded in green. The patient (shaded grey) was considered a non-member

		Delphi panellist responses (N (%))		
		Core member	Extended member	Non-member
Items identified from stage 1—semistructured interviews <sup>28</sup>	Colorectal surgeon	24 (100)	0 (0)	0 (0)
	IBD nurse specialist	24 (100)	0 (0)	0 (0)
	Gastroenterologist	24 (100)	0 (0)	0 (0)
	Radiologist	24 (100)	0 (0)	0 (0)
	MDT coordinator	21 (87.5)	3 (12.5)	0 (0)
	Paediatrician	1 (4.3)	22 (95.6)	0 (0)
	IBD research fellow	1 (4.3)	20 (86.9)	2 (8.7)
	Junior doctor/Resident	4 (17.4)	17 (73.9)	2 (8.7)
	Histopathologist	21 (91.3)	1 (4.3)	1 (4.3)
	Dietician	14 (60.8)	8 (34.8)	1 (4.3)
	Pharmacist	4 (17.4)	18 (78.3)	1 (4.3)
	Dermatologist	0 (0)	19 (82.6)	4 (17.4)
	Rheumatologist	1 (4.3)	19 (82.6)	3 (13.1)
	Patient	1 (4.3)	7 (30.4)	15 (65.2)

first, a priority to discuss patients who were missed at the previous meeting and a letter to the patient and primary care physician detailing the outcome of the MDT discussion (table 3).

Following two iterations, a consensus on items deemed *important* (Likert rating 4) as eligible for discussion in the IBD MDM included *complex cases requiring surgery, all patients on biologics, all new diagnoses* and all patients who have undergone recent IBD surgery (table 4).

#### Duration of the IBD MDM

A consensus on items (median; IQR) for the optimal duration for the IBD MDM considered *important* (Likert rating 4) included a duration of 60 min (4; 4 - 5) and 90 min (4; 3 - 4). A consensus for an optimum duration of 30 minutes was obtained as being *not important* (1; 1-2). An optimum duration of 2 hours demonstrated *some importance* (Likert rating 3) however it did not achieve consensus (3; 1 - 4).

#### Overall design of the IBD MDM

A consensus on items (median; IQR) for the overall design format required for an IBD MDM considered *important* (Likert rating 4) included a *multidisciplinary core group and video-link facilities for neighbouring hospitals* (4; 4 - 5). A consensus on items considered having *some importance* (Likert rating 3) included *every institution having its own IBD MDM* (3; 3-4). There was *some importance* (Likert rating 3) when considering *that only hospitals that have passed an accreditation process should hold IBD MDM*, however no consensus was demonstrated (3; 2 - 4).

#### Outcome measures of the IBD MDT

A consensus on items (median, IQR) for the outcome measures for an IBD MDT *important* (Likert rating 4) included *a record of attendance of all designated core members of the IBD MDM* (4; 4 - 5), *a measure of elective versus emergency IBD surgery—to ensure early IBD MDM leads to planned surgery* (4; 3 - 4) and *a record of the number of weeks awaiting case discussion following case submission for MDM* (4; 3 - 4). A consensus on items considered having *some importance* (Likert rating 3) include *a record of the number of weeks from MDM to surgical review—if requested* (3; 3 - 4).

#### DISCUSSION

This study has provided consensus-derived statements for the aims, overall design, format and function multidisciplinary team-driven care in the IBD setting. The strengths of this study lie in its multi-centre design, its inclusion of IBD specialists across multiple clinical specialities and allied care disciplines as panellists and the use of multiple rounds (iterations) to achieve consensus. The identification and incorporation of items from a semistructured interview study performed from this study group add to the robustness of the qualitative approach used.<sup>28</sup>

This study demonstrated that colorectal surgeons, radiologists, gastroenterologists, IBD nurse specialists, dieticians, histopathologists and the MDT coordinator should all be considered 'core' members of the IBD MDT, such that they have a regular contractual obligation to participate in the IBD MDM. Extended members, or those who are invited to participate and contribute to the IBD MDM, without a contractual

**Table 3** Likert ratings for items ensuring structural necessities required for the inflammatory bowel disease (IBD) multidisciplinary meeting—12 items were incorporated into the Delphi and consensus for inclusion (Likert ranking  $>3$ ; IQR  $\leq 1$ ) was obtained for 10 items (shaded blue and green). Six items achieved consensus and ranked as 'very important' (shaded blue), four items achieved consensus and ranked as 'important' (shaded green). Two items achieved consensus for 'some importance' without inclusion (shaded grey).

		Likert rating (median; IQR)
Items identified from stage 1 — semi-structured interviews <sup>28</sup>	Clear electronic documentation of the MDT discussion outcome in the patients' clinical records.	5; 4–5
	Organisational recognition of the IBD MDT and implementation into the job plan for core members.	5; 5–5
	A specific question to be addressed.	5; 4–5
	A designated MDT coordinator with designated administrative responsibilities.	5; 4–5
	Working and regularly maintained technological resources.	5; 4–5
	A confidential meeting space (bleep free environment, away from public or clinical areas).	4.5; 4–5
	A chair person who is also a core member of the IBD MDT.	4; 4–5
	A priority to discuss urgent cases and/or IBD inpatients first.	4; 4–5
	A priority to discuss patients who were missed at the previous meeting.	4; 4–5
	A letter to the patient and primary care physician detailing the outcome of the MDT discussion.	4; 4–5
	A submission of clinical cases no later than 3 working days in advance.	3; 3–3
	A need to alternate chairing responsibilities across IBD MDT core members.	3; 3–4

Eligibility for case discussion; MDT, multidisciplinary team

obligation, include the paediatrician, the research fellow, the junior doctor, the pharmacist, the dermatologist and the rheumatologist. Definitions for core and extended members are in keeping with current standards (IBD Standards A1—The IBD Team; A2—Essential supporting services).<sup>18</sup> Providing clarity on the role of the core and extended member in this context will aid managerial and contractual recognition and implementation into the job roles, particularly for core members.

**Table 4** Likert ratings for items ensuring eligible cases for discussion in the inflammatory bowel disease multidisciplinary meeting—Seven items were incorporated into the Delphi and consensus for inclusion (Likert ranking  $>3$ ; IQR  $\leq 1$ ) was obtained for four items (shaded green). Four items achieved consensus and ranked as 'important' (shaded green). Three items did not achieve consensus.

		Likert rating (median; IQR)
Items identified from stage 1—semistructured interviews <sup>28</sup>	Complex cases requiring surgery	4; 4–5
	All patients on biologics	4; 3–4
	All new diagnoses	4; 3–4
	All patients who have undergone recent IBD surgery	3.5; 3–4
	Nothing—no need for an eligibility criteria	5; 3–5
	Any case at the discretion of the named IBD physician	4; 3–5
	All cases discussed once a year	2; 2–3.7

The IBD patient was considered to be a non-member of the IBD MDT, in that they should have no participation or contribution to the IBD MDM, unless invited to by a core member. Considering that the goal of the multidisciplinary team care should be patient centred, the recognition of the patient as a non-member of the IBD MDT provides a paradoxical dynamic to the MDM. A previous study in the setting of cancer have demonstrated that patients have limited opportunities to input or influence the decision-making process in MDMs. Reasons for this include patients having inconsistent information and MDT members having variable definition for patient centredness in the context of MDTs.<sup>29</sup> Patient involvement within the MDM may be possible as they enter at the time of their case being discussed. Potential drawbacks to this include a restriction of the free flow of information and limited understanding of medical terminology.<sup>30</sup> This is perceived to impact on the level and pace of discussion.<sup>28</sup> It still remains controversial, considering patient choice, and additional information, available after the MDT has been demonstrated as a major factor in the discordance of treatment decisions following MDT discussion within the MDM.<sup>31 32</sup> Considering that MDTs represent a costly intervention, patient involvement, through representation by a key patient advocate, in the MDT may be necessary to improve concordance to MDT treatment decisions and ensure economical returns.<sup>33–35</sup>

As well as the cost implication, time pressures can lead to a number of cases not being discussed. Providing eligibility criteria can ensure a focus for core member to discussion appropriate cases. This study demonstrated that complex cases requiring surgery, all patients on biologics, all new diagnoses and all patients

who have undergone recent IBD surgery should be eligible for discussion in the IBD MDM.

A number of limitations need to be considered with regard to the current study. First, although we have characterised the role of core members, further detail is required as the role of the chairperson to guide the MDM and ensure proactive contribution from all members. Second, the inclusion of IBD patients or primary care physicians into the survey may have provided a useful viewpoint in terms of how best to represent their opinions to ensure that the MDT remains patient centred. Lastly, MDT-driven care is arising throughout a number of European IBD centres.<sup>14</sup> Representation from IBD specialists from these centres may have provided useful international perspective.

In conclusion, this study has provided consensus-derived statements for the role of key specialists in the context of the IBD MDT. A focus for core members to discuss eligible cases has also been provided through consensus. Such consensus-derived statements can aid a contractual recognition of responsibilities for core members to ensure attendance and proactive contribution. This preliminary evidence base for the composition and function of the IBD MDT should be used in two ways: first, to encourage the provision of resource at Trust level to embed the IBD MDT into Trust clinical processes, framed through mechanisms such as a Plan-Do-Study-Act cycle, and at the very least through the recognition of the roles of the MDT's core members in job planning; second, the question of establishing an evidence base for improved patient related outcomes should be driven by multistakeholder initiatives through our National Societies. This could be achieved by embedding simple outcomes into national data collection initiatives (the National IBD Registry) and mandating participation by Trusts on patient safety grounds (monitored by the National IBD Audit/ Quality, Innovation, Productivity and Prevention (QUIPP) processes and Trust governance structures). In addition to this benchmarking exercise, a formal prospective multicentre trial to compare speed of clinical decision-making, time to definitive IBD surgery or treatment escalation, morbidity and mortality could provide a definitive validation of the model of working suggested by this study.

**Contributors** PSM, NS, JG, CE and OF planned the study. PSM, NS, CE and OF conducted the survey. PSM, NS, JW, AH, JG, CE and OF reported the study. PM and OF are responsible for the overall content as guarantors.

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**Competing interests** NS is the Director of London Safety and Training Solutions Ltd, which provides quality and safety training and advisory services on a consultancy basis to healthcare organisations globally. NS and JG deliver teaching and consultancy-based work on evaluating and improving MDT effectiveness and team processes for hospitals in the UK and internationally. The other authors have no conflicts to declare.

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