# Validation of Team Performance Assessment of Multidisciplinary Tumor Boards

Rozh Jalil,* Waseem Akhter, Benjamin W. Lamb, Cath Taylor, Jenny Harris, James S. A. Green and Nick Sevdalis

*Department of Surgery and Cancer, Imperial College London (RJ, BWL, NS), Whipps Cross University Hospital, Barts Health National Health Service Trust (RJ, WA, JSAG), Department of Urology, Lister Hospital (BWL), King's College London (CT, JH) and Department of Health and Social Care, London Southbank University (JSAG), London, United Kingdom*

**Purpose:** We construct validated the instrument to evaluate assessor learning curves and the feasibility and interrater reliability of MTB-MODe for assessing the decision making process using video recorded multidisciplinary tumor board meetings.

**Materials and Methods:** Multidisciplinary tumor boards are becoming standard practice for managing cancer internationally but no standards have been agreed on to assess the efficacy of such teams. The MTB-MODe tool assesses the process of multidisciplinary tumor board decision making by standardized observation (1 to 5 anchored scales) of the quality of information presented at the multidisciplinary tumor board as well as board member contributions to the case review. We assessed 683 multidisciplinary tumor board case discussions using MTB-MODe in a multiphase study, including 332 cases (9 urology boards) by 1 urologist in vivo and 224 cases (6 urology boards) by 2 urologists in vivo. The instrument was refined and subsequently used to rate 127 video recorded case discussions (5 tumor types) by a total of 8 multidisciplinary tumor boards.

**Results:** Good interrater reliability was achieved in vivo and at the video recorded multidisciplinary tumor board meetings (ICC $\geq$0.70). MTB-MODe scores were higher in cases that resulted in a decision than in cases in which no decision was made (mean $\pm$ SD 2.54 $\pm$ 0.47 vs 2.02 $\pm$ 0.65, p $\leq$0.001).

**Conclusions:** A standardized method to assess the quality of multidisciplinary tumor board discussions can enhance the quality of cancer care and the ability of the boards to self-evaluate performance, thus, promoting good practice. Video recordings offer a feasible, reliable method of assessing how multidisciplinary tumor boards work.

**Key Words:** urology; neoplasms; quality assurance, health care; interdisciplinary communication; video recording

**Abbreviations and Acronyms**

MTB = multidisciplinary tumor board

MTB-MODe = MTB-Metric for the Observation of Decision-making

UK = United Kingdom

Accepted for publication March 4, 2014.

Study received Bristol, United Kingdom research ethics committee approval.

Supported by the National Institute for Health Research, United Kingdom via the Imperial Center for Patient Safety and Service Quality and Barts Health National Health Service Research and Development Department.

* Correspondence: Department of Surgery and Cancer, Imperial College London, 5th Floor Medical School Building, St. Mary's Campus, London W2 1PG, United Kingdom (telephone: +44 20 7594 3062; FAX: +44 20 7594 3137; e-mail: r.jalil@imperial.ac.uk).

**See Editorial on page 642.**

As cancer care becomes more complex, care delivery by multidisciplinary teams, often termed MTBs, is expanding worldwide.[1–4] MTBs consist of a number of cancer specialists, typically including surgeons, oncologists, radiologists, histopathologists, potentially cancer nurses (always in the UK), a team coordinator (dedicated administrator) and other allied health care professionals. These teams meet regularly (eg weekly for higher volume tumors or fortnightly for rarer tumors) to discuss cases and formulate management plans. MTB decision making should consider information

0022-5347/14/1923-0891/0
THE JOURNAL OF UROLOGY®

http://dx.doi.org/10.1016/j.juro.2014.03.002
Vol. 192, 891-898, September 2014
Printed in U.S.A.

on patients, clinical history, comorbidities, results of investigations and patient preference. In the UK MTB driven cancer care has been mandatory for more than a decade and all cases of new or suspected cancer must be discussed by a MTB.[5,6]

A key premise underlying MTBs is that they offer the advantage of combining expert opinion based on best available evidence at the time of decision making, thus minimizing idiosyncratic approaches to cancer treatment. Early evidence showed that MTB driven cancer care brought improved diagnostic accuracy, management planning and compliance with evidence-based decision making.[7,8] More recently, evidence has emerged that MTB driven care may improve patient survival.[9,10] In addition to careful consideration of comprehensive histopathological, radiological and clinical information, recent research demonstrated that the ability of MTBs to offer optimal care is also affected by the quality of teamwork, communication and decision making.[11–16] These findings are consistent with those of the operating room team performance, for which deficiencies in team communication, coordination and leadership are associated with worse team performance and a higher likelihood of error.[17,18]

Despite acknowledgement of the importance of teamwork skills for high quality decision making by MTBs there is little evidence of how such skills can be assessed or improved. To address this gap our research group designed MTB-MODe, an instrument to assess clinical decision making at MTB meetings. The instrument assesses 2 key aspects of team decision making, including 1) the quality of clinical and psychosocial information available to the MTB at the time of case discussion and 2) the quality of teamwork during case discussion. Initial evaluation of the instrument showed that it can be reliably used by clinical staff in vivo and it correlates with MTB member self-evaluations of performance.[19,20]

For MTB-MODe to be used more widely further validation and refinement are required. We report an extensive prospective evaluation of the instrument aiming to achieve certain objectives. 1) Evaluate the association between MTB-MODe scores and the ability of MTBs to make treatment recommendations at the first case presentation. 2) Evaluate the learning curve of surgeon assessors trained to use MTB-MODe. 3) Refine MTB-MODe in line with current quality indicators of cancer care. 4) Assess the feasibility of MTB-MODe for assessing video recorded at meetings.

## METHODS

### Design and Procedure

We used a 4-phase prospective study design.

***Phase 1— initial assessor training.*** A surgical resident (RJ) was trained to use MTB-MODe by the instrument developers, including surgeons (BWL and JSAG) and a psychologist (NS). Urology MTBs were prospectively observed (RJ) with regular feedback by the tool developer (BWL). Observations were made at 4 hospitals in London, UK, including 2 teaching and 2 community hospitals.

***Phase 2—objective assessor learning curve analysis.*** A second surgical resident (WA) was trained to use MTB-MODe by the resident (RJ) and a surgeon (BWL). The 2 assessors (RJ and WA) performed simultaneous in vivo observations of MTBs at the same 4 hospitals. To minimize observer bias each assessor was blinded to the rating of the other assessor during data collection.

***Phase 3—tool revision and refinement.*** Upon the completion of phase 2 the instrument was refined by adding 2 items. 1) "Team-member present who has previously met/seen patient" was added because the presence of an attending level physician or senior cancer nurse who has seen the patient before the patient is discussed at the MTB is a UK national quality indicator. 2) "Management plan summarized and presented at meeting" was added to allow assessment of the clarity of the decision according to team members in attendance.

***Phase 4—tool application to video recorded tumor boards.*** The same assessors used MTB-MODe to assess video recorded MTB meetings. These recordings were historical, anonymized recordings of MTB meetings from archived footage. Colorectal, skin, urology, upper gastrointestinal, and head and neck MTBs from different UK hospitals were included.

### Ethics

All analysis was performed on anonymized MTB and patient data. Before data collection ethical approval for observations was provided by the Bristol, UK research ethics committee. Oral informed consent was also given by MTB members assessed in vivo.

### Outcome Measures

***Objective MTB decision making.*** Whether a treatment decision was reached in each case was objectively recorded by the MTB coordinator in the meeting minutes.

***MTB teamwork quality.*** The quality of teamwork was assessed via direct in vivo observation using MTB-MODe (fig. 1).[19,20] Observed behaviors were assessed on Likert scale scores, including 1—poor, 3—average and 5—excellent information quality/teamwork. Assessors used the tool to rate team decision making for each patient discussed. Upon the completion of observations data were collated for statistical analysis.

***Assessor learning curves.*** Agreement between observers was compared using ICCs. Learning curves for raters were calculated for blocks of 20 consecutively observed cases for each MTB-MODe element to statistically evaluate assessments with time.

***Reasons for decision failure.*** Reasons for the failure of in vivo assessed MTBs to reach a decision were recorded and analyzed.