

The human element of surgery

Research Summary

Despite significant progress in the development of new surgical techniques and equipment, the 'human element' of surgery such as surgeons, anaesthetists, and nursing personnel has been neglected. A research team of psychologists and doctors led by Dr Nick Sevdalis, experimental psychologist and Senior Lecturer at Imperial College London's Clinical Safety Research Unit (directed by Professor Charles Vincent, a clinical psychologist), has devised a tool to offer a scientific yet practical assessment of teamwork within the complex and often stressful environment of an operating theatre.

The Observational Teamwork Assessment for Surgery (OTAS) tool assesses the quality of team-related behaviours of the core members of an operating theatre team. The tool captures five team-related behaviours: Communication, Coordination, Cooperation, Situation Awareness and Leadership, each one of which is rated on a seven-point behaviourally anchored scale. Taken together, these behaviours provide an index of the quality of inter-professional teamwork in the Operating Theatre.



Impact

This research was the first to scientifically assess how well or poorly a team functions in operating theatres, and link team functioning with care processes and patient outcomes. Psychological research of this type was not published in mainstream surgical or other clinical journals and the clinical field was entirely unaware of the possibilities for robust assessment and training interventions that can arise from applied psychological research. Major impacts in a number of other areas are:

- **Science:** Research has established a scientifically robust measure of team processes in operating theatre teams. OTAS is scientifically robust yet clinically feasible. Importantly the tool is also acceptable to the populations it is aimed at (ie, operating theatre professionals). All of the research is carried out within healthcare settings, thus continuously testing and refining the external validity of conceptual models and metrics in the 'real' world of surgery
- **Multidisciplinary research and capacity building:** The research is finding its way into major peer-reviewed clinical outlets (eg, *Annals of Surgery*), thus becoming an acceptable research avenue for both clinical and psychology-trained researchers
- The research has allowed a truly multidisciplinary research group to be maintained over a number of years within the Clinical Safety Research Unit of Imperial College, in which psychologist researchers (Doctoral students, research assistants, and post-doctoral research associates) are working alongside clinical researchers applying robust psychological science to important clinical problems

IMPACT case study

- **National policy:** The research has paved the way for the vigorous evaluation of the effectiveness of national policy interventions, such as the national roll out of the Surgical Safety Checklist (www.safesurgery.org.uk)
- **Profile of psychological/social sciences:** Dr Sevdalis' research is raising the profile of psychological science within psychological but also clinical audiences. He is regularly invited to present his research at prestigious events and institutions, including the Royal Society of Medicine, the Royal College of Anaesthetists, and the Royal College of Surgeons (Edinburgh)
- Since the research has started, an increasing number of young psychologist researchers have joined Dr Sevdalis' group, enthused to produce scientific research that advances psychological science but also improves patient care in the UK – a unique blend of young talent and aspiration.

Key Findings

- OTAS is being used to evaluate the effectiveness of one of the largest national quality improvement projects in surgical care in England and Wales – the Surgical Safety Checklist (www.safesurgery.org.uk)
- The Checklist which was originally developed by the World Health Organisation, became national policy and it was mandated for national use by the National Patient Safety Agency in January 2009
- The OTAS tool can be used in general surgical, urological, and vascular procedures as well as in simulated procedures (for research or training); it can be used reliably by two (or more) trained blinded observers; and it can be used both by psychologists and clinical observers (eg, surgeons)
- A training programme of approximately 20 hours for new OTAS assessors has been developed and validated by Dr Sevdalis' team
- OTAS has formed the basis for the development of similar measurement instruments that have been developed for multidisciplinary cancer teams and also for resuscitation teams
- It has been independently translated in Italian and re-validated for use in operating theatres in Italy and in German and Spanish speaking countries through an established network of research collaborators

Further Information

Observational Teamwork Assessment for Surgery (OTAS)

www1.imperial.ac.uk/medicine/about/institutes/patientsafety/servicequality/cpssq_publications/resources_tools/otas/

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