



# INTERNATIONAL JOURNAL OF CLINICAL SKILLS



**A Peer Reviewed International Journal for the Advancement of Clinical Skills**  
- *'docendo ac discendo' - 'by teaching and learning'*



In this issue:

## Emotion and concealed motivation in the clinical interview

Peripheral cannulation: what's the benefit and what's important?

Adapting clinical skills training to an Arabian Gulf setting

Role of clinical nurse educators in medical education

Simulation learning in health care



## Executive Board

### Dr Humayun Ayub

Editor-in-Chief  
editor@ijocs.org

### Dr Alison Anderson

Executive Editor  
a.anderson@ijocs.org

### Mrs Sally Richardson

Senior Associate Editor  
s.richardson@ijocs.org

### Mr Keser Ayub

Managing Director  
k.ayub@ijocs.org

### Dr Waseem Ahmed

Clinical Skills Lab Editor  
w.ahmed@ijocs.org

### Dr Raina Nazar

Clinical Skills Editor  
r.nazar@ijocs.org

### Dr Hind Al Dhaheri

Associate Editor  
h.aldhaheri@ijocs.org



International Journal Of Clinical Skills  
P O Box 56395  
London  
SE1 2UZ  
United Kingdom

E-mail: info@ijocs.org  
Web: www.ijocs.org  
Tel: +44 (0) 845 0920 114  
Fax: +44 (0) 845 0920 115

Published by Hampton Bond

## Acknowledgements

We would like to take this opportunity to show appreciation to all those involved with the production of the International Journal of Clinical Skills (IJOCs). Many thanks to all members of the Editorial and Executive Boards.

We would like to express our sincere gratitude to Dr Wing Yan Mok and Dr Adrian Hastings as they leave the IJOCs and we thank them for their invaluable support towards the international clinical skills community.

The International Journal of Clinical Skills looks forward to contributing positively towards the training of all members of the healthcare profession.

## Contents

The Executive Board Members	73
Acknowledgements	73
The Editorial Board	74
Foreword	
- <b>Dr Abigail Boys</b>	75

## Editorials

Emotion and concealed motivation in the clinical interview	
- <b>Philip Gaughwin</b>	76
Adapting clinical skills training to an Arabian Gulf setting	
- <b>Deen Mirza</b>	81
A patient safety 'Student Selected Component' at the University of Dundee (UK)	
- <b>Gillian Paterson</b>	84

## Original Research

Attitudes of students, staff and patients towards teaching medical students in the clinical environment	
- <b>Alexandra Highton</b>	88
Refresher training for junior doctors about peripheral cannulation: what's the benefit and what's important?	
- <b>Eleanor Guegan</b>	95
The use of the Direct Observation of Procedural Skills (DOPS) assessment tool in the clinical setting - the perceptions of students	
- <b>Roderick McLeod</b>	102
A 'near-peer' assisted learning approach to teaching undergraduate basic surgical skills	
- <b>Michael Keogh</b>	108
Development and face validation of an instrument to assess and improve clinical consultation skills	
- <b>Janet Lefroy</b>	115
Staff and student perceptions regarding a clinical skills laboratory learning experience	
- <b>Shazia Ibnerasa</b>	126
Promoting transfer of clinical skills from simulation to hospital settings: the role of clinical nurse educators in medical education	
- <b>Robyn Hill</b>	130
Simulation learning in health care: is there evidence of transfer to the workplace?	
- <b>Stephen Abbott</b>	136

<b>IJOCs Award Winner</b>	141
---------------------------	-----

<b>Book Review</b>	142
--------------------	-----

<b>Clinical Skills Notice Board</b>	143
-------------------------------------	-----



# Editorial Board for the International Journal of Clinical Skills

**Dr Ali H M Abdallah MB BS**

Family Medicine  
Dubai Health Authority (DHA)  
United Arab Emirates (UAE)

**Mr Henry O Andrews FRCS(Eng) FRCS(Ire)  
FRCS(Urol) FEBU MBA**

Consultant Urological & Laparoscopic Surgeon  
Department of Urology  
Milton Keynes General Hospital, UK

**Dr Peter J M Barton MBChB FRCGP MBA  
DCH FHEA**

Director of Clinical and Communication Skills  
Chair of Assessment Working Group  
Medical School  
University of Glasgow, UK

**Dr Jonathan Bath MB BS BSc (Hons)**

Department of Surgery  
Ronald Reagan UCLA Medical Center  
Los Angeles  
United States of America (USA)

**Dr Khaled Al Beraiki MB BS**

Forensic Medicine  
Klinikum Der Universität zu Köln  
Institut für Rechtsmedizin  
University of Köln  
Germany

**Professor Chris Butler BA MBChB DCH  
FRCGP MD**

Professor of Primary Care Medicine  
Head of Department of Primary Care and Public  
Health  
Cardiff University, UK

**Dr Aidan Byrne MSc MD MRCP FRCA  
ILTM FAcadM**

Interim Director of Clinical Skills and Simulation  
School of Medicine  
Cardiff University, UK

**Dr Dason E Evans MBBS MHPE FHEA**

Honorary Senior Lecturer in Medical Education  
Barts and the London, Queen Mary's School of  
Medicine and Dentistry  
University of London, UK

**Mrs Carol Fordham-Clarke BSc (Hons)  
RGN Dip Nurse Ed**

Lecturer and OSCE Co-ordinator  
Florence Nightingale School of Nursing &  
Midwifery  
King's College London, UK

**Dr Elaine Gill PhD BA (Hons) RHV RGN  
Cert Couns**

Head of Clinical Communication  
The Chantler Clinical Skills Centre  
Guy's, King's and St Thomas' Medical School  
King's College London, UK

**Dr Glenn H Griffin MSc MEd MD FCFPC  
FAAFP**

Family Physician Active Staff  
Trenton Memorial Hospital  
Trenton, Ontario  
Canada

**Dr Faith Hill BA PGCE MA(Ed) PhD**

Director of Medical Education Division  
School of Medicine  
University of Southampton, UK

**Dr Jean S Ker BSc (Med Sci) MB ChB  
DRCOG MRCGP MD Dundee FRCGP  
FRCPE (Hon)**

Director of Clinical Skills Centre  
University of Dundee Clinical Skills Centre  
Ninewells Hospital & Medical School  
University of Dundee, UK

**Dr Lisetta Lovett BSc DHMSA MBBS  
FRCPsych**

Senior Lecturer and Consultant Psychiatrist  
Clinical Education Centre  
Keele Undergraduate Medical School  
Keele University, UK

**Miss Martina Mehring, Physician**

Assistenzärztin Anästhesie  
Marienkrankenhaus  
Frankfurt  
Germany

**Professor Maggie Nicol BSc (Hons) MSc  
PGDipEd RGN**

Professor of Clinical Skills & CETL Director  
School of Community & Health Sciences  
City University London, UK

**Dr Vinod Patel BSc (Hons) MD FRCP  
MRCGP DRCOG**

Associate Professor (Reader) in Clinical Skills  
Institute of Clinical Education  
Warwick Medical School  
University of Warwick, UK

**Miss Anne Pegram MPhil PGCE(A) BSc RN**

Lecturer  
Department of Acute Adult Nursing  
Florence Nightingale School of Nursing  
King's College London, UK

**Dr Abdul Rashid Abdul Kader MD (UKM)**

Emergency Medicine  
Universiti Kebangsaan Malaysia (UKM) Medical  
Center  
Kuala Lumpur  
Malaysia

**Professor Trudie E Roberts BSc (Hons) MB  
ChB PhD FRCP**

Director – Leeds Institute of Medical Education  
University of Leeds, UK

**Dr Robyn Saw FRACS MS**

Surgeon  
Sydney Melanoma Unit  
Royal Prince Alfred Hospital  
Australia

**Dr Mohamed Omar Sherif MBBS Dip  
Derm MD (Derm)**

Specialist in Dermatology  
Al Ain Hospital  
Health Authority - Abu Dhabi  
United Arab Emirates (UAE)

**Professor John Spencer MB ChB FRCGP**

School of Medical Sciences Education  
Development  
Newcastle University, UK

**Professor Patsy A Stark PhD BA (Hons) RN  
RM FHEA**

Professor of Clinical Medical Education and  
Director of Clinical Skills  
University of Leeds and Leeds Teaching Hospitals  
Trust, UK

**Professor Val Wass BSc MRCP FRCGP  
MHPE PhD**

Head of Keele Medical School  
Keele University, UK

## Disclaimer & Information

Visit the International Journal of Clinical Skills (IJOCS) at [www.ijocs.org](http://www.ijocs.org)

Whilst every effort has been made to ensure the accuracy of information within the IJOCS, no responsibility for damage, loss or injury whatsoever to any person acting or refraining from action as a result of information contained within the IJOCS (all formats), or associated publications (including letters, e-mails, supplements), can be accepted by those involved in its publication, including but not limited to contributors, authors, editors, managers, designers, publishers and illustrators.

Always follow the guidelines issued by the appropriate authorities in the country in which you are practicing and the manufacturers of specific products. Medical knowledge is constantly changing and whilst the authors have ensured that all advice, recipes, formulas, instructions, applications, dosages and practices are based on current indications, there may be specific differences between communities. The IJOCS advises readers to confirm the information, especially with regard to drug usage, with current standards of practice.

International Journal of Clinical Skills (IJOCS) and associated artwork are registered trademarks of the Journal. IJOCS is registered with the British Library, print ISSN 1753-0431 & online ISSN 1753-044X. No part of IJOCS, or its additional publications, may be reproduced or transmitted, in any form or by any means, without permission. The International Journal of Clinical Skills thanks you for your co-operation.

The International Journal of Clinical Skills (IJOCS) is a trading name of SkillsClinic Limited a Company registered in England & Wales. Company Registration No. 6310040. VAT number 912180948. IJOCS abides by the Data Protection Act 1998 Registration Number Z1027439. This Journal is printed on paper as defined by ISO 9706 standard, acid free paper.

© International Journal of Clinical Skills



# Foreword

## Clinical skills change lives...



Dr. Abigail Boys & Regina (October 2010)

Amidst the fast paced achievements in international healthcare and education, it is important not to forget what clinical skills mean in reality for our patients – clinical skills change lives.

After having initiated the charitable society Willing and Abel in 2008, many health care professionals have had the pleasure of using their specialised and expert clinical skills to help children of developing nations requiring specialist surgery. An example is 13 year old Regina who was born with a tumour fatally spreading across her face (congenital lymphangioma) – she successfully underwent major surgery at The Royal London Hospital (United Kingdom) in December 2010 and now continues to lead a normal life in Ghana, West Africa ([www.bbctelevision.co.uk](http://www.bbctelevision.co.uk)).

Such success exemplifies a fundamental strength of the clinical skills community in its ability to evolve and adapt to meet the challenges and expectations of a modern healthcare arena. Healthcare professionals need to have clinical skills training which will allow them to meet present and future challenges, which include an ageing population, multiple morbidities and increasing patient expectations.

There is no doubt that the International Journal of Clinical Skills provides an excellent forum for the global healthcare community to further clinical skills research, as well as advancing the training of students, academics and health professionals. I wish the International Journal of Clinical Skills continued success for its admirable work in this important field.

**Dr. Abigail Boys MBBS MRCS (Eng)**  
Founder of Willing and Abel  
[www.willingandabel.org.uk](http://www.willingandabel.org.uk)



# The use of the Direct Observation of Procedural Skills (DOPS) assessment tool in the clinical setting - the perceptions of students

**Mr Roderick A McLeod MSc BN RGN Pg Cert Teaching  
Higher Ed FHEA \***  
Senior Clinical Skills Tutor

**Professor Gary J Mires MD FRCOG FHEA +**  
Undergraduate Teaching Dean  
Consultant Obstetrician

**Professor Jean S Ker MD FRCGP FRCPE FHEA \***  
Director of Clinical Skills

\* Clinical Skills Centre, University of Dundee, UK

+ School of Medicine & Division of Maternal and Child Health  
Sciences, Ninewells Hospital and Medical School, UK

## Correspondence:

**Mr Roderick McLeod**  
Senior Clinical Skills Tutor  
Clinical Skills Centre  
University of Dundee.  
Ninewells Hospital  
Dundee  
DD1 9SY  
UK

E-mail: r.mcleod@dundee.ac.uk  
Tel: +44 (0) 1382633937 Ext 32801  
Fax: +44 (0) 1382633950

## Keywords:

Procedural skills  
Workplace Based Assessment  
Survey

## Abstract

**Background:** Using work-place based assessment tools in the undergraduate medical curriculum presents a number of challenges. Firstly, given the increasing proportion of the curriculum spent in clinical attachments in the final years, it is essential that reliable evidence of student performance in the workplace is presented as part of the assessment process. Secondly, the number of students on clinical placements at any one time in the undergraduate programme presents a particular challenge in relation to the feasibility of carrying out so many workplace based assessments, using tools such as the Direct Observation of Procedural Skills (DOPS). This paper presents the results of a survey of student perceptions on the introduction of the DOPS as a workplace based assessment tool in their clinical attachments.

**Methods:** All final year medical students were surveyed while on clinical placements over a four month period in 2010. Using a Bristol Online Survey (BOS) a 10 item questionnaire was distributed to a final year cohort of 150 final year medical students.

**Results:** 58.7% (88 out of 150) of those surveyed completed the questionnaire. Over 88% of students reported the DOPS as being easy to administer and 76% identified its use in creating opportunities for feedback. Challenges include difficulty in integrating the workplace assessments into their clinical attachments (55%) and nearly 70% cited time constraints in relation to both assessment and feedback.

**Conclusion:** The survey identified the positive impact of using a workplace based assessment tool in clinical attachments, as perceived by undergraduate medical students, in terms of gaining both reliable evidence of performance and in providing feedback, but identified some real constraints.

## Background

There is a concern that undergraduate students are seldom observed, assessed and given feedback during their workplace clinical attachments [1]. Traditionally the assessment of procedural skills has focussed on technical aspects [2] rather than taking cognisance of the impact of other factors, such as the context.

One of the challenges of assessing individual performance in the workplace is that even if patients have the same medical condition, the complexity of their care makes it difficult to compare performance. Work Based Assessment (WBA) is a form of authentic assessment testing performance in the real environment facing doctors in clinical practice, at Miller's level of "does" relating to performance [3]. Miller's pyramid has been used over the last twenty years as a framework for assessing clinical competence not performance. Performance is structured and continuous, unlike the opportunistic observations previously used to form judgement on competence. By using repeated assessments, an assessor has the opportunity to collect documentary evidence of



the progression of individual trainees. This evidence may then be used to identify “gaps” in practice which will allow the assessor and assessee to mutually plan individual development needs. Using a wide range of WBA tools helps to identify strengths and weaknesses in different areas of practice, such as technical skills, professional behaviour and team working.

The Royal College of Physicians (United Kingdom) developed the DOPS work based assessment tool which has been validated and found to be reliable with postgraduate trainees [4]. It provides a focussed observation or “snapshot” of a trainee undertaking a practical procedure in the workplace. The feature of Direct Observed Procedural Skills (DOPS), which is commonly cited as being responsible for its high educational value, is the opportunity it creates for focussed and relevant feedback from more experienced practitioners. It requires the assessor to:

1. Directly observe the assessee undertaking the procedure
2. Make judgements about specific components of the procedure
3. Grade the assessee's performance

DOPS have become part of the portfolio of evidence required of Foundation Year doctors as part of their two year programme prior to specialisation. Doctors have reported it as being fair and having a good predictive quality. However, there is little evidence based research on the educational impact of DOPS or its acceptability at undergraduate level [5]. It has been suggested [6] that observing, assessing and providing feedback to students will enhance the quality of the skills delivered. This would have a positive impact on patients' clinical care. Race [7] has examined the rationale behind innovation and assessment and stated that any new form of assessment should be questioned i.e. does it increase learning? Is it more efficient? Can the new method make assessment more valid? Innovative assessment techniques can be introduced to reduce the assessment load, to offer enhanced feedback. Indeed, they can provide a better alignment between teaching, assessment and learning outcomes. However, the introduction of such assessment methods is not simply about choosing a different way of doing things or saving time, instead the driver must be because the particular innovation is best suited to what students are being asked to learn.

## Objective

DOPS is a method that has been designed specifically for the assessment of practical skills. The aim of this study was to explore the perceptions of final year medical students on the introduction of the DOPS assessment tool in their clinical attachments.

## Methods

### **Development of the DOPS process for the undergraduate programme**

An assessor observes a student performing a practical procedure from start to finish, and scores the student against pre-defined criterion on a rating score of 0-9 (Figure 1). The assessment should take place during the normal course of a

student's work (i.e. their actual practice is being observed and assessed). The degree of difficulty and level of competence expected will vary with the experience of the student. If a student scores 3 or less (unsatisfactory), specific reasons should be recorded on the form.

A generic version of the DOPS assessment form (Figure 2, page 108) was adapted which students could access and download from the University's clinical skills website, to use on their clinical attachments. These were then included in their final year portfolio as evidence of the student's practice.

Figure 1: DOPS pre-defined criteria

1. Understanding of indications
2. Obtains informed consent
3. Appropriate preparation
4. Technical ability
5. Aseptic technique
6. Awareness of complications
7. Post-procedure management
8. Communication skills
9. Professionalism
10. Overall ability
11. Overall clinical competence

### **Selection of the DOPS procedures**

DOPS are not designed to test the person, but rather provide the opportunity for that person to ensure that a particular skill is performed correctly according to agreed guidelines using an agreed checklist in the workplace setting. The procedures selected are from those outlined as core competencies from the UK General Medical Council's document 'Tomorrow's Doctors' [8].

### **The selection of participants**

During a four month period, whilst final year medical students were on their clinical attachments, the final year cohort of students (n = 150) were invited on a voluntary basis to participate in an anonymous online survey relating to their perceptions of DOPS.

### **Designing, piloting and distributing the survey**

During the clinical attachments in the final year at the University of Dundee (UK) the students are often geographically dispersed so an online survey was the most practical method of surveying all students within an agreed time frame. The Bristol Online Survey (BOS) tool was used, in order to design and pilot the survey questionnaire. It was sent to peer lecturers in addition to e-learning advisors. The feedback received was useful for finalizing the survey questionnaire. Scales measuring agreement with attitudinal items were written using a five-point Likert scale format (strongly agree, agree, neither, disagree and strongly disagree).

The survey was then distributed via the web resource [www.survey.bris.ac.uk](http://www.survey.bris.ac.uk) along with a covering letter outlining the aims of the research and to ensure anonymity and confidentiality. The survey was hosted on “Blackboard” the University of Dundee's main Visual Learning Environment (VLE). The survey link was e-mailed to final year medical students on clinical placement



and they were invited by e-mail to complete the survey questionnaire with their consent.

Respondents were asked how much they agree with a series of ten statements relating to the usability of DOPS and more specifically how it measures performance, provides immediate feedback and the potential to indicate students' developmental needs.

Data collection involved an e-mail solicitation containing a link to BOS Survey. One reminder was sent out. Frequencies and summary statistics were calculated for all variables and results presented using valid percentages. Data collection occurred between February and June 2010. The data were analysed using SPSS Statistics 17.00.

Formal ethical approval for this study was obtained from the University of Dundee Research Ethics Committee (UREC).

## Results

The study design employed an anonymous online questionnaire (Figure 3) which was published on the Bristol Online Survey (BOS). Overall 88 out of 150 students responded to all statements on the survey, giving a response of 58.7%. The responses are presented in (Table 1).

Figure 3: Online questionnaire statements (rated on a five-point Likert scale from "strongly agree" to "strongly disagree")

1.	The DOPS form is simple to use
2.	The DOPS form is easy for examiners or assessors to administer
3.	DOPS can be integrated into the fabric of the working day or normal routine
4.	There is sufficient time for supervisors to observe medical students performing skills using the DOPS form
5.	The DOPS rating scale defines clearly the level of performance expected of a final year medical student
6.	DOPS allows for variation in the assessment of procedural skills from placement to placement
7.	Time should be written into the job plans of clinical teachers and assessors to facilitate DOPS assessments
8.	DOPS creates an opportunity for pertinent feedback to a medical student
9.	Immediate feedback provided by DOPS form is helpful to student development
10.	DOPS identifies the developmental needs of a medical student having carried out a procedural skill

Table 1: DOPS online survey results (n = 88)

Please rate your response to the following statements:			
<b>1. The DOPS form is simple to use:</b>			
Strongly Agree:	18.2%	16	
Agree:	70.5%	62	
Neither:	4.5%	4	
Disagree:	4.5%	4	
Strongly Disagree:	2.3%	2	
<b>2. The DOPS form is easy for examiners / assessors to administer:</b>			
Strongly Agree:	12.5%	11	
Agree:	71.6%	63	
Neither:	6.8%	6	
Disagree:	6.8%	6	
Strongly Disagree:	2.3%	2	
<b>3. DOPS can be integrated into the fabric of the working day / normal routine:</b>			
Strongly Agree:	3.4%	3	
Agree:	31.8%	28	
Neither:	10.2%	9	
Disagree:	35.2%	31	
Strongly Disagree:	19.3%	17	
<b>4. There is sufficient time for supervisors to observe medical students performing skills using the DOPS form:</b>			
Strongly Agree:	2.3%	2	
Agree:	17.0%	15	
Neither:	11.4%	10	
Disagree:	45.5%	40	
Strongly Disagree:	23.9%	21	
<b>5. The DOPS rating scale defines clearly the level of performance expected of a final year medical student:</b>			
Strongly Agree:	4.5%	4	
Agree:	56.8%	50	
Neither:	11.4%	10	
Disagree:	21.6%	19	
Strongly Disagree:	5.7%	5	

(Table 1 continued over page)



**6. DOPS allows for variation in the assessment of procedural skills from placement to placement:**

Strongly Agree:	4.5%	4
Agree:	58.0%	51
Neither:	20.5%	18
Disagree:	10.2%	9
Strongly Disagree:	6.8%	6

**7. Time should be written into the job plans of clinical teachers / assessors to facilitate DOPS assessments:**

Strongly Agree:	42.0%	37
Agree:	40.9%	36
Neither:	6.8%	6
Disagree:	6.8%	6
Strongly Disagree:	3.4%	3

**8. DOPS creates an opportunity for pertinent feedback to a medical student:**

Strongly Agree:	17.0%	15
Agree:	59.1%	52
Neither:	11.4%	10
Disagree:	6.8%	6
Strongly Disagree:	5.7%	5

**9. Immediate feedback provided by DOPS form is helpful to student development:**

Strongly Agree:	20.5%	18
Agree:	59.1%	52
Neither:	13.6%	12
Disagree:	4.5%	4
Strongly Disagree:	2.3%	2

**10. DOPS identifies the developmental needs of a medical student having carried out a procedural skill:**

Strongly Agree:	12.5%	11
Agree:	64.8%	57
Neither:	10.2%	9
Disagree:	8.0%	7
Strongly Disagree:	4.5%	4

**Experience with DOPS**

88.7% thought DOPS was easy to use and administer. Students were also very positive about the opportunity that DOPS creates for feedback to a medical student (76.1%). An overwhelming majority (79.6 %) agreed that this immediate feedback is helpful to their development. Students also supported the notion (77.3%) that DOPS identifies the developmental needs of a medical student to carry out a procedural skill.

**Negative results**

54.5 % of students considered there were difficulties integrating DOPS into the normal working day. 69.4% of students reported there was insufficient time for supervisors to evaluate and provide feedback. 82.9% of students identified that time should be written into the job plans of assessors to facilitate DOPS and provide feedback. There was also a high variance split in relation to the integration of DOPS in the clinical setting with (35.2%) of respondents agreeing that DOPS could be integrated in contrast with (54.5%) who disagreed.

**Discussion**

The first key observation is that the large majority of the respondents valued immediate feedback and perceived the DOPS as being fit for purpose, but identified the need for protected time for assessors to be able to undertake the assessments in order to maximise their impact at undergraduate level. This concurs with the literature which suggests assessment based on direct observation should be an essential component of outcomes-based education and certification [9, 10]. The development of expertise depends on accurate and detailed assessment and feedback [11]. Research indicates that effective learning depends strongly on active involvement of students and deliberate attention to cognitive processes underlying task performance. In the clinical setting, however, there is no guarantee that every student will have a uniform experience and learn all the necessary skills. In fact, whilst workplace based assessment is the most authentic method of testing performance, the tools available are limited to postgraduate assessment [12, 13]. Indeed there may be a role for simulation in enhancing the evidence of these tools at undergraduate level given the current pressures in the real workplace.

The international movement in quality improvement and patient safety has been increasing use of simulation for performance assessment, led by anaesthesiology [14, 15]. There is, however, increasing use of work-based assessment tools in other health care simulation contexts [16].

Developing performance assessments using simulation may be the most defensible method of ensuring reliability and validity for senior students prior to graduation. DOPS has previously only been implemented at postgraduate level in medicine and has been designed specifically for the assessment of procedural skills, yet it may also have a useful role in enhancing the reliability and competent execution of medical undergraduate procedural skills. The research literature on formative assessment and feedback suggests that it is a powerful means for changing the behaviour of students and trainees, and there is a consensus that developing tools to evaluate accurately the clinical competence of a student and to direct his/her learning appropriately is a worthwhile endeavour [17, 18, 19].

Educators need instruments to document the competence of individual students and trainees and to evaluate the programmatic impact of new curricula. Furthermore, when evaluating such tools and strategies it is essential to look critically for evidence related to the three fundamental properties of content validity, reliability and practicality. The assessment of procedural skills, as opposed to more general



skills, is more effective when the observations are structured and the tasks are broken down into their components [20]. The DOPS have the advantage of a short time commitment for the procedural observation itself, but in this study students perceived that there was still insufficient time for their assessors suggesting the numbers of students or the lack of assessors or the lack of protected time to carry out these assessments in the workplace, may be responsible factors.

Perhaps the strongest area of potential pedagogic advantage with the DOPS tool is in the provision of rapid feedback in the form of marks and comments. While students' exposure to a required experience does not in itself assess clinical competency, documenting and monitoring those experiences remains a major component in the education and accreditation process. Further studies on the validity and reliability of DOPS in this and simulated contexts, need to be conducted.

#### Future recommendations

Further research in the use of DOPS assessment is warranted, i.e. exploring the relationship between performance of clinical procedural skills in real and simulated settings, as well as improving the quality and speed of feedback to clinicians. It would also be useful to ascertain the opinion of non-responders. Time and integration challenges to be addressed include, that:

- It may be that DOPS will not be possible over a wide range of skills unless they are programmed events
- Some procedures are not frequently required, so opportunities to observe the skill are difficult to find
- When an opportunity might arise it may not be convenient for the assessor to make themselves available at short notice and sometimes such procedures are outside of normal working hours, when assessors may not be present
- Some thought must be given to the coordination of assessor and trainee time
- Setting aside a regular observation period is required
- Some form of locally organized timetabling of DOPS may be a more efficient option

## Conclusion

This study explored students' perceptions on the use of the Direct Observation of Procedural Skills (DOPS) assessment during clinical attachments. Although a relatively small sample size, this study has clearly identified some of the real and perceived challenges from the students' perspective.

Whilst students' exposure to a required experience does not in itself assess clinical competency, documenting and monitoring those experiences remains a major component in the education and accreditation process. The DOPS assessment tool presents an opportunity to provide immediate and relevant feedback.

The provision of a more comprehensive assessment strategy for final year medical students, that covers practical procedural skills, has emerged as an important issue that will be key to ensuring quality, reliability and consistency of work based assessments for undergraduate students.

## Declarations

The authors have no financial or other interests to declare in relation to this paper.

## Acknowledgements

Miss Anne Hutchison (Co-ordinator: Bristol Online Survey Service, Library and Learning Centre, University of Dundee) and Mrs Alison Gray (Web Development, Computing & Media Services, School of Medicine, Ninewells Hospital & Medical School) are thanked for their kind support.


## References

1. Norcini J, Burch V. (2007). Workplace-based assessment as an educational tool: AMEE Guide No. 31. *Medical Teacher*. **29**(9):855-871.
2. Kneebone R, Nestel D, Yadollahi F, Brown R, Nolan C, Durack J, Brenton H, Moulton C, Archer J, Darzi A. (2006). Assessing procedural skills in context: Exploring the feasibility of an Integrated Procedural Performance Instrument (IPPI). *Medical Education*. **40**(11):1105-1114.
3. Miller G E. (1990). The assessment of clinical skills/ competence/performance. *Academic Medicine*. **65**(Supplement 9):S63-S67.
4. Duffy F D, Gordon G H, Whelan G, Cole-Kelly K, Frankel R, Buffone N, Lofton S, Wallace M, Goode L, Langdon L, Participants in the American Academy on Physician and Patient's Conference on Education and Evaluation of Competence in Communication and Interpersonal Skills. (2004). Assessing competence in communication and interpersonal skills: the Kalamazoo II report. *Academic Medicine*. **79**(6):495-507.
5. Darzi A, Mackay S. (2003). Assessment of surgical competence. *Quality in Health Care*. **10**(Supplement 2):ii64-ii69.
6. Sidhu R, Grober E D, Musselman L J, Reznick R K. (2004). Assessing competency in surgery: where to begin? *Surgery*. **135**(1):6-20.
7. Race P. (1999). Why Assess Innovatively? In Brown S, Glasner A (Editors), *Assessment matters in higher education, choosing and using diverse approaches*, pages 57-70. Buckingham, Society for Research into Higher Education & Open University Press.
8. General Medical Council. (2003). *Tomorrow's Doctors*. London, General Medical Council (GMC).
9. Shumway J M, Harden R M, Association for Medical Education in Europe. (2003). AMEE Guide No. 25: The assessment of learning outcomes for the competent and reflective physician. *Medical Teacher*. **25**(6):569-584.
10. Crossley J, Humphris G, Jolly B. (2002). Assessing health professionals. *Medical Education*. **36**(9):800-804.
11. Ericsson K A. (2004). Deliberate practice and the acquisition and maintenance of expert performance in medicine and related domains. *Academic Medicine*. **79**(Supplement 10):S70-S81.
12. Norcini J J, Blank L L, Duffy F D, Fortuna G S. (2003). The mini-CEX: a method for assessing clinical skills. *Annals of Internal Medicine*. **138**(6):476-481.



13. Garman A N, Tyler J L, Darnall J S. (2004). Development and validation of a 360-degree-feedback instrument for healthcare administrators. *Journal of Healthcare Management*. **49**(5):307-322.
14. Elder A A, Fanning R G, Chen M I, Claire R, Almazan D, Struyk B, Seiden S C. (2009). Patient simulation: a literary synthesis of assessment tools in anesthesiology. *Journal of Educational Evaluation for Health Professions*. **6**:3.
15. Weller J, Wilson L, Robinson B. (2003). Survey of change in practice following simulation-based training in crisis management. *Anaesthesia*. **58**(5):471-473.
16. McIlwaine L M, McAleer J P G, Ker J S. (2007). Assessment of final year medical students in a simulated ward: developing content validity for an assessment instrument. *International Journal of Clinical Skills*. **1**(1):33-35.
17. Shaneyfelt T, Baum K D, Bell D, Feldstein D, Houston T K, Kaatz S, Whelan C, Green M. (2006). Instruments for evaluating education in evidence-based practice: a systematic review. *Journal of the American Medical Association*. **296**(9):1116-1127.
18. Veloski J J, Fields S K, Boex J R, Blank L L. (2005). Measuring professionalism: a review of studies with instruments reported in the literature between 1982 and 2002. *Academic Medicine*. **80**(4):366-370.
19. Lynch D C, Surdyk P M, Eiser A R. (2004). Assessing professionalism: a review of the literature. *Medical Teacher*. **26**(4):366-373.
20. Greaves J D, Grant J. (2000). Watching anaesthetists work: using the professional judgement of consultants to assess the developing clinical competence of trainees. *British Journal of Anaesthesia*. **84**(4):525-533.

Figure 2: DOPS  
Assessment Form



### DIRECT OBSERVED PROCEDURAL SKILL (DOPS)

Assessor's GMC Number:  Student Name:

Procedure being observed: (CAPITALS)

Please mark one of the circles for each component of the exercise on a scale of 1 (extremely poor) to 9 (extremely good). A score of 1-3 is considered unsatisfactory, 4-6 satisfactory and 7-9 is considered extremely good. Please note that your score should reflect the performance of the student against what you would reasonably expect of a candidate at their stage of training and level of experience. You must justify each score of 1-3 with at least one explanation in the comment box, failure to do so will invalidate the assessment.

**PLEASE USE BLACK INK AND CAPITAL LETTERS.**

	UNSATISFACTORY			SATISFACTORY			ABOVE EXPECTED		
	01	02	03	04	05	06	07	08	09
1. Understanding of Indications	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Obtains informed consent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Appropriate Preparation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Technical ability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Aseptic technique	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Awareness of complications	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Post procedure management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Communication skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Professionalism	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. Overall ability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. Overall Clinical Competence Performing Procedure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Assessors comments on student's performance (BLOCK CAPITALS PLEASE)

Student's comments on their performance on this occasion (BLOCK CAPITALS PLEASE)

STUDENT'S SIGNATURE

ASSESSOR'S SIGNATURE

DATE (DD/MM/YY)



If you would like to subscribe to IJOCS,  
please contact [subscription@ijocs.org](mailto:subscription@ijocs.org)

# INTERNATIONAL JOURNAL OF CLINICAL SKILLS



If you wish to submit material for  
publication, please email [info@ijocs.org](mailto:info@ijocs.org)