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The effectiveness of gynaecology teaching associates in teaching pelvic examination to medical students: a randomised controlled trial[☆]



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ABSTRACT

Objectives: To assess whether teaching female pelvic examinations using gynaecological teaching associates (GTAs); women who are trained to give instruction and feedback on gynaecological examination technique, improves the competence, confidence and communication skills of medical students compared to conventional teaching.

Study design: Randomised controlled trial.

Setting: Ten University of Birmingham (UoB) affiliated teaching hospitals in the UK.

Population: 492 final year medical students.

Methods: GTA teaching of gynaecological examination compared with conventional pelvic manikin based teaching at the start of a five week clinical placement in obstetrics and gynaecology (O&G).

Main outcome measures: Student's perception of their confidence was measured on a 10 cm visual analogue scale (VAS). Domains of competence were measured by a senior clinical examiner using a standardised assessment tool which utilised 10 cm VAS and by a GTA using a four point Likert scale. Assessors were blinded to the allocated teaching intervention.

Results: 407/492 (83%) students completed both the intervention and outcome assessment. Self-reported confidence was higher in students taught by GTAs compared with those taught on manikins (median score GTA 6.3; vs. conventional 5.8; $p = 0.03$). Competence was also higher in those taught by GTAs when assessed by an examiner (median global score GTA 7.1 vs. conventional 6.0; $p < 0.001$) and by a GTA ($p < 0.001$).

Conclusions: GTA teaching of female pelvic examination at the start of undergraduate medical student O&G clinical placements improves their confidence and competence compared with conventional pelvic manikin based teaching. GTAs should be introduced into undergraduate medical curricula to teach pelvic examination.

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Introduction

Physical examination of the pelvis is a core skill that medical students need to acquire. The intimate nature of the examination poses challenges to medical students and their teachers in gaining consent for supervised training [1,2]. However, other factors may now be affecting student experience. These include competing

pressures on undergraduate medical curricula resulting in traditional clinical placements, such as obstetrics and gynaecology (O&G), becoming shortened in many academic institutions. Empowerment of patients combined with changes in their expectations may have further restricted students' access to clinical cases [3]. Clinical teachers may also have become less experienced such that they find teaching vaginal examination an increasing challenge.

Innovations are urgently required to enhance teaching of a skill, which is fundamental to both gynaecological and general medical practice. A strategy gaining popularity is simulation using 'expert patients' known as gynaecological teaching associates (GTAs) [4,5–

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10]. These women have been trained to both undergo and teach gynaecological examination simultaneously providing instruction and immediate feedback to students. The use of GTAs is associated with significant improvements in student competence and modest improvements in communication skills and no apparent difference in student confidence [11]. However, data are scarce and heterogeneous, being limited to small observational and randomised series with typical samples less than 100 students [5,6,12]. However, most undergraduate medical programmes in the UK continue to teach pelvic examination using inanimate pelvic models (manikins) combined with experience gained from supervised teaching on women attending outpatient clinics and those anaesthetised for surgery.

With opinion as to the value of GTAs not yet solidified and in the absence of rigorous scientific assessment of the educational benefits of GTAs, we undertook a large RCT to compare the effectiveness, in terms of student confidence and competence, of teaching female pelvic examination to medical students using GTAs when compared to conventional teaching.

Method

The TARGET trial (Teaching Associates Randomised to evaluate the effectiveness of GTA taught pelvic Examination versus Traditional teaching using manikins) was a single blinded, parallel-group RCT to assess the effectiveness of GTAs teaching pelvic examination compared with conventional pelvic manikin based teaching (Clinicaltrials.gov NCT01944592).

Year five medical students beginning their O&G clinical placement at the University of Birmingham (UoB) were invited to participate in the study one week prior to commencement of their clinical placement. The TARGET trial was introduced to students by a member of the Birmingham Women's Hospital (BWH) undergraduate teaching faculty (AJ, TJC, JKG) during their introductory lecture on day one of their placement. Consenting students were recruited. All students were considered suitable for the trial, and there were no exclusion criteria. Third party randomisation was performed by the Birmingham Clinical Trials Unit (BCTU) at the end of day one of the clinical placement. Students were allocated in a 1:1 ratio through a telephone randomisation service. Randomisation blocks were stratified by student gender to ensure balance between groups. The randomisation blocks were kept centrally at the BCTU and varied in size so that allocation could not be deduced.

Teaching interventions

Teaching of gynaecological pelvic examination took place within four days of randomisation after which the students went on to complete their standard five week clinical placements in O&G at 10 hospitals recognised as Clinical Teaching Academies for the UoB Medical School. All participating students were given a lecture on pelvic examination before being split into groups of four for a two hour teaching session. The content of the two hour session was dictated by whether the student was randomised to GTA teaching or conventional pelvic manikin based teaching. Those students who did not take part in the study received the standard teaching usually provided by their allocated hospital.

GTA teaching

A pair of GTAs discussed the pre-examination gynaecological consultation including the process of consent and preparation of a patient with the students. This was followed by a role-play in a consultation room, where one played a patient and the other the medical student. Each student then conducted a gynaecological examination including abdominal palpation, speculum

examination and bimanual examination with feedback on technique, pressure and communication skills from both the GTA being examined and the supervising GTA. The other students in the group all observed the active student. Once all students had completed conducting an examination they repeated the examination on the other GTA who was not examined initially, but this time they were allowed to perform the examination uninterrupted and feedback was provided at the end.

Conventional pelvic manikin based teaching

The pre-examination gynaecological consultation, including the process of consent and preparation of a patient, was discussed with the students by a Clinical Lecturer from the undergraduate faculty. Any queries from students were addressed. Once this was completed, the Clinical Lecturer demonstrated a gynaecological examination on a pelvic manikin. Each student then performed a pelvic examination, comprising speculum and bimanual examination on the manikin with feedback on technique and communication skills from the Clinical Lecturer. The other students in the group all observed the active student. Questions on examination technique were answered and students then repeated the examination on the pelvic manikin, but this time they were allowed to perform the examination uninterrupted and feedback was provided at the end.

Outcome measures

Assessment of confidence and competence

The level of student perceived confidence and competence was collected prior to teaching interventions to explore whether baseline confidence and competence differed between groups. Students rated their confidence and competence on an ungraduated 10 cm visual analogue scale (VAS). Student perceived confidence and competence at the end of their five week O&G clinical placement was evaluated in the same way on a 10 cm VAS, immediately prior to an objective, summative assessment of competency. All self-reported student outcomes were collected using an anonymous questionnaire (Appendix S1).

Objective student competence in performing gynaecological examination was assessed using an objective structured clinical examination (OSCE) station, which comprised a clinical scenario requiring the student to explain and conduct a speculum and bimanual examination of a female patient attending an outpatient clinic. The role of the patient was played by one of the GTA faculty and students were observed by a single passive examiner. Examiners were O&G Consultants or Specialist Trainees with an interest in medical education as well as familiarity in OSCE style assessments. The examiners assessed the students independently using a standardised assessment tool (Appendix S2) which comprised of seven domains relating to various communication and practical aspects of the procedure and a global assessment for competence. All domain responses were measured on an ungraduated 10 cm VAS. In addition, the GTAs were asked to give an overall rating of the student's communication and clinical examination skills, as perceived by them in their patient role, on a four point Likert scale with response categories: "Unsatisfactory", "Borderline", "Satisfactory" and "Good". The examiners were blinded to the students' teaching methods. The GTAs involved in the final assessment were allocated to students they had not taught in the GTA teaching session.

Secondary outcomes

A number of secondary, self-reported student outcomes were collected by anonymous questionnaire, immediately prior to OSCE

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