

# The use of actors as standardised patients in teaching the neurology examination to undergraduate medical students

## UCL Education Conference 2024 Subtheme: The modern and future Higher Education classroom

Malik Z<sup>1</sup>, Valnarov-Boulter I<sup>1</sup>, Davis D<sup>1</sup>, Khusakul P<sup>1</sup>, Rahman T<sup>1</sup>, Vijayanathan J<sup>1</sup>, Jain D<sup>1</sup>, Ogundiya O<sup>1</sup>, Noronha A<sup>1</sup>, Fleming F<sup>1</sup>, Aldridge C<sup>1</sup>, Young TM<sup>2</sup>

<sup>1</sup> Medical student on iBSc Clinical Neurology & Brain Sciences degree at Queen Square Institute of Neurology, UCL

<sup>2</sup> Course director of Clinical Neurology & Brain Sciences iBSc at Queen Square Institute of Neurology, UCL (Corresponding author: [t.young@ucl.ac.uk](mailto:t.young@ucl.ac.uk))



Figure 1: The Queen Square Institute of Neurology (on the left of image)

# Introduction to actors in medical teaching:

- Before the introduction of actors to medical education, medical students would learn clinical signs purely from textbooks, lectures or directly with the help of patients.
- Whilst patient participation in teaching offers the great benefit of real case examples, opportunities to learn would depend on the patient consenting to such examinations.
- Patients may not want to help in such a way for a variety of reasons, including pain or tiredness. It is important that the patients understand that they do not have to help in this way and do not need to give a reason if they do not wish to participate in such teaching.
- Despite this there is also a potential concern that some patients might feel that they have to help if they see medical students as a continuum of the medical care they are receiving.
- By using actors instead of patients, a number of these limitations may be overcome.

# Introduction to actors in medical teaching, continued

- Howard Barrows was the first to introduce standardised patients to healthcare teaching in 1963 while he was teaching third-year neurology clerks at the University of Southern California (USC) (Barrows & Abrahamson 1964).
- A standardised patient is the most recognised term for an actor who had been trained to simulate medical conditions using a pre-determined set of physical emotional and historical criteria (Hardee, 2005).
- With time the role of the standardised patient evolved to include teaching and collaborative capacities as well.
- Rather than simply reproducing a scripted clinical scenario, standardised patients can work together with the physician and provide feedback at the end and insights about how empathetic the communication felt (Hardee, 2005).

# Evidence for standardised patients in medical teaching

- **1999:** Small group teaching of 75 1<sup>st</sup> year medical students with standardised patients enhanced learning (McGraw and O'Connor, 1999)
- **2002:** A study on 91 1<sup>st</sup> year and 36 2<sup>nd</sup> year medical students showed that the use standardised patients improved interpersonal communication skills during psychosocial encounters (Fortin *et al.*, 2002).
- **2007:** 3<sup>rd</sup> year medical students found use of standardised patients helped consolidate concepts in case-based learning (Diemers *et al.*, 2007)
- **2009:** A literature review found positive outcomes were associated with students working with a standardised patient before encountering real patients (May, Park and Lee, 2009)
- **2010:** A study performed on 163 first-year medical students found that the feedback given by standardise patients was more useful than that given by real patients (Bokken *et al.*, 2010)
- **2015:** Standardised patient use has correlated with student confidence & clinical competence (Davies *et al.*, 2015)
- **2018:** A literature review showed that students benefitted from standardised patients feedback they provided, and this improved their communication skills over time (Block *et al.*, 2018) .
- **2021:** Standardised patients offer a number of advantages over some other simulation training such as the use of manikins, providing a more realistic learning environment Sterz et al 2021)
- **2023:** A large majority of studies in a systematic review on simulation training (half with standardised patients) showed a positive impact, especially with communication skill outcome using standardised patients (Bray et al 2023)

# Teaching the Neurology Clinical Examination Part 1

- Teaching the neurological examination forms an important part of clinical neurology and allows the student to learn how to examine a patient neurologically and what to look for on this examination. 'Examination' here refers to the bed side testing that a health care professional performs after taking a history but before any investigations (such as bloods, scans etc.) are performed. The examination findings can help direct investigations and subsequent management of the patient.
- Neurology plays an important part in many hospital admissions and GP appointments but is a shortage speciality, so teaching clinical neurology is an important need in medicine.
- Despite this, so called 'neurophobia' (fear of neurology) is well recognised amongst many medical students and doctors. Some of these simply view neurology as being too hard or difficult. This does not however have to be the case. As neurology educators it is important that we look to make learning neurology more attractive and less intimidating.
- The use of standardised patients to teach the neurology clinical examination is one way in which this might be done. Rather than learning straight away on patients with potentially complex signs, learning first on healthy actors provides a way to understand the techniques of examination. It is important to understand what a neurological examination is like in healthy individuals before going on to consider this in patients who may have neurological signs to pick up on examination.

# Teaching the Neurology Clinical Examination Part 2

- Despite standardised patients being first described by a neurologist 60 years ago, we are not aware of much published literature since then on the use of standardised patients in teaching neurology.
- The limited number of studies we have found have typically involved standardised patients 'acting out' specific illnesses rather than being examined as healthy subjects themselves.
- We have not found any published work on the use of standardised patients to teach the neurology clinical exam in healthy subjects.
- We therefore set out to measure the effectiveness of this with the 3<sup>rd</sup> year medical students on the Clinical Neurology & Brain Sciences iBSc at the Queen Square Institute of Neurology

# Methods:

- Our study was a service evaluation with the intention of improving the course, thus falling under the ethics exemption criteria (as discussed with UCL Ethics department).
- The clinical neurological examination is taught to Clinical Neurology & Brain Science iBSc students in their first term. An experienced neurology educator teaches the students by use of a standardised patient.
- The standardised patient was a paid actor provided by a company specialising in standardised patients who have previously provided standardised patients for use by UCL Medical School.
- The neurology clinical examination was split into three main components in keeping with the 'chunking' of taught material (Thalman et al 2019): 1) The cranial nerves (face and head); 2) The upper limbs (examination of the arms) and 3) The lower limbs (examination of the legs).
- Each component was first demonstrated to the students by the neurology educator. Students were then invited up individually to perform the examination themselves. Support was provided both by the neurology educator and by students not directly examining who were encouraged to provide suggestions and advice.
- The students were at a later session formally examined with each one being assessed on one of the 3 components. The neurology educator used a peer reviewed/approved marking rubric for the assessments.
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- In addition, an optional feedback form based on a UCL Ethics supplied template was completed by the iBSc students to ascertain how helpful they found the experience of learning clinical neurology examination via use of the standardised patient.

# Methods: The Feedback form questions

Feedback on clinical neurology examination teaching with help of an actor ('standardised patient')

Date:

This is a short set of questions asking for your views about the clinical neurology examination teaching.

A) Thinking before the clinical neurology examination teaching please can you say:

- 1) How difficult did you think it would be on a scale of 0-10 (0 not difficult at all; 10 very difficult):
- 2) Please can you say what you expected the clinical neurology examination teaching session would be like?

B) Thinking after the clinical neurology examination teaching please can you say:

- 3) How difficult did you find it on a scale of 0-10 (0 not difficult at all; 10 very difficult):
- 4) Please can you say how your actual experience differed from your expected one (if it differed at all)
- 5) Please can you say how well you thought you performed the exam? (10 being the best possible performance)?
- 6) How easy did you find it receiving feedback from the actor after the exam on a scale of 0-10 (10 being the easiest)?
- 7) Are there any ways you can think of that would have helped you to perform the exam even better?
- 8) Are there any ways you can think of that would have made receiving feedback from the actor after the exam easier?
- 9) Were there any advantages of using an actor as opposed to an actual patient for learning the clinical examination?

Thank you for answering the questions-it is much appreciated!



# Results: Quantitative

- All 11 students demonstrated excellent recall and practical performance of the neurology clinical examination as assessed by the neurology educator using the peer-reviewed marking rubrics
- All iBSc students completed the feedback questionnaires.
- The key quantitative result from the feedback questionnaires compared student views before and after the teaching with standardised patients:
  - Comparing the question:
    - *‘How difficult did you think it would be on a scale of 0-10 (0 not difficult at all; 10 very difficult)?’*  
....with the question: *‘Thinking after the clinical neurology examination teaching, please can you say how difficult did you find it on a scale of 0-10 (0 not difficult at all; 10 very difficult)?’*
- The actual clinical examination using standardised patients was felt to be significantly less difficult than anticipated beforehand by students ( $p=0.027$ ; 2-tailed paired t-test).

# Results: Qualitative

- All 11 iBSc students completed the feedback questionnaires with many adding comments considered on this slide as qualitative results.
- Representative comments to the following questions included:
- *Please can you say how your actual experience differed from your expected one (if it differed at all)?:*

The actor was incredibly friendly and I did not feel any pressure to perform the examination perfectly first time'; 'Seeing the procedure done repeatedly in-person before our turn was a lot of help'; "I thought we would just learn the steps of the exam and then it would be over but in actual fact I found that I learnt a lot about neurological conditions and what signs they can present with"

- *Are there any ways you can think of that would have helped you to perform the exam even better?:*

'A handout to read through before watching the exam; I think it would've consolidated things more'; 'I do not think so, it was taught thoroughly and the reasoning behind each test was explained in depth'. 'Perhaps memory aids for the ideal order and structure of examination'

# Conclusion

- Teaching the clinical neurological examination to learners is important and yet ways to make this more attractive and less intimidating would be helpful to try and help overcome 'neurophobia' amongst some learners.
- There is a significant body of evidence in published literature to show the benefits of using actors as standardised patients to help teach medical students clinical examination skills.
- We are not aware of published work that has yet shown that standardised actors can be used to demonstrate the neurology clinical examination in healthy subjects.
- We have demonstrated in this presentation that standardised patients can provide an effective strategy to teach learners the clinical neurology examination. Our results show a significantly less difficult experience overall amongst our cohort than anticipated beforehand by the students.
- The use of standardised patients as healthy subjects to learn normal examination techniques in addition to their more usual role in acting out patients with illness may have an application more broadly across medicine.

# Thank you...

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