DEVELOPMENT OF CLINICAL ANATOMICAL KNOWLEDGE BY FOUNDATION DOCTORS DURING ANATOMY DEMONSTRATOR ROTATIONS: A PILOT STUDY

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#ASMEASM2014
Clinicians require a working knowledge of anatomy

Anatomy knowledge imperative for surgical training

Recently anatomy teaching perceived as insufficient – no national curriculum

Widespread concern about graduating students and junior doctors

Teaching staff lack suitable qualification
ANATOMY TEACHING AT NEWCASTLE

- 700 students per year through the dissecting room
- Predominantly prosection-based teaching
- Teaching led by academic staff and delivered by anatomy demonstrators
- Demonstrators used for years to ensure staffing for high student volume
DEMONSTRATORS AT NEWCASTLE

- Foundation Year 2 doctors
  - four-month rotations
  - teach anatomy and clinical skills
  - Bring a range of skills gleaned from clinical experience

- Student perception: ‘Dems’ are ‘experts in the field’

- However:
  - Entry-level anatomy knowledge variable
  - Entry-level confidence to teach low
  - No formal teaching qualification
BENEFITS FOR DEMONSTRATORS

- Anatomy knowledge escalates
- Teaching experience (GMC requirement)
- Careers in surgery, radiology and anaesthetics
- Strong basis for postgraduate surgical examinations –
- Helpful in applications for training programmes
- Downsides: pay cut and off the wards
**OUR TWO-FOLD AIM**

- Investigate the value of anatomy rotations to the demonstrators and impact on patients and students:
  - 1. Anatomical knowledge and teaching skills of demonstrators
  - 2. Perceptions and confidence of learning and teaching anatomy of demonstrators
PILOT METHODOLOGY - QUANTITATIVE

- Pre-post quantitative analysis before and after rotation

- 83 single best answer multiple choice questions of assessment standard

- Covering regional anatomy (thorax, abdomen, head and neck, limbs)

- To identify improvement in anatomical knowledge
Which of the following nerves is best described as originating from the L2-L4 spinal nerve roots of the lumbar plexus and supplies motor and sensory functions to the anterior thigh?

- A. Femoral nerve
- B. Genitofemoral nerve
- C. Lateral cutaneous nerve of thigh
- D. Obturator nerve
- E. Sciatic nerve
PILOT RESULTS – QUANTITATIVE
(N=8)

- Mean pre score: 48%
- Mean post score: 72%
- 15%-36% improvement
PILOT METHODOLOGY – SEMI-QUANTITATIVE

- Pre-post survey before and after rotations
- Likert-type scale questionnaire
- To identify perceptions and teaching confidence of demonstrators

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am confident about my knowledge of clinical anatomy</td>
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<tr>
<td>I am confident about teaching</td>
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<td>I am confident about giving feedback to students</td>
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<td>I have good teaching skills</td>
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<td>I have a good knowledge of head and neck anatomy</td>
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<td>I have a good knowledge of anatomy of the thorax</td>
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<td>I have a good knowledge of anatomy of the pelvis and perineum</td>
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<td>I have a good knowledge of upper limb anatomy</td>
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<td>I have a good knowledge of lower limb anatomy</td>
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<td>I have a good knowledge of anatomy of the abdomen</td>
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<td>I expect to improve/have improved my teaching skills during the rotation</td>
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<tr>
<td>I expect to improve/have improved my knowledge of clinical anatomy during the rotation</td>
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PILOT METHODOLOGY – SEMI-QUANTITATIVE

- Ranked responses each given a value 0-3

- Feedback data can then be quantified and represented graphically

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<thead>
<tr>
<th>Perception</th>
<th>Ranking Score</th>
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<td>Strongly agree</td>
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<tr>
<td>Agree</td>
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<tr>
<td>Disagree</td>
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<tr>
<td>Strongly disagree</td>
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<tr>
<td>Max total</td>
<td>36</td>
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</table>
PILOT RESULTS – SEMI QUANTITATIVE (N=8)

- Mean pre score: 62%
- Mean post score: 81%

- All demonstrators improved confidence in perceived anatomical knowledge and teaching skills
- Wide variation 5%-35%

Change in responses between pre and post Likert-type scale questionnaires
No apparent correlation between improved anatomical knowledge and perceived confidence

Further analysis can identify relationships
ANALYSIS OF PILOT DATA AND FUTURE METHODOLOGY

- Summer project student will statistically analyse and further scrutinise data.
- Identify any differences in knowledge and confidence across anatomical regions and aspects of teaching.
- Identify career specialisations and obtain perceptions of how the anatomy rotations have enhanced clinical careers of previous demonstrators.
- Compare development of knowledge and confidence of anatomy demonstrators with control group of trainees during clinical placements.
- The next cohort of demonstrators will be post-foundation doctors – how will their anatomy knowledge compare?
Anatomy at Newcastle and elsewhere is taught in pre-clinical phase I (stage 1 and 2)

Our research has identified that foundation doctors have limited anatomy knowledge when they begin anatomy rotations

A longitudinal cohort study will investigate retention of anatomical knowledge and understanding of students throughout 5-year medical degrees

Project will be designed by summer project student partner

Impact of declining anatomical knowledge by foundation doctors on patient safety?

Results may indicate necessity for continuing anatomy education, perhaps through near-peer teaching

THE FUTURE
ACKNOWLEDGEMENTS

- Anatomy and Clinical Skills Demonstrators (2013 – 2014) for participation in this project
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