

Core training and surgical opportunities: a UK-based analysis

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Core Training and Surgical Opportunities: a UK-based Analysis

Journal of Clinical and Translational Research

Dear Dr Gatta,

Reviewers have now commented on your paper. You will see that they are advising that you revise your manuscript. If you are prepared to undertake the work required, I would be pleased to reconsider my decision.

For your guidance, reviewers' comments are appended below. Please note that both reviewers questioned the representative nature of your cohort size, or rather lack thereof. This feature must be properly addressed before we can continue with the processing of your manuscript. In fact, the cohort size may need to be increased unless you can convincingly rebut these arguments.

If you decide to revise the work, please submit a list of changes or a rebuttal against each point which is being raised when you submit the revised manuscript. Also, please ensure that the track changes function is switched on when implementing the revisions. This enables the reviewers to rapidly verify all changes made.

Your revision is due by Dec 08, 2022.

To submit a revision, go to <https://www.editorialmanager.com/jctres/> and log in as an Author. You will see a menu item call Submission Needing Revision. You will find your submission record there.

Yours sincerely

Michal Heger
Editor-in-Chief
Journal of Clinical and Translational Research

Reviewers' comments:

Reviewer #1: Firstly would like to congratulate the authors on their work, however I have a number of comments and concerns with regards to the results and conclusions reached in this submission

The new curriculum started in August 2021, survey done in October 2021 - too short to see true effect

Approximately 596 CST jobs per year alone, therefore there should be over 1200 people within the phase of CST 1 or 2 and ST 1 or 2

Small sample size (205) - this would represent around 15%-17% of the workforce in that stage of training, is this then a representative study

How did you calculate that you only needed 172 participants in this study?

5/14 deaneries again not a representative outcome

Comment to Lines 48 and 49:

Observed operating is likely to be underrepresented in the survey - this could be due to information entered (bias), as its highly unlikely such a large number did not observe an operation

Comment "Finally, 16% of the CT2/ST2 Group recorded 1-2 independently performed cases vs 5.1% of the CT1/ST1 Group, p 0.02. However, less than 1% of participants were given the opportunity to perform more than 2 operations independently per week."

to number of independent cases performed - you do not specify the speciality this relates too, as a trainee in cardiothoracic surgery doing a cardiac surgical rotation will not be performing a case due to the complexity of the operation.

Comment to "Based on the multivariate model, there was no difference in weekly procedures in relation to gender (HR 0.5, 95% CI [0.2; 1.4], p 0.2), ethnicity (HR 0.8, 95% CI [0.5; 1.3], p 0.5), specialty (HR 1.02, 95% CI [0.9; 1.2], p 0.8), CEPOD (HR 0.8, 95% CI [0.4; 1.6], p 0.6), variety of exposure (HR 1.3, 95% CI [0.8; 2.2], p 0.3), Medical School (HR 1, 95% CI [0.9; 1.1], p 0.9), Locum job (HR 0.4, 95% CI [0.1; 1.3], p 0.1), and Research job (HR 0.9, 95% CI [0.2; 4.3], p 0.9)."

I am sure that the speciality the trainee was in would be significant e.g. cardiothoracic surgery and neurosurgery. Ultimately stating only age and deanery were significant highlights the limitations to this study

Comment to "As of October 2021, these are not met in 5 of the 14 deaneries providing surgical training across the UK, mirroring the challenges introduced by the COVID-19 pandemic, European Work Time Directive (EWTD) and the new ISCP syllabus"

This line would imply that the remaining 9 deaneries meet the criteria, although these were not surveyed so the language in this sentence is wrong

The survey questionnaire is limited and as a result the information obtained is being used to make statements that are generalised, yet the speciality has a massive impact on the number of operations done, for example a rotation in plastics surgery which has excision of skin lesions

will yield a greater number of performed cases to someone doing cardiac surgery rotation which will yield zero cases due to the complexity of the operation, yet this has not been factored in to the survey

Overall there is no doubt COVID has impacted training, however the time frame from new curriculum to survey is too short to see considering an increase in operations since. Additional these results are now outdated by a year. The survey is limited in the information collected. Overall this information is more suitable to a poster presentation rather than a publication due to the facts stated.

Reviewer #2: Thanks for asking me to review this interesting paper, The authors conducted a survey to understand the need for CST and if the current curriculum is met by performing 120 procedures / year to pass their ARCP. I have few comments and concerns about this paper:

1. It is clear from your study that CT2/ST2 people had more exposure for training and performed >4 procedures per week when compared to CT1/ST1 which is logical and goes with what training should be. However, there is no clarity on what types of procedures increased? someone who is on neurosurgery placement or cardiothoracic one will surely have less DOPS / PBA's when compared to general surgery placement. It is not possible to compare these two cohorts and make such assertive statements. You need to carefully compare apple vs apple and then make such comparison among different regions / deaneries.

2. What is your explanation on age vs training? did those who were older had more experience prior to CT1 / ST1 or seen as more difficult to train?

3. Your cohort size is reasonable, but very small when taking a look at the geographical regions you are covering with your survey. You are covering only 5 deaneries (3 south and 2 north with small numbers of CST's), while you have hundreds of CST's in each deanery, with your 10-20 response per deanery your data is not representing the entire cohort and it is not correct to make such statements.

Finally, if the trainees did not meet this 120 procedures / year - I presume they failed their ARCP? if not ---why? if they failed then what was the outcome? you may want to contact each respected deanery and get relevant data as they should be easily accessible to analyse and support your study

Authors' response

Reviewer #1

Comment 1: Firstly would like to congratulate the authors on their work, however I have a number of comments and concerns with regards to the results and conclusions reached in this submission

The new curriculum started in August 2021, survey done in October 2021 - too short to see true effect. Approximately 596 CST jobs per year alone, therefore there should be over 1200 people within the phase of CST 1 or 2 and ST 1 or 2. Small sample size (205) - this would represent around 15%-17% of the workforce in that stage of training, is this then a representative study

How did you calculate that you only needed 172 participants in this study?

5/14 deaneries again not a representative outcome

Answer 1: Many thanks for your feedback. The new sample size has been calculated with a 95% confidence interval. This has increased to 292 participants. All UK deaneries were invited to participate in the survey, in order to obtain a representative cohort. However, only 5 responded, with the rest either declining participation or not responding at all. Regrettably, this was something we could not act upon. Consequently, we are glad some of the UK trainees had a mean to express their concerns, which is why we believe this analysis should be made public. Concerning the short time frame between the introduction of the new curriculum and the survey, trainees are provided no tolerance in their competences in relation to curriculum changes. Every year, a trainee is expected to have recorded 120 procedures or 60 in each placement (as per interim ARCP). These placements are Aug to Jan and Feb to July. A small number of procedures by November is indicative of poor training opportunities, which requires immediate action, in order to avoid failing their ARCP. This explains the date of the survey and why, in terms of training progression, November equates to March for trainees.

Changes 1: Data Analysis

Comment 2: Comment to Lines 48 and 49: Observed operating is likely to be underrepresented in the survey - this could be due to information entered (bias), as its highly unlikely such a large number did not observe an operation

Answer 2: Many thanks for your feedback. "Observed" procedure means that the trainee did not scrub in at all. This is very popular among medical students, but very unlikely to happen among surgical trainees. When they are allocated to theatre, they are required to scrub in and at least "Assist". When they are not allocated to a theatre, they will have ward duties or hold the on-call bleep. This explains the very small number of "Observed" procedures. Moreover, this survey was useful to assess the adequacy of current trainees' allocations; in some centres, theatre allocated days are underrepresented, jeopardising career progression.

Changes 2: N/A

Comment 3: Comment "Finally, 16% of the CT2/ST2 Group recorded 1-2 independently performed cases vs 5.1% of the CT1/ST1 Group, p 0.02. However, less than 1% of participants were given the opportunity to perform more than 2 operations independently per week." to number of independent cases performed - you do not specify the speciality this relates too, as a trainee in cardiothoracic surgery doing a cardiac surgical rotation will not be performing a case due to the complexity of the operation.

Answer 3: Many thanks for your feedback. This is a very valid suggestion. The database was analysed again and the required data inserted in the manuscript.

Changes 3: Operative experience: CT1/ST1 vs CT2/ST2

Comment 4: Comment to "Based on the multivariate model, there was no difference in weekly procedures in relation to gender (HR 0.5, 95% CI [0.2; 1.4], p 0.2), ethnicity (HR 0.8, 95% CI [0.5; 1.3], p 0.5), specialty (HR 1.02, 95% CI [0.9; 1.2], p 0.8), CEPOD (HR 0.8, 95% CI [0.4; 1.6], p 0.6), variety of exposure (HR 1.3, 95% CI [0.8; 2.2], p 0.3), Medical School (HR 1, 95% CI [0.9; 1.1], p 0.9), Locum job (HR 0.4, 95% CI [0.1; 1.3], p 0.1), and

Research job (HR 0.9, 95% CI [0.2; 4.3], p 0.9)." I am sure that the speciality the trainee was in would be significant e.g. cardiothoracic surgery and neurosurgery. Ultimately stating only age and deanery were significant highlights the limitations to this study

Answer 4: Many thanks for your feedback. The multivariate model revealed training is finally no longer influenced by ethnicity and gender. However, there was no difference in weekly procedures in relation to specialty, when these are considered as “Assisting” + “ST-S” + “ST-U” + “P”. For ARCP purposes, trainees require >120 e-logbook procedures, regardless of their level of involvement. This explains why a cardiothoracic trainee assisting 3 procedures a week has the same ARCP profile of a plastic trainee performing 3 skin lesion removals a week. The focus of our study was career progression and ARCP outcomes, given many failed their annual review during the COVID pandemic. However, the specialty for the “Performed” procedures was added in the results section.

Changes 4: Operative experience: CT1/ST1 vs CT2/ST2

Comment 5: Comment to "As of October 2021, these are not met in 5 of the 14 deaneries providing surgical training across the UK, mirroring the challenges introduced by the COVID-19 pandemic, European Work Time Directive (EWTD) and the new ISCP syllabus" This line would imply that the remaining 9 deaneries meet the criteria, although these were not surveyed so the language in this sentence is wrong

Answer 5: Many thanks for your feedback. The sentence has been adjusted accordingly.

Changes 5: Discussion

Comment 6:The survey questionnaire is limited and as a result the information obtained is being used to make statements that are generalised, yet the speciality has a massive impact on the number of operations done, for example a rotation in plastics surgery which has excision of skin lesions will yield a greater number of performed cases to someone doing cardiac surgery rotation which will yield zero cases due to the complexity of the operation, yet this has not been factored in to the survey

Answer 6: Many thanks for your feedback. The multivariate model revealed no difference in weekly procedures in relation to specialty, when these are considered as “Assisting” + “ST-S” + “ST-U” + “P”. For ARCP purposes, trainees require >120 e-logbook procedures, regardless of their level of involvement. This explains why a cardiothoracic trainee assisting 3 procedures a week has the same ARCP profile of a plastic trainee performing 3 skin lesion removals a week. The focus of our study was career progression and ARCP outcomes, given many failed their annual review during the COVID pandemic. Nevertheless, the specialty has a significant impact in the type of involvement trainees receive, hence the rotation for those being able to “Perform” was added in the results section. As mentioned in your comment, a plastic surgery trainee is more likely to perform an operation, whether this is supervised or unsupervised, than a cardiothoracic or neurosurgery trainee. This was added in the Discussion section.

Changes 6: Operative experience: CT1/ST1 vs CT2/ST2 and Discussion

Reviewer #2

Comment 1: It is clear from your study that CT2/ST2 people had more exposure for training and performed >4 procedures per week when compared to CT1/ST1 which is logical and goes with what training should be. However, there is no clarity on what types of procedures increased? someone who is on neurosurgery placement or cardiothoracic one will surely have less DOPS / PBA's when compared to general surgery placement. It is not possible to compare these two cohorts and make such assertive statements. You need to carefully compare apple vs apple and then make such comparison among different regions / deaneries.

Answer 1: Many thanks for your feedback. The multivariate model revealed no difference in weekly procedures in relation to specialty (therefore procedures), when these are considered as “Assisting” + “ST-S” + “ST-U” + “P”. For ARCP purposes, trainees require >120 e-logbook procedures, regardless of their level of involvement. This explains why a cardiothoracic trainee assisting 3 procedures a week has the same ARCP profile of a plastic trainee performing 3 skin lesion removals a week. The focus of our study was career progression and ARCP outcomes, given many failed their annual review during the COVID pandemic. Nevertheless, the specialty has a significant impact in the type of involvement trainees receive, hence the rotation for those being able to “Perform” was added in the results section. As mentioned in your comment, a general surgery trainee is more likely to perform an operation, whether this is supervised or unsupervised, than a cardiothoracic or neurosurgery trainee. This was added in the Discussion section.

Changes 1: Operative experience: CT1/ST1 vs CT2/ST2 and Discussion

Comment 2. What is your explanation on age vs training? did those who were older had more experience prior to CT1 / ST1 or seen as more difficult to train?

Answer 2: Many thanks for your feedback. In our analysis, older CT1/ST1s performed less weekly procedures (HR 7, 95% C I [1.9; 4.7], p 0.003) than their younger colleagues. It appears, therefore, that they faced fewer learning opportunities. There is very little evidence with these regards. A recent analysis showed how mature trainees were less likely to achieve a satisfactory ARCP outcome and more likely to be awarded an unsatisfactory outcome than younger graduates (Scrimgeour, 2018). The challenges of returning from a career break, whatsoever, could be a likely explanation. Whether it is for academic or personal reasons, doctors pausing their training at this stage often tend to deskill, making it more difficult to train in comparison with their colleagues. Furthermore, doctors of a more mature age tend to opt for less than full time training (LTFT) on the ground of personal and academic reasons, including childrearing, caring for a dependant, academia, ill health, leadership roles and sporting commitments. It was estimated that 6.25% of LTFT trainees are at core level, whilst the remaining 92.5% in higher surgical training. Such category of surgeons has often experienced undermining behaviour by consultants and other team members, less operative exposure, and more unfavourable rotations (Harries, 2016).

Changes 2: Discussion

Comment 3: Your cohort size is reasonable, but very small when taking a look at the geographical regions you are covering with your survey. You are covering only 5 deaneries (3 south and 2 north with small numbers of CST's), while you have hundreds of CST's in each

deanery, with your 10-20 response per deanery your data is not representing the entire cohort and it is not correct to make such statements.

Answer 3: Many thanks for your feedback. All UK deaneries were invited to participate in the survey, in order to obtain a representative cohort. However, only 5 responded, with the rest either declining participation or not responding at all. Regrettably, this was something we could not act upon. Consequently, we are glad some of the UK trainees had a mean to express their concerns, which is why we believe this analysis should be made public. In every section of the results and discussion, we were very careful to specify such results are specific for 5 deaneries only. New comments can also be found in the discussion section.

Changes 3: Discussion

Comment 4: Finally, if the trainees did not meet this 120 procedures / year - I presume they failed their ARCP? if not ---why? if they failed then what was the outcome? you may want to contact each respected deanery and get relevant data as they should be easily accessible to analyse and support your study

Answer 4: Many thanks for your feedback. It would certainly provide an important perspective to this study to obtain the 2021-2022 ARCP outcomes. However, I am afraid such data is not made public and, in my experience, deaneries are reluctant to share it. That makes it practically impossible to add to our study.

Changes 4: N/A

2nd Editorial decision
10-Nov-2022

Ref.: Ms. No. JCTRes-D-22-00172R1
Core Training and Surgical Opportunities: a UK-based Analysis
Journal of Clinical and Translational Research

Dear authors,

I am pleased to inform you that your manuscript has been accepted for publication in the Journal of Clinical and Translational Research.

I have considered the reviewers' concerns, particularly in relation to the representativeness of your cohort size and the specialties involved in the context of the broader physician trainee programs in the NHS, and found that the means justify the end. The reviewers are correct, of course, but you have partly rebutted the lack of statistical differences between the various subspecialties in multivariate analysis and indicated the reasons why your cohort size is smaller than desired (simply because the deaneries declined to participate or did not respond at all). These reasons are catalogued both in the manuscript and in the metadata, which will appear alongside your article online. The readers can therefore take the data with a pinch of salt where necessary. The crux of your messaging is the most important and should finetune the antennas of those responsible for educating future specialists.

You will receive the proofs of your article shortly, which we kindly ask you to thoroughly review for any errors.

Please notify our assistant editor/production editor when you receive the proofs if your article should belong a special issue specifying the issue's title.

Thank you for submitting your work to JCTR.

Kindest regards,

Michal Heger
Editor-in-Chief
Journal of Clinical and Translational Research

Comments from the editors and reviewers: