Holistic Approach in Managing a Clinical Learning Environment: 3Cs Approach

Po Jie Shandy Poh[2], Li Wah Adeline Heng[2], Su Ping Yeo[3], Shing Chuan Hooi[2], Tang Ching Lau[2], Sin Chuan Tay[2], Dujeepa D Samarasekera[3]

Corresponding author: Dr Dujeepa D Samarasekera meddds@nus.edu.sg
Institution: 2. Dean's Office, Yong Loo Lin School of Medicine, National University of Singapore, 3. Centre for Medical Education, Yong Loo Lin School of Medicine, National University of Singapore
Categories: Education Management and Leadership, Medical Education (General), Teachers/Trainers (including Faculty Development)

Received: 30/09/2016
Published: 06/10/2016

Abstract

Focus of medical education presently is how best to develop an effective future practitioner with the relevant set of skills and knowledge. These responsibilities largely hinge on the teachers involved in the training program especially during the clinical years of learning. The teachers’ effectiveness is in turn, greatly dependent on both their intrinsic and extrinsic motivations. However, these aspects are often neglected. Hence, it is pertinent that medical schools understand the needs of clinicians and support them as educators. In the paper, we will describe how a Singapore medical school established sustainable and mutually beneficial relationship using a novel 3Cs approach- Connect, Communicate and Collaborate. The paper elaborates the rationale of the concept, operational processes, results of early success as well as limitations and future opportunities. This model can be useful and relevant to other medical schools and institutions where the students spend significant time of their training outside the parent institution on how best to develop sustainable relationships with external faculty.

Keywords: Undergraduate medical education; Learning environment; Collaborate; Connect; Communicate

Introduction

A key challenge in medical education today is to develop graduates with the right set of competencies in both domain-specific as well as domain-independent skills essential for effective future practice. The responsibilities of nurturing the medical students in these areas largely hinge on the clinical teachers involved in the training program. The teachers’ effectiveness in conducting the teaching and learning activities is in turn, greatly dependent on their
motivation. Hence, it is pertinent that medical schools understand these needs and support them as educators.

There are two angles to the educators’ motivations- intrinsic and extrinsic factors. The former includes personal factors like the passion, enjoyment and responsibility of helping students to become good doctors, inspiration from their own teachers (Dahlstrom et al. 2005) and the sense of achievement derived when they are recognised (Tariq & Ali 2014). On the other hand, extrinsic factors such as inadequate reward for contributing to quality clinical education (e.g. promotion) and hence the subsequent focus on clinical and research aspects, contributes to a drop in motivation to teach (Tariq and Ali, 2014). Thus, it is extremely important to focus on both the intrinsic and extrinsic aspects when building lasting relationships with the clinical teachers.

In this paper, we will share how we established such relationships, using the school's novel 3Cs approach- Connect, Communicate and Collaborate.

Yong Loo Lin School of Medicine, National University of Singapore (NUS Medicine) was established in 1905 and has been training and developing generations of doctors in Singapore. It was the only medical school in Singapore for close to a century until a graduate medical school, Duke-NUS, was established in 2007. The second undergraduate school, Lee Kong Chian School of Medicine, Nanyang Technological University, opened its doors to students in 2013 to address the healthcare needs of the growing Singapore population (Samarasekera et al. 2015). NUS Medicine has the largest number of medical undergraduates, with an annual intake of 300 students. It offers a five-year program, which entails basic biomedical sciences in the first two years and clinical clerkship at clinical training sites throughout Singapore (Samarasekera et al. 2015). It is estimated that clinical training constitutes around 62% of the curriculum. As such, the bulk of the student learning is anchored by clinicians outside the medical school and university hospital. In fact, more than 50% of the clinical curriculum is taught at other clinical training sites not directly affiliated to the University.

The training of future doctors involves careful planning and strong engagement with students, with systematic exposure to clinical encounters. These will not only expand the students’ content learning and clinical skills assessment, but also improve their ability to function as future professional practitioners with patient empathy, teamwork and communication skills. These require significant commitment from clinical faculty. However, several factors may hinder the amount of time the educators would put in.

Heavy Responsibilities

Due to their extremely heavy service commitment such as providing efficient clinical services, engaging in clinical research and administrative commitments, many clinicians find it challenging and difficult to effectively conduct teaching activities. This may be further compounded by the need to cater to a larger student intake from all three schools, on top of foreign elective students attached to the respective hospitals. Consequently, they could become overwhelmed with the responsibilities.

Unresolved Work Issues

Furthermore, if a clinician who anchors teaching faces an issue with the curriculum, teaching method or educational administrative issue that is not resolved satisfactorily and efficiently, the clinician may get frustrated with the medical school. Very often, this could lead to negative perceptions regarding the school which later affects the educator’s teaching effectiveness. Subsequently, students attached to these clinicians may also develop these negative thoughts of contributing to medical education as future clinical educators. This could be detrimental for the development of medical education in the country.
Physical Proximity

Compounded to these issues lies the greatest threat which is the physical distance between NUS Medicine and its clinical training sites. Although technological advances have allowed us to resolve issues through phone calls and emails, some issues are still best resolved when people get together to discuss and find a solution.

Students' Expectations

Some educators may find it relatively challenging to meet the expectations the students have on educators. This is evident from the 2015 findings we obtained from the annual Graduate Exit Survey which we administered to our graduates.

As mentioned, more than 50% of the clinical program is taught at sites away from campus. When asked "How would you rate the undergraduate teaching culture in the teaching sites? (i.e., willingness to teach, creating a safe learning environment, proactive in mentoring and facilitating students' learning etc.)", around 40-85% of the respondents chose "Good" or "Excellent" for the 6 off-campus sites compared to the school's training site (close to 90%). This suggested the need to engage our stakeholders more effectively to ensure a high quality of learning across all training sites.

Considering that about 44% and 49% of respondents identified having good mentors and senior consultants who teach respectively (as their first or second priority) as key contributors to a strong teaching culture, the efforts of our offsite tutors cannot be neglected.

Therefore, in view of the challenges discussed above and the importance of understanding our educators’ teaching needs, NUS Medicine embarked on a concerted quest to provide greater support and strengthen rapport with our partners. The intent of this effort was to connect, communicate and collaborate with the clinical training partners. In the process, we were cognizant of the varied needs and preferences of each partner site, as well as the different groups within each partner institution.

What we did

Establishing a Taskforce

The idea to form a taskforce came from the numerous similar qualitative feedback collected from various key clinical training sites. They echoed the need for a stronger link to the school and to close the gap between NUS Medicine’s initiatives and ground work carried out by the institutions. The taskforce comprised of the educational leadership, Assistant Deans and an administrative team to support the processes. Process owners were identified to anchor different tasks which ensured the efficient streamlining of conceptualization and planning of new initiatives to achieve the goals. The key gaps identified were the lack of connection to the school due to lack of proximity, difficulties in making effective communication and weak collaboration arising from the first two gaps.

Table 1. A Summary of the activities targeted at the different stakeholders.
| Senior Management | Provided their views and suggestions to improve the quality of education |  |
|-------------------|--------------------------------------------------|---|
| • Dean’s visit    | • Thank you letters                             |  |
| Educational Leadership | • Associate Dean’s meeting  | • SoM Educator Hotline Concierge Service |
|                    | • Dean's visit                                   | • ME Connect                           |
|                    | • Festival visits                                 | • MedSPACE                             |
|                    | • Quarterly informal visits                       | • Online Dashboard (feedback)          |
|                    |                                                  | • Bi-monthly newsletter on school updates |
| Clinical Teachers  | • Involvement in designing the curriculum and teaching activities/content | • Involvement in curriculum design |
|                    | • Appointment Guidebook                          | • SoM Educator Hotline Concierge Service |
|                    | • Dean's Award for Teaching Excellence           | • ME Connect                           |
|                    | • Certificate of Commendation                    | • MedSPACE                             |
|                    | • Thank You Letters                              | • Online Dashboard (feedback)          |
|                    | • Resources/Benefits                             | • Bi-monthly newsletter on school updates |
|                    | • Teacher's Day celebration                      |                                          |
| Administrative Staff | • Festival visits                                | • SoM Educator Hotline Concierge Service |
|                    | • Quarterly informal visits                       |                                          |
|                    | • Authority in handling student issues           |                                          |
|                    |                                                  |                                          |
Improved Engagement and Collaboration (Connect and Collaborate)

Ramped up engagement efforts

The intent of our engagement efforts was to strengthen rapport with our partners and partner sites by, developing various communication channels, connecting and supporting collaboration. The key was developing a varied engagement plan targeted at different levels of stakeholders, including the senior management, key educators and their supporting staff.

1. Senior Management level

Senior management members were invited to attend the annual Dean's visit to the hospitals. The main intent of this engagement is to explore areas where the school could support the leadership in strategically incorporating education to their hospital missions. In the meetings thus far, the Dean had a dialogue with the key leaders, updated them on the school's progress and vision for the coming year as well as the strategies to achieve these goals. At the same time, the hospital leadership in each of the hospitals provided their views as well as gave constructive suggestions that were conceptualized to the school's plans. The forum was also used to highlight the contributions given by the Chairman, Medical Board and the Chief Executive Officers of the different hospitals towards enhancing undergraduate medical education at each of the sites.
In addition, thank you letters are sent to the Chairman, Medical Board and Chief Executive Officers at the end of each Academic Year. This is to show our appreciation for their support to the undergraduate medical education mission and to share with them the resources provided to their institution for this mission.

2. Educational Leadership

This included a special group of people who have been providing us a lot of support and acting as the main link of communication between the school and the training sites-our appointed Associate Deans. We organised the quarterly Associate Deans’ meeting held at the school to connect with them. The aim of this meeting is to update them with the School's latest development, identify pressing issues on the ground, and provide support to them.

On the ground level, we have encouraged the specialties Posting Directors to visit and/or communicate more frequently with their counterparts in the hospitals. Our own administrative staff also meets quarterly to discuss operational issues and provide updates on initiatives and processes.

In terms of delivering medical education at the teaching sites, key educational leaders are empowered to design their teaching activities and content. NUS Medicine also collaborates with the Associate Deans or key educational leaderships to design customised faculty development programmes for clinical teachers in their respective institutions.

Other than the above activities, NUS Medicine continuously collaborates with partners and stakeholders to ensure that the institutions continually deliver high quality clinical teaching. They do so by ensuring that suitably qualified clinicians are engaged to teach medical students. The School also facilitates the annual sharing of best practices by the various clinical training partners. Such sharing will encourage and ensure overall improvement in the quality and standard of medical education.

3. Clinical Teachers

The clinical teachers are the main drivers of the curriculum and are pivotal in creating a safe learning environment for the students. NUS Medicine revamped its efforts to engage the key teachers at various sites in undergraduate curriculum development, something previously done by the School's clinical faculty members. This added diversity allowed the school to leverage on the expertise of the clinical teachers to improve the quality of teaching.

Apart from offering joint appointment to the core clinical faculty, NUS Medicine have also given leadership appointments such as the Associate Deanships to the hospitals clinicians who could set aside more than 20% of their clinical time for medical curriculum management. This provided an opportunity for the major clinical training sites to conceptualize learning experiences to their local setting, and gave these clinicians extra responsibilities and motivation to train the students. At the same time, this has also allowed the school to engage their clinical partners to assess the clinical teachers in faculty development and quickly address the challenges effectively at the local training site.

4. Administrators

One of the major resources for the medical school is to have a strong administrative team to smoothen the operationalization of the clinical curriculum. Another key focus of the new 3Cs initiative was to empower the administrative staff and education officers to take decisions at their sites without requesting approval from the medical school. Only major decisions such as those involving the progression of students or disciplinary matters will be referred back to the School or jointly handled.
Briefings are also regularly held at the School at the start of each academic year for administrative staff running the annual clinical examinations and involved in the other administrative processes.

**Streamlined appointment processes**

Another major challenge facing the clinical teachers was the timeliness of the School in approving the educators’ appointments and their corresponding academic titles. Such conferment by the school is an acknowledgment of the clinical teachers’ commitment and past effort in training our medical students. At the same time, the school has to maintain a specific standard for the appointed educators. This is to ensure that there is consistency and equity with each appointment. With the volume of nominations from the training sites, coupled with the administrative requirement for several rounds of reviews, it was a challenge to maintain a high level of efficiency in the appointment process. To improve this matter, the school streamlined the appointment process by having a fixed date for application and appointment of teachers as well as developed an internal standard operating protocol to handle the increasing number of appointments. A fixed nomination exercise was organized and an appointment guidebook containing clear guidelines for application was introduced and circulated. It is now easier to flow the nominations through the various levels for reviews in a more structured way. All the submitted names are reviewed at the same time and consistency as well as equity is thus maintained.

Over the years, there were also some concerns over inadequate transparency in our appointment criteria. As a result, some of our educators felt slightly demoralised or jaded as their nominations may have been rejected previously by the School without the reasons fully made known to them. To boost morale and retain the trust in our appointment system, the taskforce dived in to establish a standardised set of appointment criteria. This now provides more clarity to our counterparts of our appointment criterion and maintains the quality of staff appointed.

**Recognition and appreciation to teaching sites and tutors**

In the wise words of American author, William Arthur Ward, ‘Feeling gratitude and not expressing it is like wrapping a present and not giving it’. We believe that we should express our gratitude to the counterparts who always make the effort to accomplish the common goal of training and producing quality medical doctors for the next generation.

Credentialing our tutors with a deserving title may be according them with recognition, but it is not sufficient for the efforts they have put in, on top of their heavy clinical load and other administrative duties. To further show our appreciation for our extremely hardworking clinical teachers and provide extra impetus for them to constantly refine their teaching methods, we examined the appropriateness of existing awards and crafted thank you letters as well as presented tokens to them.

1. **Dean’s Award for Teaching Excellence**

In terms of awards, we scrutinised the criteria and process of conferring the Dean’s Award for Teaching Excellence. This award is given to recognize the excellence in teaching by our clinical teachers. The principles are now simplified but more stringent for shortlisting of candidates. Eligible names are then sent to our Associate Deans for their comments and confirmation. This approach evaluates both conditions of the excellent educators who had taught substantially and comments from the employing institution they had taught at. This has enabled us to look not just at teaching records but also at excellent work done which are not captured by student feedback. To top things off, NUS Medicine’s Dean has been presenting the award during his annual visits to the hospitals. This ensures we celebrate their success and we hope that this public recognition will spur the other educators to continue their good work.
2. Certificate of Commendation

We also established other honours to demonstrate the appropriate recognition to our clinical teachers and teaching partners. These include awards to junior doctors and to clinical departments who have demonstrated excellence in clinical teaching. In addition, some educators also receive a Certificate of Commendation from the School. This arises from our annual Graduate Exit Questionnaire (GEQ) which is answered by the graduating class of undergraduate medical students. In the GEQ, students are asked “Who are your role models?” The Role Models named by the students are each awarded with a Certificate of Commendation from the School.

3. Thank You Letters

While awards may be a prestigious way of appreciating our tutors, we acknowledge that many do not teach just for a reward, but for the simple reason that they had been inspired by another teacher many years ago (intrinsic motivation). This is the excellence they portray when educating for the nation. Therefore, we have been sending them “thank you” letters containing updates from the school and signed off by Dean at the end of each academic year. This is dealt with in a sensitive manner and we have been working very closely with our Associate Deans to ensure that any information stated in the letter is accurate and consistent with the hospitals’ directions.

Through this initiative, we have also fostered a closer link with the various Associate Deans. We were able to encourage them to do something for their tutors and suggested some possible ways of doing it. This helped to reinforce the synergy between the school and hospitals, especially in terms of rewarding the tutors adequately. The letters are usually sent out to each educator right at the end of the academic year, to show them our appreciation of their efforts.

4. Resources for Clinical Teachers

To show that we sincerely care for our educators’ welfare, we have been giving them annual tokens and secured better benefits such as access to the NUS electronic journals database. Other benefits include access to the undergraduate medical curriculum online content management system, usage of the library areas and facilities, conference support, and free car parking privileges. These resources have not only allowed us to express our appreciations to the educators’ contributions, but also to further connect them to the school.

5. Teachers’ Day celebration

We also worked very closely with students to organise island-wide celebrations for Teachers’ Day. This is where we have been continuously reminding our students to expressly show their thanks and appreciations to the tutors who had made a difference to their growth and development.

Dean’s visits

The annual Dean’s visit also provided a platform to engage the educators in each site, where the Dean provided our clinical training partners with key updates of the school and presented awards to deserving educators and departments.

Sharing to Increase Communication

More channels for sharing information

While events served as our main form of contact with our counterparts, having a constant flow of information
exchange is crucial as well. With this in mind, we increased the channels and frequency of sharing information with the ground. Some channels we adopted were through our bi-monthly e-newsletter, aptly named ME Connect (where ME stands for Medical Educators), MedSPACE (learning management system) and the Online Dashboard (for clinical tutors to view their teaching record).

The ME Connect have been set in a simple format for readers to absorb the information easily. We also took into account the busy and hectic schedules of our educators by keeping the newsletter short. Some of the information published are related to our School’s goals, new system implementation and events.

On top of providing quick updates, we have given our educators access to MedSPACE. This has provided them with a forum to view the curriculum for their specialties. This has been very useful as the educators could now access details about what areas had been taught at the clicks of their mouse, any time they require the information.

Another system that was rolled out is the Online Dashboard which allows not just our educators, but also teaching sites’ leadership to view student feedback ratings and educators’ teaching records. Such access allows timely digestion of feedback submitted by students to enable much needed improvements or rectification to enhance the teaching experience.

Opportunities to connect with the school

We believed that communication is a two-way process. Other than flowing information outwards to our partners, we also created a service especially for our clinical educators — the SoM Educator Concierge. This is a hotline and email service for our educators to reach us for matters pertaining to their appointment with the School. Other than setting up the phone line and email address, the team came up with a set of frequently asked questions (FAQ), customer service tips and standard operating procedures (SOP) for handling any telephone or email enquiry. These have led to increased accessibility to the school for our educators, which helped to reduce their anxiety whenever they needed answers.

As the Taskforce had earlier identified that the target audience is more than just the educators, we also focused our efforts on our administrative counterparts all over the island. We have previously received their feedback on not knowing the School’s point-of-contact regarding various matters. In addition, with the formation of the Education Offices (EDO) in the different hospitals and clusters, our internal staff also needed similar information. As such, we consolidated the contact details of our counterparts, as well as key NUS Medicine staff and shared them mutually.

Impact of these initiatives and take-home points for other medical schools

Our experiences could be beneficial for many medical schools which follow similar teaching as well as management structures.

Nurturing relevant stakeholders such as clinician-educators and administrators involved in education at the different clinical teaching sites is essential. Engaging them in the education decision making process such as curriculum development, design of teaching-learning activities and assessment as well as clearly communicating policies decisions are paramount for the successful implementation of a clinical training programme. The awards and increased responsibilities for instance, could provide extra motivation for them to devote a larger amount of time into their teaching activities.

The initiatives were generally well received by the leadership, teachers and administrative staff, based on our
observations before and after the initiatives were implemented.

**Connect**

We received a higher number of constructive feedback and opportunities to follow up and further improve on the feedback during the engagement sessions. We attributed this to the clearer intent and objective of each of our events. Thus, the target audiences had a better view of what each event is for and they responded positively to them. It is thus important for an institution to maintain a dialogue, particularly with the major stakeholders, as well as to provide rapid responses to their concerns.

**Communicate**

We also had fewer incidences when the tutors expressed their ground talk about feelings of dissatisfaction over the lack of acknowledgement of their teaching efforts. This was partly attributed to the securing of the electronic journal access for all our tutors, as this was evidently a very much appreciated gesture. Other seemingly small gestures that we had implemented also contributed to educators feeling more appreciated. One such initiative is the appointment guidebook where we provided information on clearer appointment criteria and the better-structured appointment process, as well as the Certificates of Commendation. Therefore, it is crucial to celebrate success and reward achieving tutors to give them the recognition which they deserve, so that they will continue their good work.

Moreover, the impact of having our Associate Deans on the ground and responding to concerns from the educators about the school had been tremendous. They truly acted on behalf of the School and reassured their colleagues on these sensitive issues. This allowed gaps to be identified and the appropriate support rendered.

**Collaborate**

From the notes taken at the various inaugural meetings, we noted more participation and intense discussions. This was evident from the invaluable support and great ideas generated, which gave us the impetus to continue with the journey of continuous collaboration and synergy. Through these meetings, we identified potential leaders whom we are grooming for their future roles to ensure a smooth transition of duties. Leadership renewal is an integral part of any institution.

**Future Challenges**

The path is long and rocky and the end doesn't seem to be in sight. This is exactly what medical education is about. As the saying goes, "it takes a village to raise a child". What we have done so far is to build the basis for connection, communication and collaboration. What we need to continue doing is to strengthen the infrastructure and system for our village. We need to continually identify the gaps in our current processes for more improvement.

For instance, while the diversity of the clinical teachers is good, this diversity changes when the teachers move from one institution to another. This might lead to gaps in our communication efforts with all levels of staff in at our partner training sites. We need to further develop ourselves to be able to cope with these differences and identify the best way to work with each partner. We can then bring together the best way they can work with each other and turn their limitations to strengths. It takes a multitude of coordination at all levels, internal or external, on the ground or with the management to get around these gaps.

Next, there is also an increased complexity as some training sites are currently undergoing redevelopment and
relocation. The clinical teachers will need to reorganize to their new practical settings.

Moreover, as the expectations and number of clinicians are growing, we need to explore new ways to handle this situation in a cost-effective and labour productive manner.

**Conclusion**

The intrinsic and extrinsic motivations behind educators teaching students are something that cannot be ignored. Hence, building lasting relationships with the clinical teachers are paramount. We have demonstrated how we have strived to achieve that, from identifying the greatest gap (lack of communication and collaboration platforms) during the establishment of a taskforce to rolling out the initiatives eventually. The benefits we had reaped so far, had been rewarding and motivating.

Moving forward, there is a need for us to sustain and enhance the platform we have established. We need to focus on positioning ourselves as a collaborative partner and leader in medical education. Every clinician has it in them to contribute and be a part of a greater cause. We have to encourage them to see the greater cause is and to motivate them to start teaching. Once we have garnered active participation, we then place focus on the continuity of maintaining interest and motivation in being engaged.

**Take Home Messages**

1. Medical teachers play a pivotal role in equipping students with the relevant knowledge and skills.

2. Intrinsic and extrinsic motivations may influence the effectiveness of the teachers in training their students.

3. Engaging the teachers by connecting, communicating and collaborating with them, particularly the adjunct faculty, could assist in developing sustainable working relationship.

4. Hospital-based clinical teachers could be more involved in curriculum planning as well as other student matters, and needs to be informed regularly about the curriculum and pedagogical reforms from the school.

5. Rewarding and appreciating the hospital-based clinical teachers’ efforts in training the students should not be neglected.

**Notes On Contributors**

Ms Po Jie Shandy Poh is an Assistant Senior Manager, Dean’s Office, Yong Loo Lin School of Medicine, National University of Singapore, Singapore.

Ms Li Wah Adeline Heng was a Manager at Dean’s Office, Yong Loo Lin School of Medicine, National University of Singapore, Singapore.

Mr Su Ping Yeo is a Senior Executive at the Centre for Medical Education, Yong Loo Lin School of Medicine, National University of Singapore, Singapore.
Prof Shing Chuan Hooi is Vice-Dean (Education), Dean’s Office, Yong Loo Lin School of Medicine, National University of Singapore, Singapore.

A/Prof Tang Ching Lau is Assistant Dean (Education), Dean’s Office, Yong Loo Lin School of Medicine, National University of Singapore, Singapore.

Mr Sin Chuan Tay is Deputy Director, Dean's Office, Yong Loo Lin School of Medicine, National University of Singapore, Singapore.

Dr Dujeepa D. Samarasekera is Director, Centre for Medical Education, Yong Loo Lin School of Medicine, National University of Singapore, Singapore.

Acknowledgements

We would like to express our gratitude to our NUS Medicine Dean’s Office Educator Relation team, all the Associate Dean’s Office and staff.

Bibliography/References

Dahlstrom J, Dorai-Ra, A, McGill D, Owen C, Tymms K, Watson DAR. 2005. What motivates senior clinicians to teach medical students? BMC Med Edu. 5: 27.

http://dx.doi.org/10.1186/1472-6920-5-27

Samarasekera DD, Ooi S, Yeo SP, Hooi SC. 2015. Medical education in Singapore. Med Teach. 37: 707-713.

http://dx.doi.org/10.3109/0142159X.2015.1009026

Tariq M, Ali SA. 2014. Motivation of clinical faculty towards teaching and learning. J Coll Physicians Surg Pak. 24: 785-786.

Appendices

Declarations

The author has declared that there are no conflicts of interest.

This has been published under Creative Commons "CC BY 4.0" (https://creativecommons.org/licenses/by-sa/4.0/)

AMEE MedEdPublish: rapid, post-publication, peer-reviewed papers on healthcare professions’ education. For more information please visit www.mededpublish.org or contact mededpublish@dundee.ac.uk.