Applicant Questions during SMPCETS Open Day 2022

Question	Answer
Can we apply in our third year?	You can apply at the end of your third year, with a view to starting a few months after you graduate. We don't hold posts open for a full year though. The MSc begins in September on a yearly basis. The current applications are for the 2022 trainee cohort, which will start the MSc in Sept 2022.
Do international applicants need to update their visa status before the interview or after?	NHS Scotland can help with visa sponsorship (skilled worked visa) in qualifying cases.
Do you have any indication at the moment of how the 5 Medical Physics positions will be spread across host centres?	Likely to be Aberdeen, Dundee, Edinburgh and Glasgow for MP in 2022.
I am currently studying an MSc biomedical eng at Strathclyde, however I'm really interested in the CE programme. Would I have to do a different masters or jump the first year?	If you hold an IPEM accredited MSc or MEng then you would be eligible to enter directly into the Foundation Year – I.e. no need to repeat the MSc or MEng.
The declaration at the end of the application form suggests that applicants requiring a work visa sponsorship will only be considered if no suitable UK or EEA nationals are identified. Given the competition for these posts,	We have not taken on any applicants from overseas recently, this is for the reasons you state. However I have spoken with NHS Grampian about this (for 2022) and they have confirmed that visas with NHS sponsorship would be possible.

has such an application been successful in recent years?	
When will we know the final number for CE positions? And will we know which centres/specialties they will be for before applying?	We will know before the short-listing is finalised, hopefully by mid February. Likely to be rehab and design/development this year.
When does it open to apply?	It is open now – closes on 4th Feb 2022
If you do not make it onto the programme but decide to do a Medical Physics MSc outside of the programme, would you be able to go into a job after doing this separate MSc?	The MSc alone may help, although many of the jobs prefer somebody with HCPC registration. There are posts available where 'in service' training can be done. The MSc would also strengthen your case for a future year applying to the scheme, and if you hold the MSc then you can move directly into the Foundation year if successful at interview.
Does NHS Scotland have summer internships this year? I would like to get experience after my third year.	Internships are not being offered at the moment due to Covid-19. Also, there is an issue with internships where those that can financially afford to give up their time to do them get an advantage. They aren't commonly offered any longer, and if they are then they are rarely longer than 2 weeks in duration. NHS GGC doesn't tend to offer internships because typically don't have funding to offer payment, and don't offer unpaid internships. In normal circumstances, short visits are offered but these have been difficult to provide in the past 2 years. Departmental visits are typically offered/arranged on an ad hoc basis.
Could you please add the link of registration?	Link at https://www.smpcets.scot.nhs.uk/?page_id=704
Is there an opportunity to pursue a PhD after completing the medical physics course. Still being a medical physicist?	Yes – PhD's can be done in-post (after completion of training), subject to funding being available.
Is there any scope to do research projects as well as	Yes – plenty of scope to do clinical development, innovation, R&D, but patient services are prioritised.

your day to day work?	
I'm a January start in my MSc which means I'll be finished in January 2023, can I still apply for this? Or because the scheme starts in September I am not eligible as I would still be a student?	If you are due to finish in Jan 2023, then you would be better applying for the 2023 intake - i.e. next year.
My biggest concern with applying is lack of practical experience. I am in my final year of a biomedical engineering degree in Dundee, and obviously due to the pandemic all my labs that were meant to occur in Ninewells hospital have been cancelled. Will this lack of experience be taken into consideration? Or would I be disregarded for someone who has been able to have access to practical work.	Everybody has been in the same situation, so don't be too concerned about this. I would suggest that you take time to consolidate what experience you do have, and explain how you have achieved this over the last couple of years. We understand the disruption.
What job positions are offered to someone with only an MSc in Medical Physics? Also could you explain the HCPC registration process after the 3	If you have the MSc only (and are not successful with the SMPCETS application) then you may wish to look for a direct entry post. If you are successful in applying for our scheme then you would be able to go into the FY directly. At the end of the 3.5 years you are asked to attend a viva exam with AHCS, and also submit a portfolio of evidence that maps to AHCS Good Scientific Practice. This process is referred to as 'STP equivalence'.

year program? Is it an exam?	
What are the recommendations for an unsuccessful applicant? I assume applying every year, but is there anything specific that should be sought out to improve chances between applications?	The best advice I can say is continue to develop your career as far as you can, and explain how you feel that you have improved. If you have received any feedback or professional advice over the last few years then it may be worthwhile explaining how you have sought to act upon it.
How would you go about getting HCPC registered if you did not get it via the SMPCETS?	You can apply for a direct-entry post into Medical Physics, and then apply to the AHCS after you have built up enough work experience. This is known as 'in-service' training, and essentially gets you to the same place as trainees who are on the scheme. It requires a bit more thought from supervisors and employers though – to give you time in your job to build up training experience. It can be done though (we have an employee in CE going through this at the moment).
Is there nuclear medicine therapy in Aberdeen? And do trainees have the opportunity to be involved?	Yes, we do radioiodine and MIBG therapies currently in Aberdeen. We are also planning to introduce Lu-177 therapies with PSMA and Dotatate. Trainees are expected to be involved in all aspects of the therapies including the radiation protection aspects, the imaging and dosimetry and involvement in the administration.
Is there a software skill in particular that you would advise us to develop to stand out a bit more in the application process?	Not particularly. You will gain experience from certain IT skills via your BSc or BEng I expect. In general and increasingly, software skills are important for a career in STEM, I.e., it's a really important skill set beyond just Medical Physics and Clinical Engineering. Good to hear you thinking about how you can develop some software skills. My own experience is that once you've learned one language it's much easier to pick up another as and when you need it.
Are there third parties involved in the Design and Development side of the CE? Or just the NHS engineers?	Yes, we would often collaborate with third parties. Our bread and butter work are projects with our clinical and non-clinical colleagues in the NHS (doctors, nurses, AHPs, eHealth), but we also work with academic and industrial partners as and when we need to. It varies a lot depending on the size and type of the project. For example, one recent MDU project was to add a filter to a chest drain to minimise the risk of spreading aerosol (and Covid) when used. That project was developed entirely by NHS engineers and scientists working with clinical colleagues. At the opposite end of the scale, we worked on developing a new type of functional imaging of the eye. That was a much bigger project that involved NHS engineers and scientists, doctors, academic and industrial partners. There's more info in the MDU

	presentation on the website. Each project usually has a pragmatic balance over where the design work is done.
For the clinical applications of the MRI scanners, do the medical physicists give advice based on which scanners would be most appropriate (ie 1.5T, 3T and 7T)? I'd seen the 7T multi-modal is beneficial because it reduces shadowing as RF is uniform resulting in an increased image quality.	Yes, Medical Physics would give advice on which scanner strength is most appropriate for the application. For clinical scanning, we would usually use 1.5T scanners. This is because lower fields are much easier to ensure they are uniform over the whole of the scanner bore which makes scanning large areas of the body (such as the abdomen) easier. If the patient has a medical implant then the image artefacts are worse at higher fields which could impact diagnostic quality. At Tayside we have a 3T scanner which does perform clinical work however is primarily for research due to the higher signal achieved at higher fields. I believe in Glasgow the 7T scanner is only used for research. There are pros and cons for each field strength depending on the application and we would work in tandem with clinicians and researchers with what is most appropriate. Just to add to that response, we have a good mix of diagnostic 1.5 and 3T scanners at Glasgow. The higher signal to noise at higher field strengths is beneficial, particularly for applications such as fMRI. Our 7T scanner is CE marked, meaning it can now be used clinically, alongside other CE marker equipment. That said, there are problems that can be exacerbated at higher field strength, from imaging problems (difficulty in RF homogeneity, magnetic field homogeneity) and patient comfort (the bore of the scanner is small and long)
In the video(s) online, I noticed that there was quenching – does this increase the temperature in the room to lose the super conductivity?	All our scanners are superconducting scanners and to keep them cool enough to remain superconducting the magnet coils are bathed in liquid helium. A quench refers to when the helium is released; this is done through a pipe from the top of the scanner through to outside the hospital into the atmosphere. This would not impact the temperature of the room.
You spoke about the acquisition and acceptance of medical devices but I was wondering if you are also involved in the decommissioning and replacement of devices when needed?	Yes, we can be involved in decommissioning if it's required. Where we are replacing a system, we usually ask the company installing the new system to take the old one away. As major manufacturers, they know all of the rules and regulations for the safe disposal of all of the components (electrical and metal recycling, some amount of COSHH material like oil and beryllium for example). They may even remove the system as a whole, refurbish it and sell it on. We can do this ourselves by taking the advice of a number of experts, but we prefer not to! Sometimes it can be very interesting, such as the removal of a linear accelerator that used depleted uranium as its shielding material – there are a lot of complex regulatory issues around the disposal of this. Regarding replacement of equipment, we treat this in much the same way as we do for procuring new equipment as described. It could be like

	for like with the unit that comes out, or the clinical needs might have changed in which case we identify something more suitable. The broad answer would be that each of those stages in the life cycle typically involves multiple disciplines. Replacement projects most typically involve many and often have a decommissioning 'component'. For instance a diagnostic radiology replacement project would typically involve radiographers, radiologists, radiation protection, finance/procurement and estates (often others too). In some establishments clinical engineers like my example in a co-ordinating role. All of these are in detailed collaboration with a supplier, who typically designs the actual "build". There is simply too much to decommissioning and installation to do without access to a large number of experts. Before any project of this nature, roles and responsibilities need to be outlined. It could be the case that the company installing the new equipment will take on a lot of these roles, including project management. They will charge a premium for this. Or the health board could project manage and make good use of the expertise that it has in-house. The decision won't always be the same; what expertise do you have, how busy are you (during the end of the financial year most health boards have multiple installations happening simultaneously which has resource implications). Some sites can be individually more challenging than others too – is it a new hospital with up to date electrical wiring and proper ventilation and heating control? Or is it an old hospital that needs these aspects brought up to code before you can think about the new equipment going in? Regardless of the model being used, communication is key. From experience of going through this process multiple times you get to know who needs to be round the table. And don't forget to inform IT or nobody will ever see any of the images the system produces!
What are the correction methods used on the 1.5T where there could be signal void?	If we are talking about signal voids due to metal being present then some things we can do is to choose our pulse sequence carefully and change the parameters of the sequences. An example of this might be reducing the time between applying the RF pulse and collecting our signal. This gives the spins less time to be distorted and so reduces the area of signal loss. There are also specially designed sequences for metal artefact reduction that includes additional magnetic gradients to counteracts the distortion and correct for it. There are many artefacts in MRI, it is a whole topic in itself! But hopefully this gives a small idea of the kind of thing we would do when assisting with these problems.
How involved is a radiotherapy medical physicist in identifying tumour sites in scans? I know	Within RT, the patients come for their planning CT scan. The clinicians will outline the tumour volumes on these which are discussed at MDT/peer-review meetings before being approved for planning. We then grow our planning volumes from those outlined by the medic. These volumes will have specific growth margins for each treatment site. We are not currently looking at this clinically, but I know there is a small

there's been a big shift towards machine learning/AI in microscope image analysis – I wondered if this is something you're interested in in radiotherapy treatment planning or if this is something that's already underway?	research team interested in analysing images automatically etc. As far as I'm aware, this team is in the very early stages and trying to find their feet and proposing projects etc. I think as technology advances, I'm sure that parts of our work will move more into the AI world.
Does the majority of the clinical scientist work in this area stay with the planning of the treatment and QA work, or does the workload extend to patient facing scenarios/delivery of the treatments?	Workload doesn't generally extend to patient facing scenarios/delivery of treatment. That's really the radiographer's role. We do interact with the radiographers on a daily basis.
With the new MRI machine being commissioned, are there plans for moving from CT scans to MRI scans for treatment planning at the Beatson?	We will use the MRI images in conjunction with our CT images. The patients will be scanned in the same position for both scans, the images will be fused together to allow for better delineation of the tumour and critical nearby organs at risk. This is an interesting example, as you can see where Radiotherapy, MRI and Diagnostic Radiology expertise is all important – working together.
Are you going to share all presentations at a later stage?	All the presentations are going to be posted at https://www.smpcets.scot.nhs.uk/?page_id=1821
There is a provision that this programme will give the opportunity to study Masters at any university. If in case an	No, we only cover the MSc fees for the 3 degrees that Steve listed in his into presentation. (Medical Physics – Aberdeen and Glasgow, Clinical Engineering – Strathclyde)

international student gets an offer, would this training programme cover the tuition fees at international rate for the master programme?	
Do you use OpenSim for analysing a patient's gait? If not, could I ask what biomechanical modelling software you use?	WestMARC (Glasgow Rehabilitation Centre) use Vicon Nexus We don't use OpenSim in clinical practice. We currently use the Plug in gait model and would probably need to shift to a model that we could apply inverse kinematics to before we could run any OpenSim models. This is something we would like to explore for research purposes. We use Vicon's Nexus software for all our modelling and processing.
Would MSc fees be paid at the international rate?	Yes, international applicants would need their MSc fees to be paid at the international rate.
Does the foundation year start in September? If yes since the MSc programme ends in January what will we be doing between the start of the foundation year? Are there any fees for that?	The MSc teaching goes on until April, and then there is a hospital project from May through to August. The FY then starts in September. All FY starts in September, so if you are doing an appropriate accredited MSc now that started in January 2022 and ends in January 2023, you would apply next January for the September 2023 start. It is paid for by NES for UK based trainees. If you are an international trainee then we will need to check the exact details, but this will not affect the short-listing process for interview (this is done in fully blinded fashion).
Is there any statistic on what percentage of people get accepted to the interview stage in medical physics?	Last year 176 applications for 7 places. We typically interview around 20 people for MP and 10 for CE, but this will vary on a yearly basis.
I am currently studying the MSc Biomed Eng in Strathclyde. Is there any preference in what project I undertake	The short answer is "no". The longer answer is look for a project that you personally find really interesting, or one that might expand your skillset. My experience is that people who have a genuine interest and curiosity about their work are the most content – so working on a project that you're personally interested in is great if possible. An alternative aapproach is to try to use

for the CE trainee positions?	the project to expand your skill set. For example, If you're quite strong in mechanical and electronic engineering disciplines you could look for a project that would require you to develop some software skills or vice versa.
In which of your placements did you find you had the most patient interaction? And how much flexibility do you have in choosing an acquaintanceship?	I found that my nuclear medicine placement involved the most patient interaction since the clinical scientist attend appointment to administer iodine therapy which can involve in depth discussions about radiation protection issues. In NHS Tayside we are lucky to have the national photobiology service so we go there for one of our acquaintanceships. Arrangements might be a little different in the other centres but you could likely discuss things with your training coordinator if you have a particular interest.
For an international student, do we need to add any specific details in our application? Also how would a certificate of sponsorship work?	I would suggest you apply in the same way as everybody, and make sure that your qualifications are recognised. If you are shortlisted then we would take this up with NHS Grampian. I don't have specific details of how the sponsorship works, but colleagues in recruitment at Grampian have confirmed that this should be possible. Otherwise, your application should just make it clear that you now and understand what you are applying for and explain why you are the correct person for one of the posts.
How much programming is involved during the training?	When I did my MSc at Glasgow University we had a course called "Programming for the Clinical Scientist" which gave us the foundations to use Python in our work. I haven't had call to use those skills very much so far, I think it depends on what projects happen to come up during your training. I certainly have colleagues who have used programming skills during their foundation year and specialism training.
Is there intake for life sciences and physiology this year or only for medical physics and clinical engineering?	That is a completely different scheme, so you would need to keep an eye on their websites and advertising. I'd suggest you keep an eye on this page for details of the NES-funded training schemes in life sciences and physiology https://www.nes.scot.nhs.uk/our-work/clinical-scientist-pre-registration-training/
Do research outcomes/experiences derived from the Innovation Project (or other research stages of the training) lead to scientific articles or other publications?	Yes it can do. Our expectation is that you present it at our national meeting in Glasgow at the end of the specialism year, but if it is publishable then we'd encourage you to do this. The innovation projects are really interesting every year. It depends on what your innovation project is, its outcomes and where you want to take I t- I had an article published in IPEM's Scope magazine in December about my innovation project, and have also presented it at some conferences
Is it only NHS	The application is done centrally through NHS Grampian, but the same

Grampian that takes recruits in? Or would I have other NHS boards as an option too?	application covers all of the health boards part of the training scheme across Scotland.
What was the selection criteria to get in as a specialism trainee medical physicist?	I have been going through the training scheme, so I applied to the scheme then went through the MSc and foundation year before starting my specialism training. Your training would never start at the specialism phase – the earliest part of the training would be the MSc/Meng or the FY (if you already have an MSc/Meng).
Did you go into the training scheme thinking you'd want to specialise in Diagnostic Radiology/Radiation Protection or did that change after your placements in your FY?	I actually was very set on specialising in Nuclear Medicine when I started!! I really enjoyed all of my foundation year placements, but my DR/RP placement was definitely my favourite because of the variety. It's great to be able to experience everything before you have to choose!
From what scheme does radiographer specialism come from?	That is a different profession. To become a radiographer it is best to do a degree in radiography and then that will give you a chance to do hospital based training. If you're interested in a career in radiography best to look at this type of degree https://www.gcu.ac.uk/study/courses/details/index.php/P01640/Diagnostic_Imaging
What is the difference between the role of the CE in DRM&G and a clinical technologist working in medical device management?	Clinical Technologists in the workshops tend to have the day to day demands of maintaining and repairing medical devices and supporting clinical teams in that way. As a Clinical Engineer trainee, I've spent a bit more time with the Workshop managers with the bigger replacement projects, and slightly more quality improvement projects across various clinical teams rather than day to day repair and maintenance.
How common is it to receive experienced industry non-healthcare professionals as applicants that are transferring from other Engineering	There is a wide spread in the background of applicants to the CE training scheme. There are perhaps slightly fewer applications who are looking to transfer in from other engineering fields than coming in from undergrad or postgrad education. However, I think the advice Steve gave in the introduction is equally applicable – we're looking for all applicants to indicate why they're a good fit for the role.

Fields (Energy – Nuclear/Oil&Gas) as clinical engineering trainees?	
Is it certain that you get your choice of specialism?	Encouraged to use FY to find out which you enjoy the most. Varies from centre to centre, try to accommodate where possible. RT tends to be easier due to number of jobs, MRI jobs more scarce. Work with trainee to work out where interests are and see whether it's possible to train in that specialism and have a job afterwards or whether they'd have to move. It's not guaranteed and the means by which a specialism is chosen varies slightly depending on which centre is your main department (e.g. Lothian, Glasgow, Aberdeen etc). In general, we try to accommodate the trainee preference. So if you tell us that you're really keen to specialise in Radiotherapy, we'll try to accommodate that. However, we're trying to balance a few other things including: our departmental capacity to support training in your specialism area, and our departmental needs (if we have lots of vacancies in nuclear medicine, then we'd prioritise training in that area). We're also thinking about your job prospects when we discuss specialism training. We invest a lot of money in this training, and ultimately, we want to make sure that it's a good investment and that we're going to be meeting the needs of the NHS Scotland workforce. So if we take on 5 trainees in one year, and they all want to train in MRI, then that wouldn't make sense from our point of view - there's unlikely to be 5 posts in MRI appearing at the end of their training.