

1st May 2018

Dear President

Following discussion at the Council meeting last week about how Colleges can assist in embedding genomics into the NHS, please find attached a questionnaire about how this might be done and any enablers or barriers you might encounter. In order to meet deadlines and to ensure that we are able to construct a full picture and feedback to NHSE realistically about the current position, a response is requested within 1 month.

You may find this recent [report](#) from the House of Commons Science and Technology Committee interesting as you consider these questions. You will also find a copy of a presentation given to a meeting of the Genomics Champions Group by Professor Ruth Newbury-Ecob (RCP), which outlines some of the implications of this work.

Our intention is to collate these responses and then hold a half-day workshop to discuss the implications of Colleges' views. We would like to invite College Presidents and their genomics champion, together with other colleagues who would be able to add helpful information to the debate. Possible dates for this workshop, to be held at the Academy, are:

- Friday 22nd June 10.00 to 3.00 pm
- Thursday 28th June 10.00 to 3.00 pm
- Thursday 5th July 1.30 to 4.00 pm (to follow the genomics champions group meeting)
- [Wednesday 12th September 10.00 to 2.00 pm (as a last resort choice, as we would really like to hold the workshop before the summer if at all possible)]

Thank you for completing this survey – please return it by email to rose.jarvis@aomrc.org.uk, by **Monday 4th June**. **Please could you also indicate which of the possible dates for the workshop you could make.**

Many thanks

Professor Carrie MacEwen
Chair, AoMRC

We are interested in hearing from Colleges about the mechanisms they envisage for embedding of genomic medicine into the NHS, together with any concerns they may have.

Response from Royal College of Radiologists

Section 1 Overarching viewpoints:

1. What are the benefits of embedding genomic medicine into the NHS from the perspective of your College?

Genomic medicine is already embedded. Clinical oncology cannot be delivered in many tumour sites without knowledge of predictive single gene mutations which have impact on therapy. For example, HER2 in breast cancer, EGFR mutations in lung cancer, and prognostic arrays such as Oncotype and Endopredict in breast cancer.

In future, genomics will guide treatment and molecular imaging based on receptor imaging and will support diagnosis of tumours, likelihood of recurrence, as well as guiding and monitoring treatment.

By embedding this in all curricula we will be able to rapidly integrate new knowledge into bedside delivery of therapy and communicate this effectively to patients in a way they can understand so they can make informed decisions.

2. What are the implications of this, and what concerns do you have?

Implications:

Genomic knowledge and understanding needs to be part of undergraduate and all postgraduate curricula, including foundation.

Concerns:

Common vocabulary for genomics, genetics, radiomics, proteomics, epigenetics needs to be established.

Trainers will need upskilling to comfortably deliver training.

Perception of the utility of genomic information must be effectively managed.

Prospective studies of impact of genome on response to treatment and outcomes must be undertaken and validated.

Section 2 Education:

3. Does your curriculum currently include relevant aspects of genomics, or are you planning to introduce it as you update your curriculum?

Yes – both Clinical Oncology and Clinical Radiology

4. Does your exam syllabus cover this?
Yes
5. What support and information would you need to ensure genomics is covered, if any?
Lifelong learning and CPD
6. What education and training will you need to provide for your members?
Support and funding for members and fellows to undertake the relevant CPD courses. RCR Learning platform
7. How do you anticipate providing the required information and training?
a. Will you include things such as seminars, conferences, and external education sources (e.g. e-learning for health, the online Genomics Education Programme hosted by Health Education England)?
Yes
b. How will education and training be provided at all levels, including professional development, extended workforce requirements?
Embedded in the curriculum as part of routine CPD
8. What would be involved in providing the following for your specialty?
a. Education about the infrastructure for genomic medicine
Already embedded in practice
b. Education about how to request appropriate tests, and interpret results
Embedded in the curriculum
c. Understanding the implications of tests, testing individuals and families
Embedded in the curriculum
d. Education about the ethics of consent, recognising risks, dealing with ambiguity and uncertainty, and potential concerns regarding insurance companies
Curriculum contains research competences which include ethical consideration.
e. Education about specific conditions amenable to genomic testing, and implications of pharmacogenomics and tailoring drug to individual patients
Curriculum mandates knowledge of current treatment; this is no different. The role of the doctor is to deal with uncertainty.

f. Understanding the potential impact of genomics on common general conditions and the day-to-day life of practising clinicians in your specialty?

In common tumours (e.g. breast, lung & colon), genomic testing is already essential to the evidence based management of a patient . This will be promulgated across all tumour types.

Section 3: Drivers and barriers

9. To achieve all of the above in your specialty, what do you see as the likely:

a. Enablers

- Pharmacological research
- Patient empowerment
- Clinician engagement and learning
- Molecular imaging
- AI integration with genomic sequencing
- Communication skills which emphasise patient-centred decision making and the ability to empathically discuss tailored risks and benefits with individual patients

b. Barriers

- Money
- Clinician time & sustainable workforce in diagnostics (radiology and histopathology) and treatment.
- Media perception: hype and nihilism
- Interdepartmental funding issues e.g. pathology vs CDF delivery
- Tariff

c. Impacts

Medicine will become more personalised in relation to diagnostics, treatment and follow up.

10. Who can help to provide/overcome these?

Clinicians, patients, media, Colleges, NHSE/NHSI, NHS employers, HEE, HEI & equivalent in devolved nations and industry partners

11. What timelines do you envisage for this?

Here now, but will take decades to become be fully integrated by doing what the NHS does best, which is to use clinical trials to establish the evidence and then embed the evidence base into practice.

12. What are your views about communicating with/advising patients and the public about genomic medicine within your specialty?

Patients are well informed and will drive the agenda.

13. What else would you like to add?

We need to establish the difference between genomics and single gene genetics.

Thank you for completing this survey – please return it by email to rose.jarvis@aomrc.org.uk, by **Monday 4th June**. Please could you also indicate which of the possible dates for the workshop you could make:

- Friday 22nd June 10.00 to 3.00 pm
- Thursday 28th June 10.00 to 3.00 pm
- Thursday 5th July 1.30 to 4.00 pm (to follow the genomics champions group meeting)
- [Wednesday 12th September 10.00 to 2.00 pm (as a last resort choice, as we would really like to hold the workshop before the summer if at all possible)]