

'Health Futures' survey

Thank you for participating in this survey on behalf of the National Institute for Health Research (NIHR). Health research has to be forward looking, and the NIHR is interested in gathering key stakeholder views on the future of health and healthcare in England in 20-30 years' time to help inform future strategy. By engaging with experts from a variety of fields, we hope to capture both widely-held views and unique insights on key trends and drivers which will affect health and healthcare in the future, whether clinical, demographic, economic, social, technological, environmental or other. The survey questions are deliberately broad and open, in order to capture developing thinking and a wide diversity of views.

The survey and its analysis are being conducted by researchers at RAND Europe, Cambridge, on behalf of the NIHR.

Your participation

The survey consists of five substantive questions, which are outlined in the email. All responses are given via open text boxes. You are not required to answer all of the questions and may choose to contribute to just one or a few of them.

The summary findings of this research will be published in a report on the NIHR website and disseminated to all participants. We intend to make individual responses available to all online as a resource for other groups looking to the future of healthcare, subject to your consent. You will be asked for your consent to this on the next page.

Please complete and submit your responses by **Friday 16th June 2017**.

The response to each question is limited to 3500 characters (about 500 words). Propositions backed by reference to data are very helpful.

Please click the 'next' button to proceed to the survey.

If you start the survey and do not have the opportunity to finish, simply click on your link in the email and begin where you left off. Your answers will have been saved.

We will not receive your responses until you click 'Done' on the last page. Please only submit when you are ready.

Data confidentiality and consent for public attribution

Thank you for taking the time to complete this survey. We would like to request your permission to acknowledge your participation in the study and for attributed quotations from your responses to be shared, both in the final report and on the NIHR website. If you would prefer to keep your participation private, you are entirely free to do so and no reference to your name or organisation will be made in the published findings. In this case, your responses will be available only to

relevant parties at RAND Europe and the NIHR.

All survey data will be transferred securely and stored electronically in a secured file.

1. Do you permit RAND Europe to acknowledge your participation in the study (i.e. name and affiliation) in the public report which emerges from this research?*

If you are responding on behalf of an organisation, this will be noted.

2. Do you permit RAND Europe and the NIHR to publish your responses verbatim on the NIHR website and publicly attribute quotations from your responses to you in the final report?*

Introduction

We would like to begin by asking you a bit about yourself. If you have indicated that you would like your participation in this survey to remain private, the information you provide below will be treated confidentially.

3. Please provide your name in the box below (name and surname).*

4. Please indicate if you are responding to this survey as a private individual or in your professional capacity as a representative of an organisation.*

- Private individual
 Professional representative

5. Please provide the name of the organisation(s) you are primarily affiliated with.

*

If you are responding to this survey in your professional capacity, please provide the name of the organisation(s) of behalf of which you are responding.

6. What is your current position in the organisation(s)?

The future of health and healthcare in England: insights on your area of interest

In this section, we would like to hear about your views on the future of health and healthcare in England with reference to your own specific

field. There are no 'right' answers to these questions, and we are interested in capturing wide-ranging views.

All responses have a 3,500-character limit (including spaces).

7. In relation to your area of interest (discipline or geography), what differences do you foresee in the state of health and healthcare in England in 20-30 years' time compared to today? In your answer, please consider if/how these changes might affect some populations (within England) differently to others, i.e. socioeconomic, ethnic groups and/or geographic groups.

Your response could include (but is not limited to) issues relating to epidemiology, health services, technology, treatment and prevention.

As the British Pharmacological Society, our area of interest is pharmacology. For health and healthcare this includes drug discovery, development and the use of medicines in individuals and populations. Over the next 20-30 years we anticipate that the main changes in health and healthcare will be driven by the ageing population, ongoing development of biologic and other medicines for increasingly focussed indications, expanding use of technology and use of molecular and genetic information to individualise therapy.

As the population ages, people are living longer with more chronic diseases (multimorbidity), requiring use of multiple medicines (polypharmacy). As the situation becomes ever more complex, the healthcare model will need to evolve from organ- and specialty-based to include a more general, multimorbidity approach. We will also need to develop the evidence base to determine how co-existing treatments of multiple diseases affects health status and prognosis. Healthcare professionals will need to navigate increasingly complex drug formularies to ensure that the use of medicines is optimised both for individual patients and at a population level.¹

By contrast, there is increasing development of biological medicines targeted at specific molecular pathways or immune processes with increasingly focussed clinical indications. These provide opportunities to improve treatment of specific conditions such as immune disease and cancer. Challenges include reducing the cost to increase availability, ensuring that biosimilars (biologic medicines which are almost identical to the original but manufactured by a different company) are available and have the same efficacy and safety profiles as the brand leader – with respect to the latter, a key issue will be assessment of immunogenicity, and how this affects both efficacy and safety.

We anticipate that technology will change the way therapies are planned and monitored. As patients gain more access to information they are increasingly empowered to contribute to planning their own healthcare. New ways of gathering and managing information will also assist healthcare professionals in decision-making, communicating, taking account of evidence-based guidelines and working with patients to make better-informed, joint decisions. Technology will also increase opportunities for patients and their data to be enrolled in registries, databases, and trials, through unified/fully interconnecting systems. This will allow healthcare and research to develop in parallel for their mutual benefit. Wearable technology and technology in the home is changing the way that patients can be monitored. Interpreting, integrating and using this data effectively in combination with other types of clinical and omics data will be a new challenge.

As healthcare evolves, the doctor's role will live up to its name (literally "teacher") – with more emphasis on Consulting/Practitioner roles, rather than information-handler and administrator/organiser; this is much needed, given the increasing stresses on healthcare, and is an exciting prospect.

From a genetic and molecular perspective, we should expect to see a healthcare paradigm at least partly defined by the development of a taxonomy of diseases based on molecular diagnostics – 'precision medicine'. Individualised therapy will be supported by more extensive phenotyping/ pharmacogenomics.

¹. British Pharmacological Society campaign, *Clinical Pharmacology and Therapeutics – in the NHS*. <https://www.bps.ac.uk/about/our-campaigns/clinical-pharmacology-the-nhs> (accessed 12th June 2017)

The future of health and healthcare in England: insights on your area of interest (contd.)

All responses have a 3,500-character limit (including spaces).

8. What do you think will be the key drivers of the changes you have described?

Drivers might be (but are not limited to) scientific, environmental, technological, social and economic factors.

Technology will be the key driver of the changes. This will increasingly include

- information available through genomic and other omic technologies;
- innovative therapeutic interventions will also come through better understanding of the physiology and pathophysiology of diseases and the important pharmacological targets for their management.
- digital health, with wearables, and artificial intelligence and predictive analytics, will enhance delivery of care at home and in the community.
- personal responsibility for health will be facilitated by technology.

Increased demand and economic limitations are also important drivers. As the population ages and multimorbidity becomes more common, the imperative for addressing this will increase. Where finances are limited, high cost approaches and treatments are less likely to be adopted which may de-incentivise development. Better economic models in particular are needed for the development of diagnostics and sensor technology to facilitate innovation.

Social factors will also drive innovation – in particular, we will be dealing with a better informed population who will expect more from healthcare. This should be seen as an opportunity rather than a threat, in particular to improve the patient-healthcare professional relationship, which will be key in driving better health outcomes.

The future of health and healthcare in England: wider insights

In this section, we would like to hear about your views on the future of health and healthcare in a broader sense, potentially going beyond your specific field of interest to consider wider trends and insights which may affect health and healthcare in England.

All responses have a 3,500-character limit (including spaces).

9. In your view, what will be the major trends in health and healthcare in England over the next 20-30 years?
Responses may include (but are not limited to) technological, epidemiological, behavioural, health services, policy or regulatory trends.

In this section we have considered some of the major trends in health and healthcare in England, as well as commenting on how the role of the clinical pharmacologist (medical specialists with a focus on the use of medicines) could evolve to support them.

Planning therapy will become increasingly complicated due to factors including: more individualised medicine; more technology-empowered healthcare delivery; increasing patient empowerment. Primary care will expand with more healthcare delivered in the community. In this context, the role of clinical pharmacologists needs to expand to support patients and doctors in individualising their treatments and to advise on appropriate dosage regimens and the potential side-effects (adverse reactions) and interactions of an inevitably expanding range of biologic and targeted therapies.

The NHS, as a singular provider of healthcare, may evolve into a multiple provider system, in which the NHS provides just one mode of healthcare delivery.

The current exponentially increasing efforts to integrate data and to apply machine-learning methods to diagnosis and treatment will probably lead to integration of these methods into personal digital health platforms. The training of future doctors will have to incorporate assessment of evidence of therapeutic benefits and harm, based on big-data, wearable technology, and omics (such as genomics, proteomics, and metabolomics). The clinical pharmacologist, as a cross-cutting specialist, should be looked to be the principal provider of training for healthcare professionals, as well as serving as an advisor to hospitals and primary care practices. In an environment where there are likely to be a range of treatments available the skills of the clinical pharmacologist to guide selection of the most suitable for the individual will be important. Guidelines alone cannot achieve this personalised medicine.

The future of health and healthcare in England: wider insights (contd.)

All responses have a 3,500-character limit (including spaces).

10. Are there any commonly discussed issues related to the future of health and healthcare in England which you believe to be overstated? If so, why do you believe them to be overstated?

As a society we pay less attention to simple, cheap measures such as promoting healthy behaviours and optimising the use of existing generic medicines than to complex, expensive measures including big data, genetics, biologics and regenerative medicine. However, these are not mutually exclusive, and we need to ensure that all approaches are pursued with the same vigour.

Quite rightly there is an increasing focus on electronic health records in the context data. However, while our current datasets allow us to evaluate more generic aspects, they do not necessarily allow us to deeply phenotype patients because data is often entered haphazardly at the level of the care provider; thus,

developing data standards will be key to ensuring that the full promise of big data is realised.

We are so focussed on prolonging life that we no longer accept death. Leading to overuse of 'death prolonging' measures in patients who no longer have a good quality of life. The media have 'demonised' end of life care so that patients and families are afraid of palliation and a dignified death and increasingly want to be 'for resuscitation' and all active management, even where this is likely to be futile.

The future of health and healthcare in England: wider insights (contd.)

All responses have a 3,500-character limit (including spaces).

11. Are there any issues that are underrepresented in the debates around the future of health and healthcare in England? If so, please describe them and explain why you think they merit greater attention.

Clinical pharmacology is a medical specialty ideally equipped to support the health service, healthcare professionals and patients in navigating through the advances in therapeutics currently occurring, and likely to accelerate, over the next 20 years. Maintenance and expansion of the specialty and development of training to keep pace with changes in therapeutics is essential to achieve the health potential of new therapies. Areas where clinical pharmacologists could have particular impact include: precision medicine; personalised therapies; introduction of new medicines; development of evidence based guidelines; optimising risk-benefit profiles of medicines; managing multimorbidity and polypharmacy; drug safety, and training and advising healthcare professionals in medicines use and optimisation.

Can it/will it all be funded by the NHS? Greater support from technology and pharmaceutical companies is needed, partly via the funding of clinical trials, although large, relatively cheap trials of existing therapies could be funded by government. However, with the current and future explosion of different treatments and technologies in a population with multiple long-term conditions, such as hypertension, diabetes, obesity, and a range of rare, but collectively common disorders, requiring management of polypharmacy/ multi-technology/ multi-devices – there is an urgent need for input from clinical pharmacologists to help develop and rationalise the use of all these therapeutic interventions.

If you have completed the survey, please click the 'Done' button below to submit your responses. Once you submit, you will not be able to change your responses.