**Written evidence submitted by the British Pharmacological Society to the Nuffield Council on Bioethics call for evidence on the Future of ageing**

**About us**

The British Pharmacological Society (BPS) is the primary UK learned society concerned with research into drugs and the way they work. The Society has around 4,000 members working in academia, industry, regulatory agencies and the health services, and many are medically qualified. The Society covers the whole spectrum of pharmacology, including laboratory, clinical, and toxicological aspects. Pharmacology is a key knowledge and skills base for developments in the pharmaceutical and biotech industries, and is therefore fundamental to a thriving UK industry and R&D. These skills allow members of the Society to identify therapeutic areas of clinical need, develop novel treatments that target these areas and ensure these new treatments are incorporated into healthcare practice bringing benefit to patients. The Society publishes three scientific journals: the British Journal of Pharmacology, the British Journal of Clinical Pharmacology, and Pharmacology Research and Perspectives.

**Our submission**

We have focused our submission on two key areas that need addressing to ensure healthier ageing can continue as a priority. The Society would be happy to expand on these areas and to support the consultation going forwards. For further input, please contact Sophia McCully, Policy Officer: [sophia.mccully@bps.ac.uk](mailto:sophia.mccully@bps.ac.uk)

**1. Changes in healthcare practice to recognise specific needs of older people**

* 1. As the population ages, people increasingly have multiple co-existing chronic diseases (multimorbidity), necessitating the use of multiple medicines (polypharmacy); over 1 million people in the UK take 8 or more medicines per day. Polypharmacy has enormous impacts on the health economy; total NHS expenditure on drugs was estimated to be £17.4 billion in 2016/17 and is growing at an average of around 5% per year[[1]](#footnote-1). It is also linked to negative clinical outcomes including increased risk of hospital admission due to Adverse Drug Reactions (ADRs)[[2]](#footnote-2) and reduction in physical and cognitive functioning[[3]](#footnote-3). The Society advocates for investment in multidisciplinary teams and integrated care pathways, which is currently not a model we have. In addition to improving care pathways to treat people with multiple conditions, research should also be whole person centred. However, the traditional research paradigm focuses on one target, one disease and one treatment – often overseen by multiple specialists in secondary care pathways.
  2. Polypharmacy management is mostly delivered by healthcare professionals in primary care. During transitions of care, medication history is a particularly challenging aspect as patients cannot be relied upon to accurately remember all of their medications and dosages. Prescribing decisions are often not communicated well and typically GPs are left not knowing why medication was changed, for example. GPs may also feel uncomfortable to change medicines started by a specialist, even though specialists often only look at medicines relevant to their specialty and can miss the bigger picture. As a result, the patient accumulates medicines without having them challenged. Alongside this, there is a changing landscape when it comes to polypharmacy management. As a result of the GP Practice Forward View (2016), 1,500 new clinical pharmacists have been funded to perform medication reviews[[4]](#footnote-4). It will be crucial to ensure that pharmacists are trained and made to feel confident – if they are not already – with consultation skills to facilitate patients to make shared decisions about their medicines. Unlike single organ-based conditions, there is no establish referral pathway for specialist review of patients with complex polypharmacy. A more joined up service to manage patients with polypharmacy and help to upskill the workforce is needed:
* The formation of new Integrated Care Systems (ICS) provides an opportunity for closer partnerships with clinical pharmacology. A regional polypharmacy ‘hub’ within each ICS, could provide help for the most complex cases and provide teaching on how to manage polypharmacy. Such hubs could be led by clinical pharmacologists, senior pharmacists or consultant geriatricians.
* Early feedback of a trial hub run by clinical pharmacologists at St George’s in South West London ICS has been very positive. This model has the potential to transform polypharmacy management in the UK.
  1. Research into how best to improve the engagement of older patients with technologies will be important in terms of supporting patients to engage with their own care. For example, a clinical pharmacologist commented that “in my hypertension work, I deliberately ask whether they have a smartphone, and if they do I ask them to download a blood pressure app on which they record their blood pressure and bring the readings back to me. This makes them more aware of their condition, and thereby participate in their care.” Not all innovations need to be expensive – some common-sense applications can also have important benefits. It is also important to consider whether older and elderly patients feel able to engage with research or whether there are barriers stopping them, that need to be addressed. This includes an assessment of all aspects of research including issues in trial design which are often overlooked. For example, the number of follow up visits can be particularly difficult for the elderly because of transport difficulties, and so ensuring that there are alternative arrangements may help participation. Patients need to feel empowered to take control of their health. Technologies could help with this but research into health technology is difficult to interpret. A member of the Society recently carried out several Cochrane systematic reviews on digital technology for patients with COPD, both in terms of self-management[[5]](#footnote-5) and remote monitoring by healthcare professionals[[6]](#footnote-6). Many trials have been done, but heterogeneous interventions and outcome measures made it difficult for the researchers to draw conclusions. However, it appeared that digital interventions didn’t significantly improve outcomes, but they didn’t lead to significantly worse outcomes either. Comparable findings are shown in a paper on heart failure[[7]](#footnote-7). Such technology, given that outcomes are no worse, may be very helpful for frail older people who find visiting hospital for appointments challenging. More (and better designed) research, with international standards of trial design and internationally agreed outcome measures, is needed. A systematic review, currently in development, and one we can signpost to post-publication, identifies five themes that highlight aspects of remote care which facilitate engagement and should be considered in both future design and trials evaluating remote care technologies used in heart failure. Similarly, research priorities must be informed by the lived experience and needs of patients. The James Lind Alliance[[8]](#footnote-8) is a good example of such engagement.
  2. Despite the benefits of health technology, there are risks that must be considered. These include:
* Inequalities – older, more frail or disabled people are less likely to have access to smart phones or the internet so could miss out on technological innovation, leading to digital exclusion. Unless support is put in place, younger, wealthier, tech savvy patients stand to benefit the most.
* Healthcare becoming more protocolised and less patient centred, this is examined in a 2019 study[[9]](#footnote-9).
  1. Alongside this, the complex and growing challenge of an ageing population requires a coordinated approach across government, NHS England, NHS Improvement and individual NHS Trusts. There is a need to target investment towards supporting delivery of care against known challenges in elderly populations (such as polypharmacy). The sector should work together to:
* Set clear targets aiming to improve the research activity of NHS Trusts. In a cross-sector briefing making recommendations to the new Health and Care Bill[[10]](#footnote-10), the Society and other organisations advocated that Integrated Care Systems ensure that NHS organisations for which they are responsible conduct and resource clinical research. This action will help with levelling-up and addressing health inequalities and will create patient benefits, NHS staff benefits and economic benefits[[11]](#footnote-11). The Bill is currently in Committee stage and while it does mention research: *Each integrated care board must, in the exercise of its functions, promote –*
* *(a) research on matters relevant to the health service, and*
* *(b) the use in the health service of evidence obtained from research*

It is crucial all the benefits are understood and realised and made more explicit.

* Provide investment for NHS workforce planning and training that recognises the growing need to address the specific care needs of older and elderly patients.

**2. Improving inclusion of older people in clinical trials**

1. Older people with multiple long-term conditions are often excluded from, or underrepresented in, clinical trials. Inclusion in clinical trials would also help inform polypharmacy management in the future – at present there is very little evidence of the effectiveness and safety of drugs in the oldest old or those with multiple long-term conditions. The potential changes that come with increasing age can change what the body does to a drug (pharmacokinetics), what the drug does to the body (pharmacodynamics) and likelihood of negative effects of medicines. As such, the balance profile of a drug in an older adult is different to that of a younger adult. In order to address these issues, clinical pharmacology can play a key role. If appropriate data is obtained early enough, it can inform the trial enrolment, dose protocol and reduce risks for older patients. It is also important to ensure older adults included in clinical trials are representative of genuine patients and the trials must be appropriately and accurately designed. To determine whether these studies are beneficial, pharmacodynamic and pharmacokinetic data must be acquired. It will also be important to develop guidance which ensures sufficient assessment of the efficacy and safety of drugs in older patients. The Society supports review of inclusion criteria and a holistic approach to research that takes multimorbidity into account, for example through the use of elderly investigation plans, or multimorbidity investigation plans, where we ensure that we recruit a cohort of people into trials who are truly representative of the population to whom we are prescribing. Alongside this, drugs must be continually evaluated post marketing and in conjunction with real-world evidence. The Society supports the House of Lords ageing inquiry report[[12]](#footnote-12) recommendations the Medicines and Healthcare products Regulatory Agency (MHRA) should ensure that older people are included more frequently in clinical trials.

1. The King’s Fund: Ewbank L, Sullivan K, McKenna H, Omojomolo D (2018). The rising cost of medicines to the NHS: What’s the story? Available at: <https://www.kingsfund.org.uk/publications/rising-cost-medicines-nhs> (last accessed 10 September, 2019). [↑](#footnote-ref-1)
2. Payne R (2014). Is polypharmacy always hazardous? A retrospective cohort analysis using linked electronic health records from primary and secondary care. *Br J Clin Pharmacol* 77 (6): 1073-1082. [↑](#footnote-ref-2)
3. Rawle MJ, Cooper R, Kuh D, Richards M (2018). Associations Between Polypharmacy and Cognitive and Physical Capability: A British Birth Cohort Study. *J Am Geriatr Soc* 66(5): 916–923. [↑](#footnote-ref-3)
4. NHS England. General Practice Forward View. Available at: https://www.england.nhs.uk/wp-content/uploads/2016/04/gpfv.pdf. Published April, 2016 [↑](#footnote-ref-4)
5. Janjua  S, Banchoff  E, Threapleton  CJD, Prigmore  S, Fletcher  J, Disler  RT. Digital interventions for the management of chronic obstructive pulmonary disease. Cochrane Database of Systematic Reviews 2021, Issue 4. Art. No.: CD013246. DOI: 10.1002/14651858.CD013246.pub2. Accessed 28 July 2021 [↑](#footnote-ref-5)
6. Janjua  S, Carter  D, Threapleton  CJD, Prigmore  S, Disler  RT. Telehealth interventions: remote monitoring and consultations for people with chronic obstructive pulmonary disease (COPD). Cochrane Database of Systematic Reviews 2021, Issue 7. Art. No.: CD013196. DOI: 10.1002/14651858.CD013196.pub2. Accessed 28 July 2021 [↑](#footnote-ref-6)
7. Rahimi K, Nazarzadeh M, Pinho-Gomes AC, Woodward M, Salimi-Khorshidi G, Ohkuma T, Fitzpatrick R, Tarassenko L, Denis M, Cleland J; SUPPORT-HF2 Study Group. Home monitoring with technology-supported management in chronic heart failure: a randomised trial. Heart. 2020 Oct;106(20):1573-1578. doi: 10.1136/heartjnl-2020-316773. Epub 2020 Jun 24. PMID: 32580977. [↑](#footnote-ref-7)
8. The James Lind Alliance. Available at: <http://www.jla.nihr.ac.uk/> (last accessed 10 September, 2019). [↑](#footnote-ref-8)
9. Berntsen G, Strisland F, Malm-Nicolaisen K, Smaradottir B, Fensli R, Røhne M. The Evidence Base for an Ideal Care Pathway for Frail Multimorbid Elderly: Combined Scoping and Systematic Intervention Review. J Med Internet Res. 2019 Apr 22;21(4):e12517. doi: 10.2196/12517. PMID: 31008706; PMCID: PMC6658285. [↑](#footnote-ref-9)
10. House of Commons (2021) Health and Care bill. Available at: <https://publications.parliament.uk/pa/bills/cbill/58-02/0140/210140.pdf> [↑](#footnote-ref-10)
11. Further detail can be found in the full version of the briefing, a copy of which is available on request. [↑](#footnote-ref-11)
12. House of Lords Science and Technology Committee, Healthy Ageing Inquiry report (2021). Available at: <https://publications.parliament.uk/pa/ld5801/ldselect/ldsctech/183/183.pdf> (last accessed 21 July 2021). [↑](#footnote-ref-12)