Respiratory research funding is inadequate, inequitable, and a missed opportunity

COMMENT

Respiratory research funding is inadequate, inequitable and a missed opportunity: the future requires well-funded, long-term, large-scale implementation science collaborations

Currently 740 words (excl authors, title and references numbers/figures)

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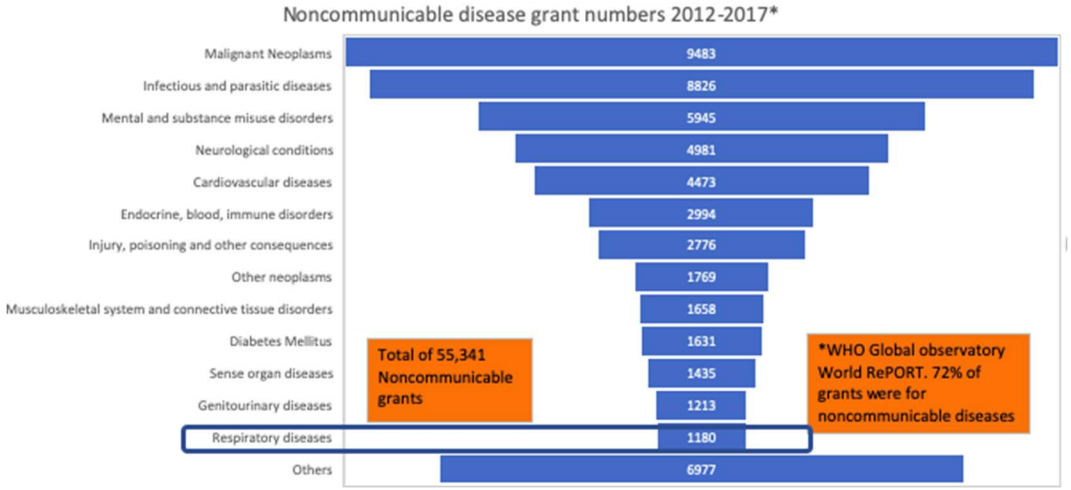
COVID-19 has placed respiratory medicine at the centre of health responses worldwide, but lung health was a major global challenge long before the current pandemic. One thousand people die of asthma every day;[1] two thousand children die of pneumonia;[2] lung cancer is the most common cancer type in terms of incidence and mortality.[3] The majority of this enormous burden has fallen on people in the global south and vulnerable populations in high income economies. They are diseases of poverty and disadvantage which further compound inequity by increased disability, loss of productivity and catastrophic out-of-pocket health costs.[4] As a major driver of ill-health and poverty, the burden of respiratory disease has been a global rate-limiting step towards achieving health equity, economic growth and Sustainable Development.[5]

Even before COVID, this burden was set to increase.[6] As urbanisation and climate changes intensify, global exposure to the key risk factors of tobacco smoking, indoor and outdoor air pollution from biomass fuels, traffic exhaust and occupational pollutants and allergens is likely to increase. Infants and young children are at particular risk. The complex relationships between biological, socio-cultural, and environmental causes of respiratory diseases mean that there are many gaps in our understanding of how best to address them, especially in settings with poor and unequal availability of respiratory-competent health services.

Health financing is under even greater pressure, therefore research is also needed to understand where there is resource that can be released or better used, for example unwarranted variation in medicines use including significant underuse of nicotine replacement therapy in treating tobacco dependence, overuse of bronchodilators and underuse of highly effective inhaled corticosteroids in asthma, and poor adherence to TB treatment.[7]

Yet if we look at the World Health Organization's (WHO's) latest analysis of research expenditure from 12 major funders, from 2012-2017,[8] where is respiratory disease? Almost three-quarters of grants were for non-communicable diseases (NCD), but respiratory disease lies 13th in the NCD category list with 2% of the total; and by

disease, TB lies 19th, asthma 27th; and COPD 50th. Only 0.2% of research funding went to low income countries. Of the 450 grants received by African countries, grants to respiratory diseases were: 39 for TB; 7 for lower respiratory infections and 2 for asthma. The situation in other regions is worse: only 19 grants to south-east Asia of which 2 were respiratory-related.



There has been a substantial mismatch between burden and research investment. This has not improved in over a decade.[9,10] Although necessarily limited by data availability, our analysis suggests that advocacy for respiratory research has not been successful in communicating the urgency or scale of the problem or the potential impact of research investment. There is a need for an improved response at international and national levels. Some countries have started to invest in research to map the size of the problem and to reprioritise.[11] However, there is no global research strategy or feasible roadmap that aligns the interests of all stakeholders: governmental and commercial research funders, academic institutions, global and national health agencies, clinicians, patients and the public. There is also a need to rebalance global funding towards LMICs that have the greatest burden but least resource. In the focus on transmissibility and epidemic preparedness that will likely follow once the COVID-19 crisis has resolved, we should not forget the contribution of tobacco dependence, air pollution, and nutrition to respiratory morbidity. To have lasting impact, respiratory health research needs to increasingly expand its focus and partnerships beyond the health sector and health systems.

More than ever, there is an urgent need for the respiratory research community to work more effectively with other stakeholders to increase recognition of the catastrophic burden of respiratory diseases and to develop, test, implement and scale-up the necessary multiple and multi-sectoral strategies to turn the tide of respiratory ill-health. In its first Global Health Research call, the NIHR committed

12% of the total allocation to responsive respiratory research in DAC listed countries. This has triggered the formation of a global health respiratory network (GHRN): a meta-collaboration of UK respiratory research institutions and their global health partners.[12] The GHRN has created opportunities for synergistic working between research programmes across countries and the spectrum of respiratory diseases.

The future requires well funded, long term, large-scale implementation science collaborations. We call on all funders to review and publish their investment in research on respiratory health. We also ask funders to work synergistically to build up current activity and to develop and share a research roadmap which would minimise the risk of duplication and maximise the effect on health, wellbeing, and economic growth. The WHO Coordinated Global Research Roadmap for COVID-19 might be a model to emulate.

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