Editorial

Building healthy populations

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In this issue, we ask what it takes to build a healthier future for populations – a necessary condition to deliver on the commitments of the United Nations Sustainable Development Goals.

The world is midway to the 2030 target for achieving the United Nations Sustainable Development Goals (SDGs) and, as the timer counts down, progress is woefully off track. The COVID-19 pandemic has compounded inequalities and undermined (or even reversed) already fragile progress toward SDG3, which aims to ensure good health and wellbeing for all. Health as a human right will continue to be vulnerable in the aftermath of the pandemic, as well as in the case of other threats, including climate change, widening health and economic inequalities, political instability, and potential future pandemics. That being said, unprecedented and rapid advances in the fields of artificial intelligence and digital technologies could change the future of healthcare, if used fairly. The World Health Organization has called for a reorientation of health systems to focus on promoting health rather than on just treating disease, and to recognize that "health starts not in hospital and clinics, but in homes, streets, schools, and workplaces"[1]. In this issue, we zoom in on what it takes to build healthy populations. By viewing health through a wide lens, we call for multisectoral collaboration – between and within governments, health and non-health sectors, and global communities.

No issue exemplifies the need for such broad collaboration more than the climate crisis and its impact on health. Writing in this issue, Campbell-Lendrum et al. at the World Health Organization outline three 'grand challenges' for mitigating the effects of climate change[2]. They argue that a key role of the health community must be to drive change beyond the health sector, not just within it – by providing leadership, generating an evidence base and guiding policy implementation. At the same time, health professionals do not have all the answers; as noted by Alan Dangour, head of climate and health at the Wellcome Trust, collaboration with other disciplines is essential and must be led by researchers, governments and communities from within the regions that are most affected[3].

Children and adolescents are among those at highest risk of the effects of the climate crisis, as well as their health and development having suffered enormous setbacks as a result of the COVID-19 pandemic – setbacks that could jeopardize the future wellbeing and earning potential of an entire generation of young people. This is because childhood adversity (for example, due to neglect, poverty, abuse and malnutrition) can impair neurodevelopment and increase the risk of certain health problems in later life. To protect human capital – that is, the knowledge, skills and health accumulated throughout life – for decades to come, Bhutta et al. argue for a broad, societal approach to child health[4]. Such an approach would harness school, community and social protection platforms to implement interventions that prevent or mitigate the long-term health consequences of early-life adversity.

Protecting the human capital of future generations becomes even more crucial, given that populations are aging on a global scale, and health systems, many of which are chronically under-staffed and under-resourced, are ill equipped to deal with the consequences. Innovations in digital health (particularly wearables) have enormous potential to facilitate healthy aging and independence at home while easing the pressure on health services. For now, there are challenges to their widespread use in older populations, such as acceptance, device performance and privacy issues – but many of these are likely to be overcome in the near future, according to Wang and colleagues[5]. They predict that user-centered design and movement of the field from active to passive wearable devices will increase acceptance among older adults, but making these devices accessible will require input from governments, regulators and insurers. This shift in demographics will also contribute to an increase in multi-morbidity – and dealing with it will require a shift in the prevailing clinical, educational and scientific thinking, say Langenberg et al.[6]. In their Review, they argue for the integration of multi-morbidity science into the very fabric of medical research and education, as well as the restructuring of healthcare services around disease clusters – beyond the small number of currently well-known clusters (such as diabetes and related conditions).

But age is not the only driver of multimorbidity; poverty and socioeconomic deprivation are also major contributors. Detailed population-level data may therefore reveal the links between underlying genetics, pathogenic mechanisms and non-biological (e.g., environmental and socioeconomic) risk factors. Using such an approach would help to decipher not only the complexities of disease clusters at the population level but also broader health outcomes. A study by Caggiano and colleagues illustrates the potential of this approach, whereby fine-scale population mapping (leveraging identity-by-descent and other factors) was used to identify disparities in disease risk and healthcare utilization in communities in the Los Angeles region[7]. Most of the population clusters identified showed enrichment for groups historically excluded from health research, which suggests that this approach could inform targeted interventions to help reduce disparities.

For targeted interventions to be effective in the populations that need them most, sustained investment and community engagement are essential. But every community is different, and approaches must be tailored, argue Odedina et al.[8]. Investing in health need not be a risky business for governments. As a starting point, evidence-based 'best buys' from the World Health Organization provide countries with a menu of cost-effective health interventions for maximizing return (for example, in terms of deaths avoided or healthy life-years gained) with minimal financial investment, but Prabhakaran and colleagues note that their adoption is hampered by siloed approaches and lack of engagement between health sectors and non-health sectors[9]. Strategies that deliver co-benefits across sectors or disciplines are likely to generate the best returns – for example, interventions that target disease clusters instead of individual conditions[6], or interventions that reduce greenhouse gas emissions while also improving health[10].

Transformative health research, the kind that informs policy and drives implementation and impact, cannot happen without

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collaboration — across scientific and clinical specialties, across health and non-health sectors, and across countries and continents. *Nature Medicine* and our authors and readers span these intersections. As editors, we look forward to championing disruptive multidisciplinary research that provides innovative solutions to support healthy global populations, leaving no one behind on the path to achieving the SDGs by 2030.

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