

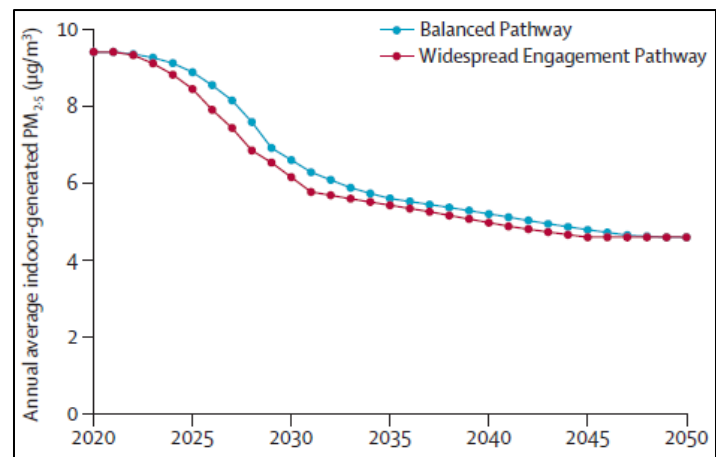
Returning to net zero as a major public health priority: Learning the lessons of the COVID-19 pandemic

IN BRIEF

The COVID-19 pandemic required health responses beyond the normal functioning of cities. Achieving net zero emissions also requires significant action on city and national scales which can also be justified by health impacts. Given these potential impacts, modelling pathways to net-zero emissions could benefit from accounting for learnings from the pandemic. Seven opportunities have been highlighted to build a positive legacy from COVID-19 [1]. In addition, multi-sectorial modelling has assessed pathways to net zero emissions in electricity supply, transport, housing, food and diet [2] using life tables.

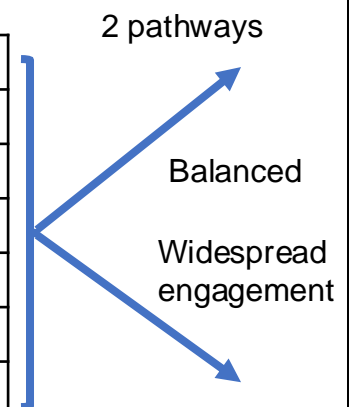
Seven opportunities from COVID-19 [1]

1. Promote active travel, decarbonise transport
2. Different modes of working
3. Health as motivator to accelerate progress
4. Housing improvement (particularly low-income)
5. Improving resilience of food infrastructure
6. Improving local environments for health
7. Strengthening of public health services



Future pathway assessment [2]

4 sectors	6 modelled actions	Associated health impacts
Electric supply	Switch to low GHG generation	Lower ambient PM2.5
Transport	Switch to low GHG transport	Lower ambient PM2.5
	Additional active travel (walk, cycle)	Increase in physical activity
Housing	Switch to low GHG home energy	Lower indoor PM2.5
	Improved home energy efficiency	Lower indoor PM2.5, radon
Diet	Reduced red meat consumption	Dietary improvement



[1] Milner J, Davies M, Haines A, Huxley R, Michie S, Robertson L, Siri J, Wilkinson P. Emerging from COVID-19: lessons for action on climate change and health in cities. *Journal of Urban Health*. 2021;98:433-7.

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[2] Milner J, Turner G, Ibbetson A, Colombo PE, Green R, Dangour AD, Haines A, Wilkinson P. Impact on mortality of pathways to net zero greenhouse gas emissions in England and Wales: a multisectoral modelling study. *The Lancet Planetary Health*. 2023;7:e128-36. [https://doi.org/10.1016/S2542-5196\(22\)00310-2](https://doi.org/10.1016/S2542-5196(22)00310-2)

COVID-19 provided lessons on communicating and implementing large scale action at pace, with rapid improvements in air quality. These changes were better implemented pro-actively not reactively [1].

Modelling individual actions within a Balanced Pathway has indicated 2 million life-years (by 2050) and 11 million life-years (by 2100) could be gained through health benefits of similarly rapid UK climate policy action.

IMPLICATIONS

- **Modelling 6 individual net zero actions (see table) in terms of pollutant reductions, gives their relative contributions to positive health, including any overlaps.**
- **Action 4 on home energy efficiency was deemed to have greatest impact on health, justifying rapid implementation.**
- **Implementation can only be achieved through public buy-in. Hence health (COVID-19 Opportunity 3) and housing improvement (Opportunity 4) should be provided as motivators.**

	Cumulative life-years gained 2021-50 (95% CI)	
	Balanced Pathway	Widespread Engagement Pathway
Action 1: low greenhouse gas emission electricity generation*	46 055 (33 528-60 118)	53 026 (38 676-69 180)
Action 2: low greenhouse gas emission fuels for transport*	29 597 (21 452-38 799)	54 628 (39 639-71 547)
Action 3: low greenhouse gas emission fuels for home energy*	657 134 (482 252-849 786)	780 923 (573 810-1 007 516)
All actions affecting ambient PM _{2.5} * (actions 1-3)	734 160 (539 606-947 907)	891 345 (656 521-1 147 336)
Action 4: increased home energy efficiency†	835 882 (634 216-1 048 617)	909 426 (691 904-1 139 249)
Action 5: increased active travel‡	124 609 (84 696-171 397)	286 595 (195 989- 391 528)
Action 6: reduced red meat consumption and increased plant-based replacements§	412 452 (331 701-487 561)	489 015 (394 324-577 208)
All actions (actions 1-6)	2 054 121 (1 677 469-2 464 385)	2 499 476 (2 066 773-2 974 879)

Local and National Policy Makers

COVID-19 demonstrated that rapid policy action is possible, if health benefits can be demonstrated to the public. Since the aforementioned COVID-19 opportunities are similar in scope to Net Zero actions, they should also be expressed in the same health benefit terms, to bring about action.

Researchers

Modelling can generate scientific analysis evidencing tangible health benefits from pathways to Net Zero. COVID-19 demonstrated the implementation of such pathways given public buy-in of the benefits. Hence net zero benefits should also be conveyed in terms of life-years gained.

[1] Milner J, Davies M, Haines A, Huxley R, Michie S, Robertson L, Siri J, Wilkinson P. Emerging from COVID-19: lessons for action on climate change and health in cities. *Journal of Urban Health*. 2021;98:433-7.

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