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Cite this as: *BMJ* 2020;370:m3691
http://dx.doi.org/10.1136/bmj.m3691
Published: 25 September 2020

Strengthening the UK primary care response to covid-19

More emphasis on primary care in the management of covid-19 would improve outcomes for patients argue **Sophie Park and colleagues**

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Health services across the world made rapid adjustments to the direct and indirect consequences of covid-19 with varying success.[1] The World Health Organization's initial recommendations were based on system adaptations in China, focusing predominantly on secondary care and public health.[2 3] Primary care received less policy attention both globally and in the UK.

Hospitals were major centres of transmission, with mortality at 40% among those receiving critical care[4] and many patients dying alone. With cases again increasing, there is an urgent need for strategies to support management of patients at home, reduce unnecessary admissions, and optimise the use of health service resources.

Effect on UK primary care

Rapid changes in response to covid-19 had profound effects on delivery of primary care in the UK. For example, telephone, email, and video consultations increased substantially.[5] This allowed continuity of care but meant that only selected patients received face-to-face consultations, such as those for whom physical examination was expected to significantly change management and the potential benefit outweighed the risks.

Patients with symptoms of covid-19 were redirected to NHS 111 call centres to access testing. Although use of NHS 111 shifted the immediate burden of diagnosing and managing patients with covid-19, it also undermined the ability of general practice to provide continuing and comprehensive care. Call centre staff do not have full access to patient records and so have limited information about the patients' coexisting conditions and home situation. As 111 staff focused on acute covid-19 symptoms, patients were often denied the opportunity to discuss long term care options for covid-19 and other serious conditions with a familiar healthcare professional.

Many patients in care homes are looked after by GPs. The shift to remote working resulted in inconsistent support for care homes, which was compounded by inadequate personal protective equipment and disorganised testing of staff and residents. The government support package was published late (15 May 2020),[6] resulting in missed opportunities to prevent infection in residents and staff.

Current challenges

These initial changes have now become normalised. Although patients with severe symptoms were still admitted to hospitals, during the summer, about 30% of registered covid-19 deaths occurred outside hospitals.[7] For example, data from the Office for National Statistics (ONS) for the week ending 3 July 2020 shows that deaths in private homes were above the five year average. Primary care is therefore faced with new challenges.

Covid-19 is moving into a long term pattern with repeated infection peaks and local outbreaks. People who survive the initial covid-19 infection can experience severe mental and physical sequelae. Lockdown and the resulting economic recession may also exacerbate chronic mental, social, and physical health problems (fig 1). General practices must therefore plan, risk assess, and provide care for both covid-19 and the accumulating backlogs of other acute and chronic disease. This requires monitoring systems for covid-19 and non-covid morbidity with surge capacity for the flu season and local outbreaks.

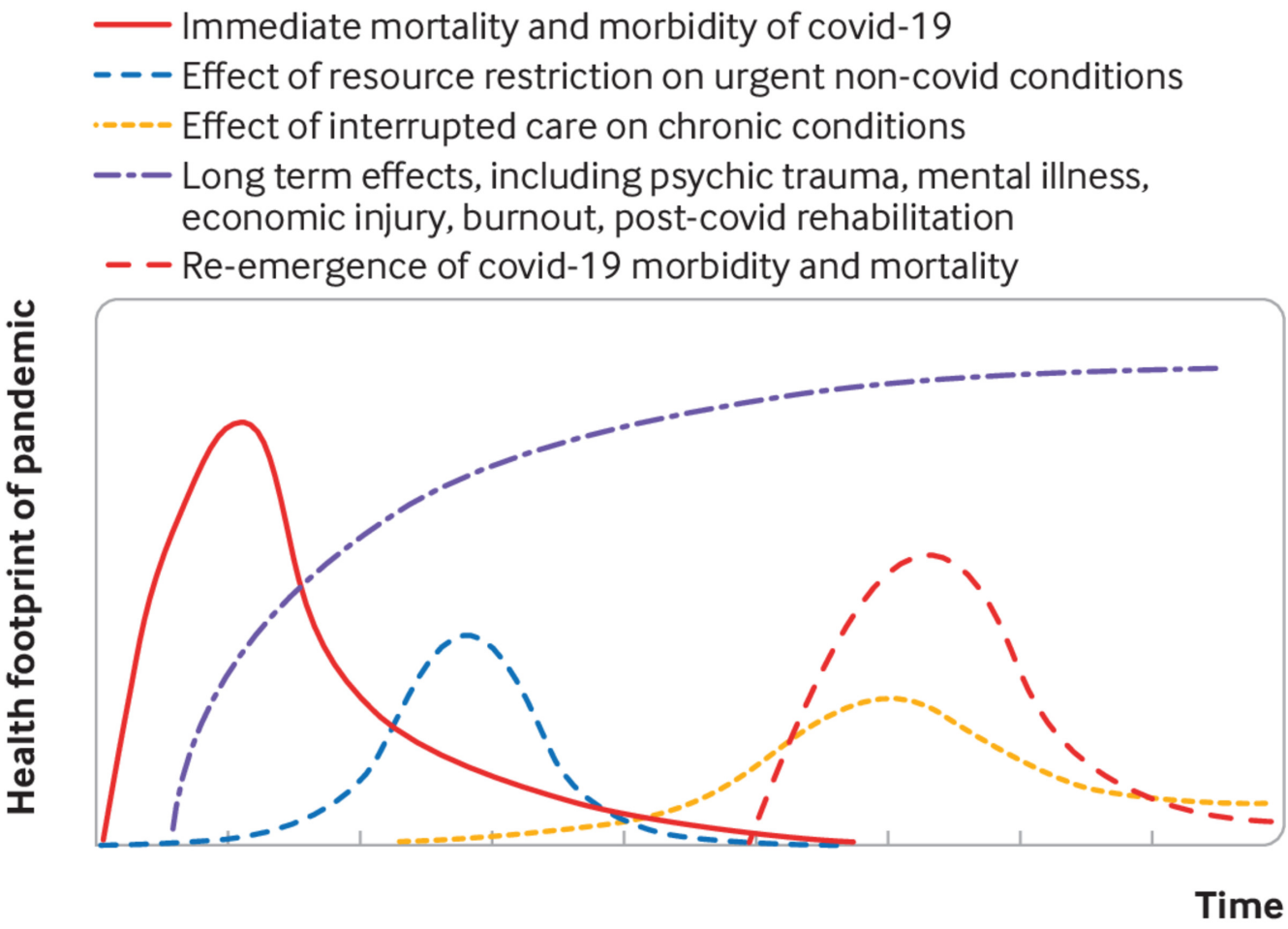

Fig 1 | Illustration of four types of effect of covid-19 (adapted from Victor Tseng, Emory University, with permission). Each effect peaks at different times, potentially repeating with subsequent surges. Peaks may vary in timing and magnitude by location

In addition, ensuring good palliative care is important for patients who will not benefit from intense medical intervention and requires an appreciation of the process and rituals of dying,[8] alongside practical guidance, such as discussion of power of attorney. It benefits from GPs' knowledge of patients and carers, regular contact, planning, and coordination between patients, primary, and palliative care services.

The gap between public health and primary care has also been exposed by covid-19. Public health is integrated with local government and is largely disconnected from primary care, resulting, for example, in poor health protection in many residential care homes. The challenge is compounded by the initial marginalisation of public health in testing and contact tracing, which has been outsourced to private companies rather than strengthening existing services.[9] This has undermined a coherent response. The formation of the National Institute for Health Protection will bring together Public Health England, the NHS test and trace service, and the Joint Biosecurity Centre, but the links with primary care and the plans for the broader preventive activities of Public Health England are unclear.[10]

Primary care is therefore facing interlinked problems: inadequate notification of covid-19 test results; delayed investigation or admission of sick patients; inadequate discharge planning and communication; inappropriate admission of those who are unlikely to benefit; and the need for enhanced, complex care of chronically ill people in community settings. The extent to which these challenges will persist after the initial wave of infections remains to be seen.

Primary care is inadequately represented at the strategic level. For example, there are no practising GPs on any Scientific Advisory Group for Emergencies (SAGE) committee. Instead, communication has been predominantly downwards from (mostly national rather than local) public health and specialist care. Another example is the initial compilation of lists of "clinically extremely vulnerable" patients for shielding, which was largely derived from hospital records as these were wrongly assumed to be the most accurate source of clinical information. Lists were then circulated to GPs for checking with little notice over the Easter weekend. Our experience suggests that many patients were initially incorrectly classified.

Potential responses

UK general practice is embedding new models of care to help patients with an increasingly complex burden of ill health, alongside rapid changes in service delivery. The risk is that these ways of working become (by default) accepted and fixed without any strategic thought.

GPs must be part of a coherent strategy that prepares the NHS for covid-19 outbreaks, concomitant epidemics, and delayed

management of other conditions. Prompt communication between primary care, public health, and secondary care is essential. Some public health expertise has been integrated into clinical commissioning groups and their primary care networks, but this should be extended to testing and contact tracing. Resilient supply chains for essential equipment, including personal protection, technologies for remote monitoring, and opportunities for bedside or same day testing are imperative.

Robust strategies are needed to optimise the management of patients with covid-19 at home, including end-of-life support for those who are not candidates for intensive care. Joint plans can be developed for more humane care with family involvement.

Hospital at-home services and community nursing should be scaled up for both covid-19 and non-covid conditions to reduce pressure on hospital beds. In care homes, staff have already adapted processes to improve advanced care planning while minimising unnecessary physical contact. This includes video ward rounds, electronic stethoscopes, pulse oximeters, and allowing staff to confirm death.

To deal with rising demand, there will be a transition from nearly 100% virtual consultations to an appropriate mix of virtual and face-to-face consultations. While telemedicine has proved invaluable, it has limitations; touch is an important aspect of patient assessment and care,[11] and patient suitability for remote consulting varies.[12] Care should also be taken to ensure that efforts to promote the use of online tools to access key information do not undermine equity of access and continuity. People recovering from covid-19 also need access to rehabilitation, monitoring of respiratory and other affected systems, and mental health support.

Primary care will also have to deliver massive expansion of the flu prevention programme as well as future covid-19 vaccinations. The training of new healthcare professionals must be adapted to this altered service environment. This requires patient involvement and systematic long term evaluation of impact.

Priorities for research

We urgently need greater investment in primary care research. The pandemic provides opportunities to evaluate early clinical interventions and the rapid introduction of potentially long term change in services and providers. The safety and effectiveness of near patient technologies in the community requires rigorous evaluation. These include wearable sensors to monitor vital signs and home testing for D dimer[13] or other predictors of increased hospital mortality.

There is also potential to trial approaches from other countries. For example, community health workers, when integrated with primary care, could undertake a range of assessment, health promotion, and monitoring roles in the UK.[14] Community health workers were important in controlling Ebola outbreaks in west Africa and the Democratic Republic of Congo, and may also have roles in enhancing health education and reducing covid related stigma.[15]

Studies using large primary care databases linked to hospital data give the best prospect of understanding prognostic and risk factors for acquiring the infection. They can also detect potential candidates for drug trials and, conversely, hazardous drugs. The OpenSAFELY platform linking (anonymised) primary care electronic health records to data on covid-19 deaths in hospital is enabling identification of risk factors for death in a representative population of over 17 million patients.[16] If GPs are routinely notified of all patients with covid-19, it would also be possible to assess risk factors for infection and the long term outcomes.

Trials of early intervention in covid-19 are needed to prevent deterioration and hospital admission. Some treatments, such as antivirals and monoclonal antibodies, are more likely to be effective in early disease.[17] Current hospital trials may therefore give an unrepresentative view of their potential effect on outcomes. Only five of the 33 WHO registered covid-19 studies relate to primary care, and there is currently only one UK registered study of primary care covid-19 treatment in the UK (the PRINCIPLE study).[18] It is a well designed, adaptive trial that assesses the effectiveness of azithromycin in high risk patients. GPs, if integrated into the covid-19 response and informed of patients' test results, could increase recruitment to these trials.

Joined-up care

Individual and organisational efforts to respond to covid-19 have been rapid and extraordinary. They have, however, lacked a connected, coherent strategy. Primary care offers opportunities for early intervention to reduce the risk of adverse outcomes, continuity of care, and enhanced whole system resilience in response to a range of health challenges arising from the evolving covid-19 pandemic. Effective technical and human responses require direct involvement of primary care in planning and implementing service changes and appropriate training, underpinned by robust research evidence.

Key messages

- The potential contribution of primary care has been largely overlooked in the UK's response to covid-19
- Active engagement of primary care will be essential to improve care of vulnerable patients in the community; reduce demands on hospital services; support rehabilitation of recovering patients; improve palliative care; and sustain non-covid care
- Well designed trials of early treatment of covid-19 in primary care should be a priority for research funding
- Additional primary care research would strengthen the capacity of primary care to deal with the backlog of non-covid morbidity and the physical and mental health sequelae of the pandemic

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Competing interests: We have read and understood BMJ policy on declaration of interests and have no interests to declare.

Provenance and peer review: Not commissioned; externally peer reviewed.

1 Harris M, Bhatti Y, Buckley J, Sharma D. Fast and frugal innovations in response to the COVID-19 pandemic. *Nat Med* 2020;26:814-7. doi: 10.1038/s41591-020-0889-1 pmid: 32393803

2 Dickens BL, Koo JR, Wilder-Smith A, Cook AR. Institutional, not home-based, isolation could contain the COVID-19 outbreak. *Lancet* 2020;395:1541-2. doi: 10.1016/S0140-6736(20)31016-3 pmid: 32423581

3 Mission J. *Report of the WHO-China joint mission on coronavirus disease 2019 (COVID-19).* World Health Organisation, 2020.

4 ICNARC. Intensive Care National Audit & Research Centre, 2020.

5 Greenhalgh T. Video consultations: a guide for practice. 2020. http://BJGPlife.com

6 Whately H. Coronavirus (COVID-19): support for care homes. Department of Health and Social Care, 2020. https://www.gov.uk/government/publications/coronavirus-covid-19-support-for-care-homes.

7 ONS. Coronavirus (COVID-19): Latest data and analysis on coronavirus (COVID-19) in the UK and its effect on the economy and society. 2020. https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases.

8 Heath I. *Matters of life and death: key writings*. Radcliffe Publishing, 2008.

9 Roderick P, Macfarlane A, Pollock AM. Getting back on track: control of covid-19 outbreaks in the community. *BMJ* 2020;369:m2484. doi: 10.1136/bmj.m2484 pmid: 32586845

10 Iacobucci G. Public Health England is axed in favour of new health protection agency. *BMJ* 2020;370:m3257. doi: 10.1136/bmj.m3257 pmid: 32816824

11 Kelly MA, Nixon L, McClurg C, Scherpbier A, King N, Dornan T. Experience of touch in healthcare: a meta-ethnography across the healthcare professions. *Qual Health Res* 2018;28:200-12. doi: 10.1177/1049732317707726 pmid: 29235944

12 Wallace P, Haines A, Harrison R, etalVirtual Outreach Project Group. Joint teleconsultations (virtual outreach) versus standard outpatient appointments for patients referred by their general practitioner for a specialist opinion: a randomised trail. *Lancet* 2002;359:1961-8. doi: 10.1016/S0140-6736(02)08828-1 pmid: 12076550

13 Zhang L, Yan X, Fan Q, etal. D-dimer levels on admission to predict in-hospital mortality in patients with Covid-19. *J Thromb Haemost* 2020;18:1324-9. doi: 10.1111/jth.14859 pmid: 32306492

14 Haines A, de Barros EF, Berlin A, Heymann DL, Harris MJ. National UK programme of community health workers for COVID-19 response. *Lancet* 2020;395:1173-5. doi: 10.1016/S0140-6736(20)30735-2 pmid: 32220277

15 Bhamik S, Moola S, Tyagi J, Nambiar D, Kakoti M. *Frontline health workers in COVID-19 prevention and control: rapid evidence synthesis*. George Institute for Global Health, 2020.https://cdn.georgeinstitute.org/sites/default/files/documents/frontline-health-workers-covid-19-res_0.pdf.

16 Williamson E, Walker AJ, Bhaskaran K, et al. OpenSAFELY: factors associated with COVID-19-related hospital death in the linked electronic health records of 17 million adult NHS patients. medRxiv 2020. [Preprint.] doi: 10.1101/2020.05.06.20092999

17 Marovich M, Mascola JR, Cohen MS. Monoclonal antibodies for prevention and treatment of covid-19. *JAMA* 2020;324:131-2. doi: 10.1001/jama.2020.10245 pmid: 32539093

18 Butler C, Ogburn E, Allen J, Bongard E, Swayze H, Tonner S. A trial evaluating treatments for suspected coronavirus infection in people aged 50 years and above with pre-existing conditions and those aged 65 years and above (PRINCIPLE). ISRCTN registry, 2020. https://clinicaltrials.gov/ct2/show/NCT04303507.