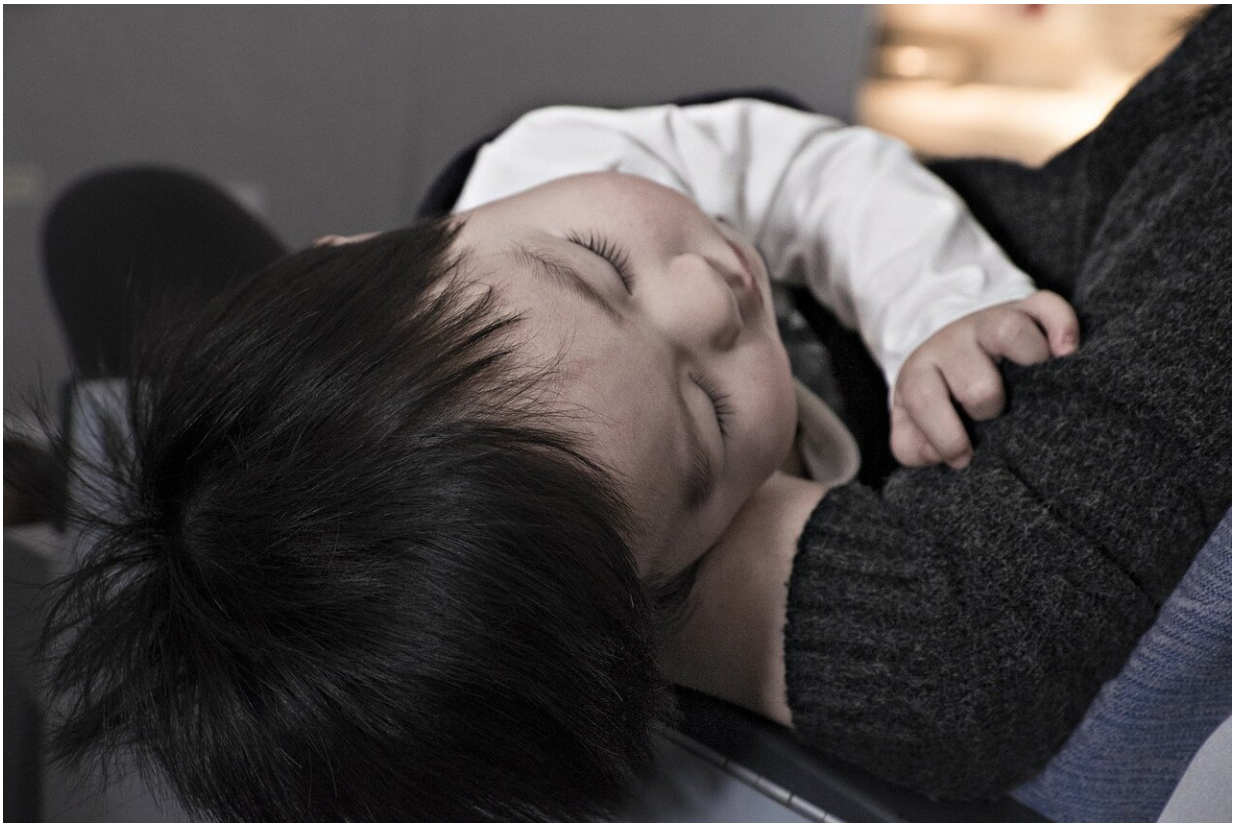


# Improving elective care planning could extend life for thousands of patients

December 11 2020, by Dr Sabine L. Van Elstrand

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Optimizing hospital scheduling for treatment of tumors, diseases of the digestive system and injuries & poisoning will result in notable gains of 50,750—5,891,608 years of life in England, according to the latest

report from the Imperial College London COVID-19 Response Team in collaboration with the Imperial College Business School, The Health Foundation and Umeå University.

## **Hospital scheduling tool**

The team developed a [tool](#) which models optimal scheduling of the admission of patients needing elective care (planned care) to hospital, and allocates general and critical care beds to planned and emergency patients during the [pandemic](#).

Countries have deployed a wide range of policies to prioritize patients in need of hospital care to address unprecedented surges in demand during the course of the pandemic. Those policies include canceling planned hospital care for non-urgent cases, and rationing critical care.

The model presented in this report focusses on years of life lost and healthcare costs under different scenarios, taking into account elective & emergency admissions, and admission to critical care. The model focuses on life year lost, as looking only at the number of deaths is misleading because it does not tell us at what age these deaths occur.

The main objective of the tool is to identify for each week what the optimal allocation of patients is, how many patients of each group to admit to hospital, and how to best allocate in-hospital transfers of patients. The model accounts for the possibility of capacity shortages, which, for instance, have affected patients' welfare negatively during the first peak of the COVID19 outbreak. This will allow the user of the tool to optimally schedule hospitalizations and allocate care during the pandemic.

## **England**

In the [new report](#), this model is applied to NHS data and shows that optimized scheduling and allocation of care across all disease areas enables an extra gain of 50,750—5,891,608 life years, when compared to [government policies](#).

Notable gains in years of life gained are seen for optimizing hospital scheduling for tumors, diseases of the digestive system and injuries & poisoning. The significant health gains of the optimized schedule do not come at an increased cost in most scenarios. In addition, the analysis analysis show that the benefits increase in proportion to the severity of the scenarios, reaching 8.2%-76% years of life gained in the worst-case settings. The researchers explain that this suggests that optimal scheduling of elective care is increasingly beneficial as resources become scarcer.

## **Low-income settings**

Despite the model being data-driven, it can also be run in low-income settings where resources are limited and historical data on hospital activity is scarce. Where data is not available, the researchers highlight findings which outline key prioritization principles that save lives and can be embedded in national policies in low-income settings, where efficient use of resources is key.

The work is presented in the latest report from the WHO Collaborating Centre for Infectious Disease Modelling within the MRC Centre for Global Infectious Disease Analysis, Jameel Institute (J-IDEA), Imperial College London.

Since the emergence of the new coronavirus (COVID-19) in December 2019, the Imperial College COVID-19 Response Team has adopted a policy of immediately sharing research findings on the developing pandemic.

Dr. Josh D'Aeth of Imperial College London, said, "The COVID-19 pandemic has placed great strain on the NHS. Much research has focused on estimating the burden of COVID-19 patients on the NHS. However, less focus has been placed on the effect of the pandemic on other non-COVID care provided. Many patients have had their care delayed in order to accommodate COVID-19 cases. In our report we investigate how the NHS can optimally treat this growing backlog of elective patients."

Dr. Marisa Miraldo of Imperial College Business School, said, "A critical challenge to health systems during the pandemic has been managing scarce hospital capacity, in the face of unexpected surges in demand for hospital care brought about by the pandemic. These concerns have shaped governments responses to the pandemic including lockdown policies but also prioritization of hospital care. Several countries canceled planned procedures and rationed access to life saving critical care, leading to a backlog of non-COVID-19 patients in need of care. The health may then deteriorate over the course of the pandemic. The challenge remains on how to make the best use of hospital capacity, to minimize the detrimental impact the pandemic has on all patients, including patients suffering from other diseases beyond COVID-19, such as cancer. We developed a data driven model to allocate existing [hospital](#) capacity to patients in need of care that addresses that challenge. We show that when compared to policies such as those implemented in England during the pandemic, our proposed solution, if implemented, would save lives, and under some scenarios even lead to cost savings."

Dr. Stefano Moret of the Imperial College Business School, said, "Scheduling planned procedures well is increasingly beneficial as resources become scarcer. In fact, our analysis shows that the benefits of our model increase in proportion to the severity of the considered scenarios, reaching 8.2%-76% years of life gained in the worst-case settings"

Kathryn Dreyer of the Health Foundation, said, "With COVID cases in the UK again on the rise, the tool has the potential to play an important role in helping the NHS make the best use of its capacity over the coming months. Such innovative approaches could support the health service in managing the backlog of patient need which has built up over the course of the pandemic, while it also works to care for those with COVID-19.

"However, alongside this, the NHS must also have the extra resources it requires. The UK government's recent Spending Review promised additional funding for the NHS, but this does not currently match the scale of the challenge. The Health Foundation has calculated that an additional £6bn is required in England to deliver care while maintaining the social distancing and heightened infection control needed to protect patients and staff."

**More information:** Optimal scheduling rules for elective care to minimize years of life lost during the SARS-CoV-2 pandemic: an application to England. [www.imperial.ac.uk/mrc-global-.../hospital-scheduling/](http://www.imperial.ac.uk/mrc-global-.../hospital-scheduling/)

Provided by Imperial College London

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