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Letter to the Editor

The role of epidemiologists in SARS-CoV-2 and COVID-19 research



The International Network for Epidemiology in Policy (INEP) is a global consortium of 24 epidemiological societies (<https://www.epidemiologyinpolicy.org/>). INEP promotes integrity and equity in the production and translation of epidemiological research into health policy and practice. INEP wishes to highlight the role of epidemiologists in the containment and prevention of SARS-CoV-2/COVID-19.

Epidemiologists are trained to undertake high-quality, ethical, evidence-based research into questions about health policy and practice. Policy makers use epidemiological research to formulate and evaluate policies promoting the health of communities, regions, and countries. Epidemiologists can design and conduct (1) population-level studies to investigate the short- and long-term health and social consequences of SARS-CoV-2/COVID-19; (2) intervention and observational studies to examine the efficacy and effectiveness of community-level and non-pharmaceutical strategies to prevent virus transmission and illness; (3) trials to investigate the effectiveness of vaccine candidates in real-world settings as opposed to ideal clinical settings; (4) health evaluation studies to assess public health and political responses to the pandemic, including lockdown measures; and (5) observational studies to explore disparities in COVID-19 morbidity and mortality across vulnerable subgroups of the population,¹ including seniors, racialized communities, persons with mental health or substance abuse challenges, homeless people, and migrant workers, among others.

The latter part of 2020 presents new opportunities for epidemiologists because the global community is at a crucial juncture in pandemic policy formulation. Much of the world has embraced 'living with COVID' and many governments have scaled back their lockdowns. However, public health officials remain concerned about the possibility of a 'second wave'. Further, rising death counts may have plateaued in many high-income nations yet they continue to challenge low- and middle-income countries. INEP calls upon epidemiologists to conduct rigorous and innovative research to inform policies that balance infection control with health, social, and economic imperatives.

INEP underlines the need for rigor in epidemiological studies to counteract pandemic-related research waste.² This waste has led to the retraction of an unusually high number of published scientific articles³ and helped to erode the public's trust in health research and policy. For example, polls in the United States and United Kingdom suggest 25% to 30% of adults may refuse a vaccination for SARS-CoV-2 over concerns of rushed development and inadequate testing.^{4,5}

Research waste has contributed to misinformation and misunderstandings about SARS-CoV-2/COVID-19. Epidemiologists should use robust evidence to debunk falsehoods about the pandemic and serve as non-partisan voices of reason against hysteria and sensationalism.

Immediate priorities for epidemiologists include investigating evidence-based alternatives to population-wide lockdowns ('living with COVID'), comparing disease modeling predictions to actual events (e.g. predicted vs actual deaths over a certain time period), and investigating disparities in COVID-19 morbidity and mortality among vulnerable subgroups of the population.

Intermediate priorities include investigating the short- and long-term physical/mental health and social consequences of SARS-CoV-2/COVID-19, assessing public health and political responses to the pandemic (e.g. examining whether the benefits of population-level lockdowns exceeded the adverse effects of these policies), investigating the efficacy and effectiveness of community-level and non-pharmaceutical strategies to prevent virus transmission and illness, exploring the effectiveness of vaccine candidates in real-world settings as opposed to ideal clinical settings, and establishing a global COVID-19 case registry that respects privacy guidelines.

Long-term priorities include identifying key differences in case under-reporting and case ascertainment between countries, estimating the total number of excess deaths during the pandemic period not caused by COVID-19, examining the extent to which excess deaths resulted from medical conditions that went untreated as a result of pandemic-related policies, evaluating public health messaging protocols and assessing which ones were most effective in educating and incentivizing the general public to take preventive action against SARS-CoV-2/COVID-19, and identifying the means by which jurisdictions handled case identification, case isolation, quarantine of case contacts, and enforcement of quarantine.

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