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ABSTRACT

BOOK

Infectious Diseases Session

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The Impact of COVID-19 Non-Pharmaceutical Interventions on Notifiable Infectious Diseases in Poland: A Comprehensive Analysis from 2014–2022

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Introduction

The COVID-19 pandemic prompted widespread non-pharmaceutical interventions (NPIs) like lockdowns and masking in Poland (2020–2022), significantly altering pathogen circulation. This created a unique opportunity to study the extended effects of these measures on other communicable diseases, moving beyond short-term observations.

Aim of the study

This study aimed to assess how the pandemic and associated NPIs affected the incidence of 17 notifiable infectious diseases in Poland over an extended period, from January 2014 to December 2022.

Materials and methods

Using national surveillance data aggregated monthly, we compared incidence during pandemic years (2020–2022) against pre-pandemic (2014–2018) and baseline (2019) periods. Data were deseasonalized. A negative binomial generalized linear model calculated incidence rate ratios (IRRs) relative to 2019, controlling for confounders. Spearman correlation measured associations between disease incidence, COVID-19 cases, and nine NPIs.

Results

From 2020 to 2022, 13 of 17 diseases showed cumulative declines compared to 2014–2019, including whooping cough (peak reduction IRR 0.11 in 2021 vs. 2019), scarlet fever, chickenpox, and mumps. Invasive *Streptococcus pneumoniae* decreased initially but rebounded in 2022. Conversely, *Clostridioides difficile* incidence increased significantly (2021 IRR 1.84 vs. 2019). Norovirus, HIV, and syphilis surged later, coinciding with NPI relaxation. Higher NPI stringency generally correlated negatively with respiratory pathogens.

Conclusions

Long-term observation confirmed that widespread NPIs suppressed many communicable diseases, particularly respiratory infections, beyond SARS-CoV-2. The rebound of several infections upon NPI relaxation suggests potential shifts in population susceptibility. These findings can inform future public health strategies balancing disease control and societal needs, though further research on long-term dynamics is warranted.

N/A