

## Research methodologies to assess the impact of COVID-19

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### Background:

PHIRI WP5 aims at identifying the research approaches, data uses, pathways, indicators, and new methodologies to assess the impact of COVID-19 on Population Health.

### Methods:

Based on a collaborative work of researchers from 20 European institutions, several literature reviews were planned using automatized strategies to map the research methods analysing the impact of COVID-19 and data pathways: i) a scoping literature search to identify indicators of direct and indirect impact; ii) systematic literature reviews on determinants of severity for short and longterm health outcomes; and iii) a systematic literature review and meta-analysis to determine the effectiveness and impact of tracking COVID-19 patients using digital tools.

### Results:

In November 2020, more than 73,000 papers about COVID-19 were published. About 16,000 (22%) reported data aspects, and approximately half reported both data aspects and methodologies. The most used indicators of direct impact are incidence and prevalence, mortality, severity and sequelae. To explore the etiological and prognostic effects of frailty, multimorbidity and socioeconomic status, the main identified outcomes were: infection, hospitalization, ICU admission, mortality by COVID-19 (etiological); as well as ICU admission, hospitalization, survival, functional decline, quality of life, disability, mental health difficulties and work absence (prognostic). The search generated 10,139 records. The initial literature search about mobile applications and electronic devices for tracking of COVID-19 patients yielded 2500 records.

### Conclusions:

The use of machine learning tools to synthesize the research about methods and data pathways on COVID-19 impact is feasible, as the amount of published evidence is very large. The vast amount of available literature on COVID-19 requires specific methods of literature search and synthesis, and an integrated effort of an extensive network of researchers.