**Identification of studies via databases and registers**

**Identification of studies via other methods**

Records removed *before screening*:

Duplicate records removed

(n = 7,051)

Records published before 2020 (n = 16)

Records identified from:

Personal communication (n = 38)

Records identified from:

Pubmed (n = 16,159)

ScienceDirect (n = 3,613)

Google Scholar (n = 600)

References from meta-analyses (n = 87)

**Identification**

Records excluded

Not about (excess) mortality, vaccine, or Covid-19 (n = 12,319)

Duplicates (n = 44)

Retracted (n = 1)

Records screened

(n = 13,392)

Reports not retrieved (n = 0)

Reports sought for retrieval

Personal communication (n = 38)

Reports not retrieved (n = 8)

Reports sought for retrieval

(n = 1,028)

**Screening**

Reports excluded:

Animal study (n = 2)

No statistical analysis (n = 111)

No vaccination data included (n= 98)

Not about adverse events or mortality (n = 119)

Not about Covid-19 (n = 5)

Reports excluded:

No statistical analysis (n = 4)

No vaccination data included (n= 5)

Not about adverse events or mortality (n = 2)

Not about Covid-19 (n = 1)

Duplicate (n=2)

Reports assessed for eligibility

(n = 1,020)

Reports assessed for eligibility

(n = 38)

Reports of included studies

(n = 685)

Total reports of included studies

(n = 709)

**Included**

Reports of included studies

(n = 24)

**Defining the landscape of studies included by primary outcome assessed, study design, and definitions wielded for mortality and being vaccinated**

Total reports of included studies

(n = 709)

Includes studies in methodological review

(n = 83)

Inclusion for methodological review (n = 62)

Inclusion for methodological review (n = 20)

Inclusion for methodological review (n = 1)

**Definitions clear**

**Study design**

Meta-analysis / Systematic review (n = 2)

Randomized Controlled Trial (n = 1)

Prospective observational cohort (n = 4)

Retrospective observational cohort (n =16)

Cross-sectional (n = 8)

Case-control / matched (n =1)

Vaccination (n = 2)

Infection (n = 4)

Mortality (n = 6)

Vaccination (n = 43)

Infection (n = 73)

Mortality (n = 101)

Mortality (n = 176)

Adverse events (n = 32)

Unclear or other (n = 501)

Meta-analysis / Systematic review (n = 3)

Randomized Controlled Trial (n = 1)

Prospective observational cohort (n = 10)

Retrospective observational cohort (n =140)

Cross-sectional (n = 2)

Case-control / matched (n =12)

Modelling study (n = 5)

Unclear (n = 3)

Vaccination (n = 138)

Infection (n = 253)

Mortality (n = 201)

Meta-analysis / Systematic review (n = 48)

Rapid review (n = 1)

Randomized Controlled Trial (n = 8)

Prospective observational cohort (n = 47)

Retrospective observational cohort (n = 267)

Case-series (n = 2)

Cross-sectional (n = 20)

Case-control / matched (n = 28)

Propensity score-matched (n = 4)

Test-negative design (n = 17)

Modelling study (n = 53)

Unclear (n = 6)

**Inclusion (RoB)**

**Primary outcome**