Who is this summary for?

People making decisions concerning strategies for implementing PHSM during public health emergencies like the COVID-19 pandemic.

This summary includes:

- Key findings from an overview of systematic reviews
- Implementation considerations

This summary does not include:

- Recommendations
- Detailed descriptions of interventions and their implementation

What is an overview of systematic reviews?

Overviews of reviews use explicit and systematic methods to search for and identify multiple systematic reviews on related research questions in the same topic area to extract and analyze their results across important outcomes.

This summary is based on the following overview of systematic reviews:

The effect of public health & social measures (PHSM) implemented during the COVID-19 pandemic: an overview of systematic reviews

**PHSM** refer to non-pharmaceutical interventions implemented by individuals, communities & governments to reduce the risk & scale of transmission of infectious diseases by reducing transmission-relevant exposures &/or making them safer.

**Research aim:** To systematically review the evidence on the effectiveness & unintended health & socio-economic consequences of PHSM on COVID-19.

**Policy aim:** To promote equitable and evidence-informed policy decisions on PHSM implementation for future health emergencies.

**How many reviews were included in the overview?**

- 94 included reviews
- 18% Systematic reviews
- 82% Rapid reviews

**Included reviews were published between**

- December 2019 - September 2022

**What was the quality of included reviews?**

- **AMSTAR** is an instrument used in assessing the methodological quality of systematic reviews

**Top issues undermining the quality of the included reviews:**
- Absence of a priori protocol
- Inadequate search strategy that lacked comprehensiveness
- Failure to include a list of excluded studies with the justifications for exclusion

**What types of PHSM categories were identified?**

<table>
<thead>
<tr>
<th>PHSM category</th>
<th>Number of reviews</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combination of interventions</td>
<td>64</td>
</tr>
<tr>
<td>Active case finding &amp; contact identification measures</td>
<td>25</td>
</tr>
<tr>
<td>Social measures</td>
<td>18</td>
</tr>
<tr>
<td>Personal protective measures</td>
<td>18</td>
</tr>
<tr>
<td>International travel &amp; trade measures</td>
<td>6</td>
</tr>
<tr>
<td>Environmental measures</td>
<td>3</td>
</tr>
</tbody>
</table>

**What types of outcomes were identified?**

<table>
<thead>
<tr>
<th>Outcome category</th>
<th>Number of reviews</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-COVID-19 related health outcomes</td>
<td>58</td>
</tr>
<tr>
<td>COVID-19 epidemiological outcomes</td>
<td>40</td>
</tr>
<tr>
<td>Socio-economic outcomes</td>
<td>5</td>
</tr>
<tr>
<td>Other outcomes</td>
<td>1</td>
</tr>
</tbody>
</table>

Results based on an overview of systematic reviews conducted by the Centre for Epidemic Interventions Research at the Norwegian Institute of Public Health, Center for Systematic Reviews on Health Policy & Systems Research & Knowledge to Policy Center at the American University of Beirut, Epistemonikos Foundation & the World Health Organization. Full article: https://doi.org/10.1002/cesm.12055
Active case finding & contact identification measures refer to essential strategies that (i) identify, (ii) track & (iii) manage potential & confirmed cases of diseases (e.g. case finding, contact tracing, testing, isolation & quarantine).

**Reported benefits:**
- **Contact tracing:**
  - Reduced number of infections (3 reviews)
  - Reduced spread of the disease (3 reviews)
  - Reduced number of deaths from COVID-19 (3 reviews)
- **Isolation:**
  - Reduced number of infections (5 reviews)
  - Reduced spread of the disease (5 reviews)
  - Reduced number of deaths from COVID-19 (5 reviews)
- **Quarantine:**
  - Reduced number of infections (4 reviews)
  - Reduced spread of the disease (4 reviews)
  - Reduced number of deaths from COVID-19 (4 reviews)
- **Testing:**
  - Reduced number of infections (2 reviews)
  - Reduced spread of the disease (2 reviews)
  - Reduced number of deaths from COVID-19 (2 reviews)
  - Reduced COVID-19 related hospitalizations (4 reviews)

**Reported negative consequences:**
- **Quarantine:**
  - Decreased mental health & well-being (5 reviews)
  - Disrupted sleeping patterns (4 reviews)
  - Increased alcohol use (2 reviews)
  - Extended work absences (1 review)
- **Isolation:**
  - Decreased mental health & well-being (4 reviews)
  - Increased alcohol use (1 review)

**Effectiveness of PHSM by setting:**
- **Isolation:**
  - Long-term care settings
  - Point of entry
- **Quarantine:**
  - Long-term care settings
- **Testing:**
  - Healthcare facilities
  - Mass gatherings
  - Schools

**Implementation considerations:**
- Early initiation
- Wider coverage (geographical & population)
- Test sensitivity, rate of testing, proportion of population tested & turnaround time
- Level of enforcement
- Adherence to measures
- Combination with other PHSM

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Social measures involve the modification or restriction of (i) social interactions, (ii) services or activities & (iii) movement within & across settings & national borders (e.g. school & business measures, physical distancing).

**Reported benefits:**

Each of the measures, physical distancing, visiting restrictions, school & business closures, & combined social interaction measures:
- Reduced number of infections (8 reviews)
- Reduced spread of the disease (5 reviews)

Stay-at-home orders:
- Reduced spread of the disease (1 review)
- Reduced deaths from COVID-19 (1 review)

Entry regulation measures:
- Reduced probability of facility contamination (1 review)

Visiting restrictions:
- Reduced deaths from COVID-19 (1 review)

Separating infected & non-infected residents or staff:
- Reduced probability of outbreaks (1 review)

**Reported negative consequences:**

Each of the measures, physical distancing, & visiting restrictions:
- Decreased mental health & well-being (8 reviews)

Stay-at-home orders:
- Decreased physical activity & diet quality (1 review)
- Decreased access to emergency healthcare services (1 review)

School & Business Closures:
- Decreased mental health & well-being (3 reviews)
- Decreased physical activity & diet quality (3 reviews)
- Impaired academic achievements & access to social programs (2 reviews)

Extended social distancing measures:
- Increased economic & employment insecurity (2 reviews)

**Effectiveness of PHSM by setting:**

<table>
<thead>
<tr>
<th>Stay-at-home orders</th>
<th>Visiting restrictions</th>
<th>Reducing class sizes &amp; attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communities</td>
<td>Long-term care settings</td>
<td>Schools</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td>?</td>
</tr>
</tbody>
</table>

✓ Effectiveness observed  ❓ Effectiveness uncertain

**Implementation considerations:**

- Early initiation
- Population demographics & density
- Level of community transmission
- Availability of mitigation measures (e.g. subsidies)
- Existence of robust health data infrastructure
- Adherence to measures
- Stringent & extended implementation of measure
- Type of schooling (primary vs secondary)
- Combination with other PHSM

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**Personal protection measures** involve personal protective equipment & personal hygiene behaviors (e.g. mask-wearing, hand hygiene & respiratory etiquette).

### Reported benefits:

**Eye protection:**
- Reduced number of infections (1 review)

**Hand washing:**
- Reduced number of infections (4 reviews)
- Reduced spread of the disease (3 reviews)

**Mask-wearing:**
- Reduced number of infections (8 reviews)
- Reduced spread of the disease (8 reviews)
- Reduced number of deaths from COVID-19 (10 reviews)
- Did not affect voice production (1 review)

**Personal protective equipment:**
- Reduced number of infections (1 review)

**Use of hand sanitizers:**
- Reduced spread of the disease (1 review)

### Reported negative consequences:

**Hand washing:**
- Increased risk of dermatology problems (e.g. hand eczema) (1 review)

**Mask-wearing:**
- Intensified physiological responses (e.g. headaches, increased heart rate, perceived exertion) (1 review)

**Personal protective equipment:**
- Increased risk of dermatology problems (e.g. hand eczema) (1 review)
- Intensified physiological responses (e.g. headaches, increased heart rate, perceived exertion) (1 review)

**Use of hand sanitizers:**
- Increased risk of intoxication due to absorption of disinfectant (1 review)

### Effectiveness of PHSM by setting:

<table>
<thead>
<tr>
<th>Face masks</th>
<th>Hand washing</th>
<th>Personal protective equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>✅ Communities</td>
<td>🟢 Schools</td>
<td>🟢 Long-term care settings</td>
</tr>
</tbody>
</table>

- Effectiveness observed
- Effectiveness uncertain

### Implementation considerations:

- Early initiation
- Appropriate & safe use of mask & hand hygiene
- Community education & engagement on proper use of personal protective equipment
- Proper storage, cleaning or disposal of mask & personal protective equipment
- Availability of mitigation measures (e.g. fit-testing)
- Combination with other PHSM

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**Environmental measures** involve targeting the physical environment through (i) modifications, (ii) re-purposing &/or (iii) appropriately maintaining structures (e.g. ventilation, surface cleaning, physical barriers).

### Reported benefits:

- **Environmental hygiene measures & multicomponent cleaning:**
  - Reduced number of infections (3 reviews)

- **Use of disinfectants:**
  - Reduced spread of the disease (3 reviews)

### Reported negative consequences:

- **Modified ventilation schedules:**
  - Increased thermal discomfort (1 review)*

- **Use of disinfectants:**
  - Increased skin irritations & respiratory problems (1 review)*

*Reviews were not included in the original overview of systematic reviews.

### Effectiveness of PHSM by setting:

<table>
<thead>
<tr>
<th>Environmental hygiene measures</th>
<th>Multicomponent cleaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long-term care facilities</td>
<td><img src="case.png" alt="Households" /></td>
</tr>
<tr>
<td><img src="case.png" alt="Effectiveness observed" /></td>
<td><img src="case.png" alt="Long-term care facilities" /></td>
</tr>
<tr>
<td><img src="case.png" alt="Effectiveness uncertain" /></td>
<td></td>
</tr>
</tbody>
</table>

### Implementation considerations:

- Combination of environmental measures
- Adherence to measures
- Availability of necessary resources (e.g. disinfectants, air purifiers, or ventilation systems)
- Combination with other PHSM

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**International travel & trade measures** adopt a risk-based approach to reduce the travel- & trade-associated exportation, importation & onward transmission of a pathogen across borders (e.g. entry & exit screening, travel bans, upon-arrival quarantine).

### Reported benefits:

**Cross-border travel restrictions:**
- Reduced spread of the disease (3 reviews)

**Point of entry & exit screening:**
- Reduced number of cases in communities (6 reviews)
- Reduced number of cases brought in or taken out of a country (3 reviews)

**Quarantine at borders:**
- Reduced number of cases brought in or taken out of a country (3 reviews)

**Travel bans:**
- Reduced spread of the disease (3 reviews)

### Reported negative consequences:

**Cross-border travel restrictions:**
- Decreased mental health & well-being (1 review)*

**Extended implementation of travel restriction measures:**
- Economic & employment insecurity (e.g. reduced wages & overall income) (1 review)

*Review was not included in the original overview of systematic reviews

### Effectiveness of PHSM by setting:

<table>
<thead>
<tr>
<th>Cross-border travel restrictions</th>
<th>Travel bans at early stage of outbreak</th>
</tr>
</thead>
<tbody>
<tr>
<td>? Airports</td>
<td>✔ Airports</td>
</tr>
</tbody>
</table>

✅ Effectiveness observed  ❓ Effectiveness uncertain

### Implementation considerations:

- Early initiation
- Design & stringency
- Level of community transmission
- Interconnectedness of countries
- Wider coverage
- Travel volumes & duration
- Level of enforcement & adherence to measures
- Combination with other PHSM

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**Combined interventions** refer to the simultaneous implementation of multiple PHSM on a large-scale (e.g. so-called lockdowns). These interventions mainly include a combination of active case-finding & contact identification measures, social measures & personal protection measures.

**Reported benefits:**

- **Reduced number of infections** (18 reviews)
- **Reduced spread of the disease** (18 reviews)
- **Reduced number of deaths from COVID-19** (18 reviews)
- **Reduced proportion of cases in community** (18 reviews)
- **Reduced influenza morbidity & mortality** (2 reviews)
- **Reduced pressure on healthcare system (e.g. hospitalization & ICU admissions)** (2 reviews)
- **Reduced pre-term birth — likely driven by reduction in iatrogenic births** (1 review)
- **Improved glucose control in type 1 diabetes** (2 reviews)

**Reported negative consequences:**

- **Decreased mental health & well-being** (16 reviews)
- **Decreased physical activity & mobility, especially among children & adolescents** (13 reviews)
- **Decreased access to both emergency & routine healthcare services** (7 reviews)
- **Increased violence, especially among women & children** (5 reviews)
- **Economic & employment insecurity** (4 reviews)
- **Deteriorated health outcomes for cancer** (3 reviews)
- **Increased sleep problems among children & adolescents** (5 reviews)
- **Increased substance use** (4 reviews)
- **Unclear effects on food intake and eating behaviors** (10 reviews)

### Effectiveness of PHSM by setting:

**Combined PHSM interventions:**

- **Community settings**
- **Long-term care settings**
- **Mass gatherings**
- **Workplace settings**
- **Schools**

### Implementation considerations:

- **Early initiation**
- **Level of enforcement & adherence to measure**
- **Level of community transmission**
- **Incremental lifting of restrictions**
- **Mobility rates prior to lockdown**
- **Stringent & extended implementation of measure**
- **Availability of mitigation measures**
- **Existence of robust health data infrastructure**