COVID-19 Evidence Synthesis

LES 13.1 Quarantine and Isolation
Appendix
(Version 1: 14th June 2023)

Appendix 1: Summary of included empirical studies

Study ID	First author	Country	Population of interest	Time	Study Design	PICO	Outcome	Measure
02P-1	Pang[1]	Malaysia	Public university students (18+)	April 1-14 2020	Cross-sectional survey	PICO 2	Depressive symptoms Anxiety symptoms Stress	Depression Anxiety Stress Scale (DASS-21)
03S-1	Schluter[2]	Canada, USA, England, Switzerland, Belgium, Philippines, New Zealand, and Hong Kong	Adults (18+)	November 6-18, 2020.	Cross-sectional survey	PICO 2	Composite measure of depressive and anxiety symptoms	Patient Health Questionnaire-9 (PHQ-9) Generalized Anxiety Disorder-7 (GAD-7)
04W-2	Wang[3]	China	Individuals quarantined (18+) at an isolation shelter	April 20 to May 10, 2020	Cross-sectional survey	PICO 2	Quality of life Anxiety	Physical component summary (PCS) score and a Mental component summary (MCS), Zung Self-Rating Anxiety Scale; (SAS)
05A-1	Aaltonen[4]	Finland	Individuals (18+) quarantined, isolated at home	12 May to June 2020	Cohort study	PICO 2	Psychic well-being and distress	Clinical Outcomes in Routine Evaluation-Outcome Measure (CORE-OM)
06L-3	Li[5]	China	Members of the	March 5- 19, 2020.	Cross-sectional survey	PICO 2	Depressive symptoms	Zung's self-rating anxiety scale (SAS)

			public in China with a WeChat account (18+)				Anxiety symptoms	and self-rating depression scale (SDS)

References

1. Pang NTP, James S, Giloi N, et al. Relationships between psychopathology, psychological process variables, and sociodemographic variables and comparison of quarantined and non-quarantined groups of malaysian university students in the covid-19 pandemic. *Int J Environ Res Public Health*. 2021;18.

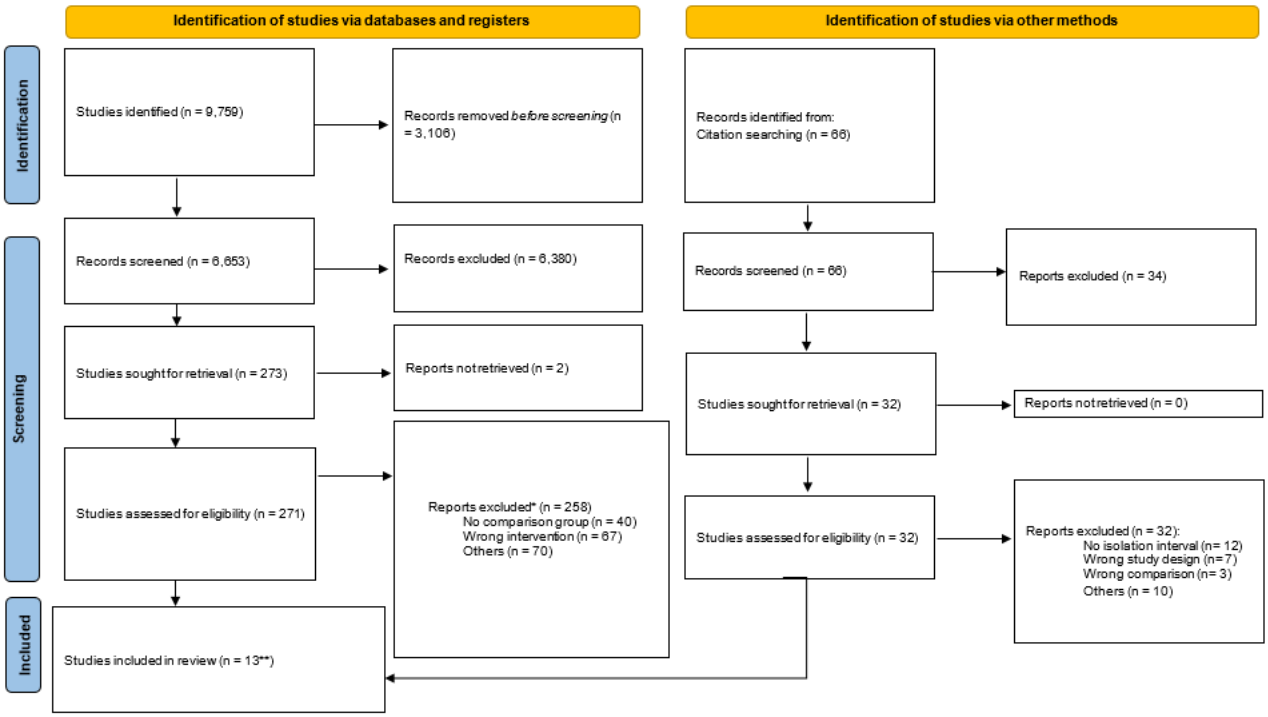
2. Schluter PJ, Genereux M, Landaverde E, et al. An eight country cross-sectional study of the psychosocial effects of COVID-19 induced quarantine and/or isolation during the pandemic. *Sci Rep*. 2022;12:13175.

3. Wang T, Xiao Y, Min Y, Shu S, Deng Y. Analysis of factors influencing the quality of life and anxiety among quarantined individuals in different places during the COVID-19 pandemic. Published online 2023. doi:10.21203/rs.3.rs-2415325/v1

4. Aaltonen KI, Saarni S, Holi M, Paananen M. The effects of mandatory home quarantine on mental health in a community sample during the COVID-19 pandemic. *Nord J Psychiatry*. 2023;77(1):65-72.

5. Li X, Yu H, Yang W, et al. Depression and anxiety among quarantined people, community workers, medical staff, and general population in the early stage of COVID-19 epidemic. *Front Psychol*. 2021;12. doi:10.3389/fpsyg.2021.638985

Appendix 2: Flow chart of empirical and modelling studies included



*Reasons for exclusion were not presented for version 13.0

**One of these was later excluded because of RoB

Appendix 3: Details of modelling studies

Appendix 3.1 Information of the modelling studies that meet the inclusion criteria

Study ID	First author	Year	Country	Isolation and/or quarantine	PICO	Outcome
M01A-0	Aylett-Bullock[6]	2021	Bangladesh	Isolation	PICO 1	SARS-CoV-2 infections
M02B-0	Burns[7]	2020	USA	Isolation	PICO 1	Overall virus transmissibility
M03M-0	Maya[8]	2022	USA	Isolation	PICO 1 PICO 2	SARS-CoV-2 infections Cost in US dollars
M04S-0	Sararat[9]	2022	Thailand	Isolation	PICO 1	SARS-CoV-2 transmission, Successful outbreak prevention
M05P-1	Peng[10]	2021	USA	Quarantine	PICO 1	Post-quarantine transmission risk
M06P-1	Perrault[11]	2020	USA	Quarantine	PICO 1 PICO 2	SARS-CoV-2 transmission, death Cost in US dollars Quarantine days
M07W-1	Wells[12]	2021	USA	Quarantine	PICO 1	SARS-CoV-2 transmission

References

6. Aylett-Bullock J, Cuesta-Lazaro C, Quera-Bofarull A, et al. Operational response simulation tool for epidemics within refugee and IDP settlements: A scenario-based case study of the Cox's Bazar settlement. *PLOS Comput Biol*. 2021;17(10):e1009360.
7. Burns AA, Gutfraind A. Effectiveness of isolation policies in schools: evidence from a mathematical model of influenza and COVID-19. *PeerJ*. 2021;9:e11211.
8. Maya S, Kahn JG. Cost-effectiveness of antigen testing for ending COVID-19 isolation. *medRxiv*. Published online 2022.
9. Sararat C, Wangkanai J, Wilasang C, Chantanasaro T, Modchang C. Individual-based modeling reveals that the COVID-19 isolation period can be shortened by community vaccination. *Sci Rep*. 2022;12:17543.
10. Peng B, Zhou W, Pettit RW, et al. Reducing COVID-19 quarantine with SARS-CoV-2 testing: A simulation study. *BMJ Open*. 2021;11. Accessed January 1, 7AD. https://ovidsp.ovid.com/ovidweb.cgi?T=JS&CSC=Y&NEWS=N&PAGE=fulltext&D=emed22&AN=635499990
11. Perrault A, Charpignon M, Gruber J, Tambe M, Majumder MS. Designing Efficient Contact Tracing Through Risk-Based Quarantining. Published online 2020. doi:10.1101/2020.11.16.20227389
12. Wells CR, Townsend JP, Pandey A, et al. Optimal COVID-19 quarantine and testing strategies. *Nat Commun*. 2021;12. Accessed January 1, 12AD. https://ovidsp.ovid.com/ovidweb.cgi?T=JS&CSC=Y&NEWS=N&PAGE=fulltext&D=emexb&AN=2010128717

Appendix 3.2 Information on quarantine duration effects on secondary transmissions (modeling studies)

Reference	Date released	Setting	Study characteristics	Summary of key findings in relation to the outcome
Peng et al. 2021	Paper received by journal on February 25 2021	Simulates an environment composed of a workforce, in which a whole group is confined at once.	**Model**: Stochastic individual-based forward-time simulation COVID-19 outbreak simulator. **Goal**: Evaluate the performance of a quarantine strategy with the following characteristics: ● All individuals enter quarantine while asymptomatic ● Those who test positive or show symptoms during quarantine are isolated until recovery (i.e., they are removed from the model). ● Quarantine duration varied between 1-14 days ● Testing with different sensitivities was either not done or done at the *end* of the quarantine. Multiple tests could also be administered. Quarantine was evaluated under a condition of: ● *Simultaneous exposure*: Individuals were infected simultaneously (e.g., due to a common exposure/event) **Key outcomes**: ● **Post-quarantine transmission risk** (**PQTR**): whether a quarantine individual causes any (i.e., one or more) infections post quarantine. **Accounts for**: Viral load course, behaviours (e.g., mask use or social distancing) **Key assumptions**: ● Model ONLY simulates people who are infected (ignores uninfected people who are put into quarantine) ● Isolated individuals can never infect again or be re-	**Impact of testing use:** Assumes use of RT-PCR tests with sensitivity of 95% and a 1 day turnaround time to get results. ● PQRT reduced from 0.12% for a 14-day quarantine without testing to… ○ 0.006% when tested at end of a 14-day quarantine ○ 0.09% when tested at end of a 9-day quarantine Longer quarantines are needed to compensate for lower sensitivity tests. Testing at day 1 had no benefit, but this is purely an artifact of the model assuming individuals had no detectable viral load at the start of the simulation. **Impact of Testing frequency for different types of tests.** Increasing the number of tests during quarantine led shorter quarantines to outperform a test-free 14-day quarantine, mostly by reducing

			infected (i.e., removed from model) ● Reproduction number = 2.10 among symptomatic and 0.42 among asymptomatic ● Average incubation time was 5.5 days ● Infectivity period is higher before symptoms ● On average, 25% of persons are asymptomatic **VOCs**:Not considered. **Vaccination status**: Not considered **Terminology**: Uses the term "quarantine" when modeling the containment of *infected* individuals following a common exposure at a stage when they are still asymptomatic (there is no quarantining of non-infected individuals). The paper models "isolation" in a manner that removes all symptomatic (or positive testing) individuals from the model.	false-negatives through repeated testing. Claims that an optimal way to most quickly release people from quarantine would be a 95% sensitivity test on days 4,5,6, requiring people to test negative on all three tests before releasing them on day 6. The next best option would follow a similar procedure with a 7-day quarantine with tests on days 4, 5 (or 6) and 7. Overall, quarantine duration (higher duration), testing frequency (more tests), and testing sensitivity (higher sensitivity) all contribute to reductions in PQTR. The article provides tables (Tables 3 and 4) that designate optimal combinations of these factors.
Perrault et al., 2020	Paper posted online in November 2020	US-based population is simulated	**Model**: Agent-based branching process model **Goal**: Evaluate a risk-based quarantine (RBQ) procedure based on contact tracing, where individuals who have experienced contact with a case are put in quarantine within a cluster and: ● Monitored on day 1, and if no one within the cluster shows symptoms, the entire cluster is then released Compared to approaches that use RT-PCR tests to reduce quarantine duration. The default quarantine duration without early release is 14 days. **Key outcomes**: ● **Reproduction number (R_{eff})** among close contacts	**Results according to 8 conditions:** **1. No contact tracing/quarantine** ● R_{eff}: 1.36 ● Reduction in R_{eff}: 0% **2. Quarantine only** (of all close contacts for 14 days) ● R_{eff}: 0.926 ● Reduction in R_{eff}: 31.8%

			• **Mean reduction in R_{eff}** compared to a policy without contact tracing/quarantine **Accounts for**: Test sensitivity/delays, people's age, transmission heterogeneity, dropout from quarantine **Key assumptions**: • "Contacts" with infected are of >15 min to initiate quarantine • The top 20% of index cases report 50% of the close contacts and 80% of infections • 18.8% attack rate among household close contacts; otherwise 6% attack rate • Model calibration results in R_0 of 1.88 • Mean incubation time = 1.57 days • By default, quarantines last 14 days from last exposure, and isolation of index cases lasts 10 days from symptom onset • Contact tracers paid $20 per hour • Results of tests take 1 day to be available **VOCs**: Not considered **Vaccination status**: Not considered **Terminology**: Uses "quarantine" to refer to individuals in confinement initiated due to contact with an infected individual who develops symptoms.	**3. 1-day RBQ** procedure (no testing) • R_{eff}: 1.00 • Reduction in R_{eff}: 26.1% **4. RBQ + exit testing**. RBQ, but clusters need negative RT-PCR tests to be released. • R_{eff}: 0.967 • Reduction in R_{eff}: 28.8% **5. RBQ + 4 extra days for small clusters**: If clusters have 8 or less people, the RBQ period before considering release lasts an extra 4 days. • R_{eff}: 0.968 • Reduction in R_{eff}: 28.7% **6. RBQ + active monitoring**. RBQ, but non-quarantined contacts are monitored and complete symptom screening each day. • R_{eff}: 0.967 • Reduction in R_{eff}: 28.8% **7. RBQ + exit testing + 4 extra days + active monitoring**. A combination of the 4 variants of RBQ above • R_{eff}: 0.926 • Reduction in R_{eff}: 31.8% **7. Single-test release**. Once traced,

				people are tested. Released if test negative; otherwise 14-day quarantine ● R_{eff}: 1.17 ● Reduction in R_{eff}: 13.8% **8. Double-test release**. Similar to single test, but after results of a test are available, another is taken. People are released after they show 2 negative tests or quarantine ends. ● R_{eff}: 1.1 ● Reduction in R_{eff}: 19.1% Sensitivity analyses show the performance of the conditions with quarantine can each vary importantly based on the time it takes from test administration to results. Overall, RBQ performs only slightly worse than quarantine for everyone, but reduces the average days in quarantine substantially. Procedures only based on testing are more expensive and perform less well to reduce transmissions.
Wells, 2021	Paper submitted to journal on October 12, 2020	No specific population, but applies & validates model using an	**Model:** Unspecified type of mathematical model. **Goal:** Compare shorter quarantine durations (<14 days) paired with testing to longer quarantine periods (e.g., 14-days) without testing. Evaluation is limited to individuals who are infected, but	**Quarantine based on contact tracing (without a strict known time of exposure):** When testing on exit, a shorter

		offshore work context (e.g., offshore oil facility)	who have not manifested symptoms by the end of the quarantine. **Key outcomes**: ● **Post-Quarantine Transmission (PQT)**: causing one or more infections after exiting the quarantine period. **Accounts for**: Infectivity profiles, sensitivity of RT-PCR testing. **Key assumptions**: ● R_0 = 2.5 at baseline ● Assumed perfect isolation of symptomatic cases, reducing R_0 to 1.6. ● Incubation period = 8.29 days ● 30.8% of infections never become symptomatic ● Tracing of contacts initiated by onset of symptoms in the index case. ● Symptomatic and asymptomatic cases are equally infectious **VOCs**: Not considered **Vaccination status**: Not considered **Terminology**: Discusses quarantine as "quarantine initiated by contact tracing". Also uses "quarantine" to discuss other forms of confinement (e.g., initiated due to travel).	duration quarantine maintained high effectiveness relative to longer quarantines without testing ● E.g., With exit testing, a quarantine of 5+ days had a PQT of <5%, whereas quarantines without testing needed to be >11 days in duration to reach PQT <5%) ● A 7-day quarantine with testing on exit (or a 6-day quarantine with testing both on entry and exit) both had equivalent or lower PQTs relative to a 14 day quarantine without testing (PQTs < 2.5%) ● Overall, testing on entry had little benefits to reducing the required length of quarantine. ● When quarantines are 6 days or less, the optimal time to give an exit test was the final day of quarantine. At quarantine durations of 7-14 days, this leveled off, such that the optimal time to give a test was always on day 6.

Appendix 3.3 Information on isolation duration effects on secondary transmissions (modeling studies)

Reference	Date released	Setting	Study characteristics	Summary of key findings in relation to the outcome
Aylett-Bullock et al., 2021	Paper submitted to Journal in March 2021.	Modeled after refugee and internally displaced person (IDP) settlements in Bangladesh.	**Model**: Agent-based model, based on the open-source framework "JUNE", which operates by simulating a "digital twin" of the environment where individuals interact. **Goal:** Examine the impact of systematic isolation in shelters on COVID-19 transmissions (compared to a baseline with low levels of self-isolation at home). **Key Outcome**: Total number of infected cases. **Accounts for**: ● Differences in geographical, social, and demographic factors. ● Delays between testing, symptoms, and isolation. **Key Assumptions**: ● People interact within shelters, even under isolation ● 88 infected individuals seeded per modeled region at baseline ● Moderate transmission rate: $R_0 \approx 2.0 - 3.0$ ● In baseline model, symptomatic self-quarantine at home with a low compliance rate (30%) **VOCs**: Not considered. **Vaccination status**: Not considered **Terminology**: "Isolation" used to refer to symptomatic individuals who confine in isolation centers (intervention), and "quarantine" to refer to symptomatic individuals who confine at home. Both groups have tested positive for COVID-19 but do not require hospitalization.	Under a "best-case" scenario where: ● All infected individuals isolate (100% compliance) ● People isolate in isolation centers (not at home) ● Time delay between testing and isolation is 2 days There is little difference between no isolation, 5 days of isolation, and 10 days of isolation. ● No isolation: 433k total infections ● 5 day isolation: 432k total infections ● 10 day isolation: 432k total infections Most infections occurred within residences, before symptom onset, leading isolation (post-symptoms) in centers to be ineffective.

Burns & Gutfraind, 2021	Paper submitted to journal in November 2020.	Medium-sized US School (~ January to July), early in the pandemic.	**Model**: Susceptible, Exposed, Infectious, Recovered (SEIR) model, which is a deterministic compartmental dynamical model. Each scenario examined was simulated 500 times. **Goal**: Evaluate effectiveness of home-based isolation (following fever) to reduce school-based transmission. **Key outcomes**: Overall virus transmissibility, including: ● Attack rate: proportion (%) of population infected during outbreak **Accounts for**: Schooling context, virus progression. **Key assumptions**: ● School comprised of 6 grades; 70 students per grade **VOCs**: Not considered. **Vaccination status**: Examines effects of vaccination in some models, but not when modeling duration of isolation (for which model assumes no vaccination). **Terminology**: Symptom-based "isolation" policy involves isolating individuals at the onset and for the duration of fever symptoms, normally followed by additional days of isolation.	In general, the number of post-fever isolation days has little effect on COVID-19 outbreaks. Numbers reported are median effects (with interquartile ranges). No policy measures (i.e., no isolation). This is the baseline. ● Attack rate = 10.0% (8.7-11.3) 1-day post-fever isolation: ● Attack rate = 9.4% (8.3-10.6) 2-day post-fever isolation: ● Attack rate = 9.2% (8.0-10.6) 14-day post-fever isolation: ● Attack rate = 8.5% (7.4-9.7) *Note*: In models, reducing the number of in-person school days per week had a much larger impact.
Maya & Khan, 2022	Preprint posted in March 2022.	Based on 100 individuals in the US who had COVID-19 and were on day 5 of isolation.	**Model**: Customized decision tree analysis **Goal**: Evaluate six different protocols to determine when to end COVID-19 isolation. These varied the default duration of the isolation (5, 8, 10 days), and the rule for ending isolation early (symptom check, or antigen/PCR test)). **Key outcomes**: ● Secondary infections (per 100 persons) over a two week period	Secondary infections under the 6 intervention conditions *Option 1:* 5-day isolation, no possibility to end early: ● Secondary infections: 23.04 *Option 2:* 10 day isolation, with symptom check on day 5. If asymptomatic, end isolation, otherwise continue to day 10.

			Accounts for: Health/infectivity factors, test sensitivity, intervention adherence. **Key assumptions**: For base model: ● Only modeled asymptomatic & mild COVID-19 cases ● Base sensitivity of tests: ○ Symptom check: 23.8% ○ Antigen test: 79.3% ○ PCR test: 89.0% ● 90% still infectious on day 5 ● 22% drop in infectiousness from day 5-6 ● Secondary reproduction number: 1.2 ● Intervention adherence: 100% ● 100% testing access/coverage **VOCs**: Models used parameters according to Omicron variant when available; otherwise used data for Alpha or Delta. **Vaccination status**: Not considered **Terminology**: "Isolation" refers to confinement of persons with confirmed COVID-19.	● Secondary infections: 17.83 *Option 3:* 10 day isolation, with rapid antigen test on day 5. If negative, end isolation, otherwise continue to day 10. ● Secondary infections: 10.02 *Option 4:* 10 day isolation, with PCR test on day 5. If negative, end isolation, otherwise continue to day 10. ● Secondary infections: 2.88 *Option 5:* 10 day isolation, with rapid antigen test on day 6. If negative, end isolation, otherwise continue to day 10. ● Secondary infections: 5.68 *Option 6:* 8 day isolation, with rapid antigen test on day 5. If negative, end isolation, otherwise continue to day 8. ● Secondary infections: 3.56 *Note*. The most cost-effective de-isolation protocol was deemed option 5 (10 day isolation with an antigen test on day 6).
Sararat et al., 2022	Paper submitted to journal in	Not modeled after a specific population.	**Model**: Individual-based compartmental model. A single infected individual ("index case") is introduced in a population. **Goal**: Assess the likelihood of secondary infections and the	**Baseline scenario**: all individuals are unvaccinated. No additional non-pharmaceutical intervention is employed.

	February 2022 (accepted in September 2022)		likelihood of an outbreak following isolation of an index case for a range of isolation periods and vaccination scenarios. **Key outcomes**: ● ***Secondary transmission:*** probability a primary case makes *at least one* subsequent infection after isolation. ● **Successful outbreak**: primary case leads to a sustained chain of transmission after isolation **Accounts for**: Transmission/infectivity factors, vaccination. **Key assumptions**: ● Disease infectiousness peaks at 2.1 days before symptom onset ● Incubation period lasts a mean of 5.8 days ● Asymptomatic infectious individuals are less infectious than symptomatic ones. ● Primary index cases isolated immediately after becoming infected. Subsequently infected individuals are isolated with a default delay of 6.8 days. ● Basic reproduction number = 5.08 ● Vaccine effectiveness (VE) against infections is 0.79 and against transmissions is 0.25 in most models. But ran some models setting VE against infections at either 0.50 or 0.90 and altering VE against transmissions between 0.00 to 0.40. ● Symptomatic are isolated with a probability of 0.8, asymptomatic with a probability of 0.1 **VOCs**: Mostly considered Delta, and to some extent Omicron (consideration only operationalized in terms of changes in VE) **Vaccination status**: Mostly considered primary series, but varied	● 14-day isolation. An infected case has: ○ 3% chance of secondary infections ○ <1% chance of successful outbreak ● 10-day isolation. An infected case has: ○ ~8% chance of secondary infections ○ ~6% chance of successful outbreak ● 7-day isolation. An infected case has: ○ ~14% chance of secondary infections ○ ~6% chance of successful outbreak ● No isolation. An infected case has: ○ ~28% chance of secondary infections ○ ~16% chance of successful outbreak **Best case vaccine scenario***: all* individuals are vaccinated: ● The probability of secondary transmissions is >5% only at <6 days of isolation, and remains <10% even at 0 days of isolation.

			VE against transmissions from 0% to 40% to reflect low VE after waning vs. after a booster, and that VE could vary according to strain (e.g., be low against omicron). **Terminology**: "Isolation" focuses on confinement of primary cases (infected). Authors discuss quarantine of contacts, but quarantine is not modeled in the study.	● The probability of a successful outbreak is negligible (close to 0%) for all duration periods. **Second best scenario** whereby index case plus 75% of others are vaccinated: ● At 8+ days of isolation: ○ ~ <3% chance of secondary infections ○ ~ <1% chance of successful outbreak ● Otherwise: ○ For secondary infections, the chance is ~3% for a 7-day isolation, and rises linearly as isolation shortens, reaching ~15% at 0 days. ○ For successful outbreaks, the chance rises to ~1% at 7 days, and rises gradually with shorter intervals ■ ~1.5% for 3- and 5-day isolation ■ ~3% for no isolation

				Equivalencies to Baseline. 1. Conditions that are equivalent to a 14-day isolation in the baseline scenario for reducing *secondary transmissions*: ● 10 days of isolation for a vaccinated index case when no one else is vaccinated. ● ~8 days when index and 75% of others vaccinated, and ~6 days when 100% of people are vaccinated 2. Conditions that are equivalent to a 14-day isolation in the baseline scenario for reducing *successful outbreaks*: ● 9.33 (95% CI: 8.68-9.98) days of isolation of a vaccinated index if 50% of others are vaccinated ● 7.33 (95% CI: 6.68-7.98)) days of isolation of a vaccinated index if 75% of others are vaccinated **Vaccination Coverage**: ● Concludes that higher vaccine coverages decrease the chance of secondary transmission following the isolation of a (vaccinated) index case, especially when isolation duration is short. ● For long isolation periods (e..g, 10+ days), vaccination coverage makes little difference.

				Vaccination Effectiveness (setting coverage at 75%) ● VE against infections or against transmissions had little impact on the probability of secondary transmissions of different isolation durations (i.e., duration patterns similar to before, though generally higher at low VE) ● However, against outbreaks VE mattered ○ At very high VE against infections (VE = .90), the probability of outbreaks was low regardless of different isolation durations or VE against transmissions (always at 2% or lower) ○ At a lower VE against infections (VE = 0.5), both duration and VE against transmissions mattered. At 7+ days of isolation, however, the probability of outbreaks was

				always ~2% or lower. **Note*: A tilde (~) indicates that this finding was extracted by visual analysis of a figure.

Appendix 3.4 Information on quarantine duration effects on other individual/societal outcomes (modeling studies)

Reference	Date released	Setting	Study characteristics	Summary of key findings in relation to the outcome
Perrault et al., 2020	Paper posted online in November 2020	US-based population is simulated	**Model**: Agent-based branching process model **Goal**: Evaluate a risk-based quarantine (RBQ) procedure based on contact tracing, where individuals who have experienced contact with a case are put in quarantine within a cluster and: ● Monitored on day 1, and if no one within the cluster shows symptoms, the entire cluster is then released Compared to approaches that use RT-PCR tests to reduce quarantine duration. The default quarantine duration without early release is 14 days. **Key outcomes**: ● **Days of quarantine**: average days of quarantine caused by an index case ● **Deaths** per 1000 index cases ● **Monetary costs** of tracing, monitoring, and testing per index case **Accounts for**: Test sensitivity/delays, people's age, transmission heterogeneity, dropout from quarantine **Key assumptions**: ● "Contacts" with infected are of >15 min to initiate quarantine ● The top 20% of index cases report 50% of the close contacts and 80% of infections ● 18.8% attack rate among household close contacts; otherwise 6% attack rate ● Model calibration results in R_0 of 1.88 ● Mean incubation time = 1.57 days ● By default, quarantines last 14 days from last exposure, and isolation of index cases lasts 10 days from symptom onset ● Contact tracers paid $20 per hour ● Results of tests take 1 day to be available **VOCs**: Not considered **Vaccination status**: Not considered	**Results according to 8 conditions:** **1. No contact tracing/quarantine** ● Quarantine days: 0 ● Deaths: 27.4 ● Cost: $0 **2. Quarantine only** (of all close contacts for 14 days) ● Quarantine days: 62.1 ● Deaths: 22.6 ● Cost: $189 **3. 1-day RBQ** procedure (no testing) ● Quarantine days: 36.1 ● Deaths: 23.8 ● Cost: $144 **4. RBQ + exit testing**: RBQ, but clusters need negative RT-PCR tests to be released. ● Quarantine days: 40.1 ● Deaths: 23.2 ● Cost: $957 **5. RBQ + 4 extra days for small clusters**: If clusters have 8 or less people, the RBQ period before considering release lasts an extra 4 days. ● Quarantine days: 40.5 ● Deaths: 23.2 ● Cost: $152

			Terminology: Uses “quarantine” to refer to individuals in confinement initiated due to contact with an infected individual.	**6. RBQ + active monitoring**. RBQ, but non-quarantined contacts are monitored and complete symptom screening each day. ● Quarantine days: 36.1 ● Deaths: 23.2 ● Cost: $208 **7. RBQ + exit testing + 4 extra days + active monitoring**. A combination of the 4 variants of RBQ above ● Quarantine days: 42.6 ● Deaths: 22.5 ● Cost: $970 **7. Single-test release**. Once traced, people are tested. Released if test negative; otherwise 14-day quarantine ● Quarantine days: 14.9 ● Deaths: 25.8 ● Cost: $1630 **8. Double-test release**. Similar to a single test, but after results of a test are available, another is taken. People are released after they show 2 negative tests or quarantine ends. ● Quarantine days: 21.2 ● Deaths: 24.8 ● Cost: $3500 Sensitivity analyses show the performance of the conditions with quarantine can each vary importantly based on the time it takes from test administration to results. Overall, RBQ performs only slightly worse than quarantine for everyone,

				but reduces the average days in quarantine substantially. Procedures only based on testing are more expensive and perform less well to reduce transmissions.

Appendix 3.5 Information on isolation duration effects on other individual/societal outcomes (modeling studies)

Reference	Date released	Setting	Study characteristics	Summary of key findings in relation to the outcome
Maya & Khan, 2022	Preprint posted in March 2022.	Based on 100 individuals in the US who had COVID-19 and were on day 5 of isolation	**Model**: Customized decision tree analysis **Goal**: Evaluate six different protocols to determine when to end COVID-19 isolation. These varied the default duration of the isolation (5, 8, 10 days), and the rule for ending isolation early (symptom check, or antigen/PCR test)). **Key outcomes**: Costs in US dollars, including: ● Testing costs ● Medical costs (for secondary infections) ● Cost for productivity loss for index infection ● Net costs (with and without productivity loss) ● Incremental cost *per* infection averted. **Accounts for**: Health/infectivity factors, test sensitivity, intervention adherence. **Key assumptions**: For base model: ● Only modeled asymptomatic & mild COVID-19 cases ● Base sensitivity of tests: ○ Symptom check: 23.8% ○ Antigen test: 79.3% ○ PCR test: 89.0% ● 90% still infectious on day 5 ● 22% drop in infectiousness from day 5-6	All outcomes given per 100 persons. Results under the 6 intervention conditions are as follow: *Option 1:* 5-day isolation, without possibility to end early (i.e., no tests): ● Testing cost: $0 ● Medical cost: $33,086 ● Productivity cost: $0 ● Net cost: $33,086 ● *Net cost (without productivity loss): $33,086 ● Incremental cost per infection averted: Not applicable (this is the baseline) *Option 2:* 10 day isolation, with symptom check on day 5. If asymptomatic, end isolation, otherwise continue to day 10. ● Testing cost: $0 ● Medical cost: $25,605 ● Productivity cost: $19,368 ● Net cost: $44,973 ● *Net cost (without productivity loss): $25,605 ● Incremental cost per infection averted: $2,282 *Option 3:* 10 day isolation, with rapid antigen test on day 5. If negative, end isolation, otherwise continue to day 10. ● Testing cost: $1,000 ● Medical cost: $8,159 ● Productivity cost: $64,273 ● Net cost: $73,432 ● *Net cost (without productivity loss): $9,159

			• Secondary reproduction number: 1.2 • Intervention adherence: 100% • 100% testing access/coverage **VOCs**: Models used parameters according to Omicron variant when available; otherwise used data for Alpha or Delta. **Vaccination status**: Not considered **Terminology**: "Isolation" refers to confinement of persons with confirmed COVID-19.	• Incremental cost per infection averted: $2,324 *Option 4:* 10 day isolation, with PCR test on day 5. If negative, end isolation, otherwise continue to day 10. • Testing cost: $15,000 • Medical cost: $5,112 • Productivity cost: $72,099 • Net cost: $92,211 • *Net cost (without productivity loss): $20,112 • Incremental cost per infection averted: $3,035 *Option 5:* 10 day isolation, with rapid antigen test on day 6. If negative, end isolation, otherwise continue to day 10. • Testing cost: $1,000 • Medical cost: $4,132 • Productivity cost: $58,056 • Net cost: $63,189 • *Net cost (without productivity loss): $5,132 • Incremental cost per infection averted: $1,493 *Option 6:* 8 day isolation, with rapid antigen test on day 5. If negative, end isolation, otherwise continue to day 8. • Testing cost: $1,000 • Medical cost: $14,391 • Productivity cost: $38,564 • Net cost: $53,954 • *Net cost (without productivity loss): $15,391 • Incremental cost per infection averted: $1,603

				*Net cost without productivity loss assumes a scenario in which individuals keep working (e.g., from home) at usual capacity. *Note*. The most cost-effective de-isolation protocol was deemed option 5 (10 day isolation with an antigen test on day 6).

Appendix 4: Empirical studies excluded following full-text review, for PICO 1

Version	Authors (et al.)	Article title	Journal	Reason
1	Auranen	Efficacy and effectiveness of case isolation and quarantine during a growing phase of the COVID-19 epidemic in Finland	Research Square	wrong outcome
1	Dawson	Modifications to student quarantine policies in 12 schools implementing multiple COVID-19 prevention strategies restores in-person education without increasing SARS-CoV-2 transmission risk, January-March 2021	MMWR	comparison group
1	Fox	Results of a Shortened Quarantine Protocol on a Midwestern College Campus	Clinical infectious disease	comparison group
1	Kim	MRI Assessment of Cerebral Blood Flow in Non-hospitalized Adults Who Self-Isolated Due to COVID-19	Journal of magnetic resonance imaging	wrong outcome
1	Kutty	A study of infection latency and determination of quarantine period in hospital staff with Covid 19	European Respiratory Journal	no pdf
1	Lewis	A Test-Based Strategy for Safely Shortening Quarantine for COVID-19	Medrxiv	wrong study design
1	Li	High compliance to infection control measures prevented guest-to-staff transmission in COVID-19 quarantine hotels	Journal of Infection	wrong outcome
1	Liu	Association of COVID-19 Quarantine Duration and Post-quarantine Transmission Risk in 4 University Cohorts	JAMA Network Open	wrong outcome
1	Liu	Seven-day COVID-19 quarantine may be too short: assessing post-quarantine transmission risk in four university cohorts	Medrxiv	duplicate
1	Love	Daily use of lateral flow devices by contacts of confirmed COVID-19 cases to enable exemption from isolation compared with standard self-isolation to reduce onward transmission of SARS-CoV-2 in England: a randomised, controlled, non-inferiority trial	The Lancet Respiratory Medicine	no comparison
1	Love	The acceptability of testing contacts of confirmed COVID-19 cases using serial, self-administered lateral flow	Journal of Medical Microbiology	comparison group, wrong intervention

		devices as an alternative to self-isolation		
1	Mack	Results from a Test-to-Release from Isolation Strategy Among Fully Vaccinated National Football League Players and Staff Members with COVID-19 - United States, December 14-19, 2021	MMWR	comparison group
1	Malheiro	Effectiveness of contact tracing and quarantine on reducing COVID-19 transmission: a retrospective cohort study	Public Health	comparison group
1	Mark	The appropriateness of the decision to quarantine healthcare workers exposed to a severe acute respiratory coronavirus virus 2 (SARS-CoV-2)-positive coworkers based on national guidelines	Infection Control & Hospital Epidemiology	comparison group, wrong intervention
1	Matsinos	COVID-19: On the quarantine duration after short visits to high-risk regions	Arxiv	wrong study design
1	McCarthy	Infection control behaviours, intra-household transmission and quarantine duration: a retrospective cohort analysis of COVID-19 cases	Australian and New Zealand journal of public health	comparison group
1	McGowan	Testing out of quarantine	Medrxiv	wrong study design
1	Nam	Early centralized isolation strategy for all confirmed cases of COVID-19 remains a core intervention to disrupt the pandemic spreading significantly	PLoS ONE	comparison group, wrong intervention
1	Nelson	SARS-CoV-2 Positivity on or after 9 Days among Quarantined Student Contacts of Confirmed Cases	JAMA	comparison group, wrong publication type
1	Ortiz-Prado	Testing for SARS-CoV-2 at the core of voluntary collective isolation: Lessons from the indigenous populations living in the Amazon region in Ecuador	International Journal of Infectious Diseases	wrong intervention
1	Rolfes	Implications of Shortened Quarantine Among Household Contacts of Index Patients with Confirmed SARS-CoV-2 Infection - Tennessee and Wisconsin, April-September 2020	MMWR	comparison group
1	Tsai	Hotel-based quarantine center as a rapid response to COVID-19 outbreak, New Taipei, Taiwan, May to July 2021	Journal of the Formosan Medical Association	wrong publication type

1	Uckay	Outcomes of asymptomatic hospital employees in COVID-19 post-exposure quarantine during the second pandemic wave in Zurich	Journal of Hospital Infection	comparison group, wrong publication type
1	Vaman	Quarantine practices and COVID-19 transmission in a low-resource setting: Experience of Kerala, India	Journal of Family Medicine & Primary Care	comparison group, wrong intervention
1	Wiboonchutikula	Feasibility and safety of reducing duration of quarantine for healthcare personnel with high-risk exposures to coronavirus disease 2019 (COVID-19): From alpha to omicron	Infection control and hospital epidemiology	Risk of Bias
1	Wood	Social isolation and care at home	British Journal of Community Nursing	no pdf
1	Zhu	The immediate mental health impacts of the COVID-19 pandemic among people with or without quarantine managements.	Brain Behaviour and Immunity	wrong outcome
1	Zi	Research on COVID-19 prevention and control strategies, and the effect of home quarantine in Shenzhen, China, 2020	Research Square	wrong intervention
2	Al-Yahyai	Mathematical analysis of a COVID-19 model with different types of quarantine and isolation	Mathematical Biosciences & Engineering: MBE	modelling
2	Auranen	Efficacy and effectiveness of case isolation and quarantine during a growing phase of the COVID-19 epidemic in Finland	Scientific Reports	modelling
2	Jia	Outbreak of SARS-CoV-2 Omicron Infection in a Centralized Quarantine Location in Hangzhou, China	JAMA Network Open	no Comparison group
3	Forcadell-Diez	A large outbreak of COVID-19 linked to an end of term trip to Menorca (Spain) by secondary school students in summer 2021	PloS one	no comparison group
3	Ginzburg	Timing, extent and outcomes of public health measures in the first wave of the COVID-19 pandemic in Israel and a comparative analysis by socioeconomic indices	Isr. J. Health Policy Res.	mass quarantine
3	Salinas	Modelling quarantine effects on SARS-CoV-2 epidemiological dynamics in Chilean communes and their relationship with the Social Priority Index	Peer J	Wrong comparison group
3	Shearer	Estimating the impact of test-trace-isolate-quarantine systems on SARS-CoV-2 transmission in Australia	medRxiv	wrong intervention

Appendix 5: Empirical studies excluded following full-text review, for PICO 2

Version	Authors (et al.)	Article title	Journal	Reason
1	Abed Alah	Impact of COVID-19 related home confinement measures on the lifestyle, body weight, and perceived glycemic control of diabetics	Metabolism Open	comparison group
1	Alfaifi	The Psychological Impact of Quarantine During the COVID-19 Pandemic on Quarantined Non-Healthcare Workers, Quarantined Healthcare Workers, and Medical Staff at the Quarantine Facility in Saudi Arabia	Psychology Research & Behavior Management	wrong intervention
1	Almayahi	Psychological effects of, and compliance with, self-isolation among COVID-19 patients in South Batinah Governorate, Oman: a cross-sectional study	Egyptian Journal of Neurology, Psychiatry and Neurosurgery	wrong intervention
1	Bartel	Self-isolation: A significant contributor to cannabis use during the COVID-19 pandemic	Substance abuse	wrong intervention
1	Brailovskaia	Coronavirus (COVID-19) outbreak: Addictive social media use, depression, anxiety and stress in quarantine - an exploratory study in Germany and Lithuania	Journal Of Affective Disorders Reports	wrong intervention
1	Cetin	Effect of COVID-19 quarantine on patients admitted to neurosurgery outpatient Clinic individuals with COPD	Journal of Experimental and Clinical Medicine	wrong intervention
1	Chen	The Association Between Quarantine Duration and Psychological Outcomes, Social Distancing, and Vaccination Intention During the Second Outbreak of COVID-19 in China	International journal of public health	wrong intervention
1	Chen	Anxiety levels during a second local COVID-19 pandemic breakout among quarantined people: A cross sectional survey in China	Journal of Psychiatric Research	wrong intervention
1	Cohen	Differences in post-traumatic growth: Individual quarantine, COVID-19 duration and gender	Frontiers in Psychology	wrong intervention
1	Cooper	Self-weighing practices and associated health behaviors during covid-19 and related home confinement	Obesity	no PDF

1	Francis	Awareness of self-quarantine- a survey	European Journal of Molecular and Clinical Medicine	wrong intervention
1	Giovenco	Social isolation and psychological distress among southern US college students in the era of COVID-19	medRxiv	wrong intervention
1	Jiang	Entity theory of emotion was associated with more daily negative affect during quarantine: Evidence from a 14-day diary study among healthy young adults	Applied psychology. Health and well being.	wrong intervention
1	Kim	The psychological impact of COVID-19 pandemic in quarantine population	Asia Pacific Psychiatry	wrong publication type
1	Kim	Decreased cerebral blood flow in non-hospitalized adults who self-isolated due to COVID-19	medRxiv.	duplicate
1	Kim	MRI Assessment of Cerebral Blood Flow in Nonhospitalized Adults Who Self-Isolated Due to COVID-19	Journal of magnetic resonance imaging	comparison group
1	Kim	Depression During COVID-19 Quarantine in South Korea: A Propensity Score-Matched Analysis	Frontiers in public health	wrong intervention
1	Kolodziejczyk	Coping Styles, Mental Health, and the COVID-19 Quarantine: A Nationwide Survey in Poland	Frontiers in Psychiatry	wrong intervention
1	Konstantinidis	Short-Term Follow-Up of Self-Isolated COVID-19 Patients with Smell and Taste Dysfunction in Greece: Two Phenotypes of Recovery	Orl	comparison group
1	Kwon	What Matters for Depression and Anxiety During the COVID-19 Quarantine?: Results of an Online Cross-Sectional Survey in Seoul, South Korea	Frontiers in Psychiatry	comparison group
1	Kwon	Quarantining: a mentally distressful but physically comfortable experience in South Korea	Health and Quality of Life Outcomes	comparison group
1	Li	High compliance to infection control measures prevented guest-to-staff transmission in COVID-19 quarantine hotels	Journal of Infection	wrong outcome
1	Ma	Influence of social isolation caused by coronavirus disease 2019 (COVID-19) on the psychological characteristics of hospitalized schizophrenia patients: a case-control study	Translational Psychiatry	comparison group

1	Maya	Cost-effectiveness of antigen testing for ending COVID-19 isolation Short title: Cost-effectiveness of COVID-19 de-isolation strategies	medRxiv	wrong study design
1	Merrick	Differential impact of quarantine policies for recovered COVID-19 cases in England: a case cohort study of surveillance data, June to December 2020	BMC public health	wrong intervention
1	Misgana	Psychological Burden and Associated Factors of the COVID-19 Pandemic on People in Quarantine and Isolation Centers in Ethiopia: A Cross-Sectional Study	Frontiers in Psychiatry	wrong intervention
1	Mrduljas	Psychosocial effects of the quarantine during the first wave of the COVID-19 pandemic on the residents of the island of Brac	Family practice	comparison group
1	Nelson	SARS-CoV-2 Positivity on or after 9 Days among Quarantined Student Contacts of Confirmed Cases	JAMA	comparison group
1	Nkire	COVID-19 Pandemic: Demographic Predictors of Self-Isolation or Self-Quarantine and Impact of Isolation and Quarantine on Perceived Stress, Anxiety, and Depression	Frontiers in Psychiatry	comparison group
1	Noguchi	Social Isolation and Self-Reported Cognitive Decline Among Older Adults in Japan: A Longitudinal Study in the COVID-19 Pandemic	Journal of the American Medical Directors Association	wrong intervention
1	Omiya	How much of an impact did COVID-19 self-isolation measures have on mental health?	Asian Journal of Psychiatry	wrong intervention
1	O'Reilly	Impact of patient isolation on emergency department length of stay: A retrospective cohort study using the Registry for Emergency Care	Emergency Medicine Australasia	wrong intervention
1	Pardhan	Self-isolation negatively impacts self-management of diabetes during the coronavirus (COVID-19) pandemic	Diabetology and Metabolic Syndrome	wrong intervention
1	Partinen	Sleep and daytime problems during the COVID-19 pandemic and effects of coronavirus infection, confinement and financial suffering: A multinational survey using a harmonised questionnaire	BMJ Open	comparison group
1	Pineda-Garcia	Body Image, Anxiety, and Bulimic Behavior during Confinement Due to COVID-19 in Mexico	Healthcare	wrong intervention

1	Pinheiro	Quarantine of Travellers during the Initial Phase of the COVID-19 Pandemic- Experience from a Rural Setting in Kerala, India	Journal of Clinical and Diagnostic Research	wrong intervention
1	Plangger	Psychological effects of social isolation during the COVID-19 pandemic 2020.	GeroPsych	wrong intervention
1	Reagu	Psychological impact of the COVID-19 pandemic within institutional quarantine and isolation centres and its sociodemographic correlates in Qatar: A cross-sectional study	BMJ Open	comparison group
1	Schuch	Moderate to vigorous physical activity and sedentary behavior changes in self-isolating adults during the COVID-19 pandemic in Brazil: a cross-sectional survey exploring correlates	Sport Sciences for Health	wrong intervention
1	Shiba	Associations of home confinement during COVID-19 lockdown with subsequent health and well-being among UK adults	Current Psychology	wrong intervention
1	Silva	Home confinement and mental health problems during the Covid-19 pandemic among the population aged 50 and older: A gender perspective	SSM - Population Health	wrong intervention
1	Slimani	Effects of home-confinement during the Covid-19 outbreak on quality-of-life enjoyment and satisfaction and lifestyle behaviours	Acta Medica Mediterranea	wrong intervention
1	Spirito	COVID-19 Quarantine Dramatically Affected Male Sexual Behavior: Is There a Possibility to Go Back to Normality?	Journal of Clinical Medicine	wrong intervention
1	Stolakis	Effect of quarantine of COVID-19 pandemic on sleep quality, in elderly persons	European Geriatric Medicine	wrong publication type
1	Tang	COVID-19 related depression and anxiety among quarantined respondents	Psychology & health	mass quarantine
1	Tang	Effect of Repeated Home Quarantine on Anxiety, Depression, and PTSD Symptoms in a Chinese Population During the COVID-19 Pandemic: A Cross-sectional Study	Frontiers in Psychiatry	comparison group
1	Tokur	Comparison of anxiety levels of hospitalized COVID-19 patients, individuals under quarantine, and individuals in society	Perspectives in psychiatric care	comparison group

1	Torres	COVID-19 voluntary social isolation and its effects in sociofamily and children's behavior. [References]	Salud mental	comparison group
1	Tsai	Hotel-based quarantine center as a rapid response to COVID-19 outbreak, New Taipei, Taiwan, May to July 2021	Journal of the Formosan Medical Association	wrong intervention
1	Uckay	Outcomes of asymptomatic hospital employees in COVID-19 post-exposure quarantine during the second pandemic wave in Zurich	Journal of Hospital Infection	comparison group
1	Van Overmeire	Quarantine and post-traumatic stress disorder: An unlikely association	Minerva Psychiatry	no PDF
1	Wang	Depressive, anxiety, and insomnia symptoms between population in quarantine and general population during the COVID-19 pandemic: a case-controlled study	BMC Psychiatry	comparison group
1	Wessely	Changes in Alcohol Consumption, Eating Behaviors, and Body Weight during Quarantine Measures: Analysis of the CoCo-Fakt Study	Obesity Facts	comparison group
1	Wiboonchutikula	Feasibility and safety of reducing duration of quarantine for healthcare personnel with high-risk exposures to coronavirus disease 2019 (COVID-19): From alpha to omicron	Infection control and hospital epidemiology	RoB excluded
1	Wood	Social isolation and care at home	British Journal of Community Nursing	no PDF
1	Worrell	Adherence to and experiences of K-12 students in modified and standard home quarantine during the SARS-CoV-2 pandemic in Missouri	medRxiv	comparison group
1	Wright	Moderation of Technology Use in the Association Between Self-Isolation During COVID-19 Pandemic and Adolescents' Romantic Relationship Quality	Cyberpsychology, behavior and social networking	wrong intervention
1	Yastrebov	The effect of COVID-19 confinement and economic support measures on the mental health of older population in Europe and Israel	Social Science and Medicine	wrong intervention, wrong study design
1	Zampieri	Incidence of appendicitis during SARS-CoV-2 pandemic quarantine	Pediatrics International	wrong intervention
1	Zheng	A survey of the psychological status of primary school students who were quarantined at home during the coronavirus disease 2019 epidemic in Hangzhou China	Medrxiv	No comparison group

1	Zhu	The immediate mental health impacts of the COVID-19 pandemic among people with or without quarantine managements.	Brain, behavior, and immunity	wrong intervention
2	Abumunaser	Lower Back Pain Caused by the Impact of COVID-19 Quarantine on Physical Activity and Daily Sitting Among Adult Saudi Arabian Populations in Jeddah: A Cross-Sectional Study	Orthopedic Research & Reviews	Comparison group
2	Adhikari	Prevalence and factors associated with depression, anxiety, and stress symptoms among home isolated COVID-19 patients in Western Nepal	Dialogues in Health	No comparison group
2	Badellino	Early indicators and risk factors associated with mental health problems during COVID-19 quarantine: Is there a relationship with the number of confirmed cases and deaths?	International Journal of Social Psychiatry	wrong intervention
2	Blacutt	Changes in Stress, Depression, and Anxiety Symptoms in a Brazilian Sample During Quarantine Across the Early Phases of the COVID-19 Crisis	Psychological reports	wrong intervention
2	Charif	The consequences of confinement on patients followed at the heart failure treatment unit (UTIC): Experience of the cardiology department - CHU Ibn Rochd-Casablanca	Archives of Cardiovascular Diseases Supplements	wrong publication type
2	Fernandez Jimenez	Effects of social isolation on the cognitive status of people over 65 years of age during the SARS-CoV-2 pandemic: A longitudinal comparative study	Medwave	foreign language
2	Francisco	Psychological symptoms and behavioral changes in children and adolescents during the early phase of COVID-19 Quarantine in three European Countries	Frontiers in Psychiatry Vol 11 2020, ArtID 570164	wrong intervention
2	Giovenco	Social isolation and psychological distress among southern U.S. college students in the era of COVID-19	PLoS ONE	wrong intervention
2	Hong	Psychological impact of the 2022 round COVID-19 pandemic on china's college students	J. Shanghai Jiatong Univ.	wrong intervention
2	Junca-Silva	How daily positive affect increases students' mental health, in mandatory quarantine, through daily engagement: the moderating role of self-leadership	Heliyon	wrong study design

2	Jung	Psychological rehabilitation for isolated patients with COVID-19 infection: A randomized controlled study	PLoS ONE	wrong intervention
2	Kadotani	Editorial: The impact of social isolation and loneliness on mental health and wellbeing	Frontiers in Public Health	no pdf
2	Lin	More positive emotion, less stress perception?	Psychol. Res. Behav. Manag.	mass quarantine, no comparison gp
2	Machado	Influence of quarantine during the coronavirus disease 2019 (COVID-19) pandemic on physical and psychosocial aspects: perceptions of 214 Brazilian athletes	Global Health Journal	No comparison group
2	Melendez	Emotion recognition changes in a confinement situation due to COVID-19	Journal of Environmental Psychology	wrong study duration
2	Molina-Montes	Impact of COVID-19 confinement on eating behaviours across 16 European countries: The COVIDiet cross-national study	Food Quality & Preference	wrong intervention
2	Omiya	How much of an impact did COVID-19 self-isolation measures have on mental health?	Asian Journal of Psychiatry Vol 54 2020, ArtID 102445	background article
2	Parisi	Experiencing COVID-19, home isolation and primary health care: A mixed-methods study	Frontiers in Public Health	wrong outcome
2	Shaheen	Depression in COVID-19-positive Vaccinated Patients during Isolation and its Relation to Chronic Medical Diseases in Abu Dhabi, United Arab Emirates	Open Access Macedonian Journal of Medical Sciences	No comparison group
2	Weinberger-Litman	Psychological distress among the first quarantined community in the United States: Initial observations from the early days of the COVID-19 crisis	Journal of Cognitive Psychotherapy	No comparison group
2	Worrell	Adherence to and experiences of K-12 students in modified and standard home quarantine during the SARS-CoV-2 pandemic in Missouri	PLoS ONE [Electronic Resource]	wrong outcome
3	Alivernini	Physical distancing behavior: The role of emotions, personality, motivations, and moral decision-making.	Journal of Pediatric Psychology	mass quarantine
3	Chen	The association between quarantine duration and psychological outcomes, social distancing, and vaccination intention during the	International Journal of Public Health Vol 67 2022,	Wrong intervention

		second outbreak of COVID-19 in China		
3	Deng	The risks of death and hospitalizations associated with SARS-CoV-2 Omicron declined after lifting testing and quarantining measures.	The Journal of infection	no quarantine
3	Fong	Relationship between Health Status and Daily Activities Based on Housing Type among Suburban Residents during COVID-19 Self-Isolation.	Frontiers in psychiatry Frontiers Research Foundation	Wrong intervention
3	Gu	Relationship between Health Status and Daily Activities Based on Housing Type among Suburban Residents during COVID-19 Self-Isolation.	International journal of environmental research and public health	mass quarantine
3	Kent	Predictors of psychological distress during selfâ€isolation.	Psychology & Psychotherapy: Theory, Research & Practice	wrong intervention
3	Khatun	Assessment of Level of Depression and Associated Factors among COVID-19-Recovered Patients: a Cross-Sectional Study Self-compassion buffers the impact of learned helplessness on adverse mental health during COVID-19 lockdown Fall of viral and bacterial pneumonia hospitalizations following COVID-19 pandemic mitigation strategies: a central Italian Region retrospective study	Microbiol Spectr	wrong intervention
3	Landman	Emotional and behavioral changes in French children during the COVID-19 pandemic: a retrospective study	Sci Rep	mass quarantine
3	No authorship indicated	When social isolation is nothing new: A longitudinal study psychological distress during COVID-19 among university students with and without preexisting mental health concerns. Correction to Hamza et al. (2020).	Special Issue: Psychological Perspectives on the Pandemic / Perspectives psychologiques sur la pandemie	wrong intervention
3	Rosales	How Confinement and Back to Normal Affected the Well-Being and Thus Sleep, Headaches and Temporomandibular Disorders.	International journal of environmental research and public health	mass quarantine

Appendix 6: Empirical studies excluded following full-text review, for PICO 3

Version	Authors (et al.)		Article title	Journal
3	Forcadell-Diez		A large outbreak of COVID-19 linked to an end of term trip to Menorca (Spain) by secondary school students in summer 2021	PloS one
3	Ginzburg		Timing, extent and outcomes of public health measures in the first wave of the COVID-19 pandemic in Israel and a comparative analysis by socioeconomic indices	Isr. J. Health I Res.
3	Salinas		Modelling quarantine effects on SARS-CoV-2 epidemiological dynamics in Chilean communes and their relationship with the Social Priority Index	Peer J
3	Shearer		Estimating the impact of test-trace-isolate-quarantine systems on SARS-CoV-2 transmission in Australia	medRxiv

Appendix 7: Modelling studies excluded following full-text review

Version	Authors (et al.)	Article title	Journal	Reason
0	Abdollahi	Simulating the effect of school closure during COVID-19 outbreaks in Ontario, Canada	BMC Medicine	one time point
0	Adhikari	Transmission dynamics of COVID-19 in Nepal: Mathematical model uncovering effective controls	Journal of Theoretical Biology	one time point
0	Agusto	To isolate or not to isolate: the impact of changing behavior on COVID-19 transmission	BMC public health	one time point
0	Ahmad	A global report on the dynamics of COVID-19 with quarantine and hospitalization: A fractional order model with non-local kernel	Computational biology and chemistry	one time point
0	Akuka	Mathematical Analysis of COVID-19 Transmission Dynamics Model in Ghana with Double-Dose Vaccination and Quarantine	Computational and Mathematical Methods in Medicine	quarantine
0	Alam	EXPLORATION of the NOVEL CORONA VIRUS TRANSITION GRAPHS with PETRINET MODELING	Biomedical Engineering - Applications, Basis and Communications	wrong intervention
0	Albani	On the role of financial support programs in mitigating the SARS-CoV-2 spread in Brazil	BMC public health	wrong intervention
0	Aleta	Modelling the impact of testing, contact tracing and household quarantine on second waves of COVID-19	Nature human behaviour	one time point
0	Al-Hadeethi	Convolution model for COVID-19 rate predictions and health effort levels computation for Saudi Arabia, France, and Canada	Scientific reports	one time point
0	Ali	The role of asymptomatic class, quarantine and isolation in the transmission of COVID-19	Journal of biological dynamics	wrong intervention
0	Aronna	A model for COVID-19 with isolation, quarantine and testing as control measures	Epidemics	wrong intervention
0	Ashcroft	Quantifying the impact of quarantine duration on covid-19 transmission	eLife	wrong population
0	Ashcroft	Test-trace-isolate-quarantine (TTIQ) intervention strategies after symptomatic COVID-19 case identification	PLoS ONE	wrong population

0	Belval	Modeling the systemic risks of COVID-19 on the wildland firefighting workforce	Scientific reports	wrong intervention
0	Haw	Epidemiological profile and transmission dynamics of COVID-19 in the philippines	Epidemiology and Infection.	wrong intervention
0	Hu	Evaluation and prediction of the COVID-19 variations at different input population and quarantine strategies, a case study in Guangdong province, China	International Journal of Infectious Diseases	wrong outcome
0	Hui	Modelling testing and response strategies for COVID-19 outbreaks in remote Australian Aboriginal communities	BMC Infectious Diseases	wrong intervention
0	Ilyin	A Recursive Model of the Spread of COVID-19: Modelling Study	JMIR public health and surveillance	wrong intervention
0	Jen	A pre-symptomatic incubation model for precision strategies of screening, quarantine, and isolation based on imported COVID-19 cases in Taiwan	Scientific reports	wrong outcome
0	Jiang	The Dawn is Coming - the Description and Prediction of Omicron SARSCoV-2 Epidemic Outbreak in Shanghai by Mathematical Modeling	medRxiv.	wrong intervention
0	Jiang	Mathematical models for devising the optimal SARS-CoV-2 strategy for eradication in China, South Korea, and Italy	Journal of Translational Medicine	wrong outcome
0	Madubueze	Controlling the Spread of COVID-19: Optimal Control Analysis	Computational and Mathematical Methods in Medicine	wrong intervention
0	Mafugu	The Pattern of Coronavirus Cases in South Africa compared with the United States of America and South Korea	African journal of reproductive health	wrong intervention
0	Maier	Effective containment explains subexponential growth in recent confirmed COVID-19 cases in China	Science	wrong intervention
0	Majeed	Variant-specific interventions to slow down replacement and prevent outbreaks	Mathematical Biosciences	wrong intervention
0	Manathunga	A stochastic process based modular tool-box for simulating COVID-19 infection spread	Informatics in Medicine Unlocked	wrong intervention

0	Marshall	The impact of quarantine on COVID-19 infections	Epidemiologic Methods	wrong intervention
0	Mayor	Covid-19: Warning over transmission risk as self-isolation is cut to five days in England	BMJ (Clinical research ed.)	wrong study design
0	Qian	Policy choices for Shanghai responding to challenges of Omicron	Frontiers in public health	wrong intervention
0	Quilty	Test to release from isolation after testing positive for SARS-CoV-2	medRxiv.	wrong outcome
0	Sanz-Leon	Modelling herd immunity requirements in Queensland: impact of vaccination effectiveness, hesitancy and variants of SARS-CoV-2	Philosophical transactions	wrong outcome
0	Song	Pandemic policy assessment by artificial intelligence	Scientific reports	wrong outcome
0	Srikanth	A year into the pandemic: A mathematical model and study of covid-19 in india	Indian Journal of Public Health Research and Development	wrong study duration
0	Srivastav	A mathematical model for the impacts of face mask, hospitalization and quarantine on the dynamics of COVID-19 in India: deterministic vs. stochastic	Mathematical biosciences and engineering : MBE	wrong population
0	Steyn	Effect of vaccination, border testing, and quarantine requirements on the risk of COVID-19 in New Zealand: A modelling study	Infectious Disease Modelling	wrong study duration
0	Su	Evaluation of the Secondary Transmission Pattern and Epidemic Prediction of COVID-19 in the Four Metropolitan Areas of China	Frontiers in Medicine	wrong study duration
0	Sun	Forecasting the long-term trend of COVID-19 epidemic using a dynamic model	Scientific reports	wrong study duration
0	Sun	The epidemiological impact of the Canadian COVID Alert App	medRxiv.	wrong study duration
0	Sun	Estimating the effects of asymptomatic and imported patients on COVID-19 epidemic using mathematical modeling	Journal of Medical Virology	wrong study duration
0	Tadmon	A transmission dynamics model of COVID-19: Case of Cameroon	Infectious Disease Modelling	wrong study duration
0	Tajmirriahi	Statistical inference of COVID-19 outbreak: Delay distribution effect in EQIR modeling of epidemic	Journal of Medical Signals and Sensors	wrong intervention

0	Takeshita	Quantifying the Effect of Isolation and Negative Certification on Covid-19 Transmission	medRxiv.	wrong study duration
0	Tang	An updated estimation of the risk of transmission of the novel coronavirus (2019-nCov)	Infectious Disease Modelling	wrong intervention
0	Tang	Estimation of the transmission risk of the 2019-nCoV and its implication for public health interventions	Journal of Clinical Medicine	wrong outcome
0	Tang	Erratum: The effectiveness of quarantine and isolation determine the trend of the COVID-19 epidemic in the final phase of the current outbreak in China (International Journal of Infectious Diseases (2020) 95 (288-293), (S1201971220301375), (10.1016/j.ijid.2020.03.018))	International Journal of Infectious Diseases	wrong study duration
0	Tang	The minimal COVID-19 vaccination coverage and efficacy to compensate for a potential increase of transmission contacts, and increased transmission probability of the emerging strains	BMC public health	wrong study duration
0	Tatapudi	Impact of vaccine prioritization strategies on mitigating COVID-19: an agent-based simulation study using an urban region in the United States	BMC medical research methodology	wrong study duration
0	Tatapudi	Impact of school reopening on pandemic spread: A case study using an agent-based model for COVID-19	Infectious Disease Modelling	wrong study duration
0	Teklu	Mathematical analysis of the transmission dynamics of COVID-19 infection in the presence of intervention strategies	Journal of biological dynamics	wrong study duration
0	Tsay	Modeling, state estimation, and optimal control for the US COVID-19 outbreak	Scientific reports	wrong outcome
0	Tuite	Mathematical modelling of COVID-19 transmission and mitigation strategies in the population of Ontario, Canada	Cmaj	wrong study duration
0	Valiati	Modelling policy combinations of vaccination and transmission suppression of SARS-CoV-2 in Rio de Janeiro, Brazil	Infectious Disease Modelling	wrong outcome
0	Wang	Mathematical modeling of mutated COVID-19 transmission with quarantine, isolation and vaccination	Mathematical biosciences and engineering : MBE	wrong intervention

0	Wei	COVID-19 prevention and control in China: grid governance	Journal of public health (Oxford, England)	wrong population
0	Wilson	Quantifying SARS-CoV-2 Infection Risk Within the Google/Apple Exposure Notification Framework to Inform Quarantine Recommendations	Risk analysis : an official publication of the Society for Risk Analysis	wrong population
0	Wong	Impact of pre-event testing and quarantine on reducing the risk of COVID-19 epidemic rebound: a modelling study	BMC Infectious Diseases	wrong intervention
0	Xing	Predicting the effect of confinement on the COVID-19 spread using machine learning enriched with satellite air pollution observations	Proceedings of the National Academy of Sciences of the United States of America	wrong study duration
0	Xu	Effectiveness of non-pharmaceutical interventions against local transmission of COVID-19: An individual-based modelling study	Infectious Disease Modelling	wrong intervention
0	Xu	A Deterministic Agent-based Model with Antibody Dynamics Information in COVID-19 Epidemic Simulation	medRxiv.	no end time point
0	Yang	Mathematical modeling of the transmission of SARS-CoV-2-Evaluating the impact of isolation in Sao Paulo State (Brazil) and lockdown in Spain associated with protective measures on the epidemic of CoViD-19	PLoS ONE	wrong intervention
0	Yang	Impact of household quarantine on SARS-Cov-2 infection in mainland China: A mean-field modelling approach	Mathematical biosciences and engineering : MBE	wrong intervention
0	Yang	A dynamic model of the Coronavirus Disease 2019 outbreak to analyze the effectiveness of control measures	Medicine	wrong intervention
0	Yang	An SEIR Model for Investigation on Covid-19 Pandemic of Indian Kerala Region with Vaccination and Quarantine	International Journal of Pharma Medicine and Biological Sciences	wrong intervention
0	Yong	From pandemic to a new normal: Strategies to optimise governmental interventions in Indonesia based on an SVEIQHR-type mathematical model	Infectious Disease Modelling	wrong intervention

0	Yousif	The impact of intervention strategies and prevention measurements for controlling COVID-19 outbreak in Saudi Arabia	Mathematical biosciences and engineering : MBE	wrong intervention
0	Yu	Assessing the Impact of Continuous Vaccination and Voluntary Isolation on the Dynamics of COVID-19: A Mathematical Optimal Control of SEIR Epidemic Model	Computational intelligence and neuroscience	wrong intervention
0	Yuan	Global dynamics of COVID-19 epidemic model with recessive infection and isolation	Mathematical biosciences and engineering : MBE	wrong intervention
0	Zarif	The impact of primary care supported shielding on the risk of mortality in people vulnerable to COVID-19: English sentinel network matched cohort study	Journal of Infection	wrong outcome
0	Zhang	Analysis of efficacy of intervention strategies for COVID-19 transmission: A case study of Hong Kong	Environment International	wrong intervention
0	Zhang	Evaluating the impact of stay-at-home and quarantine measures on COVID-19 spread	BMC Infectious Diseases	wrong intervention
0	Zhang	Transmission dynamics and control measures of COVID-19 outbreak in China: a modelling study	Scientific reports	wrong intervention
0	Zhang	Analysis of COVID-19 prevention and control effects based on the seitrd dynamic model and Wuhan epidemic statistics	International Journal of Environmental Research and Public Health	wrong intervention
0	Zhao	COVID-19 in Shanghai: IPC policy exploration in support of work resumption through system dynamics modeling	Risk Management and Healthcare Policy	wrong intervention
0	Zhao	Modeling and Global Sensitivity Analysis of Strategies to Mitigate Covid-19 Transmission on a Structured College Campus	medRxiv.	wrong intervention
0	Zhao	Computational and Mathematical Methods in Medicine Prediction of COVID-19 in BRICS Countries: An Integrated Deep Learning Model of CEEMDAN-R-ILSTM-Elman	Computational and Mathematical Methods in Medicine	wrong outcome
0	Zhou	The global COVID-19 pandemic at a crossroads: Relevant countermeasures and ways ahead	Journal of Thoracic Disease	wrong intervention
0	Zhu	Effects of prolonged incubation period and centralized quarantine	BMC Medicine	wrong intervention

		on the COVID-19 outbreak in Shijiazhuang, China: a modeling study		
0	Zu	Transmission patterns of COVID-19 in the mainland of China and the efficacy of different control strategies: a data- And model-driven study	Infectious Diseases of Poverty	wrong intervention
0	Zuo	Comparison of COVID-19 Pandemic Dynamics in Asian Countries with Statistical Modeling	Computational and Mathematical Methods in Medicine	wrong intervention
0	Zweig	Impact of Public Health and Social Measures on the COVID-19 Pandemic in the United States and Other Countries: Descriptive Analysis	JMIR public health and surveillance	wrong intervention
1	Aba Oud	A fractional order mathematical model for COVID-19 dynamics with quarantine, isolation, and environmental viral load	Advances in Difference Equations	wrong study duration
1	Alton Russell	Effectiveness of quarantine and testing to prevent COVID-19 transmission from arriving travelers	medRxiv.	wrong outcome
1	Ashcroft	Quantifying the impact of quarantine duration on covid-19 transmission	eLife	wrong outcome
1	Chen	Combined interventions to suppress R0 and border quarantine to contain COVID-19 in Taiwan	Journal of the Formosan Medical Association	wrong intervention
1	Crokidakis	COVID-19 spreading in Rio de Janeiro, Brazil: Do the policies of social isolation really work?	Chaos Solitons & Fractals	wrong intervention
1	De Assis	Primary health care and social isolation against COVID-19 in Northeastern Brazil: Ecological time-series study	PLoS ONE	wrong study duration
1	Dickens	Institutional, not home-based, isolation could contain the COVID-19 outbreak	The Lancet	wrong study duration
1	Eilersen	Estimating cost-benefit of quarantine length for COVID-19 mitigation	medRxiv.	wrong outcome
1	Escola-Gascon	Pseudoscientific beliefs and psychopathological risks increase after COVID-19 social quarantine	Globalization and Health	wrong intervention
1	Escriva-Martinez	Eating behaviors, eating styles and body mass index during COVID-19 confinement in a college sample: a predictive model	Journal of Eating Disorders	wrong intervention

1	Ferrettis	Modelling the effectiveness and social costs of daily lateral flow antigen tests versus quarantine in preventing onward transmission of COVID-19 from traced contacts	medRxiv.	wrong intervention
1	Foncea	Replacing quarantine of COVID-19 contacts with periodic testing is also effective in mitigating the risk of transmission	Scientific reports	wrong outcome
1	Forslid	Assessing the consequences of quarantines during a pandemic	European Journal of Health Economics	wrong intervention
1	Fulk	Assessing the Impacts of COVID-19 and Social Isolation on Mental Health in the United States of America	medRxiv.	wrong intervention
1	Gondim	Optimal quarantine strategies for the COVID-19 pandemic in a population with a discrete age structure	Chaos Solitons & Fractals	mass quarantine
1	Grigorieva	Optimal quarantine-related strategies for COVID-19 control models	Studies in Applied Mathematics	duplicate
1	Grigorieva	Optimal quarantine strategies for COVID-19 control models		mass quarantine
1	Jen	A pre-symptomatic incubation model for precision strategies of screening, quarantine, and isolation based on imported COVID-19 cases in Taiwan	Scientific reports	wrong intervention
1	Johansson	Reducing travel-related SARS-CoV-2 transmission with layered mitigation measures: Symptom monitoring, quarantine, and testing	BMC medicine	wrong intervention
1	Khauli	How does quarantine impact young adults' drinking patterns? a conditional process model	Alcoholism: Clinical and Experimental Research	conference abstract
1	Kouidere	Optimal Control of Mathematical modeling of the spread of the COVID-19 pandemic with highlighting the negative impact of quarantine on diabetics people with Cost-effectiveness	Chaos Solitons & Fractals	wrong intervention
1	Kucharski	Effectiveness of isolation, testing, contact tracing, and physical distancing on reducing transmission of SARS-CoV-2 in different settings: a mathematical modelling study	The Lancet Infectious Diseases	wrong comparison
1	Kuniya	Possible effects of mixed prevention strategy for COVID-19 epidemic:	Aims Public Health	wrong intervention

		massive testing, quarantine and social distancing		
1	Lambert	A mathematically rigorous assessment of the efficiency of quarantining and contact tracing in curbing the COVID-19 epidemic	Mathematical modelling of natural Phenomena	wrong comparison
1	Li	Estimating the quarantine failure rate for COVID-19	Infectious Disease Modelling	wrong outcome
1	Marquioni	Quantifying the effects of quarantine using an IBM SEIR model on scalefree networks	Chaos Solitons & Fractals	wrong intervention
1	Motta	Benefits of Surveillance Testing and Quarantine in a SARS-CoV-2 Vaccinated Population of Students on a University Campus	medRxiv.	wrong comparison
1	Mukhamadiarov	Requirements for the containment of COVID-19 disease outbreaks through periodic testing, isolation, and quarantine	medRxiv.	wrong outcome
1	National Center for, Immunization and Respiratory Diseases, Division of Viral Diseases	Science Brief: Options to Reduce Quarantine for Contacts of Persons with SARS-CoV-2 Infection Using Symptom Monitoring and Diagnostic Testing	Centers for Disease Control and Prevention	wrong outcome
1	Ngonghala	Human choice to self-isolate in the face of the COVID-19 pandemic: A game dynamic modelling approach	Journal of Theoretical Biology	wrong intervention
1	Peng	Reducing COVID-19 quarantine with SARS-CoV-2 testing: A simulation study	BMJ Open	wrong intervention
1	Quilty	Quarantine and testing strategies in contact tracing for SARS-CoV-2: a modelling study	The Lancet public health	wrong outcome
1	Quilty	Quarantine and testing strategies to reduce transmission risk from imported SARS-CoV-2 infections: a global modelling study	medRxiv	wrong comparison
1	Sararat	Community vaccination can shorten the COVID-19 isolation period: an individual-based modeling approach	medRxiv.	duplicate
1	Sararat	Individual-based modeling reveals that the COVID-19 isolation period can be shortened by community vaccination	Scientific reports	Previously included in 13.0
1	Toorn	COVID Strategy Calculator: A standalone software to assess testing- and quarantine strategies	medRxiv.	wrong outcome

		for incoming travelers, contact person management and de-isolation		
1	Ubara	Self-isolation due to COVID-19 is linked to small one-year changes in depression, sleepiness, and insomnia: Results from a clinic for sleep disorders in Shiga Prefecture, Japan	International Journal of Environmental Research and Public Health	wrong intervention
1	van der Toorn	An intra-host SARS-CoV-2 dynamics model to assess testing and quarantine strategies for incoming travelers, contact management, and de-isolation	Patterns	wrong outcome
1	Venturieri	Mitigation of COVID-19 using social distancing of the elderly in Brazil: The vertical quarantine effects in hospitalizations and deaths	medRxiv.	mass quarantine
1	Wang	Determination and estimation of optimal quarantine duration for infectious diseases with application to data analysis of COVID-19	Biometrics	wrong outcome
1	Wells	Quarantine and testing strategies to ameliorate transmission due to travel during the COVID-19 pandemic: a modelling study	The Lancet Regional Health. Europe	mass quarantine
1	Wells	Quarantine and serial testing for variants of SARS-CoV-2 with benefits of vaccination and boosting on consequent control of COVID-19	Oxford : Oxford University Press on behalf of the National Academy of Sciences	mass quarantine
1	Wells	Comparative analyses of eighteen rapid antigen tests and RT-PCR for COVID-19 quarantine and surveillance-based isolation	Communication medicale	mass quarantine
1	Yang	A fatality data based on an optimized SEIR Model for Epidemic: A study about the testing and quarantining	Research Square	wrong outcome
1	Yuan	The importance of the timing of quarantine measures before symptom onset to prevent COVID-19 outbreaks - illustrated by Hong Kong's intervention model	medRxiv	wrong study duration
1	Yuan	Effectiveness of quarantine measure on transmission dynamics of COVID-19 in Hong Kong	medRxiv	wrong study duration
1	Zhang	Evaluating the impact of quarantine measures on COVID-19 spread	arxiv	wrong comparison

1	Zhu	Dynamic analysis of a delayed COVID-19 epidemic with home quarantine in temporal-spatial heterogeneous via global exponential attractor method	Chaos Solitons & Fractals	wrong comparison
2	Al-Yahyai	Mathematical analysis of a COVID-19 model with different types of quarantine and isolation	Mathematical Biosciences & Engineering: MBE	quarantine
2	Auranen	Efficacy and effectiveness of case isolation and quarantine during a growing phase of the COVID-19 epidemic in Finland	Scientific Reports	quarantine
2	Junca-Silva	How daily positive affect increases students' mental health, in mandatory quarantine, through daily engagement: the moderating role of self-leadership	Heliyon	wrong intervention
2	Nuraini	The Impact of COVID-19 Quarantine on Tuberculosis and Diabetes Mellitus Cases: A Modelling Study	Tropical Medicine and Infectious Disease	wrong study design
3	Deng	The risks of death and hospitalizations associated with SARS-CoV-2 Omicron declined after lifting testing and quarantining measures.	The Journal of infection	no quaratine
3	Shearer	Estimating the impact of test-trace-isolate-quarantine systems on SARS-CoV-2 transmission in Australia	medRxiv	wrong intervention

Appendix 8: PICOs and eligibility criteria

A8.1: PICO 1: What is the effectiveness of different quarantine or isolation periods (e.g., 10 days, < 10 days) on COVID-19 transmission?

	Inclusion	Exclusion
Participants	**Quarantine**: Individuals who have had contact with someone who has suspected or confirmed covid. **Isolation**: Individuals with confirmed COVID or symptoms	
Exposure	A specific duration of quarantine or isolation, as defined by government policy	• Mass quarantine: Quarantine based on local policy (e.g., in schools) where there is no requirement to have COVID or had contact with someone with COVID. • Lockdown: Mass restriction of movement for all members of society. • Other isolation: All other reasons why people might isolate (e.g., personal choice)
Comparison	At least one other specific duration of quarantine or isolation, as defined by government policy	
Outcomes	Secondary transmission (transmitted infections)	• Development of COVID within individuals who have been quarantined or isolated • Immunogenicity
Study design	Longitudinal studies with prospectively captured data such as: • randomised or non-randomized trials and quasi-randomized studies (e.g., allocated by site, county/city, date of birth design); unit of allocation may be individuals or clusters • observational studies with at least one time point from baseline	• Modeling studies • Qualitative studies • Case reports/series • Reviews

	Cross-sectional studies such as: • Cross-sectional studies with at least two cohorts • Comparisons across countries with different isolation policies	
Languages	English	Other languages

A8.2: PICO 2: What is the effectiveness of quarantine or isolation on individual or social outcomes (e.g., mental health, ability to work, maintaining essential services, etc.)?

	Inclusion	**Exclusion**
Participants	**Quarantine**: Individuals who have had contact with someone who has suspected or confirmed covid. **Isolation**: Individuals with confirmed COVID or symptoms	
Exposure	A specific duration of quarantine or isolation, as defined by government policy	• Mass quarantine: Quarantine based on local policy (e.g., in schools) where there is no requirement to have COVID or had contact with someone with COVID. • Lockdown: Mass restriction of movement for all members of society. • Other isolation: All other reasons why people might isolate (e.g., personal choice)
Comparison	• At least one other specific duration of quarantine or isolation, as defined by government policy • A group who are not exposed to quarantine or isolation	
Outcomes	• Mental health • Personal financial impacts • Societal impacts • Healthcare workforce impacts	

Study design	Longitudinal studies with prospectively captured data such as: • randomised or non-randomized trials and quasi-randomized studies (e.g., allocated by site, county/city, date of birth design); unit of allocation may be individuals or clusters • observational studies with at least one time point from baseline Cross-sectional studies such as: • Cross-sectional studies with at least two cohorts • Comparisons across countries with different isolation policies	• Modeling studies • Qualitative studies • Case reports/series • Reviews
Languages	English	Other languages

A8.3: What is the effectiveness of quarantine or isolation compared to no quarantine or isolation on COVID-19 transmission?

	Inclusion	**Exclusion**
Participants	**Quarantine**: Individuals who have had contact with someone who has suspected or confirmed covid. **Isolation**: Individuals with confirmed COVID or symptoms	
Exposure	A specific duration of quarantine or isolation, as defined by government policy	• Mass quarantine: Quarantine based on local policy (e.g., in schools) where there is no requirement to have COVID or had contact with someone with COVID. • Lockdown: Mass restriction of movement for all members of society. • Other isolation: All other reasons why people might isolate (e.g., personal choice)

Comparison	At least one other specific duration of quarantine or isolation, as defined by government policy	
Outcomes	Secondary transmission (transmitted infections)	• Development of COVID within individuals who have been quarantined or isolated • Immunogenicity
Study design	Longitudinal studies with prospectively captured data such as: • randomised or non-randomized trials and quasi-randomized studies (e.g., allocated by site, county/city, date of birth design); unit of allocation may be individuals or clusters • observational studies with at least one time point from baseline Cross-sectional studies such as: • Cross-sectional studies with at least two cohorts • Comparisons across countries with different isolation policies	• Modeling studies • Qualitative studies • Case reports/series • Reviews
Languages	English	Other languages

Appendix 9: Databases and search strategy

MEDLINE and EMBASE via OVID
1. (isolat* adj2 (social or patient? or home or mandated or mandatory or voluntary or resident* or hotel or period? or expos* or contact? or suspected or community or practice? or strateg* or procedure? or precaution? or protocol?)).ti.
2. (self isolat* or confin* or quaranti*).ti.
3. "isolat*".ti.
4. policy.ti.
5. policies.ti.
6. 4 or 5
7. 3 and 6
8. 1 or 2 or 7
9. limit 8 to english language
10. limit 9 to covid-19
11. limit 10 to dd=20230130-20230320 [for EMBASE]
12. limit 11 to dt=20230130-20230320 [for Medline]]
13. remove duplicates from 12
NIH iSEARCH COVID-19
1. ("isolat*" OR confin* OR quaranti* OR (isolat* AND (policy OR policies)))
LIMITS **Date**: January 30, 2023 to March 20, 2023 **Field**s: Title. **Source**: choose all except “peer reviewed (PubMed)”
PA PsycInfo 1806 to January Week 4 2023 (OVID)
1.("COVID 19" or "sars cov 2" or "sars cov 2" or "severe acute respiratory syndrome coronavirus 2" or ncov or "2019 ncov" or "coronavirus infections" or coronavirus or coronavirus or coronaviruses or betacoronavirus or betacoronavirus or betacoronaviruse or "wuhan coronavirus" or 2019nCoV or Betacoronavirus* or "Corona Virus*" or Coronavirus* or Coronovirus*OR CoV or CoV2 or COVID or COVID19 or COVID-19 or HCoV-19 or nCoV or "SARS CoV 2" or SARS2 or SARSCoV or SARS-CoV or SARS-CoV2).af.
2. (isolat* adj2 (social or patient? or home or mandated or mandatory or voluntary or resident* or hotel or period? or expos* or contact? or suspected or community or practice? or strateg* or procedure? or precaution? or protocol?)).ti.
3. (self isolat* or confin* or quaranti*).ti.
4. "isolat*".ti.
5. policy.ti.
6. policies.ti.
7. 5 or 6
8. 1 and 4 and 7
9. 2 or 3
10. 1 and 9
11. 8 or 10

12. limit 11 to up=20230130-20230320
13. limit 12 to english language

Appendix 10: Approach to critical appraisal

Study characteristics

Study design: Longitudinal or cross-sectional

PICO: PICO 1 or PICO 2

Outcomes measured: Provide details of outcome(s) evaluated for this RoB assessment (note that there could be different RoB assessments for PICO 1 and PICO 2 within the same study)

Location: The country or countries where the data was collected

Population: The nature of the population studied

1. Bias due to confounding

Does the study include participants with prior COVID infection (for PICO 1 only?)?

Examples and typical judgement:

- Excluded if positive results within past 90 days and adjusted for past infection > 90 days = low
- Sensitivity analysis or analyzed separately = low
- Inclusion of prior infection status as a covariate in the models = moderate
- Excluded only if positive within last 90 days = moderate
- Not excluded nor analyzed separately = serious

Does the study account for calendar time?

Examples and typical judgement:

- Data capture in the cohorts is conducted at the same time and the cohorts are experiencing comparable COVID-19 circumstances = low
- Inclusion of calendar time as a covariate in the model = moderate
- Use of time-varying statistical models without explicit mention of adjustment for calendar time = serious
- Not taken into account = critical

Did the authors use an appropriate analysis method that adjusted for all the important confounding domains?

Examples and typical judgement:

- Use of procedures that can account for unmeasured confounders (e.g., propensity-based methods) = moderate
- Use of RCT which broke the randomization over an extended follow-up but didn't adjust for any factors = serious
- No or insufficient adjustment for one of the following: age; sex; race/ethnicity; socioeconomic factors; occupational status (employed, not employed, student); occupation type (HCW, LTC); or chronic medical conditions = serious
- No or insufficient adjustment for multiple important prognostic factors = critical

2. Bias in selection of participants into the study

Does the study have an appropriate comparison group?

Examples and typical judgement:

Comparison groups in multi-cohort cross-sectional studies (i.e., multiple groups measured separately):

- Cohort in the same country/province/state measured at the same time as the intervention group = moderate
- Cohort in a different country/province/state measured at the same time as the intervention group = serious
- Cohort in the same country/province/state measured at a different time as the intervention group but in the pandemic = serious
- Cohort in a different country/province/state measured at a different time as the intervention group but in the pandemic = serious
- Cohort in the same country/province/state measured at a different time as the intervention group but before the pandemic = critical
- Cohort in a different country/province/state measured at a different time as the intervention group but before the pandemic = critical

Comparison groups in longitudinal single cohort studies (i.e., one group followed over time):

- Pre-quarantine/isolation measure that was captured during the pandemic = serious
- Post-quarantine/isolation measure that was captured during the pandemic = critical
- Pre-quarantine/isolation measure that was captured prior to the pandemic = critical

3. Bias in classification of interventions

Method for confirming COVID-19 status

Examples and typical judgement:

- Participants in isolation have an externally confirmed COVID-19 test (e.g., hospital PCR test) = low
- Participants in quarantine have been in contact with someone with an externally confirmed COVID-19 test = low
- Participants in isolation have a positive rapid antigen test that was self-administered = moderate
- Participants in quarantine have been in contact with someone who had a positive rapid antigen test that was self-administered = moderate
- Participants in isolation are reporting symptoms with no confirmed positive COVID-19 test = serious
- Participants in quarantine have been in contact with someone reporting symptoms with no confirmed positive COVID-19 test = serious

4. Bias due to deviations from intended interventions

Did the authors assess and adjust for adherence to isolation/quarantine?

Examples and typical judgement:

- Adherence was measured and accounted for in analyses = low
- Adherence was measured and reported as high, but not accounted for = moderate
- Adherence was measured and reported as low, but not accounted for = serious
- Adherence wasn't assessed and/or reported = serious

5. Risk of bias due to missing data

How did authors manage missing data?

Examples and typical judgement:

- Outcome data was available for all, or nearly all participants in both the intervention and comparison groups = low
- Appropriate statistical methods were used to account for missingness (e.g., multiple imputation) = low
- There was a similar proportion of participants excluded from both the intervention and comparison groups due to missing data, and the total amount of missingness was relatively low = moderate
- There was a notable imbalance between the proportion of participants excluded between the intervention and comparison groups due to missing data = serious
- There was significant missing data within one or both groups = critical

6. Risk of bias in measurement of outcomes

Databases used for retrieval of COVID transmission data (PICO 1 only)

Examples and typical judgement:

- National or state or provincial registry/surveillance database/study/HMO/outbreak investigation = low
- Study specific database with PCR testing = low
- EMR/EHR/employee records = moderate
- Study specific database with rapid antigen testing = moderate
- Study specific database with symptom reporting = serious

Measurement tool used for PICO 2 outcomes

Examples and typical judgement:

- Validated and appropriately translated tool was used = low
- Validated, but not appropriately translated, tool was used = moderate
- "Homemade" tool was used (all outcomes except mental health) = serious
- "Homemade" tool was used for a mental health outcome = critical