
The Covid19 Pandemic and the Emergent Need for Quarantine Medicine.

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The word quarantine comes from *quarantena*, meaning “forty days”, used in the 14th – 15th century Venetian vernacular to designate the period that all ships were required to be isolated before anyone could go ashore during the Black Death plague epidemic. (Finsnes, 2013)

Quarantine is a restriction on the movement of people to prevent the spread of disease. The term specifically relates to those who may have been exposed to a communicable disease, but do not have a confirmed medical diagnosis. This is distinct from medical isolation, in which those confirmed to be infected with a communicable disease are isolated from the healthy population while undergoing treatment. (*What Is The Difference Between “Quarantine” And “Isolation”?* | *Dictionary.Com*, n.d.)

The concept of quarantine dates back thousands of years but emerged as a bona fide public health strategy in more recent history. Well known examples include the 1666 cordon sanitaire imposed on Eyam in England to stop the bubonic plague, the quarantine camp established in 1814 in Australia following the arrival of the typhoid- infested convict ship *Surry* into Sydney Harbour from England, and the 21-day quarantine the Apollo astronauts underwent between 1969 – 1971 to prevent any spread of disease from possible exposure

to microorganisms on the moon. (Race, 1995) (*The Sydney Gazette and New South Wales Advertiser*, 1814) (Gifford, 2019)

Today, disaster medicine, public health, infectious disease, and psychosocial specialists involved in the Covid-19 pandemic response have begun to coalesce around a series of evidence-based best practices for quarantine which, due to the medical and psychological complexity of these strategies, could be termed “Quarantine Medicine” (QM). (Girum et al., 2020) (Padhi et al., 2020) (Jurblum et al., 2020) An example of one such strategy coming from this movement is the emerging use of medical-hotel quarantine.

Implementing a large-scale mandatory quarantine policy is fraught with challenges. Determining the shortest safe quarantine period, effective testing strategies, and techniques to minimise psychological impact, with all being based on emerging evidence, necessitates a carefully coordinated and scalable public health initiative.

QM is further complicated by ethical, economic, and legal considerations, prompting the necessity for critical decisions around mobilising a large policy, law enforcement, and healthcare workforce featuring complex multi-agency collaboration. This must occur in a rapidly developing and uncertain pandemic

landscape, while striking a balance with individual liberties.

Many questions remain unanswered from a health perspective: What are the short- and long-term mental health effects of mandatory quarantine on both healthy quarantine patients and those with pre-existing mental or physical health issues? What is considered an acceptable quarantine tolerance for the general population, and how does that differ between cultures? In hotel-based quarantine, what level of psychological support and basic infectious disease training do ancillary hotel and security staff need, given the foreign and potentially anxiety-provoking environment they suddenly find themselves in? What level of tolerance and resilience does the public have to mandatory quarantine, and how sustainable is this model in the medium term? What is the role of medical staff embedded in the hotel quarantine system, and how will quarantine guidelines change with the roll-out of a vaccine? Are hotel converted quarantine facilities good enough or should we mandate purpose-built facilities? While the explosion of research into QM throughout the COVID-19 pandemic has begun to shed light on these questions, much research is still needed.

There is currently no global medical consensus on the best quarantine format, with most countries employing a continuously reviewed system to determine needs. The medical and psychological support within mandatory quarantine facilities vary considerably, as do testing schedules.

For example, Iceland offers travellers the option for a full 14-day quarantine with no testing, or a shortened 5-6-day quarantine with polymerase chain reaction (PCR) testing.

Individuals with proof of previous Covid 19 infection or antibodies can be exempted from quarantine and screening altogether. (*Instructions for Quarantine for Visitors in Iceland. Chief Epidemiologist for Iceland. Directorate of Health, 2020*)

Some countries, like Australia, employ different quarantine strategies for international arrivals to each state and territory. (Graham et al., 2020) The state of New South Wales, for example, with a thus far successful suppression strategy, has a mandatory 14-day quarantine policy at designated police/health/hotel hybrid facilities, with daily nursing checks and day 2 and day 10 swab testing. (Australian Government, 2020) Exemptions to hotel quarantine are rarely granted, and only considered where there are strong medical, health, or compassionate grounds, or the person is transiting to an international destination. (*Exemptions for Air and Maritime Quarantine - COVID-19 (Coronavirus), n.d.*)

Quarantine is only one of many non-pharmaceutical interventions used in a pandemic. Each country must utilise the best scientific evidence and healthcare resources available to them while considering their specific public health, economic, and political landscape, to find a solution that best fits their situation.

As the human population grows, the frequency of epidemics and pandemics are expected to increase. (Smolinski et al., 2003) Given this, quarantine medicine will continue to evolve, with much research needed in this area to better educate and inform the academic and medical community on its complexities, leading to improved, evidence-based practice.

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