Supplementary Table 1. List of key system parameters and baseline values used in the model

Abbreviation	Full Name	Description	Baseline value	
			Muslim	**Others**
S	Susceptible	Individuals at risk of infection	1,567,736	544,064
Ec	Exposed (Community)	Exposed, not quarantined	0	0
Eq	Exposed (Quarantine)	Exposed individuals under quarantine	0	0
Ics	Infectious Symptomatic (Community)	Symptomatic, infectious in community	10	0
Iisc	Infectious Symptomatic Isolated (from Community)	Symptomatic, isolated from community	0	0
Iisq	Infectious Symptomatic Isolated (from Quarantine)	Symptomatic, isolated from quarantine	0	0
Ica	Infectious asymptomatic (Community)	Asymptomatic, infectious in community	10	0
Iiac	Infectious Asymptomatic Isolated (from Community)	Asymptomatic, isolated from community	0	0
Iiaq	Infectious Asymptomatic Isolated (from Quarantine)	Asymptomatic, isolated from quarantine	0	0
H	Hospitalized	Severe hospitalized cases	0	0
R	Recovered	Individuals who have acquired immunity either through recovery from infection or vaccination	0	0
D	Dead	Individuals who died due to the infection	0	0

Supplementary Table 2. List of key system variables and values used in the baseline model

Variable Description	Symbol	Definition	Value	Source
Transmission rate	β	Rate of transmission per contact	R_o / d	Derived
Basic reproduction number	R_o	Average number of secondary infections per case	2 [0.45 (community)–8.1 (hospital)]	CDC Korea & Saudi Arabia [link]
Duration of infectiousness	d	Duration that an infected person can spread the disease	10 days	OSHA [link]
Incubation period (total)	τ_inc	Time from exposure to becoming infectious	5 days (range 2–14)	CDC [link]
Quarantine delay (exposed)	τ_quar_E	Time from exposure until quarantine	3 days	Assumed
Remaining incubation in quarantine	τ_remain_inc	Incubation left after quarantined delay = τ_inc – τ_quar_E	5–3=2 days	Assumed
Quarantine tendency	θ_quar	Proportion of exposed individuals quarantined	0.30	Assumed
Symptom tendency	θ_symp	Probability that an exposed person becomes symptomatic	0.50	PMC [link1], [link2]
Isolation delay (symptomatic)	τ_iso_Is	Time from becoming infectious (symp) to isolation	4 days	Assumed
Isolation delay (asymptomatic)	τ_iso_Ia	Time from becoming infectious (asymp) to isolation	8 days	Assumed
Isolation tendency (symptomatic)	θ_iso_symp	Proportion of symptomatic individuals isolated	0.70	Assumed
Isolation tendency (asymptomatic)	θ_iso_asym	Proportion of asymptomatic individuals isolated	0.50	Assumed
Time to severe illness	τ_sev	Time from onset to becoming severe	5 days	CDC [link]
Remaining time to severe	τ_remain_sev	Remaining time to severe after isolation delay = τ_sev – τ_iso_Is	5–4=1 day	Derived
Severe progression tendency	θ_sev	Probability of progressing to severe condition	0.30	The Lancet Regional Health [link]
Recovery time (asymptomatic)	τ_rec_a	Total recovery time for asymptomatic cases	10 days	Assumed
Remaining recovery time (asymptomatic)	$\tau\_remain\_rec\_a$	Remaining time to recover after isolation delay = τ_rec_a – τ_iso_Ia	10–8=2	Assumed
Recovery time (non-severe symptomatic)	τ_rec_ns	Total recovery time for mild symptomatic cases	14 days	Assumed
Remaining recovery time (symptomatic)	$\tau\_remain\_rec\_ns$	Remaining recovery after isolation delay = τ_rec_ns – τ_iso_Is	14–4=10 days	Assumed
Recovery time (severe cases)	τ_rec_s	Recovery time for severe cases	12 days	Assumed
Time to death	τ_death	Time from severe to death	12 days	CDC [link]
Death rate (high-resource hospital)	δ_big	Proportion of dead among severe cases in high-resource setting	0.33	IJID [link]
Death rate (low-resource hospital)	δ_small	Proportion of dead among severe cases in low-resource setting	0.67	Elsevier [link]

Supplementary Table 2. List of key system variables and values used in the baseline model (cont.)

Variable Description	Symbol	Definition	Value	Source
High-resource hospital admission	ρ_big	Proportion of severe cases admitted to high-resource setting	0.50	Assumed
Muslim–Buddhist contact proportion (Muslim side)	k_mb	Proportion of contacts with non-Muslim among total contacts of Muslim individuals	0.02	Assumed
Buddhist–Muslim contact proportion (Buddhist side)	k_bm	Proportion of contact with Muslims among total contacts of non-Muslim individuals	0.70	Assumed

Supplementary Table 3. Description of simulation scenarios and corresponding parameter settings

Variable	Scenario A: Baseline (no intervention)	Scenario B: Increased admission to high-resource hospitals	Scenario C: Increased quarantine coverage	Scenario D: Early case detection	Scenario E: Combined interventions
High-resource hospital admission	0.5	0.7*	0.5	0.5	0.7*
Quarantine tendency	0.3	0.3	0.5*	0.3	0.5*
Isolation delay (symptomatic cases) (days)	4	4	4	2*	2*
Isolation delay (asymptomatic cases) (days)	8	8	8	4*	4*
Remaining incubation in quarantine (days)	2	2	2	2	2
Remaining time to severe (days)	1	1	1	3	3
Remaining recovery time (asymptomatic)(days)	2	2	2	6	6
Remaining recovery time (symptomatic) (days)	10	10	10	12	12

These values were determined based on expert opinion. Any variables and parameters not listed in this table were unchanged from the baseline scenario.