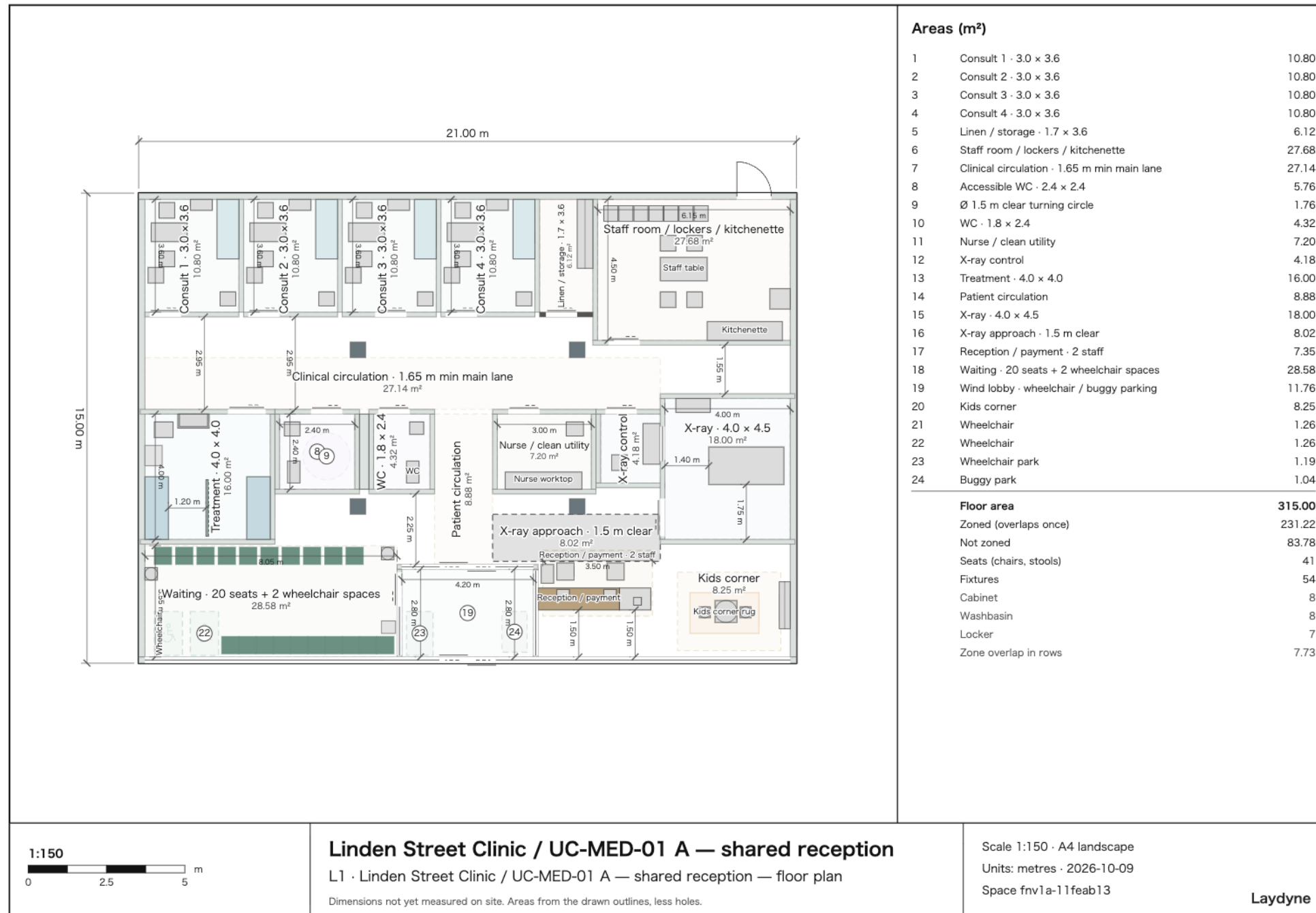


Linden Street Clinic / A / shared reception and payment / dimensioned submission

FOR COMPARISON ONLY — assumed concept dimensions, not surveyed or issued for construction. Current process engine 2.7.0, no historical output reused.



315 m² shell. Four consultation rooms: 3.0 × 3.6 m each. 20 waiting chairs plus two modeled wheelchair bays. Staff total seven in each option; B splits reception/payment one + one.

Medical part	Assumed side / x,z (m)	Side gap
Consult 1 couch	west / 2.025, 1.15	0.95 m
Consult 2 couch	west / 5.175, 1.15	0.95 m
Consult 3 couch	west / 8.325, 1.15	0.95 m
Consult 4 couch	west / 11.475, 1.15	0.95 m
Left treatment couch	east / 1.55, 10.05	1.20 m
Right treatment couch	west / 2.85, 10.05	1.24 m
X-ray unit	south / 19.40, 9.90	1.75 m

Geometric side gaps from inherited footprints; they are not medical or supplier-required clearances.

Patient circle $r=0.30$ m and $r=0.45$ m; staff $r=0.30$ m. A: 49 targets; B: 51, all reachable, including the seven explicit operation-side points. Staff origin 15.5, 4.25 m; patient origin 10.5, 14.1 m.

A / shared reception and payment. 21 × 15 m shell. Page inset: use written dimensions, not its printed scale. Fixed walls/doors, four rooms, passages and medical parts match across A/B.

Source src-facbccd0-f1d3-4b37-9e10-c511f73c228f · fnv1a-11feab13 · 2026-10-09 · e1c7afaf-93af-4d9c-baea-350c4f28811b/baseline

Drawing inset: use written dimensions; the original sheet scale does not apply.

Passage-tag zones checked at 1.50 m; global minimum at 0.90 m. Consultation doors are modeled 1.00 m clear, treatment and X-ray 1.20 m. Door width is not proof of a 1.50 m passage.

Unverified: real wheelchair/bed turning, transfers, door construction, supplier envelopes, clinical safety and shielding. Retractable-curtain operation is not simulated.

B shortens movement, increases patient wait, and retains a seat-shortage risk

20 paired seeds, six-hour window, warmup 0. Each option: 867 arrived = 867 completed in total, unfinished 0, blocked 0. All 40 run states completed, with no event/job limit or warning. No seed was omitted.

Measure	A	B	B - A / paired 95% interval
Arrived patients per seed	43.35 count	43.35 count	0.00 count 95% interval: [0.00, 0.00] · includes 0
Total patient wait / arrived	1,902.16 s	1,922.54 s	20.37 s 95% interval: [9.97, 30.77]
Cycle time / completed	2,854.29 s	2,857.25 s	2.95 s 95% interval: [-7.45, 13.36] · includes 0
Total patient distance / 6 h	4,101.45 m	3,345.46 m	-755.99 m 95% interval: [-822.68, -689.30]
Check-in resource wait	18.71 s	122.93 s	104.23 s 95% interval: [71.32, 137.14]
First doctor resource wait	1,698.37 s	1,619.50 s	-78.87 s 95% interval: [-109.94, -47.80]
Payment resource wait	9.48 s	11.31 s	1.83 s 95% interval: [-0.71, 4.37] · includes 0
Waiting-demand peak	14.30 count	13.75 count	-0.55 count 95% interval: [-0.91, -0.19]

Means of the twenty run-level measures. All main metrics use all twenty pairs. An interval containing zero means these runs do not establish a difference.

Patient wait includes every arrived patient and any unfinished waits up to the endpoint. Here unfinished is zero in every seed. Cycle means use completed patients only. First-doctor/check-in/payment rows are means per request to those steps; the total patient wait also includes return consultation and other resources. Return-doctor wait: A 1757.55 s, B 1682.57 s, each valid in 19/20 seeds; seed 20261027 has no imaging patient. No full-20 paired delta is calculated for this missing measure. Distance per arrived patient is calculated within each seed, then averaged: A 94.76 m; B 77.34 m. Paired difference -17.42 m, 95% [-17.55, -17.29]. Same arrival ID/order, patient service draws and medical-branch order are retained. The two nurses serve one representative treatment point; bed assignment and staff motion are absent. B changes geometry and staff allocation together; isolate those changes in a later controlled candidate before attributing an effect to either alone.

Resource	A / held share	B / held share
Shared reception (2)	0.2128 ratio missing_value	Separate pools below
Check-in (1)	Shared pool above	0.2443 ratio missing_value
Payment (1)	Shared pool above	0.1812 ratio missing_value
Doctors (2)	0.5057 ratio	0.5057 ratio
Nurses (2)	0.1219 ratio	0.1219 ratio
Radiographer (1)	0.0871 ratio	0.0871 ratio
Consult room 1	0.2650 ratio	0.2654 ratio
Consult room 2	0.2565 ratio	0.2582 ratio
Consult room 3	0.2446 ratio	0.2446 ratio
Consult room 4	0.2452 ratio	0.2432 ratio

Ratio 0.50 = 50%. Held unit-seconds / (capacity × 21600 s), including travel and other waits while held; not clinical active work. Split pools have no cross-ID paired delta.

20 physical seats; waiting-demand capacity 1000 records demand without pushing excess patients into an outside admission queue. Per-seed shortage = max(0, peak – 20): A mean 0.75 / max 12; B mean 0.55 / max 9. Both 3/20 (15%) seeds exceed the seats. Shortage delta –0.20, 95% [–0.53, 0.13], includes zero. Occupancy includes entry/exit movement for patients stopping in the waiting polygon; it is an approximation to demand, not seat allocation. First seed only: sampled time above 20 is 0/21600 s in each option, at 180 s intervals. That is not a twenty-seed duration mean.

Evidence appendix 1/6

Document UC-MED-A-submission · revision 2 · source src-facbccd0-f1d3-4b37-9e10-c511f73c228f

Metric: e1c7afaf-93af-4d9c-baea-350c4f28811b / run.arrived / run / run / baseline

Value: 43.35 count

95% delta interval: not available for this side

Bound: none; reason: none

Comparison: e1c7afaf-93af-4d9c-baea-350c4f28811b

Engine: process-des-2.7.0

Baseline input: fnv1a-aff24d3e

Candidate input: fnv1a-b0c2596c

Baseline space: fnv1a-11feab13

Candidate space: fnv1a-9911c034

Horizon: 21600 s; warmup: 0 s; selection: completion

Seed: 20261009; runs: 20

baseline warnings (0):

none

baseline assumptions (17):

1. Collisions, avoidance, following, passing and re-routing between agents (robots or people): only capacities and FIFO queues are computed.
2. Density-dependent slowing, crowd pressure and the physical length of a queue (waiting agents overlap at one point): pedestrian flow is counts and capacities, not crowd physics.
3. Optimised lift group control (destination dispatch, load weighing beyond a full car, zoning, parking) and lift jerk: lifts with cars follow the fixed collective rules of the process catalog, at constant speed unless the scenario gives an acceleration and seconds per person boarding and alighting; an elevator without cars has only capacity and travel speed, so its waits are close to a lower bound.
4. Door opening times (except the fixed door and dwell time of a lift car at each stop, and its seconds per person boarding and alighting when given), acceleration (except a lift car's, when the scenario gives one), turning and vehicle orientation (circular footprints only), loaded shape, charging, batteries and failures.
5. Evacuation, safety codes and legal compliance, lines of sight and cameras.
6. Human decision-making beyond weighted branches and branches by the state of the run, learning or adaptive behaviour, and time-of-day changes other than arrival rate profiles, scheduled times and shifts set in advance (capacities of resources and zones, and the units of a pool in service, from given times).
7. Cleaning quality (coverage comes from simulate_space).
8. Agreement with real robots or real sites: determinism guarantees reproducibility, not field accuracy; calibrate separately.
9. Two-station transport (simulate_space) and process-scenario transport are separate implementations, kept consistent only by a matching test on one shared case; other layouts can differ.
10. Random values, poisson arrivals, branches and random picks draw from each arrival's and each job's own stream of the seed: the same scenario and seed give the same result, and a job keeps its draws when other jobs or streams change. Times are seconds and distances are metres.
11. goto follows the shortest route on a roadmap for each agent class, with the same circle-versus-obstacle clearance as the robot engine; connections are edges with their length and speed.
12. Capacities on resources, zones and connections are strict FIFO queues without preemption; waiting agents stand at one point, and nothing else slows movement.
13. Zones do not steer routes. An occupy zone counts agents that stop inside it; a transit zone counts every agent inside it, passing or not.
14. A connection end or a place on a blocking part moves to the nearest point the agent fits within 3 m; that offset is not added to the connection length.
15. Finish returns every resource still held by that job. Resources held by unfinished or blocked jobs remain in use.
16. Average wait includes every arrived job and unfinished waits up to the observation endpoint. Cycle averages include completed jobs only.
17. Repeated runs use seeds seed, seed + 1, Jobs, timelines, traces, series and warnings are the first run's; replicates give every measure per run and spread its minimum, mean, maximum and population standard deviation.

candidate warnings (0):

none

Evidence appendix 2/6

Document UC-MED-A-submission · revision 2 · source src-facbccd0-f1d3-4b37-9e10-c511f73c228f

candidate assumptions (17):

1. Collisions, avoidance, following, passing and re-routing between agents (robots or people): only capacities and FIFO queues are computed.
2. Density-dependent slowing, crowd pressure and the physical length of a queue (waiting agents overlap at one point): pedestrian flow is counts and capacities, not crowd physics.
3. Optimised lift group control (destination dispatch, load weighing beyond a full car, zoning, parking) and lift jerk: lifts with cars follow the fixed collective rules of the process catalog, at constant speed unless the scenario gives an acceleration and seconds per person boarding and alighting; an elevator without cars has only capacity and travel speed, so its waits are close to a lower bound.
4. Door opening times (except the fixed door and dwell time of a lift car at each stop, and its seconds per person boarding and alighting when given), acceleration (except a lift car's, when the scenario gives one), turning and vehicle orientation (circular footprints only), loaded shape, charging, batteries and failures.
5. Evacuation, safety codes and legal compliance, lines of sight and cameras.
6. Human decision-making beyond weighted branches and branches by the state of the run, learning or adaptive behaviour, and time-of-day changes other than arrival rate profiles, scheduled times and shifts set in advance (capacities of resources and zones, and the units of a pool in service, from given times).
7. Cleaning quality (coverage comes from simulate_space).
8. Agreement with real robots or real sites: determinism guarantees reproducibility, not field accuracy; calibrate separately.
9. Two-station transport (simulate_space) and process-scenario transport are separate implementations, kept consistent only by a matching test on one shared case; other layouts can differ.
10. Random values, poisson arrivals, branches and random picks draw from each arrival's and each job's own stream of the seed: the same scenario and seed give the same result, and a job keeps its draws when other jobs or streams change. Times are seconds and distances are metres.
11. goto follows the shortest route on a roadmap for each agent class, with the same circle-versus-obstacle clearance as the robot engine; connections are edges with their length and speed.
12. Capacities on resources, zones and connections are strict FIFO queues without preemption; waiting agents stand at one point, and nothing else slows movement.
13. Zones do not steer routes. An occupy zone counts agents that stop inside it; a transit zone counts every agent inside it, passing or not.
14. A connection end or a place on a blocking part moves to the nearest point the agent fits within 3 m; that offset is not added to the connection length.
15. Finish returns every resource still held by that job. Resources held by unfinished or blocked jobs remain in use.
16. Average wait includes every arrived job and unfinished waits up to the observation endpoint. Cycle averages include completed jobs only.
17. Repeated runs use seeds seed, seed + 1, Jobs, timelines, traces, series and warnings are the first run's; replicates give every measure per run and spread its minimum, mean, maximum and population standard deviation.

Different arrivals: none

Metric: e1c7afaf-93af-4d9c-baea-350c4f28811b / run.arrived / run / run / candidate

Value: 43.35 count

95% delta interval: not available for this side

Bound: none; reason: none

Metric: e1c7afaf-93af-4d9c-baea-350c4f28811b / run.arrived / run / run / delta

Value: 0 count

95% delta interval: [0, 0]; includes 0: true

Bound: none; reason: none

Metric: e1c7afaf-93af-4d9c-baea-350c4f28811b / run.wait.mean / run / run / baseline

Value: 1902.16270762074 s

95% delta interval: not available for this side

Bound: none; reason: none

Metric: e1c7afaf-93af-4d9c-baea-350c4f28811b / run.wait.mean / run / run / candidate

Evidence appendix 3/6

Document UC-MED-A-submission · revision 2 · source src-facbccd0-f1d3-4b37-9e10-c511f73c228f

Value: 1922.536314288935 s

95% delta interval: not available for this side

Bound: none; reason: none

Metric: e1c7afaf-93af-4d9c-baea-350c4f28811b / run.wait.mean / run / run / delta

Value: 20.373606668194753 s

95% delta interval: [9.972863208741476, 30.77435012764803]; includes 0: false

Bound: none; reason: none

Metric: e1c7afaf-93af-4d9c-baea-350c4f28811b / run.cycle.mean / run / run / baseline

Value: 2854.2932563953214 s

95% delta interval: not available for this side

Bound: none; reason: none

Metric: e1c7afaf-93af-4d9c-baea-350c4f28811b / run.cycle.mean / run / run / candidate

Value: 2857.2482302390945 s

95% delta interval: not available for this side

Bound: none; reason: none

Metric: e1c7afaf-93af-4d9c-baea-350c4f28811b / run.cycle.mean / run / run / delta

Value: 2.954973843772689 s

95% delta interval: [-7.454524679489832, 13.364472367035209]; includes 0: true

Bound: none; reason: none

Metric: e1c7afaf-93af-4d9c-baea-350c4f28811b / run.distance.total / run / run / baseline

Value: 4101.452453229362 m

95% delta interval: not available for this side

Bound: none; reason: none

Metric: e1c7afaf-93af-4d9c-baea-350c4f28811b / run.distance.total / run / run / candidate

Value: 3345.4639028562538 m

95% delta interval: not available for this side

Bound: none; reason: none

Metric: e1c7afaf-93af-4d9c-baea-350c4f28811b / run.distance.total / run / run / delta

Value: -755.9885503731073 m

95% delta interval: [-822.6810164052984, -689.2960843409162]; includes 0: false

Bound: none; reason: none

Metric: e1c7afaf-93af-4d9c-baea-350c4f28811b / process.time.mean / process / checkin-wait / baseline

Value: 18.705477380671418 s

95% delta interval: not available for this side

Bound: none; reason: none

Metric: e1c7afaf-93af-4d9c-baea-350c4f28811b / process.time.mean / process / checkin-wait / candidate

Value: 122.93101026935054 s

95% delta interval: not available for this side

Bound: none; reason: none

Metric: e1c7afaf-93af-4d9c-baea-350c4f28811b / process.time.mean / process / checkin-wait / delta

Value: 104.22553288867907 s

95% delta interval: [71.31543289000035, 137.1356328873578]; includes 0: false

Bound: none; reason: none

Metric: e1c7afaf-93af-4d9c-baea-350c4f28811b / process.time.mean / process / doctor-wait / baseline

Value: 1698.3705860772639 s

Evidence appendix 4/6

Document UC-MED-A-submission · revision 2 · source src-facbccd0-f1d3-4b37-9e10-c511f73c228f

95% delta interval: not available for this side

Bound: none; reason: none

Metric: e1c7afaf-93af-4d9c-baea-350c4f28811b / process.time.mean / process / doctor-wait / candidate

Value: 1619.499102056592 s

95% delta interval: not available for this side

Bound: none; reason: none

Metric: e1c7afaf-93af-4d9c-baea-350c4f28811b / process.time.mean / process / doctor-wait / delta

Value: -78.8714840206718 s

95% delta interval: [-109.94067459581501, -47.80229344552859]; includes 0: false

Bound: none; reason: none

Metric: e1c7afaf-93af-4d9c-baea-350c4f28811b / process.time.mean / process / payment-wait / baseline

Value: 9.484422133528332 s

95% delta interval: not available for this side

Bound: none; reason: none

Metric: e1c7afaf-93af-4d9c-baea-350c4f28811b / process.time.mean / process / payment-wait / candidate

Value: 11.312732338517694 s

95% delta interval: not available for this side

Bound: none; reason: none

Metric: e1c7afaf-93af-4d9c-baea-350c4f28811b / process.time.mean / process / payment-wait / delta

Value: 1.8283102049893614 s

95% delta interval: [-0.7102318498926252, 4.366852259871348]; includes 0: true

Bound: none; reason: none

Metric: e1c7afaf-93af-4d9c-baea-350c4f28811b / zone.occupancy.peak / zone / waiting-demand / baseline

Value: 14.3 count

95% delta interval: not available for this side

Bound: none; reason: none

Metric: e1c7afaf-93af-4d9c-baea-350c4f28811b / zone.occupancy.peak / zone / waiting-demand / candidate

Value: 13.75 count

95% delta interval: not available for this side

Bound: none; reason: none

Metric: e1c7afaf-93af-4d9c-baea-350c4f28811b / zone.occupancy.peak / zone / waiting-demand / delta

Value: -0.55 count

95% delta interval: [-0.9052912317270233, -0.19470876827297678]; includes 0: false

Bound: none; reason: none

Metric: e1c7afaf-93af-4d9c-baea-350c4f28811b / resource.utilization / resource / receptionists / baseline

Value: 0.21275376189386913 ratio

95% delta interval: not available for this side

Bound: none; reason: missing_value

Metric: e1c7afaf-93af-4d9c-baea-350c4f28811b / resource.utilization / resource / checkin-receptionist / candidate

Value: 0.24430847037628864 ratio

95% delta interval: not available for this side

Bound: none; reason: missing_value

Metric: e1c7afaf-93af-4d9c-baea-350c4f28811b / resource.utilization / resource / payment-receptionist / candidate

Value: 0.18119905341144965 ratio

95% delta interval: not available for this side

Evidence appendix 5/6

Document UC-MED-A-submission · revision 2 · source src-facbccd0-f1d3-4b37-9e10-c511f73c228f

Bound: none; reason: missing_value

Metric: e1c7afaf-93af-4d9c-baea-350c4f28811b / resource.utilization / resource / doctors / baseline

Value: 0.5056519563426073 ratio

95% delta interval: not available for this side

Bound: none; reason: none

Metric: e1c7afaf-93af-4d9c-baea-350c4f28811b / resource.utilization / resource / doctors / candidate

Value: 0.5056665668460949 ratio

95% delta interval: not available for this side

Bound: none; reason: none

Metric: e1c7afaf-93af-4d9c-baea-350c4f28811b / resource.utilization / resource / nurses / baseline

Value: 0.12189310230216592 ratio

95% delta interval: not available for this side

Bound: none; reason: none

Metric: e1c7afaf-93af-4d9c-baea-350c4f28811b / resource.utilization / resource / nurses / candidate

Value: 0.12189310230216592 ratio

95% delta interval: not available for this side

Bound: none; reason: none

Metric: e1c7afaf-93af-4d9c-baea-350c4f28811b / resource.utilization / resource / radiographer / baseline

Value: 0.08711011776053709 ratio

95% delta interval: not available for this side

Bound: none; reason: none

Metric: e1c7afaf-93af-4d9c-baea-350c4f28811b / resource.utilization / resource / radiographer / candidate

Value: 0.08711011776053709 ratio

95% delta interval: not available for this side

Bound: none; reason: none

Metric: e1c7afaf-93af-4d9c-baea-350c4f28811b / resource.utilization / resource / room1 / baseline

Value: 0.2649691770995189 ratio

95% delta interval: not available for this side

Bound: none; reason: none

Metric: e1c7afaf-93af-4d9c-baea-350c4f28811b / resource.utilization / resource / room1 / candidate

Value: 0.2654073935533545 ratio

95% delta interval: not available for this side

Bound: none; reason: none

Metric: e1c7afaf-93af-4d9c-baea-350c4f28811b / resource.utilization / resource / room2 / baseline

Value: 0.25653721914499594 ratio

95% delta interval: not available for this side

Bound: none; reason: none

Metric: e1c7afaf-93af-4d9c-baea-350c4f28811b / resource.utilization / resource / room2 / candidate

Value: 0.25822529104225106 ratio

95% delta interval: not available for this side

Bound: none; reason: none

Metric: e1c7afaf-93af-4d9c-baea-350c4f28811b / resource.utilization / resource / room3 / baseline

Value: 0.2446198412868495 ratio

95% delta interval: not available for this side

Bound: none; reason: none

Evidence appendix 6/6

Document UC-MED-A-submission · revision 2 · source src-facbccd0-f1d3-4b37-9e10-c511f73c228f

Metric: e1c7afaf-93af-4d9c-baea-350c4f28811b / resource.utilization / resource / room3 / candidate

Value: 0.24455027088001763 ratio

95% delta interval: not available for this side

Bound: none; reason: none

Metric: e1c7afaf-93af-4d9c-baea-350c4f28811b / resource.utilization / resource / room4 / baseline

Value: 0.24517767515385 ratio

95% delta interval: not available for this side

Bound: none; reason: none

Metric: e1c7afaf-93af-4d9c-baea-350c4f28811b / resource.utilization / resource / room4 / candidate

Value: 0.24315017821656623 ratio

95% delta interval: not available for this side

Bound: none; reason: none