

Supplementary appendix to the manuscript:

Cost-effectiveness of a rule-out algorithm of acute myocardial infarction in low-risk patients: Emergency primary care versus hospital setting

By

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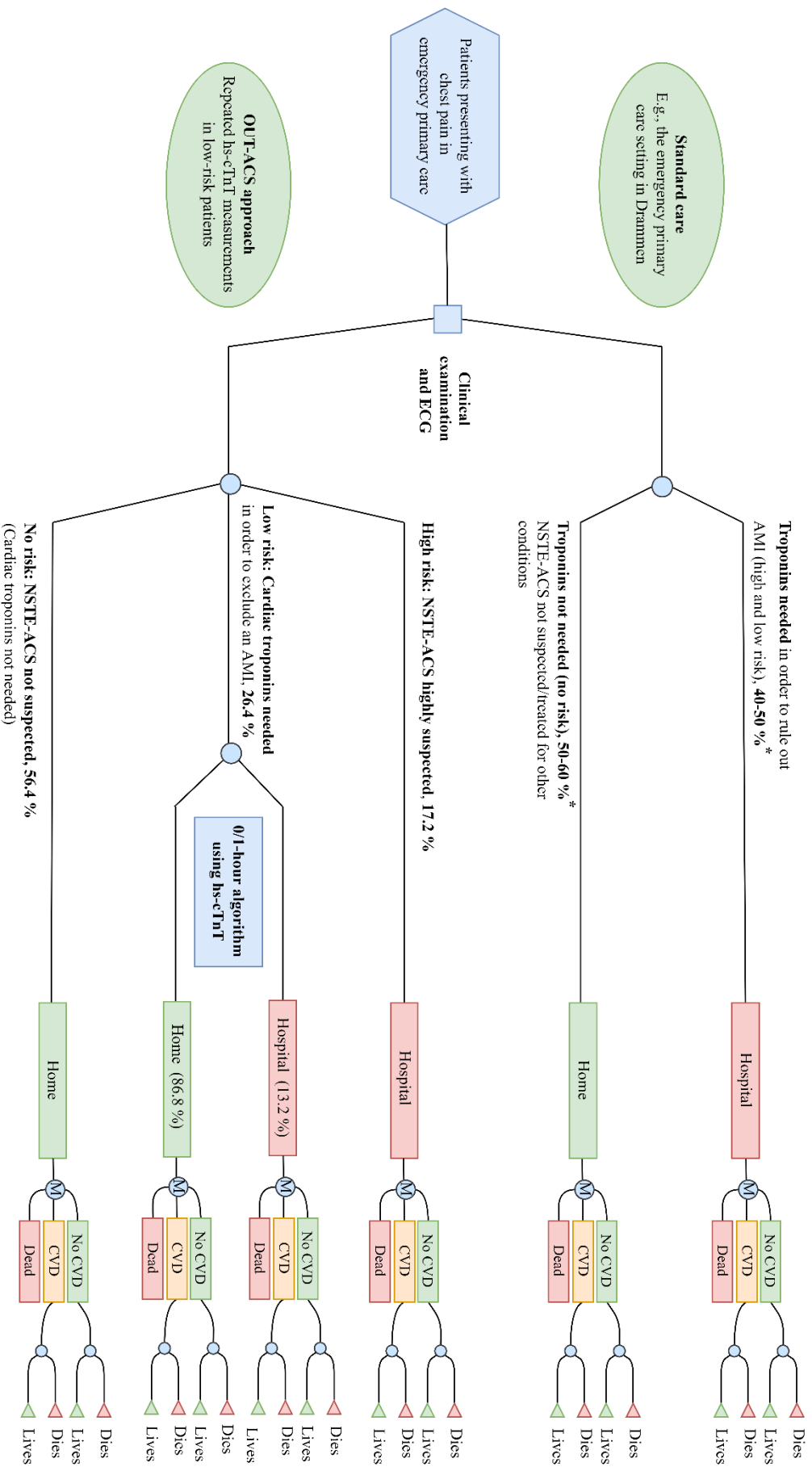


Figure S1 Decision tree

Hexagon indicates patient population, blue quadrant indicates decision made by the treating physician, blue circles including “M” indicate where the Markov model starts.
 * Ref. Burman RA et al., BMC Fam Pract. 2014; Hoorweg BB et al., Heart, 2017; Vester MPM et al., Eur Heart J Qual Care Clin Outcomes, 2020.

AMI: acute myocardial infarction; ECG: electrocardiogram; hs-cTn: high-sensitivity cardiac troponin; NSTE-ACS: acute coronary syndrome; OAEQC: Oslo Accident and Emergency Outpatient Clinic; OUT-ACS: One-hoUr Troponin in a low-prevalence population of Acute Coronary Syndrome

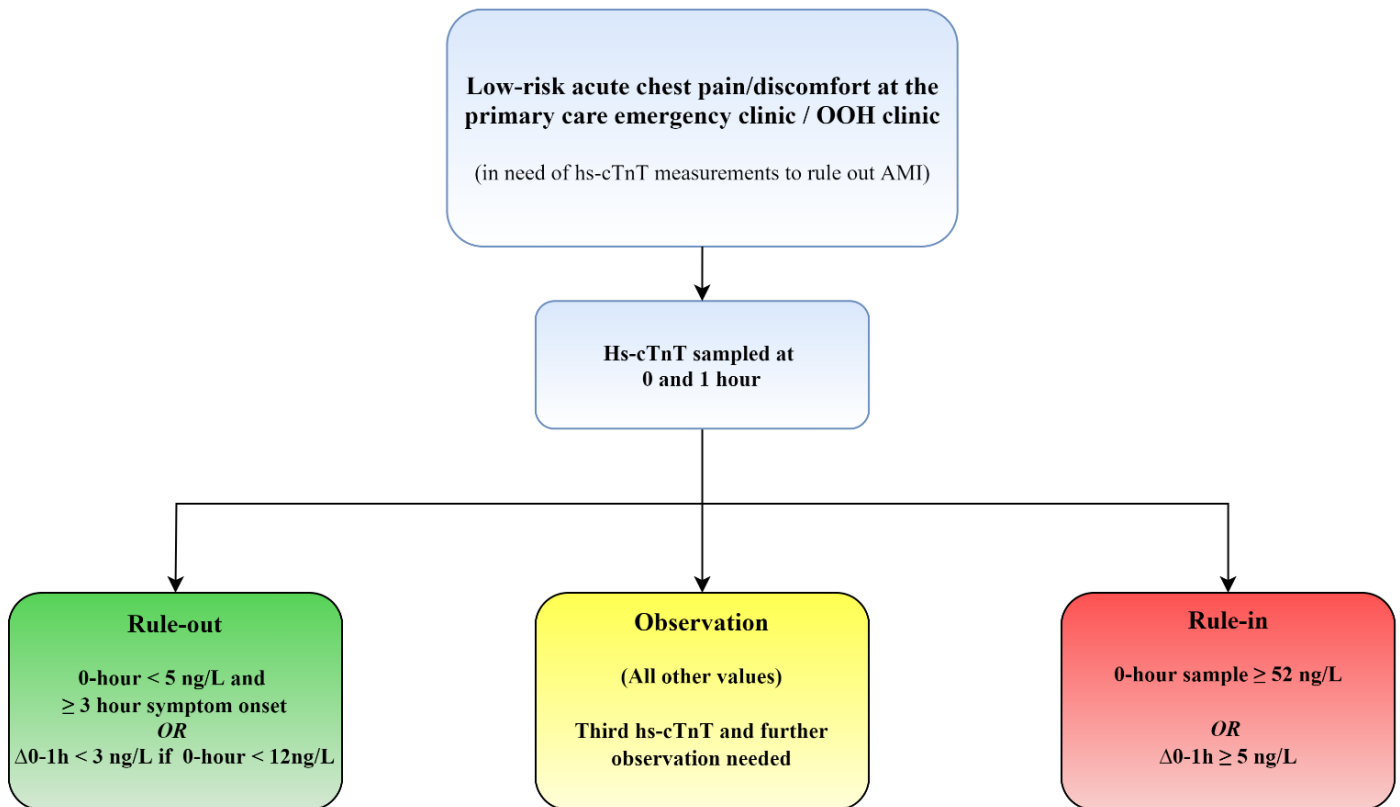


Figure S2 The ESC 0/1-hour algorithm for hs-cTnT

The ESC 0/1-hour algorithm for hs-cTnT presented according to the recent 2020 ESC guidelines on NSTEMI-ACS.⁽¹⁾ The algorithm uses assay-specific cut-off values and should always be interpreted in conjunction with the clinical assessment and the electrocardiogram.

AMI: acute myocardial infarction; ESC: European Society of Cardiology; hs-cTnT: high-sensitivity cardiac troponin T; ng/L: nanogram per litre; NSTEMI-ACS: non-ST-segment elevation acute coronary syndrome

Table S1 Estimating health care expenditure		
Costs and resources	Estimates and calculations	Total costs (EUR)
<p>Ambulance transport</p> <p>EUR 559 per transport (2020 figures)</p>	<p>Transport to primary care emergency clinic:</p> <ul style="list-style-type: none"> • 29 % of the low-risk OUT-ACS cohort <p>Transport from primary care emergency to hospital (recommended for all patients admitted with a suspected NSTEMI-ACS)</p> <ul style="list-style-type: none"> • Probability 0.90 (0.75-1.00) 	<p>EUR 162</p> <p>EUR 503</p>
<p>Primary care emergency clinic, Oslo (2017 figures)</p> <p>Standard costs per patient</p>	<p>Direct costs per patient (Including wages triage, doctors, nurses, staff, service, consultation, diagnostics, treatment) = <u>EUR 119</u></p> <p>Other costs per patient (including administration, safety, cleaning services, building) = <u>EUR 37</u></p> <p><u>Total costs per patient: EUR 157</u></p> <p><u>Adjusted to 2020 figures:</u></p>	<p>EUR 166</p>
<p>Additional costs at the primary care emergency clinic</p> <p>Personnel resources and costs (2 models)</p>	<p>Model 1: Personnel wages (2020 figures) Additional time spent with the 0/1-hour algorithm x personnel costs per hour:</p> <p>Nurses: 20 min (0.3333) x</p> <ul style="list-style-type: none"> • Day: 0.238 x NOK 393 per hour = NOK <u>93,534</u> • Other: 0.762 x NOK 569 per hour = NOK <u>433,578</u> <p><u>Total: NOK 175.70</u></p> <p>GPs: 50 min (0.8333) x <u>Registrar (85 %):</u></p> <ul style="list-style-type: none"> • Day: 0.238 x NOK 576 per hour x 0.85 = NOK <u>116,5248</u> • Other: 0.762 x NOK 802 per hour x 0.85 = NOK <u>519,4554</u> <p><u>Senior (15 %):</u></p> <ul style="list-style-type: none"> • Day: 0.238 x NOK 685 per hour x 0.15 = NOK <u>24,4545</u> • Other: 0.762 x NOK 940 per hour x 0.15 = NOK <u>107,442</u> <p><u>Total: NOK 639.90</u></p> <p>Total GPs and nurses x 1.3 (to cover additional social costs) = <u>NOK 1060.28</u></p>	<p>Model 1: EUR 99</p>

<p>Additional diagnostics with the 0/1-hour algorithm (2020 figures)</p> <p>Additional referrals to supplementary cardiac outpatient testing (2019 figures)</p>	<p>Model 2: Helfo tariffs (2020 figures)</p> <ul style="list-style-type: none"> • $4 \times 2cd = 4 \times 211 \times 0.238 = 200,872$ • $4 \times 2cdd = 4 \times 10 \times 0.238 \times 0.15 = 1,428$ • $4 \times 2ck = 4 \times 174 \times 0.762 = 530,352$ <p>Total tariffs x 2 (to cover other financing sources): NOK 732,65 x 2 = <u>NOK 1465,304</u></p> <p>Details listed in Table S2</p> <ul style="list-style-type: none"> • 4.5 % of the non-hospitalised OUT-ACS group • Assumption: similar referral rate by the regular GP after OAEOC discharge <p>= Estimated probability 0.10 * CCTA costs NOK 5490</p> <p><u>Adjusted to 2020 figures = NOK 5559 * 0.10 = NOK 556</u></p>	<p>Model 2: EUR 137</p> <p>EUR 41</p> <p>EUR 52</p>
<p>DRG at Drammen hospital</p> <p>1 DRG = EUR 4269 (2020 figures)</p> <p>N = 567 patients</p>	<p>DRG weight x costs per 1 DRG x patients (n):</p> <ul style="list-style-type: none"> • DRG 112A: $1.487 \times 4269 \times 1 = 6348.003$ • DRG 143: $0.407 \times 4269 \times 425 = 738430.275$ • DRG 980E: $0.159 \times 4269 \times 138 = 93670.398$ • DRG 981X: $0.173 \times 4269 \times 3 = 2215.611$ <p>= EUR 840 664.287 / 567 patients</p>	<p>EUR 1483</p>
<p>CCTA: coronary computed tomography angiography; DRG: Diagnosis Related Groups; EUR: Euro; GP: general practitioner; NOK: Norwegian Kroner; NSTEMI-ACS: non-ST-segment elevation acute coronary syndrome; OAEOC: Oslo Accident and Emergency Outpatient Clinic; OUT-ACS: One-hour Troponin in a low-risk population of Acute Coronary Syndrome</p>		

Table S2 Additional diagnostic tests at the emergency primary care clinic in Oslo if using the ESC 0/1-hour algorithm

	N	Probability	Price (NOK) 2020 figures	Tariff codes	Unit cost (NOK)*
Venous blood samples at the clinic					
<i>Standard blood panel with the 0/1-hour algorithm</i>					
P-hs-cTnT x2	171/171	1.00	33.65 x 2	MB7	134.60
P-CRP	171/171	1.00	9.13	MB3	18.26
P-Creatinine	171/171	1.00	4.94	MB1	9.88
Pt-estimated GFR	171/171	1.00	0.48	MB0	0.96
S-Potassium	171/171	1.00	4.94	MB1	9.88
B-Haemoglobin	171/171	1.00	9.13	MB3	18.26
S-Glucose	171/171	1.00	4.94	MB1	9.88
<i>Additional venous blood samples</i>					
Abdomen panel*	24/171	0.13	4.94 x 6	MB1	7.71
B-leukocytes	70/171	0.41	9.13	MB3	7.49
B-complete blood count	34/171	0.21	33.65	MB7	14.13
P-D-dimer	29/171	0.18	78.95	MB9	28.42
P-NT-proBNP	11/171	0.06	128.28	MB10	15.39
S-Sodium	65/171	0.37	4.94	MB1	3.66
Third hs-cTnT	334/1711	0.20	33.65	MB7	13.46
Additional diagnostics					
<i>Additional ECG</i>	335/1711	0.20	95 + 120	10b + 707	86.00
<i>Chest x-ray</i>	15/171	0.09	71 + 250	851 + 899	57.78
Total costs per low-risk patient					NOK 435.76 = EUR 41

Data on the probabilities of using a specific test or procedure at the OAEOC clinic was extracted from a random selection of the OUT-ACS cohort (10 %, 171/1711). Unit costs are presented in Norwegian Kroner (NOK), where 2020 Euro (EUR) 1.00 = 10.73 NOK. Outpatient radiological and laboratory services were estimated as the reimbursed sum from HELFO plus the patient's fee, multiplied by two, also to include personnel costs at the radiology and lab units.⁽²⁾ Medical biochemistry (MB) tariffs were provided by The Norwegian Directorate of eHealth.⁽³⁾

*Abdomen panel: P-ASAT, P-ALAT, P-GGT, P-ALP, P-bilirubin, P-amylase; each with tariff MB1

CRP: C-reactive protein; ECG: electrocardiogram; ESC: European Society of Cardiology; GFR: glomerular filtration rate; hs-cTnT: high-sensitivity cardiac troponin T; NOK: Norwegian Kroner; NT-proBNP: N-Terminal pro-Brain Natriuretic Peptide

Table S3 Diagnostic tests and procedures at Drammen Hospital

Diagnostics	Probability
<p>Venous blood samples at ED admission</p> <p>Standard blood panel (all patients): <i>Includes: B-Sedimentation rate, P-CRP, B-Haemoglobin, B-EVF, Ery-MCV, Ery-MCH, Red cell distribution, B-Leukocytes, B-Neutrophils, B-Lymphocytes, B-Monocytes, B-Eosinophils, B-Basophils, B-thrombocytes, S-Sodium, S-Potassium, P-Calcium, Pt-Estimated GFR, P-Creatinine, P-Cystatin C, P-ALAT, P-ALP, P-Bilirubin, P-Albumin, P-hs-Troponin I x2, B-Glucose, B-HbA1c, P-Cholesterol, P-LDL-cholesterol, P-HDL-cholesterol, P-Triglycerides, Additional serum tube, Additional citrate tube</i></p> <p>P-D-dimer</p> <p>P-NT-proBNP</p>	<p>1.00</p> <p>0.20</p> <p>0.30</p>
<p>Diagnostics at ED admission</p> <p>ECG</p> <p>Chest x-ray</p> <p>Arterial blood gas</p>	<p>1.00</p> <p>1.00</p> <p>0.07</p>
<p>Advanced procedures</p> <p>Stress ECG</p> <p>Echocardiogram</p> <p>Long-term ECG monitoring</p> <p>Holter ECG monitoring</p> <p>Other procedures</p>	<p>0.23 (129/567)</p> <p>0.09 (52/567)</p> <p>0.01 (7/567)</p> <p>0.003 (2/567)</p> <p>0.03 (17/567)</p>
<p>Total</p>	<p>0.32 (181/567)*</p>
<p>The probabilities of diagnostic tests and procedures applied in the hospital assessment were included in the cost-driving estimates of hospital costs (Diagnosis-Related Groups). * A total of 207 advanced procedures performed in 181 of 567 patients</p> <p>ECG: electrocardiogram; ED: emergency department; NT-proBNP: N-Terminal pro-Brain Natriuretic Peptide</p>	

Table S4 Additional length of stay in the low-risk emergency primary care cohort

	Rule-out n = 1232 83.0 %	Observation n = 243 16.4 %	Rule-in n = 10 0.7 %
0h + 1h sample*	67.1209 (SD 9.3652)	67.1209 (SD 9.3652)	67.1209 (SD 9.3652)
Preparation + lab transport	30 (20-40)	30 (20-40)	30 (20-40)
Central lab	75 (60-90)	75 (60-90)	75 (60-90)
Additional tests for patients in the Observation group (third hs-cTnT, repeated ECG, supplementary tests, lab preparation, transport, and analysis)	-	120 (100-140)	-
Discharge by the treating GP	15 (10-20)	15 (10-20)	15 (10-20)
Total (base case scenario)	187 min (160-220) = 3.1 hours	307 min (260-360) = 5.1 hours	187 min (160-220) = 3.1 hours
Total (conservative scenario)	217 min = 3.6 hours	357 min = 6.0 hours	217 min = 3.6 hours

Estimated additional length of stay among 1485 non-hospitalised patients in the OUT-ACS cohort. As the ESC 0/1-hour algorithm has not yet been implemented as a clinical routine at the emergency primary care clinic, the estimated additional length of stay is based on best guesses after interviewing senior personnel (GPs and nurses). Brackets illustrate the range of uncertainty in the estimates, where the upper range for each step was chosen in the conservative scenario.

* Time interval (mean) between 0- and 1-hour hs-cTnT samples in the OUT-ACS study, n=1711 patients⁽⁴⁾

ECG: electrocardiogram; GP: general practitioner; hs-cTnT: high-sensitivity cardiac troponin T; min: minutes; OAEOC: Oslo Accident and Emergency Outpatient Clinic; OUT-ACS: One-hoUr Troponin in a low-prevalence population of Acute Coronary Syndrome; SD: standard deviation

Additional details concerning the Markov model

The Markov model was created to add a lifetime health perspective. In the model, patients discharged as healthy were calculated separately from those discharged with ACS. For the healthy group, background mortality from Statistics Norway was used.⁽⁵⁾ For those with CVD, increased mortality of 1.6 was assumed, as mentioned in the main text. To make adjustments correctly, the rate ratio was multiplied with rates of death and then transformed into a probability using standard methods, as for instance explained by Briggs and colleagues.⁽⁶⁾

Weights for health related quality of life among the general population was based on Norwegian national guidelines for health economic evaluation⁽²⁾ and from previous Norwegian models,⁽⁷⁾ assuming 0.9 as weight for those discharged with CVD. Quality of life weights were added based on the multiplicative principle. As mentioned in the main text of the article, discount rate of 4% were applied and half cycle correction was used to account for events happening on average in the middle of years.

Description of probabilistic sensitivity analysis

We also conducted a probabilistic sensitivity analysis where parameters in our base case model were incorporated as probability distributions. All distributions were incorporated according to common standards, with probabilities as beta or Dirichlet distributions and costs as gamma distributions.⁽⁶⁾ Weights for health-related quality of life were incorporated as beta distributions due to weights not likely to be below 0 for any included health states.

Results indicate a 100% probability of the intervention being cost-effective given assumptions in the base case, as all iterations of the Monte Carlo simulation lies in the lower right quadrant of the cost-effectiveness plane (Figure S3). In health economic literature, this is often indicated as being a *dominant* strategy. With two possible strategies, all iterations in the lower right quadrant will also lead to the dominant strategy having a 100% probability of being cost-effective regardless of the variation of the cost-effectiveness threshold (Figure S4).

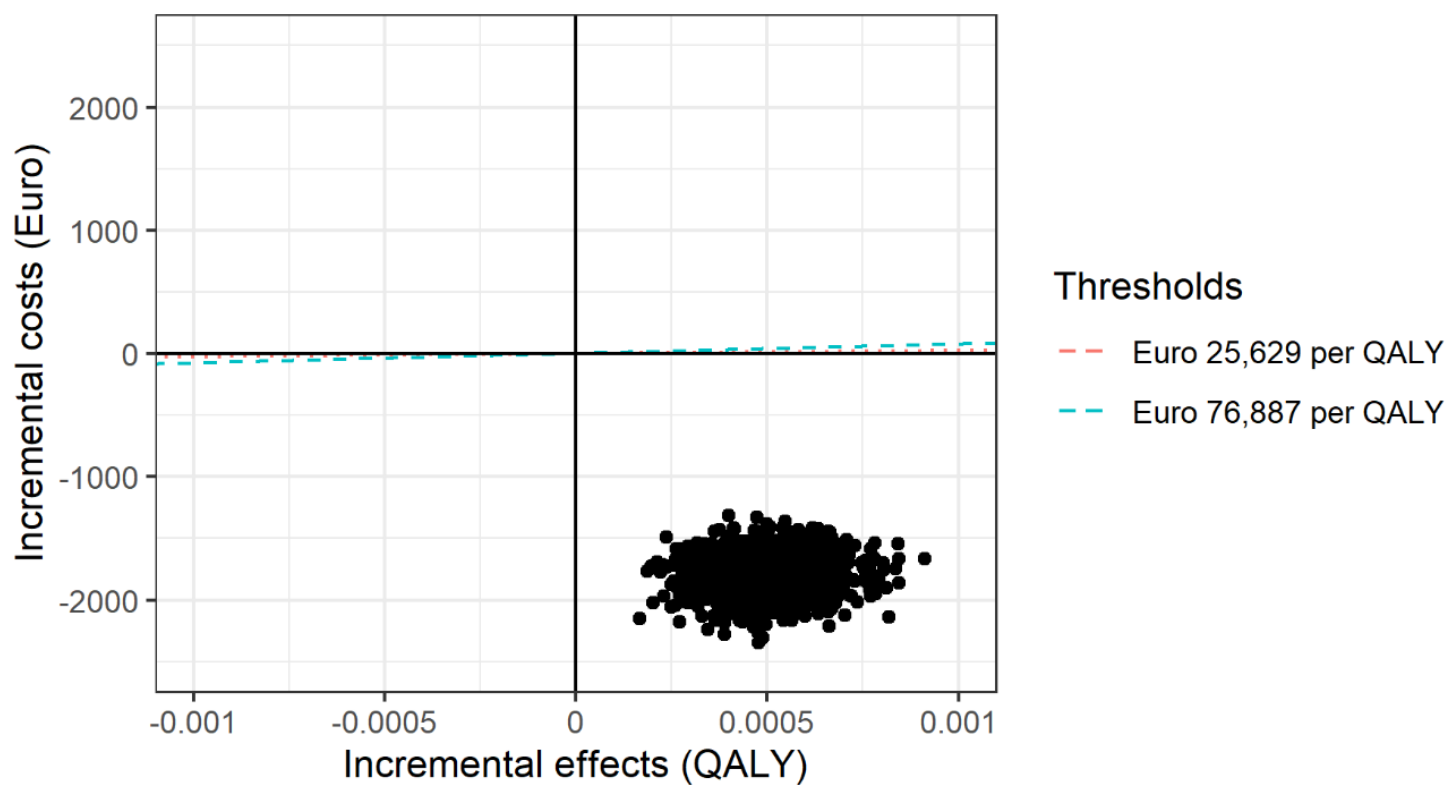


Figure S3 Scatter plot in a cost-effectiveness plane

Dots indicate each iteration from Monte Carlo simulations. Dotted lines for suggested Norwegian thresholds for cost-effectiveness.

QALY: quality-adjusted life-years

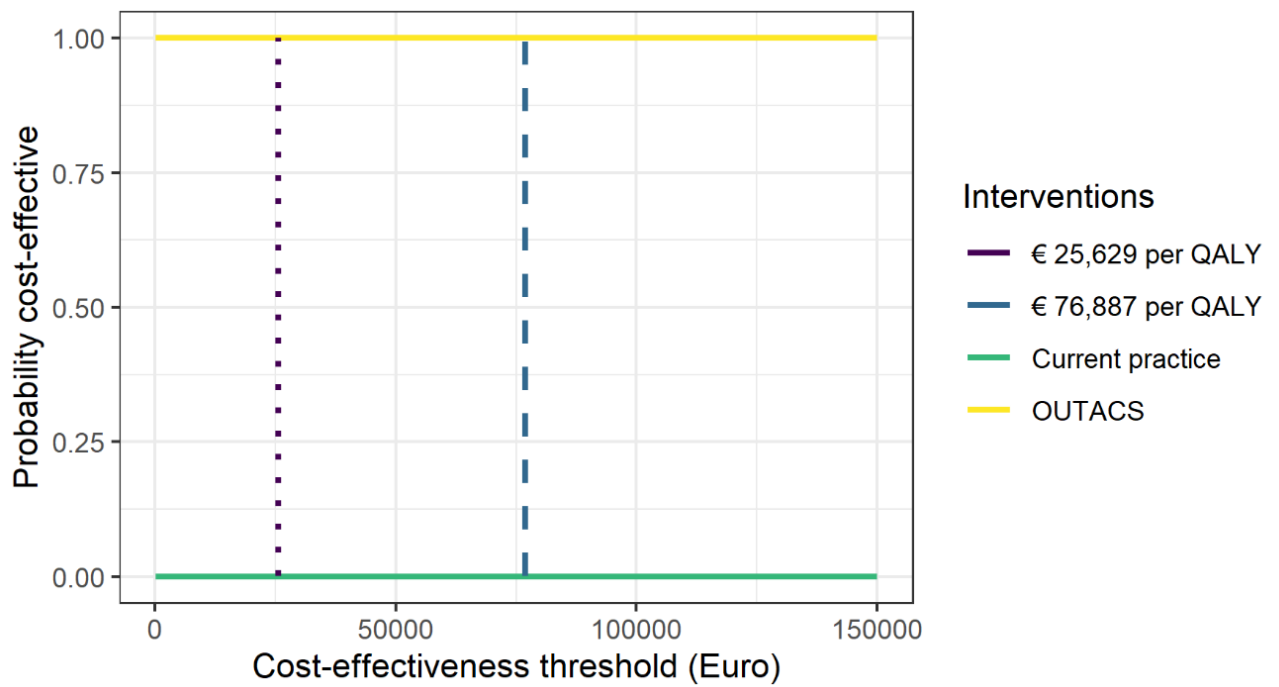


Figure S4 Cost-effectiveness acceptability curve

The curve indicates the probability of cost-effectiveness, given assumptions in the base case scenario.

OUT-ACS: One-hoUr Troponin in a low-prevalence population of Acute Coronary Syndrome;
 QALY: quality-adjusted life-years

Table S5 Distance from emergency primary care to available hs-cTn assay according to the Norwegian population in 2020

	Norwegian OOH/emergency primary care clinics 2020 ⁽⁸⁾	Nearest hospital ED with an available hs-cTn assay (24/7)	Kilometres to ED	Minutes to ED (by car)	OOH catchment area ⁽⁸⁾	Cumulative population
1	Asker og Bærum OOH	Bærum hospital	0	0	127731	127731
2	Dalane (Eigersund) OOH	Stavanger University hospital	0	0	24080	151811
3	Elverum OOH	Innlandet hospital, Elverum	0	0	36475	188286
4	Flekkefjord OOH	Sørlandet hospital, Flekkefjord	0	0	25380	213666
5	Frøya OOH	Orkdal hospital	0	0	5151	218817
6	Gjøvik OOH	Gjøvik hospital	0	0	65593	284410
7	Hammerfest OOH	Hammerfest hospital	0	0	11448	295858
8	Kongsberg OOH	Kongsberg hospital	0	0	51224	347082
9	Kongsvinger OOH	Kongsvinger hospital	0	0	41468	388550
10	Kristiansand OOH	Sørlandet hospital, Kristiansand	0	0	130545	519095
11	Kristiansund OOH	Kristiansund hospital	0	0	35621	554716
12	Arendal OOH	Arendal hospital	0	0	101248	655964
13	Orkdal region OOH	Orkdal hospital	0	0	42001	697965
14	Lillehammer OOH	Lillehammer hospital	0	0	43943	741908
15	Narvik OOH	University hospital of North Norway, Narvik	0	0	22936	764844
16	Nordfjord OOH	Nordfjord hospital	0	0	16587	781431
17	Rana OOH	Helgeland hospital, Mo i Rana	0	0	30638	812069
18	Ringerike OOH	Ringerike hospital	0	0	65136	877205
19	Ryfylke OOH	Stavanger University hospital	0	0	3091	880296
20	Skien OOH	Telemark hospital, Skien	0	0	67857	948153
21	Sogn LMS OOH	Lærdal hospital	0	0	9100	957253
22	Stavanger OOH	Stavanger University hospital	0	0	181948	1139201
23	Sunnfjord-Ytre Sogn OOH	Førde Central hospital	0	0	33272	1172473
24	Sunnhordland OOH	Stord hospital	0	0	33905	1206378
25	Tinn kommunale OOH	Hospitalet Telemark, Skien	0	0	5691	1212069
26	Tromsø OOH	University hospital of North Norway, Tromsø	0	0	76974	1289043
27	Trondheim, Malvik, Melhus, Midtre-Gauldal OOH	St. Olavs hospital	0	0	242282	1531325
28	Ullensvang OOH	Odda Hospital	0	0	11048	1542373
29	Vefsn OOH	Helgeland hospital, Mosjøen	0	0	13278	1555651
30	Vesterålen OOH	Nordland hospital, Vesterålen Stokmarknes	0	0	30269	1585920
31	Voss OOH	Voss hospital	0	0	21703	1607623

	OOH clinics (Table continues)	Nearest hospital ED with hs-cTn	Kilometres to ED	Minutes to ED (car)	OOH catchment area	Cumulative population
32	Ålesund OOH	Ålesund hospital	0	0	75568	1683191
33	Innhherred OOH	Levanger hospital	0.45	2	44555	1727746
34	Harstad OOH	University hospital of North Norway, Harstad	0.55	2	29576	1757322
35	Lofoten OOH	Nordland hospital, Lofoten	0.55	3	13720	1771042
36	Drammen OOH	Drammen hospital	0.6	2	128197	1899239
37	Hedmarken OOH	Innlandet hospital, Elverum	0.65	2	94875	1994114
38	Nord-Østerdal OOH	Innlandet hospital, Tynset	0.9	3	12897	2007011
39	Namsos OOH	Namsos hospital	1	3	22396	2029407
40	Bodø OOH	Nordland hospital, Bodø	1.2	3	53374	2082781
41	Molde OOH	Molde hospital	1.3	3	48755	2131536
42	Haugesund OOH	Haugesund hospital	1.5	4	55238	2186774
43	Volda, Ørsta OOH	Volda hospital	1.9	4	21298	2208072
44	Bergen OOH	Haukeland Universtiy hospital	1.9	5	283929	2492001
45	Tønsberg OOH	Vestfold hospital, Tønsberg	2.3	5	107722	2599723
46	Notodden OOH	Notodden hospital	3.3	5	25066	2624789
47	Oslo OOH	Ullevål hospital	4	12	693494	3318283
48	Nedre Romerike OOH	Akershus University hospital	4.4	7	145973	3464256
49	Sør-Varanger OOH	Kirkenes hospital	7.3	8	10158	3474414
50	Sarpsborg, Rakkestad OOH	Hospitalet i Østfold, Kalnes	7.4	11	64987	3539401
51	Porsgrunn OOH	Telemark hospital, Skien	9.8	15	36397	3575798
52	Sandnes OOH	Stavanger University hospital	13.3	14	91539	3667337
53	Bamble OOH	Telemark hospital, Skien	16.4	23	14061	3681398
54	Giske OOH	Ålesund hospital	16.7	18	8462	3689860
55	Bråset OOH (Hurum, Røyken)	Drammen hospital	16.9	23	94441	3784301
56	Nittedal OOH	Akershus University hospital	17	24	24249	3808550
57	Vennesla, Iveland OOH	Sørlandet hospital, Kristiansand	17.1	20	16105	3824655
58	Askøy OOH	Haukeland University hospital	17.2	20	29553	3854208
60	Sotra OOH	Haukeland University hospital	17.6	23	38316	3892524
59	Horten OOH	Vestfold hospital, Tønsberg	18.5	27	27351	3919875
61	Fredrikstad, Hvaler OOH	Hospitalet Østfold, Kalnes	18.7	22	87053	4006928
62	Sykkylven OOH	Ålesund hospital	20.4	47	12148	4019076
63	Klepp, Time OOH	Stavanger University hospital	23.1	24	38504	4057580
64	Karmøy OOH	Haugesund hospital	23.3	28	42186	4099766

	OOH clinics (Table continues)	Nearest hospital ED with hs-cTn	Kilometres to ED	Minutes to ED (car)	OOH catchment area	Cumulative population
65	Gløppen OOH	Nordfjord hospital	25.2	51	5854	4105620
66	Helgeland OOH	Helgeland hospital, Sandnessjøen	25.9	60	9741	4115361
67	Herøy, Dønna OOH	Helgeland hospital, Sandnessjøen	26.3	63	3148	4118509
68	Moss OOH	Østfold hospital, Kalnes	28.7	22	80559	4199068
69	Bjørnafjorden, Samnanger OOH	Haraldsplass Diakonale hospital	29.1	38	27393	4226461
70	Indre Fosen OOH	St. Olavs hospital	29.8	66	10084	4236545
71	Sandefjord OOH	Tønsberg hospital	29.8	25	63764	4300309
72	Strand OOH	Stavanger University hospital	30.4	28	12968	4313277
73	Nordhordland OOH	Haraldsplass Diakonale hospital	30.7	37	45116	4358393
74	Søndre Land OOH	Gjøvik hospital	30.8	31	5617	4364010
75	Tysnes OOH	Stord hospital	31.7	79	2869	4366879
76	Evenes-Tjeldsund OOH	University hospital of North Norway, Harstad	31.9	34	5564	4372443
77	Ørskog OOH	Ålesund hospital	32.5	32	9081	4381524
78	Sogndal OOH	Lærdal hospital	33.2	60	11847	4393371
79	Hå OOH	Stavanger University hospital	33.6	35	18991	4412362
80	Aremark og Halden OOH	Østfold hospital, Kalnes	34	29	32698	4445060
81	Værnesregionen OOH	St. Olavs hospital	35	33	31398	4476458
82	Follo OOH	Akershus University hospital	36.5	33	126330	4602788
83	Jessheim OOH	Akershus University hospital	36.9	28	63508	4666296
84	Austevoll OOH	Haukeland University hospital	36.9	85	5236	4671532
85	Ulstein-Hareid OOH	Ålesund hospital	37.3	73	13746	4685278
86	Kvinnherad OOH	Stord hospital	38.3	88	13071	4698349
87	Farsund OOH	Sørlandet hospital, Flekkefjord	40.7	41	9691	4708040
88	Larvik OOH	Vestfold hospital, Tønsberg	40.7	34	47204	4755244
89	Nesna OOH	Helgeland hospital, Sandnessjøen	42.2	72	1761	4757005
90	Grane, Hattfjelldal OOH	Helgeland hospital, Mosjøen	43	40	2779	4759784
91	Nes OOH	Akershus University hospital, Kongsvinger	43.1	38	23092	4782876
92	Steinkjer OOH	Levanger hospital	43.2	43	26420	4809296
93	Indre Østfold OOH	Østfold hospital, Kalnes	43.7	45	52192	4861488
94	Lindesnes OOH	Kristiansand hospital	44.3	45	23046	4884534
95	Herøy, Sande OOH	Volda hospital	47.4	46	11361	4895895
96	HAS OOH	Kristiansund hospital	48	116	11620	4907515
97	Indre Namdal OOH	Namsos hospital	48.4	47	5018	4912533

	OOH clinics (<i>Table continues</i>)	Nearest hospital ED with hs-cTn	Kilometres to ED	Minutes to ED (car)	OOH catchment area	Cumulative population
98	Seljord OOH	Notodden hospital	51.7	50	5291	4917824
99	Bremanger OOH	Nordfjord hospital	52.5	75	3629	4921453
100	Indre Salten OOH	Nordland hospital, Bodø	53.8	55	16336	4937789
101	Røros-Os-Holtålen OOH	Innlandet hospital, Tynset	55.9	53	9453	4947242
102	Vågan OOH	Nordland hospital, Vesterålen Stokmarknes	56.3	90	9608	4956850
103	Sirdal OOH	Sørlandet hospital	57.3	56	1822	4958672
104	Kragerø OOH	Skien hospital	58.5	55	10380	4969052
105	Florø OOH	Førde Central hospital	59.4	56	17207	4986259
106	Rauma OOH	Molde hospital	59.4	94	7468	4993727
107	Lunner-Gran OOH	Gjøvik hospital	59.5	50	22678	5016405
108	Luster OOH	Lærdal hospital	60.2	84	5174	5021579
109	Eidsvoll OOH	Kongsvinger hospital	62	57	25436	5047015
110	Karlsøy OOH	University hospital of North Norway, Tromsø	64.4	65	2200	5049215
111	Vanylven OOH	Nordfjord hospital	66	62	3117	5052332
112	Fronsvakta OOH	Lillehammer hospital	68.7	58	8842	5061174
113	Vega OOH	Helgeland hospital, Sandnessjøen	70.4	118	1200	5062374
114	Trysil OOH	Innlandet hospital, Elverum	71.4	58	6627	5069001
115	Vik OOH	Voss hospital	73.1	80	2635	5071636
116	Aurskog-Høland, Rømskog OOH	Akershus University hospital, Kongsvinger	73.5	65	17390	5089026
117	Bardu OOH	University hospital of North Norway, Narvik	74.2	66	16269	5105295
118	Kvam OOH	Voss hospital	75.5	80	8457	5113752
119	Lyngen OOH	University hospital of North Norway, Tromsø	79.2	107	2794	5116546
120	Vikna, Nærøy OOH	Namsos hospital	87.6	113	9623	5126169
121	Etne, Vindafjord OOH	Stord hospital	89.5	85	12776	5138945
122	Gildeskål OOH	Nordland hospital, Bodø	90.7	82	1950	5140895
123	Balsfjord-Storfjord OOH	University hospital of North Norway, Tromsø	92.2	78	7388	5148283
124	Brønnøy OOH	Helgeland hospital, Sandnessjøen	92.4	163	9892	5158175
125	Nore og Uvdal OOH	Kongsberg hospital	93.7	85	2439	5160614
126	Værøy OOH	Nordland hospital, Lofoten	96.2	175	728	5161342
127	Valdres OOH	Gjøvik hospital	97.3	88	17578	5178920
128	Fosen OOH	St. Olavs hospital	101	125	14611	5193531
129	Oppdal OOH	Innlandet hospital, Tynset	102	86	7001	5200532
130	Sunnadal OOH	Kristiansund hospital	103	99	7036	5207568

	OOH clinics <i>(Table continues)</i>	Nearest hospital ED with hs-cTn	Kilometres to ED	Minutes to ED (car)	OOH catchment area	Cumulative population
131	Nord-Gudbrandsdal OOH	Lillehammer hospital	109	90	18262	5225830
132	Sauda OOH	Haugesund hospital	112	116	4595	5230425
133	Suldal OOH	Haugesund hospital	114	116	3804	5234229
134	Gol-Hemsedal OOH	Ringerike hospital	116	98	7094	5241323
135	Meløy OOH	Nordland hospital, Bodø	117	103	6288	5247611
136	Engerdal OOH, Trysil	Innlandet hospital, Tynset	119	98	1268	5248879
137	Vevelstad OOH	Helgeland hospital, Mosjøen	119	153	462	5249341
138	Lurøy OOH	Helgeland hospital, Sandnessjøen	122	183	1890	5251231
139	Bindal OOH	Hospitalet Namsos	127	56	1426	5252657
140	Tokke-Vinje OOH	Telemark hospital, Skien	128	124	5877	5258534
141	Solund OOH	Førde Central hospital	129	200	802	5259336
142	Stor-Elvdal OOH	Lillehammer hospital	138	128	2419	5261755
143	Rødøy OOH	Helgeland hospital, Mo i Rana	140	181	1213	5262968
144	Tana-Nesseby OOH	Kirkenes hospital	140	118	3844	5266812
145	Øvre Hallingdal OOH	Ringerike hospital	140	119	7947	5274759
146	Alta OOH	Hammerfest hospital	142	134	20789	5295548
147	Porsanger OOH	Hammerfest hospital	143	129	3998	5299546
148	Træna OOH	Helgeland hospital, Mo i Rana	143	319	435	5299981
149	Leka OOH	Namsos hospital	151	166	557	5300538
150	Finnsnes OOH	University hospital of North Norway, Tromsø	159	133	18315	5318853
151	Hol OOH	Ringerike hospital	159	135	4441	5323294
152	Måsøy OOH	Hammerfest hospital	168	153	1225	5324519
153	Vadsø OOH	Kirkenes hospital	171	144	5788	5330307
154	Kåfjord OOH	University hospital of North Norway, Tromsø	179	150	2071	5332378
155	Nordkapp OOH	Hammerfest hospital	181	167	3162	5335540
156	Bykle-Valle OOH, Hovden	Telemark hospital, Skien	194	184	2129	5337669
157	Steigen OOH	Bodø hospital	212	183	5374	5343043
158	Karasjok OOH	Hammerfest hospital	218	186	2628	5345671
159	Nordreisa OOH	University hospital of North Norway, Tromsø	224	199	4861	5350532
160	Kvænangen OOH	Hammerfest hospital	229	226	1191	5351723
161	Båtsfjord OOH	Kirkenes hospital	244	193	2221	5353944
162	Skjervøy OOH	University hospital of North Norway, Tromsø	245	217	2927	5356871
163	Vardø OOH	Kirkenes hospital	245	206	2029	5358900
164	Kautokeino OOH	Hammerfest hospital	271	239	2910	5361810
165	Berlevåg OOH	Kirkenes hospital	272	216	957	5362767
166	Hasvik OOH	Hammerfest hospital	278	318	1005	5363772

	OOH clinics (Table continues)	Nearest hospital ED with hs-cTn	Kilometres to ED	Minutes to ED (car)	OOH catchment area	Cumulative population
167	Nordkyn OOH	Kirkenes hospital	336	293	2422	5366194
168	Øksfjord OOH	University hospital of North Norway, Tromsø	355	320	888	5367082
169	Røst OOH	Nordland hospital, Bodø	?	?	498	5367580

The list of Norwegian OOH clinics in 2020 and catchment areas was obtained from the Norwegian Research Centre (NORCE).⁽⁸⁾

Distance and minutes by car to nearest hospital ED with available hs-cTn assay was investigated for the purpose of this study by contacting each hospital by phone and Google Maps.

ED: emergency department; hs-cTn: high-sensitivity cardiac troponin; OOH: out-of-hours

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