

APPENDIX

Financial and temporal costs of patient isolation in Norwegian Hospitals

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Table A.1: Observed number of working minutes per task and staff group

Task/staff group	BEDRIDDEN						NON-BEDRIDDEN					
	Non-isolated			Isolated			Non-isolated			Isolated		
	Mean (min)	SD (min)	N (obs.)	Mean (min)	SD (min)	N (obs.)	Mean (min)	SD (min)	N (obs.)	Mean (min)	SD (min)	N (obs.)
Doctor's visit	9			6			15			12		
Doctors	15,44	9,88		16,17	9,52		11,73	5,68		11,58	5,84	
Nurses	7,78	9,46		10,83	9,22		5,87	7,54		0,67	2,31	
Cleaners	-	-		-	-		-	-		-	-	
Others	2,33	3,64		2,67	6,52		-	-		-	-	
Simple tests	8			9			12			10		
Doctors	-	-		1,78	5,33		-	-		-	-	
Nurses	6,33	1,15		4,13	2,59		3,44	2,78		3,1	2,69	
Cleaners	-	-		-	-		-	-		-	-	
Others	2,4	3,64		5,99	10,41		0,37	0,87		1	2,12	
Medicine	3			4			7			10		
Doctors	-	-		-	-		-	-		-	-	
Nurses	6,33	1,15		4,13	2,59		2,29	1,12		3,1	2,69	
Cleaners	-	-		-	-		-	-		-	-	
Others	-	-		-	-		-	-		-	-	
Personal hygiene	13			19			8			5		
Doctors	0	0		3,13	10,23		0,81	2,3		-	-	
Nurses	26,06	20,06		33,11	25,59		5,56	4,12		7,4	4,83	
Cleaners	-	-		-	-		-	-		-	-	
Others	9	17,15		7,16	14,35		0,5	1,41		-	-	
Daily cleaning	2			3			15			11		
Doctors	-	-		-	-		-	-		-	-	
Nurses	-	-		-	-		0,6	15,9		1,91	4,91	
Cleaners	7	1,41		13,67	6,03		6,18	3,32		7,45	4,01	
Others	-	-		-	-		-	-		-	-	
Food services	7			11			5			20		
Doctors	-	-		-	-		-	-		-	-	
Nurses	3,43	1,51		6,82	5,46		1,8	1,1		4,82	4,33	
Cleaners	-	-		-	-		-	-		0	0	
Others	0,43	1,13		0,73	2,41		-	-		0,25	1,12	
Diagnostic tests *values assumed												
Doctors	-	-		37,5	22,5		-	-		30	15	
Nurses	-	-		20	10		-	-		7,5	2,5	
Cleaners	-	-		20	10		-	-		20	10	
Others	-	-		2,5	2,5		-	-		2,5	2,5	
Other tasks	13			13			11			24		
Doctors	-	-		-	-		-	-		-	-	
Nurses	5,38	5,85		9,19	10,35		2,82	2,99		8,86	7,57	
Cleaners	-	-		-	-		-	-		-	-	
Others	1,54	2,11		5,38	9,58		0,26	1,21		1,63	5,31	

Table A.2: Observed use of personal protective equipment (PPE), stratified by task

Task/PPE	BEDRIDDEN						NON-BEDRIDDEN					
	Isolated			Non-isolated			Isolated			Non-isolated		
	Mean	SD	N (obs.)	Mean	SD	N (obs.)	Mean	SD	N (obs.)	Mean	SD	N (obs.)
Doctor's visit												
Gloves	5,67	2,94	6	0,89	2,03	9	3,67	2,23	12	0	0	15
Gowns	2,67	1,03	6	0	0	9	1,42	0,67	12	0	0	15
Masks	3	0	2	-	-		1,43	0,53	7	-	-	
Simple tests												
Gloves	4	2,83	9	0,25	0,71	8	2,89	1,03	9	0,17	0,58	12
Gowns	1,56	1,01	9	0	0	8	1,22	0,44	9	0	0	12
Masks	1,25	0,5	4	-	-		1,17	0,41	6	-	-	
Medicine												
Gloves	2	0	4	0	0	3	2	0	10	0	0	7
Gowns	0,5	0,58	4	0	0	3	0,5	0,53	10	0	0	7
Masks	1	0	2	-	-		1	0	2	-	-	
Personal hygiene												
Gloves	7,26	2,84	19	6,92	3,23	13	2,8	1,1	5	1,75	2,25	8
Gowns	2,16	1,17	19	0	0	13	1,2	0,45	5	0	0	8
Masks	20	1,41	2	-	-		1,33	0,58	3	-	-	
Daily cleaning												
Gloves	4,67	1,15	3	3	1,41	2	4,18	1,66	11	2,67	1,8	15
Gowns	1,33	0,58	3	0	0	2	1,09	0,3	11	0	0	15
Masks	1	0	2	-	-		1	0	6	-	-	
Food service												
Gloves	3,45	2,02	11	0,29	0,76	7	2,4	1,05	20	0,4	0,89	5
Gowns	1	0,89	11	0	0	7	0,75	0,64	20	0	0	5
Masks	1,5	0,71	8	-	-		1,17	0,41	6	-	-	
Diagnostic tests *Assumed												
Gloves	35	15		-	-		23	11		-	-	
Gowns	11,5	6,5		-	-		8	4		-	-	
Masks	11,5	6,5		-	-		8	4		-	-	
Other tasks												
Gloves	1,08	2,4	13	1,08	2,4	13	3,58	2,12	24	0,18	0,6	11
Gowns	1,46	0,66	13	0	0	13	1	0,066	24	0	0	11
Masks	1,43	0,53	7	-	-		1,22	0,44	9	-	-	

Table A.3: Staff-reported frequency of tasks with isolated patients per type of shift

ISOLATED PATIENTS						
Task/shift	Bedridden			Non-Bedridden		
	Mean (per shift)	SD (per shift)	N (obs.)	Mean (per shift)	SD (per shifts)	N (obs.)
Doctor's visit *routine						
day	1	-		1	-	
evening	-	-		-	-	
night						
Simple tests						
day	1,57	0,53	7	1,64	0,83	28
evening	1	0	4	1,5	0,86	18
night	-	-		1,33	0,52	6
Medicine						
day	1,11	0,33	9	1,76	0,97	25
evening	1,75	0,71	8	2	1,1	24
night	4	3,56	4	1,95	0,91	19
Personal hygiene						
day	1,4	0,63	15	1,18	0,39	17
evening	1,82	1,25	11	1,17	0,41	6
night	-	-		-	-	
Daily cleaning *routine						
day	1	-		1	-	
evening	-	-		-	-	
night	-	-		-	-	
Food services *routine						
day	2	-		2	-	
evening	2	-		2	-	
night	-	-		-	-	
Diagnostic tests * Assumed						
day	0,25	-		0,25	-	
evening	-	-		-	-	
night	-	-		-	-	
Other tasks						
day	2,22	1,56	9	2	1,14	27
evening	2,62	1,33	13	1,95	1,18	19
night	1,67	0,58	3	2	1,07	15
Shifts with reg (total shifts)						
day			16 (17)			41 (42)
evening			15 (16)			32 (33)
night			6 (16)			24 (32)

Table A.4: Daily waste for bedridden and non-bedridden patients

	Mean	SE	N (obs.)
Weight per waste bag	4,1kg	0,49kg	6
Daily number of waste bags *Assumed			
bedridden	2	1	
non-bedridden	1	0,5	

Table A.5: Workload and PPE use during cleaning/disinfection after discharge (N=5 observations)

Obs. #	Nurses (min)	Cleaning staff (min)	NON-ISOLATED ROOM				Disinfection
			Gloves	Gowns	Masks		
1	7,0	7,0	4,0	-	-	-	
2	2,0	7,0	2,0	-	-	-	
Mean	4,5	7,0	3,0				
Obs. #	Nurses (min)	Cleaning staff (min)	ISOLATION ROOM				Disinfection
			Gloves	Gowns	Masks		
3	6,0	21,0	8,0	3,0	0,0	Rely+On PeraSafe	
4	7,5	25,0	6,0	2,0	2,0	Rely+On PeraSafe	
5	10,0	22,0	6,0	1,0	1,0	Rely+On PeraSafe	
Mean	7,8	22,7	6,7	2,0	1,0		

Table A.6: Descriptive statistics (means, proportions) of daily admitted patients at study site infection wards

Hospital	ADMITTED PATIENTS (TOTAL)			ISOLATED, BEDRIDDEN		ISOLATED, NON-BEDRIDDEN	
	N (mean)	Isolated % (daily range)	Bed-ridden % (daily range)	N (mean)	% (daily range)	N (mean)	% (daily range)
Lovisenberg DH	25,2	22% (19-33%)	26% (20-29%)	1,8	22% (19-32%)	4,8	32% (14-40%)
Østfold HT,K	9,3	38% (30-50%)	33% (20-50%)	0,8	38% (30-50%)	2,3	19% (0-50%)
Akershus UH	8	35% (25-50%)	45% (38-50%)	1,8	35% (25-50%)	1,8	65% (50-100%)

Table A.7: Average number of personnel present during doctor’s visits, stratified by staff group

Staff-group	Status	N (obs)	Mean	SD	Median	Min	Max	U-test p-value
Bedridden								
Doctors	Isolated	6	1,33	0,52	1	1	2	0,729
	Not isolated	9	1,44	0,53	1	1	2	
Nurses	Isolated	6	0,83	0,75	1	0	2	0,734
	Not isolated	9	0,67	0,5	1	0	1	
Other	Isolated	6	0,17	0,41	0	0	1	0,539
	Not isolated	9	0,33	0,5	0	0	1	
Non-bedridden								
Doctors	Isolated	12	1,33	0,49	1	1	2	0,735
	Not isolated	15	1,27	0,46	1	1	2	
Nurses	Isolated	12	0,08	0,29	0	0	1	0,031**
	Not isolated	15	0,67	0,82	0	0	2	
Other	Isolated	12	-	-	-	-	-	
	Not isolated	15	-	-	-	-	-	

Figure A.1: Schematic representation of data and the procedure used to calculate isolation-attributable daily costs

