Point Prevalence Survey 2023

Supplementary Report by Acute Hospital Type

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on behalf of the PPS Co-ordination Committee

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Introduction

The report is a supplement to the main national report.

The data here are presented by acute hospital type (see below for the HSE Model equivalent).

This report presents the findings of the third national Point Prevalence Survey (PPS) of healthcare-associated infections and antimicrobial use that was conducted in all Irish acute hospitals in May 2023.

In Ireland, the first two European PPSs were conducted in May 2012 and May 2017, respectively. The third PPS was due to take place in May 2022 but was re-scheduled to May 2023 as a result of the COVID-19 pandemic.

Sixty-five acute hospitals participated in PPS 2023, representing the first time that all acute hospitals in Ireland have taken part. This is an increase from 60 and 50 hospitals in 2017 and 2012, respectively.

The hospitals are classified by ownership as either HSE/public or private; with public hospitals further broken down by their HSE Model type. In addition, the data for paediatric hospitals are presented separately to other specialist hospitals:

- Public/Tertiary (or Model 4) - 9 hospitals
- Public/Secondary (or Model 3) - 17 hospitals
- Public/Primary (or Model 2) - 10 hospitals
- Public/Paediatric - 3 hospitals
- Public/Specialist - 11 hospitals
- Private - 15 hospitals

Other specialist hospitals include obstetrics and gynaecology (n=5), orthopaedics (n=4), radiation and oncology (n=1), and ENT/ophthalmology (n=1).

For the list of HSE hospitals by Hospital Model, see:

https://www.hse.ie/eng/staff/leadership-education-development/met/publications/model-3-report1.pdf

- Page 43. Hospital model characteristics
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Participants

Table 1. PPS 2023 participants with hospital type

Hospital name	hse_model	Hospital type	Specialty	HSE Health Region*	Public vs Private
Bantry General Hospital	Model 2	Primary		HSE-SW	Public
Beacon Hospital, Sandyford		Private		Private	Private
Beaumont Hospital	Model 4	Tertiary		HSE-D/NE	Public
Blackrock Health Blackrock Clinic		Private		Private	Private
Blackrock Health Galway Clinic		Private		Private	Private
Blackrock Health Hermitage Clinic		Private		Private	Private
Bon Secours Hospital, Cork		Private		Private	Private
Bon Secours Hospital, Galway		Private		Private	Private
Bon Secours Hospital, Glasnevin		Private		Private	Private
Bon Secours Hospital, Limerick at Barringtons		Private		Private	Private
Bon Secours Hospital, Tralee		Private		Private	Private
Cappagh National Orthopaedic Hospital	Specialist	Specialist	Orthopaedic	HSE-D/NE	Public
Cavan General Hospital	Model 3	Secondary		HSE-D/NE	Public
Children's Health Ireland at Crumlin	Specialist	Paediatric		CHI	Public
Children's Health Ireland at Tallaght	Specialist	Paediatric		CHI	Public
Children's Health Ireland at Temple Street	Specialist	Paediatric		CHI	Public
Connolly Hospital, Blanchardstown	Model 3	Secondary		HSE-D/NE	Public
Coombe Women and Infant's University Hospital	Specialist	Specialist	Obstetrics/ gynaecology	HSE-D/Mid	Public
Cork University Hospital	Model 4	Tertiary		HSE-SW	Public
Cork University Maternity Hospital	Specialist	Specialist	Obstetrics/ gynaecology	HSE-SW	Public
Croom Orthopaedic Hospital	Specialist	Specialist	Orthopaedic	HSE-MW	Public
Galway University Hospital	Model 4	Tertiary		HSE-W/NW	Public
Kilcreene Regional Orthopaedic Hospital, Kilkenny	Specialist	Specialist	Orthopaedic	HSE-D/SE	Public
Letterkenny University Hospital	Model 3	Secondary		HSE-W/NW	Public
Louth County Hospital, Dundalk	Model 2	Primary		HSE-D/NE	Public
Mallow General Hospital	Model 2	Primary		HSE-SW	Public
Mater Misericordiae University Hospital	Model 4	Tertiary		HSE-D/NE	Public
Mater Private Hospital, Cork		Private		Private	Private

Hospital name	hse_model	Hospital type	Specialty	HSE Health Region*	Public vs Private
Mater Private Hospital, Dublin		Private		Private	Private
Mayo University Hospital, Castlebar	Model 3	Secondary		HSE-W/NW	Public
Mercy University Hospital	Model 3	Secondary		HSE-SW	Public
Midland Regional Hospital, Mullingar	Model 3	Secondary		HSE-D/Mid	Public
Midland Regional Hospital, Portlaoise	Model 3	Secondary		HSE-D/Mid	Public
Midland Regional Hospital, Tullamore	Model 3	Secondary		HSE-D/Mid	Public
Naas General Hospital	Model 3	Secondary		HSE-D/Mid	Public
National Maternity Hospital, Holles Street	Specialist	Specialist	Obstetrics/ gynaecology	HSE-D/SE	Public
National Rehabilitation Hospital, Dun Laoghaire	Specialist	Specialist	Rehabilitation	HSE-D/SE	Public
Our Lady of Lourdes Hospital, Drogheda	Model 3	Secondary		HSE-D/NE	Public
Our Lady's Hospital, Navan	Model 3	Secondary		HSE-D/NE	Public
Portiuncula University Hospital, Ballinasloe	Model 3	Secondary		HSE-W/NW	Public
Roscommon University Hospital	Model 2	Primary		HSE-W/NW	Public
Rotunda Hospital	Specialist	Specialist	Obstetrics/ gynaecology	HSE-D/NE	Public
Royal Victoria Eye and Ear Hospital	Specialist	Specialist	ENT/ Ophthalmology	HSE-D/SE	Public
Sligo University Hospital	Model 3	Secondary		HSE-W/NW	Public
South Infirmary-Victoria University Hospital	Model 2	Primary		HSE-SW	Public
St Columcille's Hospital, Loughlinstown	Model 2	Primary		HSE-D/SE	Public
St James's Hospital	Model 4	Tertiary		HSE-D/Mid	Public
St John's Hospital, Limerick	Model 2	Primary		HSE-MW	Public
St Luke's General Hospital, Kilkenny	Model 3	Secondary		HSE-D/SE	Public
St Luke's Hospital, Rathgar	Specialist	Specialist	Radiation/ oncology	HSE-D/Mid	Public
St Michael's Hospital, Dun Laoghaire	Model 2	Primary		HSE-D/SE	Public
St Vincent's Private Hospital		Private		Private	Private
St Vincent's University Hospital	Model 4	Tertiary		HSE-D/SE	Public
Tallaght University Hospital	Model 4	Tertiary		HSE-D/Mid	Public
Tipperary University Hospital, Clonmel	Model 3	Secondary		HSE-D/SE	Public
UPMC Aut Even Hospital, Kilkenny		Private		Private	Private
UPMC Sports Surgery Clinic, Santry		Private	Orthopaedic	Private	Private
UPMC Whitfield Hospital, Waterford		Private		Private	Private
University Hospital Ennis	Model 2	Primary		HSE-MW	Public

Hospital name	hse_model	Hospital type	Specialty	HSE Health Region*	Public vs Private
University Hospital Kerry, Tralee	Model 3	Secondary		HSE-SW	Public
University Hospital Limerick	Model 4	Tertiary		HSE-MW	Public
University Hospital Nenagh	Model 2	Primary		HSE-MW	Public
University Hospital Waterford	Model 4	Tertiary		HSE-D/SE	Public
University Maternity Hospital, Limerick	Specialist	Specialist	Obstetrics/ gynaecology	HSE-MW	Public
Wexford General Hospital	Model 3	Secondary		HSE-D/SE	Public

* HSE Health Regions took over responsibility for Hospital Groups in Spring 2024; some hospitals were re-assigned as a result.

CHI, Children's Health Ireland; HSE-D/Mid, HSE-Dublin/Midlands; HSE-D/NE, HSE-Dublin/North-East; HSE-D/SE, HSE-Dublin/South-East; HSE-MW, HSE-Mid-West, HSE-SW, HSE-South-West, HSE-W/NE, HSE-West/North-West

Hospital characteristics

Denominator data

Table 2a. Hospital characteristics: denominator data

	Hospital type						National
	Tertiary	Secondary	Primary	Paediatric	Specialist	Private	
N hospitals	9	17	10	3	11	15	65
% of hospitals	14%	26%	15%	5%	17%	23%	100%
N wards surveyed	256	247	43	25	52	84	707
Median number of wards surveyed	29	14	4	10	5	5	8
N hospitals where ward(s) excluded	3	8	1	0	1	2	15
Total beds	6200	4682	773	382	1390	1832	15259
Total acute beds	5574	4334	773	315	1231	1798	14025
Median N of acute beds	635	234	63	104	102	91	160
N of airborne isolation rooms	237	98	8	16	15	42	416
N of hospitals with ICU	9	17	0	2	5	6	39
N of ICU beds	181	92	0	32	103	55	463
N patient days (2022)	1964512	1435267	182914	124808	277923	485466	4470890
N of discharges (2022)	237714	293175	64955	47623	58672	130787	832926
Average patient length of stay (days)	8.3	4.9	2.8	2.6	4.7	3.7	5.4
Average bed occupancy (2022)*	96.6%	90.7%	64.8%	108.6%	61.9%	74.0%	87.3%

*Acute beds only

Staffing

Table 2b. Hospital characteristics: infection control staffing levels

	Hospital type						National
	Tertiary	**Secondary**	**Primary**	**Paediatric**	**Specialist**	**Private**	
N hospitals	9	17	10	3	11	15	65
Total acute beds	5574	4334	773	315	1231	1798	14025
Infection Control Staff							
N of WTE IPC nurses	78.10	59.92	13.30	8.75	14.20	25.91	200.18
Mean N IPCNs per hospital	8.7	3.5	1.3	2.9	1.3	1.7	3.1
N IPCNs per 250 acute beds	3.5	3.5	4.3	6.9	2.9	3.6	3.6
N of WTE IPC doctors	7.24	12.45	3.72	2.30	5.17	9.26	40.14
Mean N IPC doctors per hospital	0.8	0.7	0.4	0.8	0.5	0.6	0.6
N IPC doctors per 250 acute beds	0.3	0.7	1.2	1.8	1.0	1.3	0.7
N of WTE IPC pharmacists	18.40	18.25	5.32	1.80	5.28	4.66	53.71
Mean N IPC pharmacists per hospital	2.0	1.1	0.5	0.6	0.5	0.3	0.8
N IPC pharmacists per 250 acute beds	0.8	1.1	1.7	1.4	1.1	0.6	1

WTE, Whole time equivalent; IPC, Infection prevention and control

Microbiology laboratory testing

Table 2c. Hospital characteristics: microbiology laboratory testing

	Hospital type						National
	Tertiary	Secondary	Primary	Paediatric	Specialist	Private	
N hospitals	9	17	10	3	11	15	65
N patient days (2022)	1964512	1435267	182914	124808	277923	485466	4470890
Microbiology laboratory testing							
N of blood cultures (2022)	120472	74972	5722	13719	7613	17044	239542
N of blood cultures per 1,000 patient days	61.3	52.2	31.3	109.9	27.4	35.1	53.6
N of faeces for CDI (2022)	31841	24035	1835	1216	524	4535	63986
N of faeces for CDI per 1,000 patient days	16.2	16.7	10.0	9.7	1.9	9.3	14.3
N of hospitals with laboratory processing...							
Clinical samples on Sat	4	8	8	2	6	10	38
Clinical samples on Sun	3	8	7	1	5	6	30
Screening samples on Sat	3	7	7	1	6	8	32
Screening samples on Sun	3	7	7	1	6	8	32

CDI, Clostridoides difficile infections

COVID-19 and other infection control indicators

Table 2d. Hospital characteristics: other infection control indicators

	Hospital type						National
	Tertiary	Secondary	Primary	Paediatric	Specialist	Private	
N hospitals	9	17	10	3	11	15	65
Other infection control indicators							
N COVID-19 all hospital cases last year	11566	20411	3836	441	1635	2825	40714
N COVID-19 outbreaks last year	351	422	79	1	21	29	903
N COVID-19 all cases current	63	125	7	1	2	2	200
N COVID-19 all ICU current	9	4	0	0	0	1	14
Alcohol hand rub (AHR) consumption, litres (2022)	105788	54485	10101	5263	19661	22291	217589
AHR consumption per 1,000 patient days	53.8	38.0	55.2	42.2	70.7	45.9	48.7
N hand hygiene opportunities (2022)	36104	25035	22663	1773	11113	32959	129647
N hospitals with:							
IPC plan approved by CEO	8	17	10	3	11	14	63
IPC report approved by CEO	8	17	10	3	11	14	63
Universal masking policy for routine care	2	5	0	1	3	3	14
Multi-modal strategy in place	8	15	7	3	7	13	53
Part of surveillance network for:							
SSI	0	1	0	1	1	3	6
CDI	9	17	10	3	11	13	63
ICU	0	3	0	1	0	1	5
AMR	7	11	7	2	6	9	42
AMC	7	13	8	2	7	7	44
Vaccine uptake							
HCW Flu vacc. coverage (% range)	54-76	0-74	0-74	65-65	35-72	27-50	0-76
HCW COVID vacc. coverage (% range)	0-90	0-99	0-87	70-70	22-100	80-98	0-100

SSI, Surgical site infection ; CDI, Clostridoides difficile infections; ICU, Intensive care units; AMR, Antimicrobial resistance; AMC, Antimicrobial consumption

Degree, feasibility and availability of automation

Table 2e. Hospital characteristics: degree of automation

Data for all hospitals combined

	Surgical site infection	Bloodstream infection	Central line-associated bloodstream infection	Catheter-associated urinary tract infections	Healthcare-associated pneumonia	Ventilator-associated pneumonia	Clostridoides difficile infections
Fully manual	26	33	32	22	19	18	36
Automated denominator collection	5	9	8				11
Semi-automated	4	9	7	5	2	2	8
Other	2	6	5	2		2	6
Not performed	26	5	11	33	42	41	1
Unknown	1	1	1	1	1	1	1
No response	1	1	1	1	1	1	
Total	65	65	65	65	65	65	65

Table 2f. Hospital characteristics: feasibility of automation

Data for all hospitals combined

	Surgical procedures	Admission dates (hospital)	Admission dates (ward)	Central line use	Mechanical ventilation use	Urinary catheter use	Microbiology results	Antimicrobial prescriptions
Yes, hospital-wide	27	56	57	8	7	9	56	10
Yes, specific wards only	6	2	1	11	10	7		6
No	25	4	4	39	40	43	5	45
Unknown	4	1	1	4	5	3	2	1
No response	3	2	2	3	3	3	2	3
Total	65	65	65	65	65	65	65	65

Table 2g. Hospital characteristics: availability of structured information

Data for all hospitals combined

	Surgical procedures	Admission dates (hospital)	Admission dates (ward)	Central line use	Mechanical ventilation use	Urinary catheter use	Microbiology results	Antimicrobial prescriptions
Yes	27	51	51	15	13	14	49	16
No	11			9	6	9	2	12
Unknown	7	7	7	6	8	4	5	4
No response	20	7	7	35	38	38	9	33
Total	65	65	65	65	65	65	65	65

Multi-modal strategies

Table 2h. Hospital characteristics: multi-modal strategies

	Hospital type						National
	Tertiary	Secondary	Primary	Paediatric	Specialist	Private	
N hospitals	9	17	10	3	11	15	65
Multi-modal strategy:							
Not answered	1	1	3	1	4	1	11
System change	8	16	7	2	7	13	53
Education and training	8	16	7	2	7	14	54
Monitoring and feedback	8	16	7	2	7	14	54
Communications and reminders	8	16	7	2	7	14	54
Safety climate and change culture	7	16	7	2	7	13	52
Multidisciplinary team used to implement IPC MMS	8	15	6	3	7	14	53
Link with QIPS colleagues to develop and promote IPC MMS	7	16	7	3	7	14	54
Strategies include bundles or checklists	7	14	6	3	7	14	51

QIPS, Quality Improvement and Patient Safety; IPC, Infection Prevention and Control; MMS, Multi-Modal Strategies

Ward characteristics

Table 3. Ward characteristics, by hospital type

	Hospital type						National
	Tertiary	Secondary	Primary	Paediatric	Specialist	Private	
N wards	256	247	43	25	52	84	707
N ward beds	5790	4733	807	357	1215	1793	14695
N ward rooms	2788	2017	397	288	527	1364	7381
N ward single rooms	1957	1136	236	240	347	1070	4986
% beds in single rooms	34%	24%	29%	67%	29%	60%	34%
Average N patients*	21.3	16.0	13.7	11.6	18.5	16.0	17.8
Average N ward beds	22.6	19.2	18.8	14.3	23.4	21.3	20.8
Average N ward rooms	10.9	8.2	9.2	11.5	10.1	16.2	10.4
Average N single rooms	7.6	4.6	5.5	9.6	6.7	12.7	7.1
Average N ward beds with AHR dispenser	19.8	16.5	17.7	11.7	17.9	16.9	17.7
Average N HCWs on ward*	9.0	8.9	6.9	6.0	9.0	5.9	8.4
Average N HCWs on ward with AHR dispenser	0.1	0.1	0.0	0.0	0.6	0.2	0.1
Average N ward beds occupied at midnight	21.6	16.9	15.3	11.7	16.8	17.0	18.3

AHR, Alcohol hand rub

*on ward at time of PPS

Table 4. Wards by specialty, by hospital type

Ward specialties are arranged by number (in descending order) for the overall national data (column on right of table)

	Hospital type						National
	Tertiary	Secondary	Primary	Paediatric	Specialist	Private	
Medical specialties	111 (43.4%)	112 (45.3%)	28 (65.1%)	0 (0.0%)	1 (1.9%)	22 (26.2%)	274 (38.8%)
Surgical specialties	62 (24.2%)	26 (10.5%)	8 (18.6%)	0 (0.0%)	8 (15.4%)	31 (36.9%)	135 (19.1%)
Mixed	20 (7.8%)	21 (8.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	18 (21.4%)	59 (8.3%)
Paediatrics	7 (2.7%)	16 (6.5%)	1 (2.3%)	24 (96.0%)	1 (1.9%)	1 (1.2%)	50 (7.1%)
Gynaecology/Obstetrics	5 (2.0%)	20 (8.1%)	0 (0.0%)	0 (0.0%)	23 (44.2%)	0 (0.0%)	48 (6.8%)
Other	14 (5.5%)	18 (7.3%)	0 (0.0%)	0 (0.0%)	3 (5.8%)	4 (4.8%)	39 (5.5%)
Intensive care medicine	15 (5.9%)	17 (6.9%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	6 (7.1%)	38 (5.4%)
Geriatrics	16 (6.2%)	6 (2.4%)	2 (4.7%)	0 (0.0%)	0 (0.0%)	2 (2.4%)	26 (3.7%)
Neonatology	3 (1.2%)	9 (3.6%)	0 (0.0%)	1 (4.0%)	5 (9.6%)	0 (0.0%)	18 (2.5%)
Rehabilitation	2 (0.8%)	2 (0.8%)	3 (7.0%)	0 (0.0%)	11 (21.2%)	0 (0.0%)	18 (2.5%)
Long-term care	0 (0.0%)	0 (0.0%)	1 (2.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.1%)
Psychiatry	1 (0.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.1%)
Total	256 (100.0%)	247 (100.0%)	43 (100.0%)	25 (100.0%)	52 (100.0%)	84 (100.0%)	707 (100.0%)

Other, <80% of patients on the ward belong to a single specialty, but there are mixed medical and surgical patients admitted to the ward (includes admitted patients who remain in the ED or who are accommodated on a Day ward as admitted patients); Mixed, <80% of patients on the ward belong to a single specialty but there are only two specialties of patients admitted to the ward (e.g. haematology & oncology)

*on ward at time of PPS

Patient demographics

Table 5. Patient demographics, by hospital type

	Hospital type						National
	Tertiary	Secondary	Primary	Paediatric	Specialist	Private	
N patients	5420	3986	648	307	946	1343	12650
Mean age	65	64	76	6	30	68	62
Age range	0-102	0-101	0-101	0-17	0-95	0-102	0-102
% Male	52.5%	48.7%	44.9%	52.8%	33.0%	48.9%	49.1%
% Aged >=65 years	60.3%	62.5%	85.5%	0.0%	14.6%	67.4%	58.2%
% Aged <10 years	2.2%	5.9%	0.9%	71.7%	33.4%	0.6%	7.2%
% had Surgery	19.6%	9.7%	7.9%	25.1%	23.7%	36.6%	18.1%
% with CVC	12.0%	4.6%	1.1%	16.6%	3.7%	9.7%	8.3%
% with Urinary catheter	17.7%	14.4%	9.9%	4.9%	6.2%	10.2%	14.3%
% Intubated	2.0%	0.9%	0.0%	5.2%	1.4%	0.6%	1.4%
McCabe score							
% McCabe: non-fatal	64.1%	72.6%	67.4%	93.5%	94.1%	78.0%	71.4%
% McCabe: life-limiting	30.7%	23.7%	27.9%	4.6%	4.1%	17.8%	24.4%
% McCabe: end-of-life	4.6%	3.3%	4.5%	0.3%	1.3%	3.7%	3.7%
Vaccination status against COVID-19							
% Fully vaccinated*	37.6%	64.6%	44.4%	2.0%	40.5%	83.3%	50.7%
% Partially vaccinated	0.9%	0.5%	0.2%	0.0%	0.8%	0.5%	0.7%
% Not vaccinated	4.1%	12.0%	1.4%	17.3%	40.7%	3.1%	9.4%
% Unknown	57.3%	22.7%	53.9%	77.9%	18.0%	13.0%	39.1%
HAI and AMU prevalence							
N with HAI	486	287	39	16	49	55	932
% with HAI	9.0%	7.2%	6.0%	5.2%	5.2%	4.1%	7.4%
N receiving AMs	2280	1613	217	127	204	646	5087
% receiving AMs	42.1%	40.5%	33.5%	41.4%	21.6%	48.1%	40.2%

CVC, Central Venous Catheter; HAI, Healthcare-Associated Infection; AMU, Antimicrobial Use; AM, Antimicrobial

*Full vaccination also includes those that have received one or two additional doses

Table 6a. Data by age group/sex for all inpatients in acute hospitals: national data

Age group	Female	Male	Total
<1m	224 (3.5%)	214 (3.4%)	438 (3.5%)
1-23m	93 (1.4%)	137 (2.2%)	230 (1.8%)
2-17	240 (3.7%)	217 (3.5%)	457 (3.6%)
18-64	2,206 (34.4%)	1,945 (31.3%)	4,151 (32.9%)
65-74	1,030 (16.0%)	1,335 (21.5%)	2,365 (18.7%)
75+	2,629 (40.9%)	2,357 (38.0%)	4,986 (39.5%)
Total	6,422 (100.0%)	6,205 (100.0%)	12,627 (100.0%)

Note: Total numbers don't add up to 12,650 as some cases are missing data on sex and age

Figure 1a. Total inpatients in acute hospitals: Age pyramid with national data

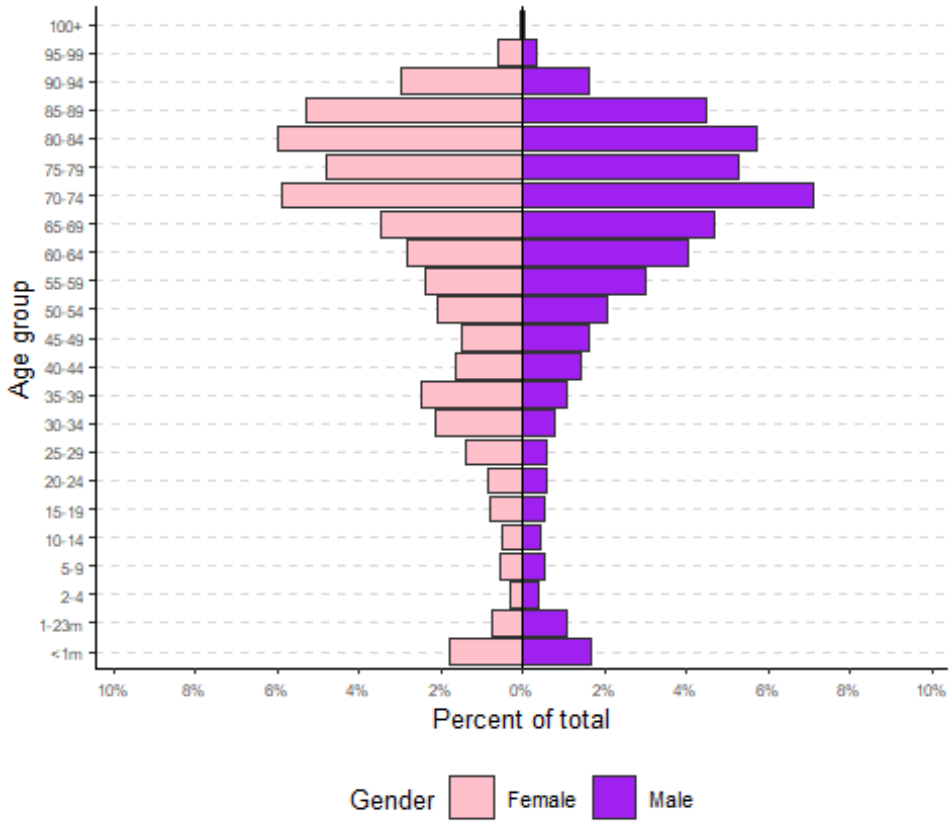


Table 6b. Data by age group/sex for all inpatients: tertiary and secondary hospitals

Tertiary hospital inpatients

Age group	Female	Male	Total
<1m	19 (0.7%)	13 (0.5%)	32 (0.6%)
1-23m	13 (0.5%)	27 (0.9%)	40 (0.7%)
2-17	58 (2.3%)	51 (1.8%)	109 (2.0%)
18-64	910 (35.4%)	1,053 (37.0%)	1,963 (36.3%)
65-74	445 (17.3%)	657 (23.1%)	1,102 (20.4%)
75+	1,122 (43.7%)	1,044 (36.7%)	2,166 (40.0%)
Total	2,567 (100.0%)	2,845 (100.0%)	5,412 (100.0%)

Secondary hospital inpatients

Age group	Female	Male	Total
<1m	68 (3.3%)	57 (2.9%)	125 (3.1%)
1-23m	20 (1.0%)	23 (1.2%)	43 (1.1%)
2-17	60 (2.9%)	62 (3.2%)	122 (3.1%)
18-64	643 (31.6%)	559 (28.8%)	1,202 (30.2%)
65-74	339 (16.6%)	418 (21.5%)	757 (19.0%)
75+	908 (44.6%)	821 (42.3%)	1,729 (43.5%)
Total	2,038 (100.0%)	1,940 (100.0%)	3,978 (100.0%)

Figure 1b. Total inpatients in tertiary and secondary hospitals: Age pyramid

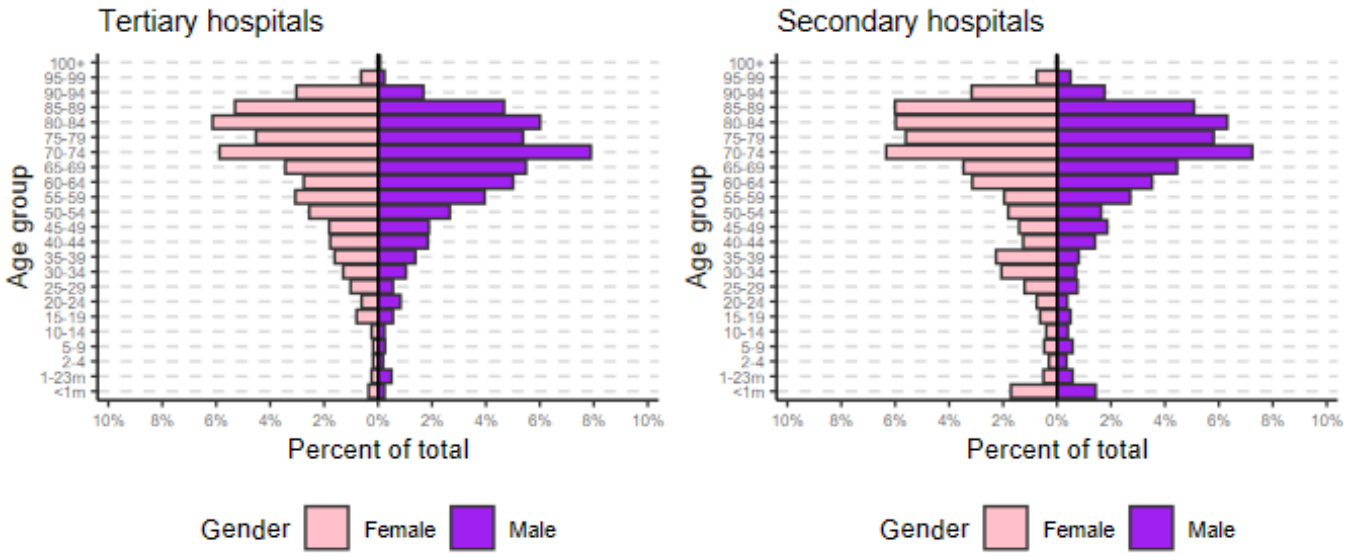


Table 6c. Data by age group/sex for all inpatients: primary and paediatric hospitals

Primary hospital inpatients

Age group	Female	Male	Total
<1m	0 (0.0%)	0 (0.0%)	0 (0.0%)
1-23m	0 (0.0%)	0 (0.0%)	0 (0.0%)
2-17	3 (0.8%)	4 (1.4%)	7 (1.1%)
18-64	38 (10.6%)	48 (16.6%)	86 (13.3%)
65-74	56 (15.7%)	57 (19.7%)	113 (17.5%)
75+	260 (72.8%)	181 (62.4%)	441 (68.2%)
Total	357 (100.0%)	290 (100.0%)	647 (100.0%)

Paediatric hospital inpatients

Age group	Female	Male	Total
<1m	6 (4.3%)	9 (5.6%)	15 (5.0%)
1-23m	39 (27.9%)	63 (38.9%)	102 (33.8%)
2-17	95 (67.9%)	90 (55.6%)	185 (61.3%)
18-64	0 (0.0%)	0 (0.0%)	0 (0.0%)
65-74	0 (0.0%)	0 (0.0%)	0 (0.0%)
75+	0 (0.0%)	0 (0.0%)	0 (0.0%)
Total	140 (100.0%)	162 (100.0%)	302 (100.0%)

Figure 1c. Total inpatients in primary and paediatric hospitals: Age pyramid

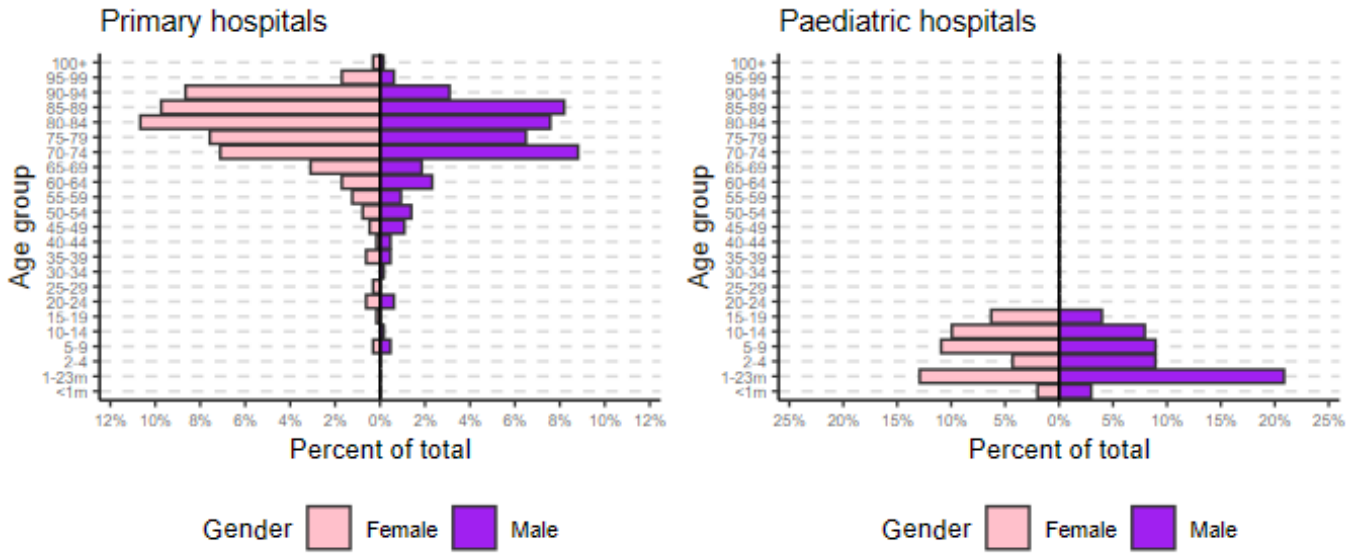


Table 6d. Data by age group/sex for all inpatients: specialist and private hospitals

Specialist hospital inpatients

Age group	Female	Male	Total
<1m	131 (20.7%)	135 (43.3%)	266 (28.1%)
1-23m	21 (3.3%)	22 (7.1%)	43 (4.5%)
2-17	15 (2.4%)	5 (1.6%)	20 (2.1%)
18-64	399 (62.9%)	80 (25.6%)	479 (50.6%)
65-74	26 (4.1%)	25 (8.0%)	51 (5.4%)
75+	42 (6.6%)	45 (14.4%)	87 (9.2%)
Total	634 (100.0%)	312 (100.0%)	946 (100.0%)

Private hospital inpatients

Age group	Female	Male	Total
<1m	0 (0.0%)	0 (0.0%)	0 (0.0%)
1-23m	0 (0.0%)	2 (0.3%)	2 (0.1%)
2-17	9 (1.3%)	5 (0.8%)	14 (1.0%)
18-64	216 (31.5%)	205 (31.2%)	421 (31.4%)
65-74	164 (23.9%)	178 (27.1%)	342 (25.5%)
75+	297 (43.3%)	266 (40.5%)	563 (42.0%)
Total	686 (100.0%)	656 (100.0%)	1,342 (100.0%)

Figure 1d. Total inpatients in specialist and private hospitals: Age pyramid

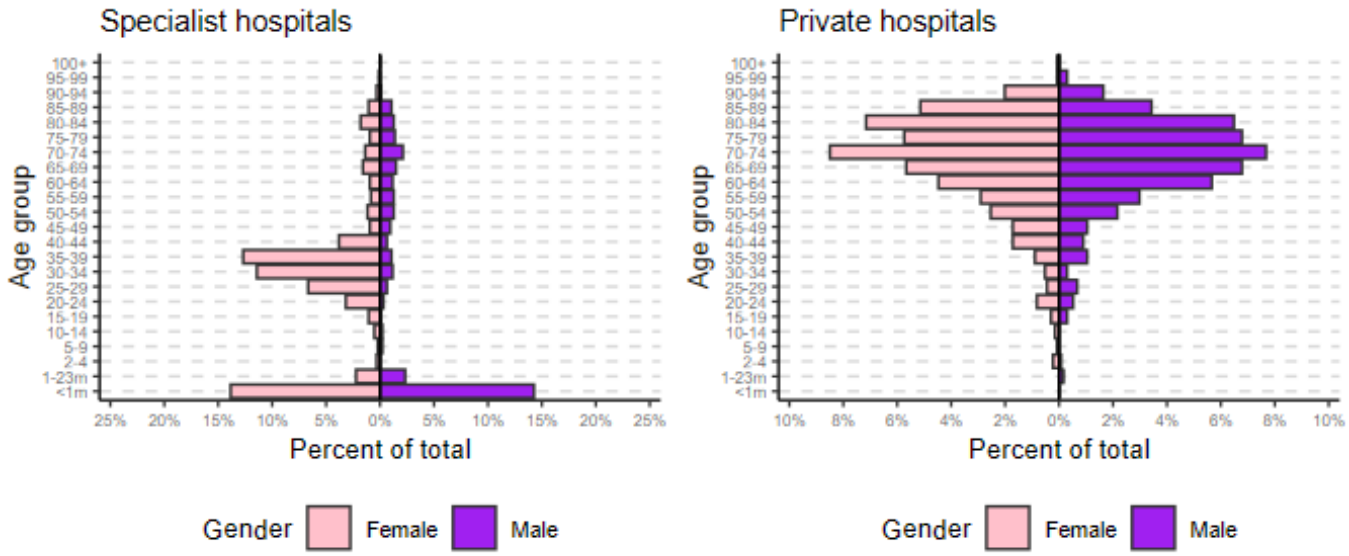


Figure 1e. Age distribution, by hospital type

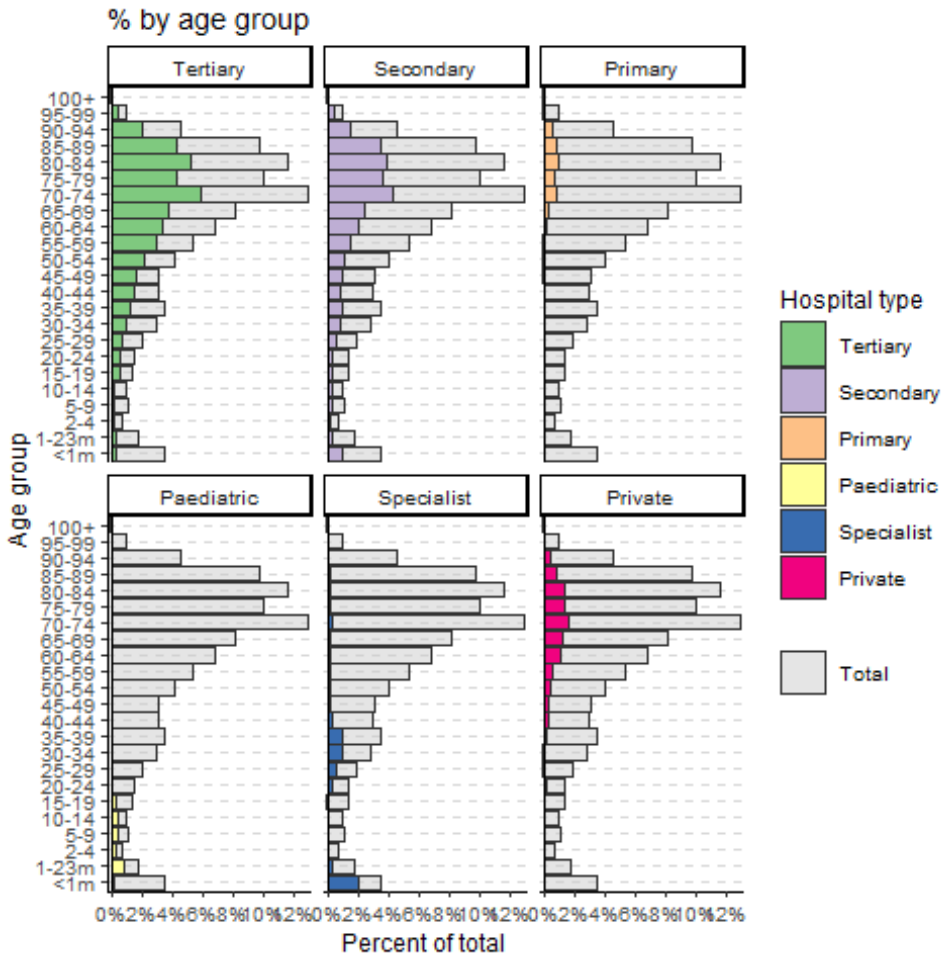
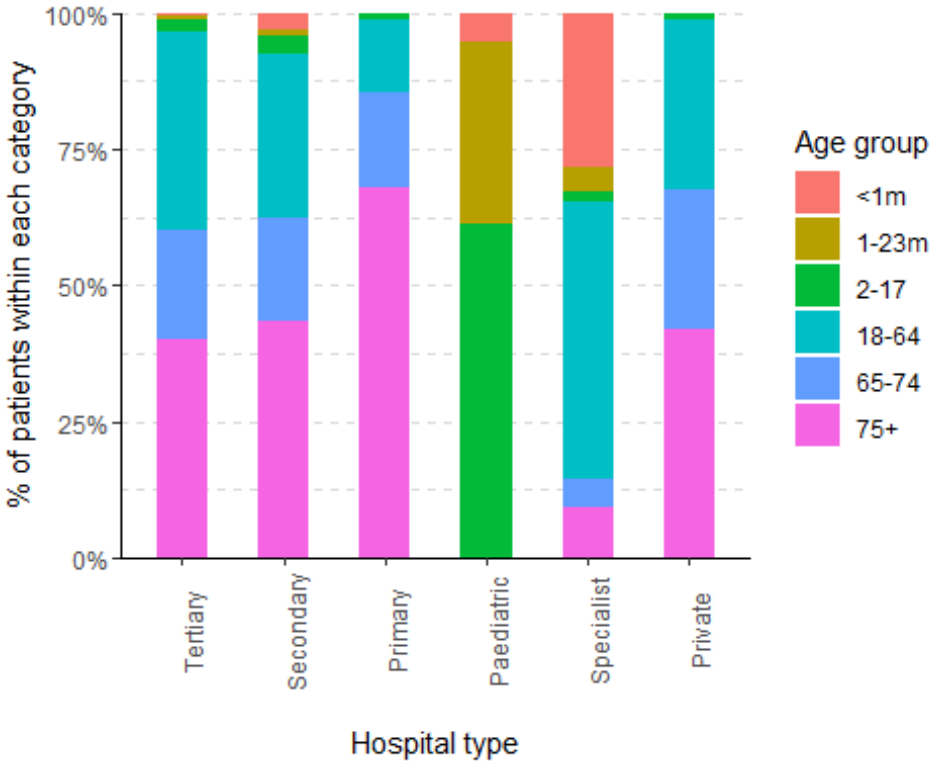


Figure 2. Data by age group, by hospital type



Risk factors

Figure 3a. Risk factors for all acute hospital inpatients: national data

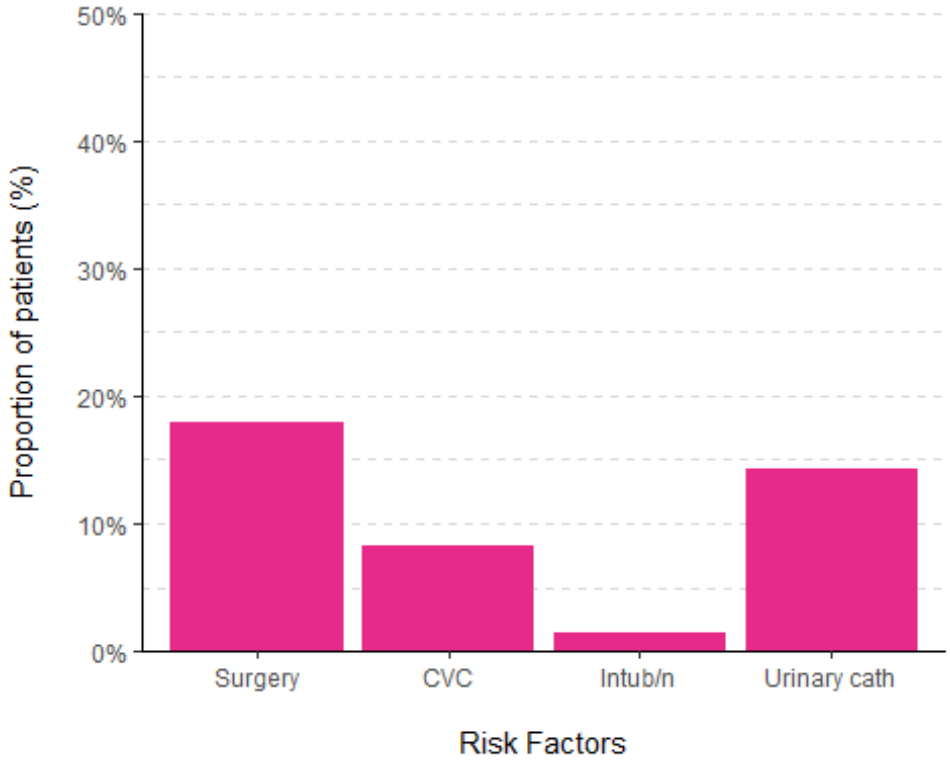


Figure 3b. Risk factors for all inpatients: tertiary and secondary hospitals

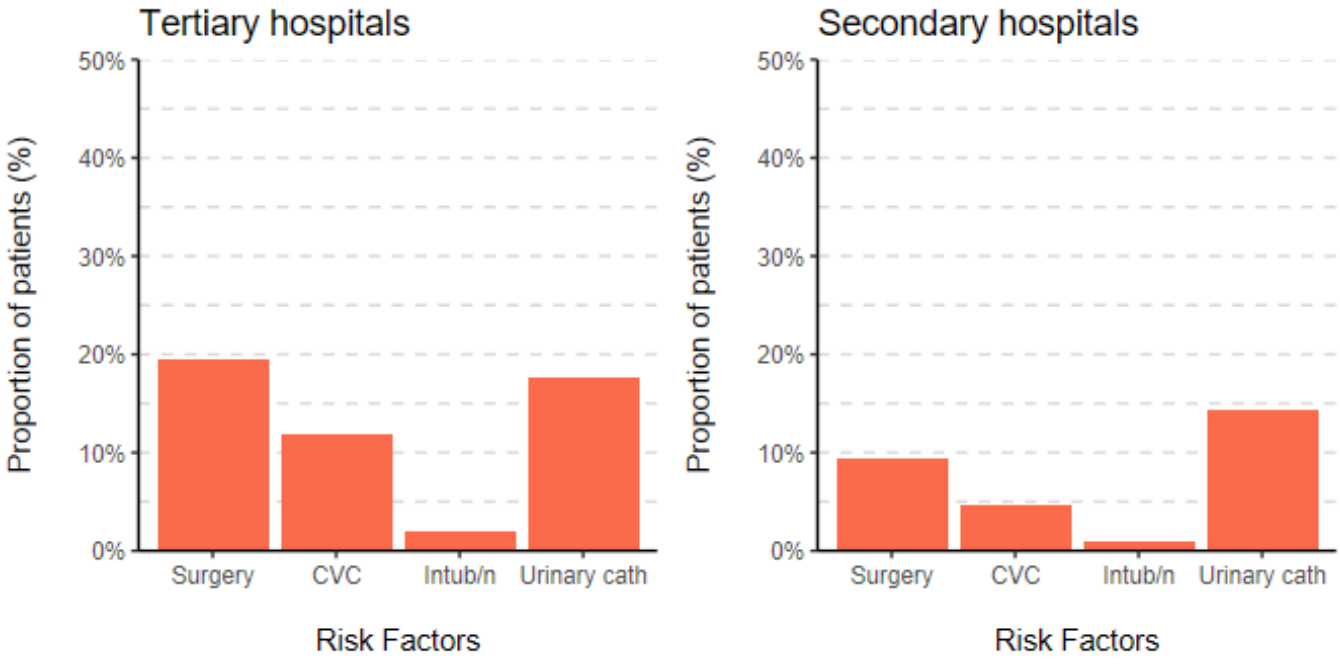


Figure 3c. Risk factors for all inpatients: primary and paediatric hospitals

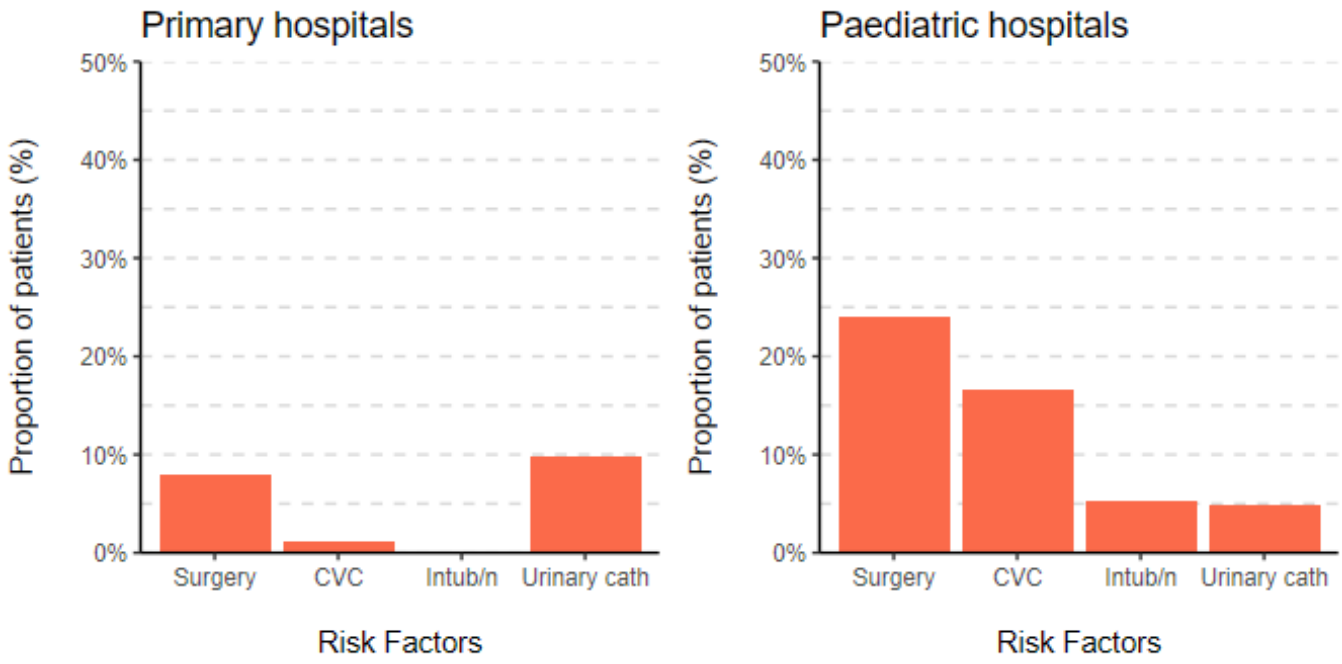


Figure 3d. Risk factors for all inpatients: specialist and private hospitals

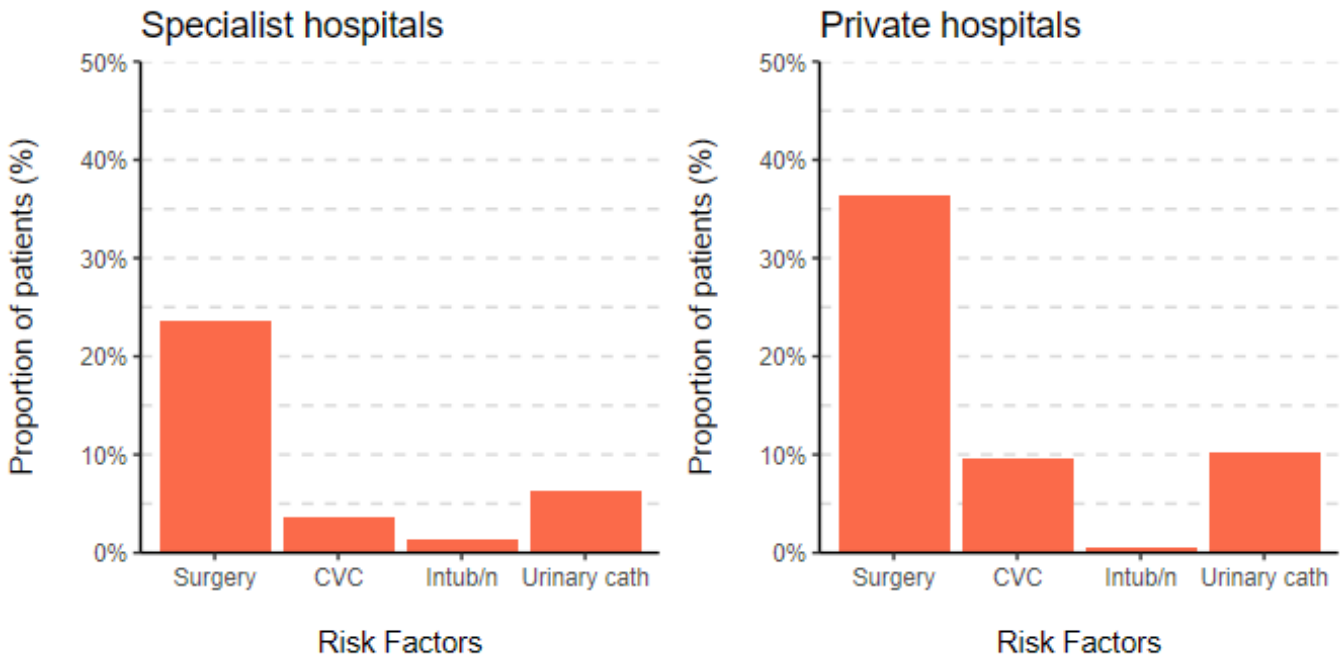


Table 7. Surgery since admission, by hospital type

Surgery since admission	Hospital type						National
	Tertiary	Secondary	Primary	Paediatric	Specialist	Private	
No surgery	4,355 (80.4%)	3,601 (90.3%)	597 (92.1%)	228 (74.8%)	722 (76.3%)	851 (63.4%)	10,354 (81.9%)
NHSN surgery	812 (15.0%)	282 (7.1%)	29 (4.5%)	60 (19.7%)	177 (18.7%)	354 (26.4%)	1,714 (13.6%)
Non-NHSN surgery	244 (4.5%)	95 (2.4%)	22 (3.4%)	14 (4.6%)	47 (5.0%)	136 (10.1%)	558 (4.4%)
Unknown	9 (0.2%)	8 (0.2%)	0 (0.0%)	3 (1.0%)	0 (0.0%)	2 (0.1%)	22 (0.2%)
Total	5,420 (100.0%)	3,986 (100.0%)	648 (100.0%)	305 (100.0%)	946 (100.0%)	1,343 (100.0%)	12,648 (100.0%)

NHSN, National Healthcare Safety Network

Not answered for 2 cases

Figure 4a. McCabe score for all acute hospital inpatients: national data

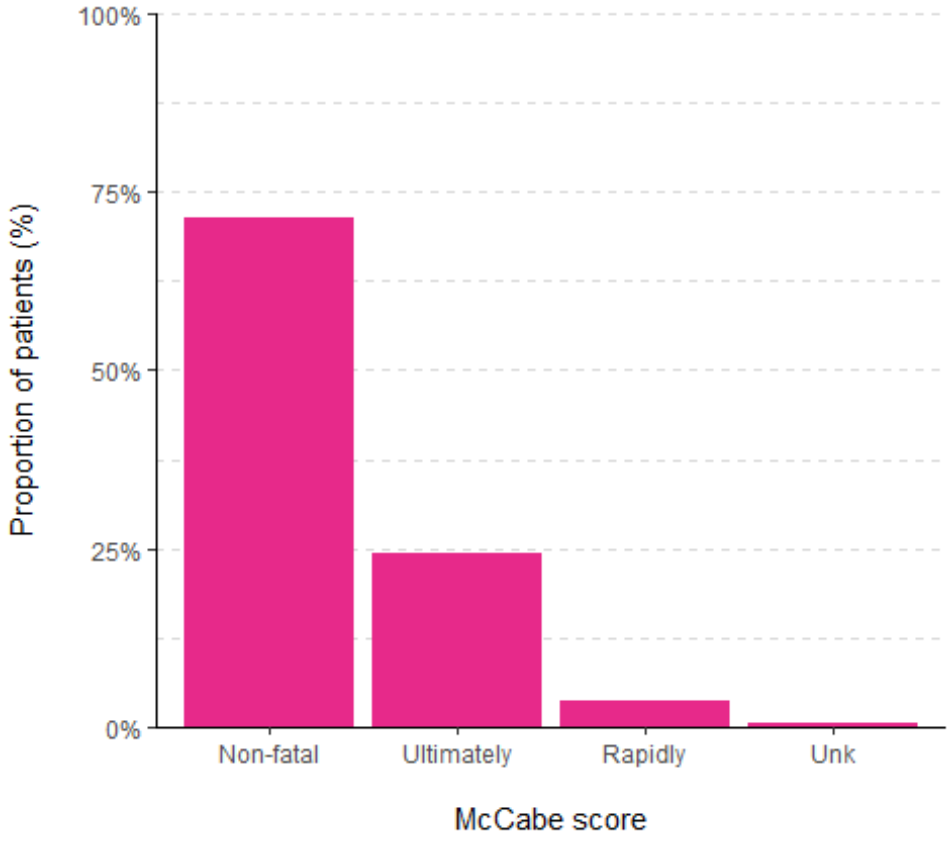


Figure 4b. McCabe score for all inpatients: tertiary and secondary hospitals

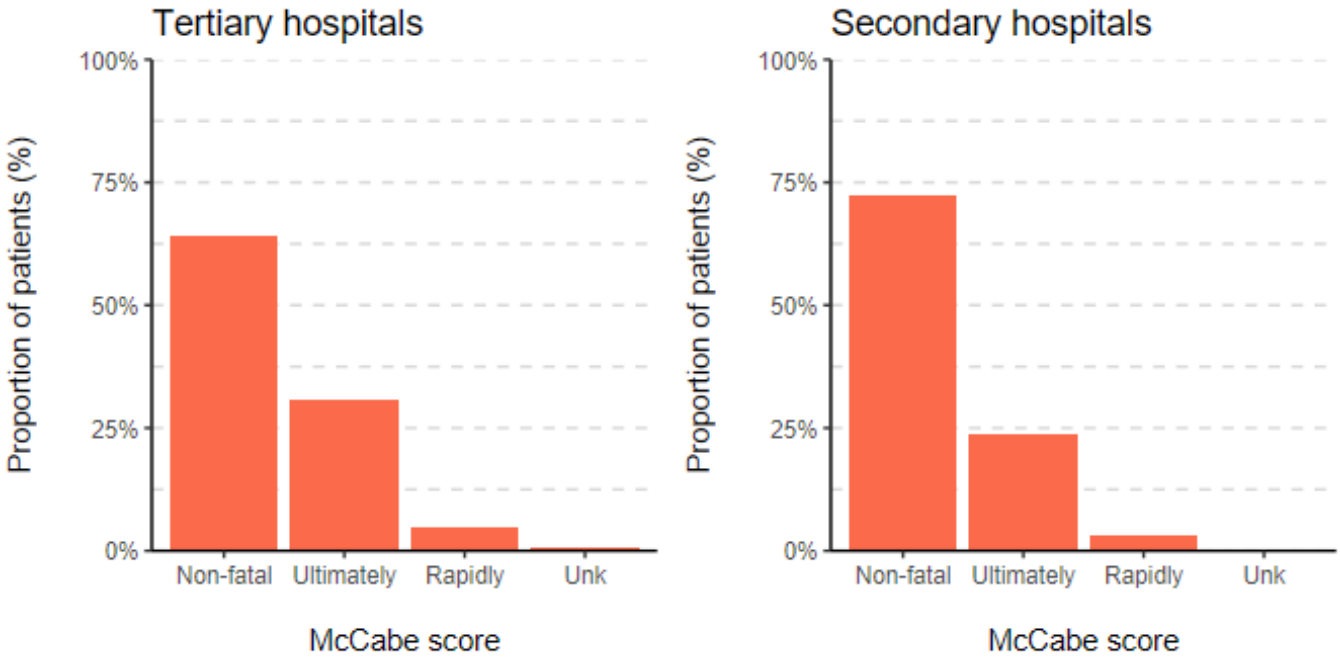


Figure 4c. McCabe score for all inpatients: primary and paediatric hospitals

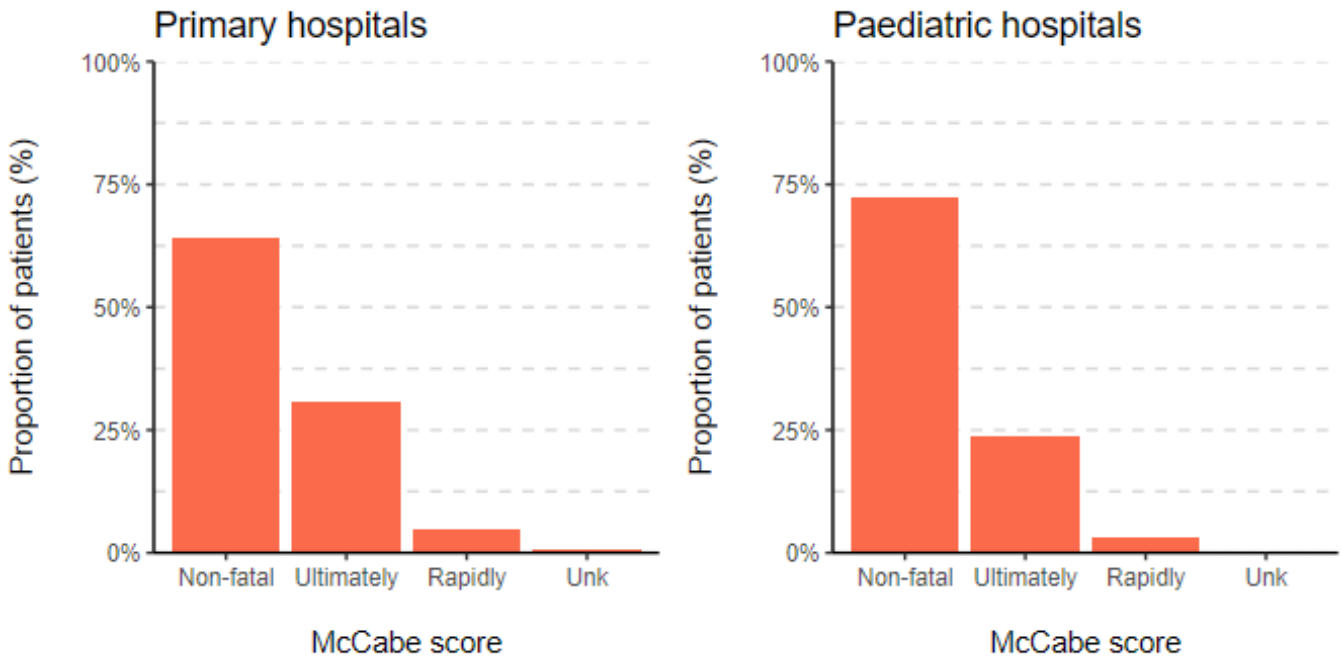


Figure 4d. McCabe score for all inpatients: specialist and private hospitals

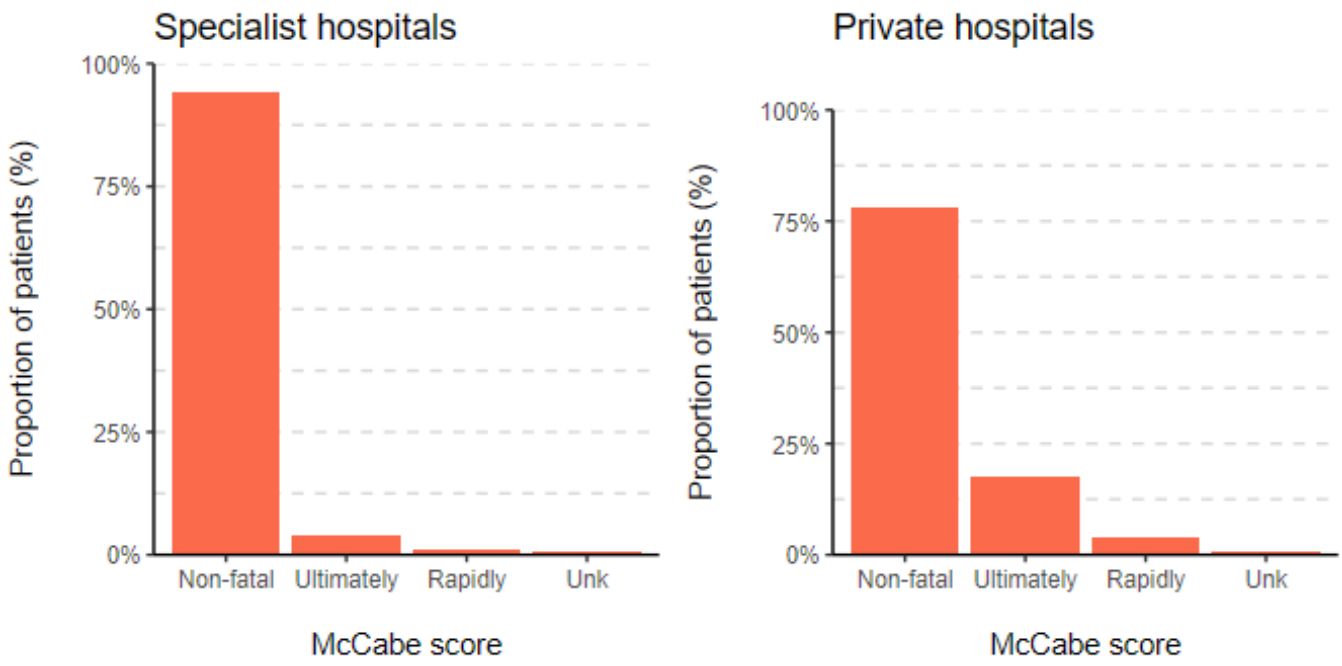


Figure 5a. COVID-19 vaccination status of all acute hospital inpatients: national data

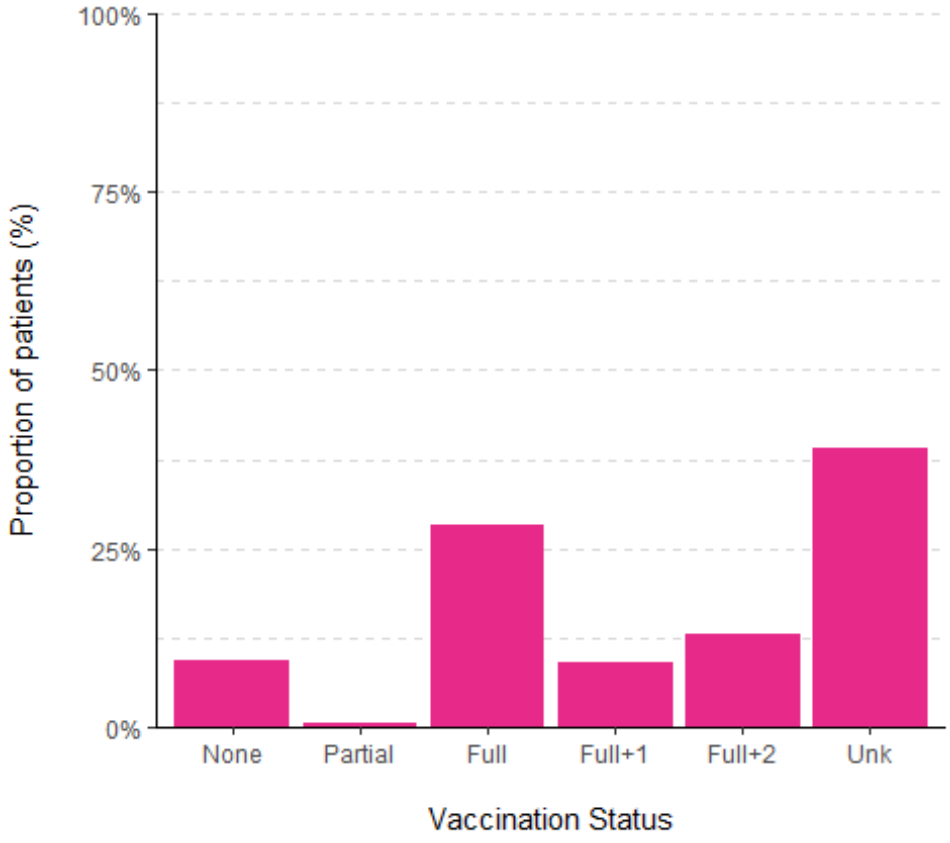


Figure 5b. COVID-19 vaccination status of inpatients: tertiary and secondary hospitals

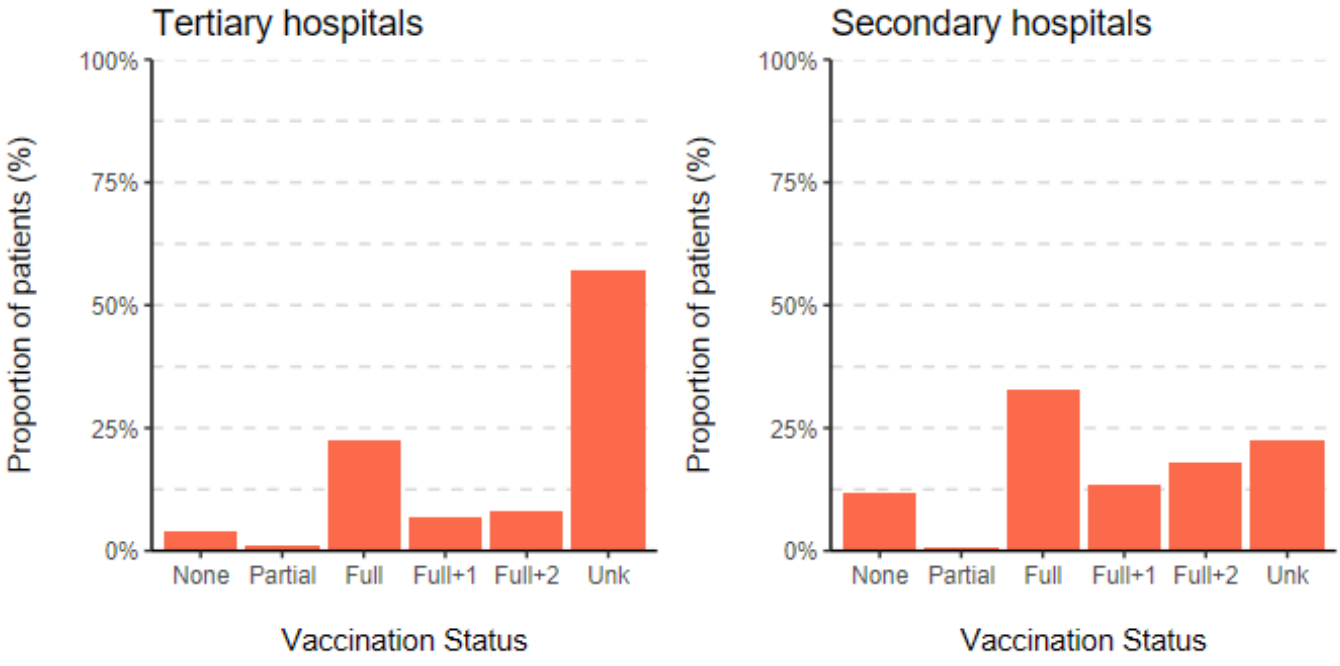


Figure 5c. COVID-19 vaccination status of inpatients: primary and paediatric hospitals

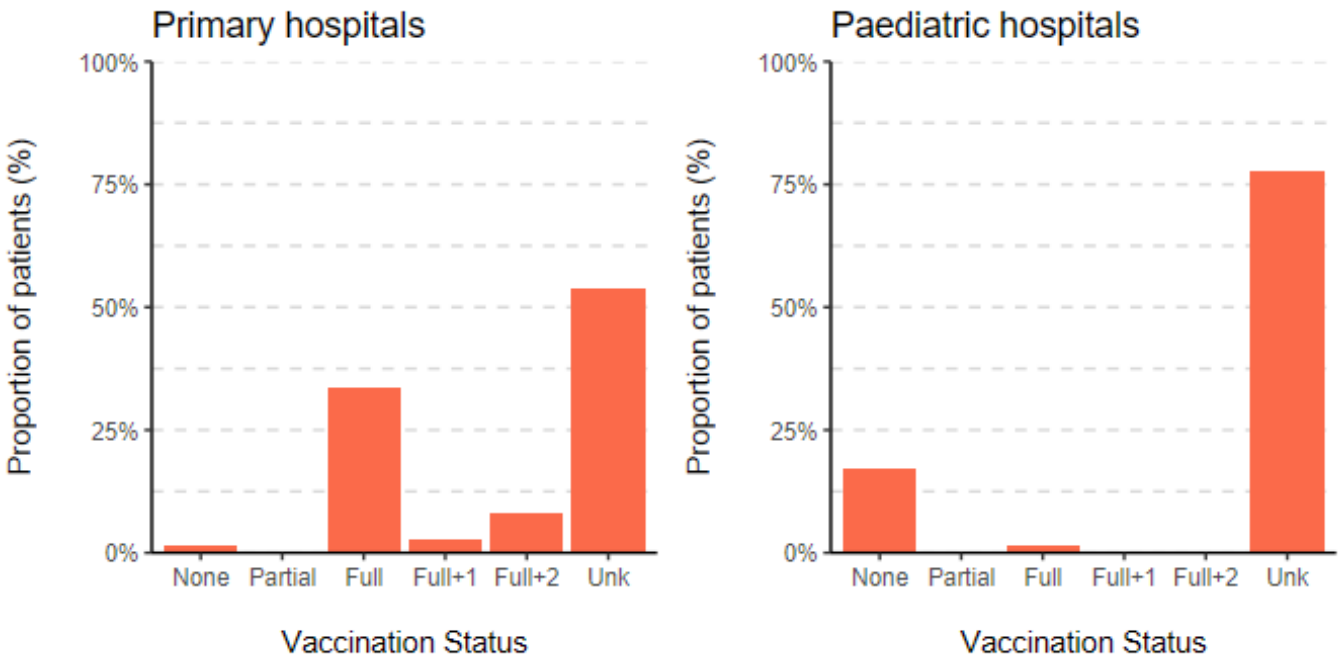


Figure 5d. COVID-19 vaccination status of inpatients: specialist and private hospitals

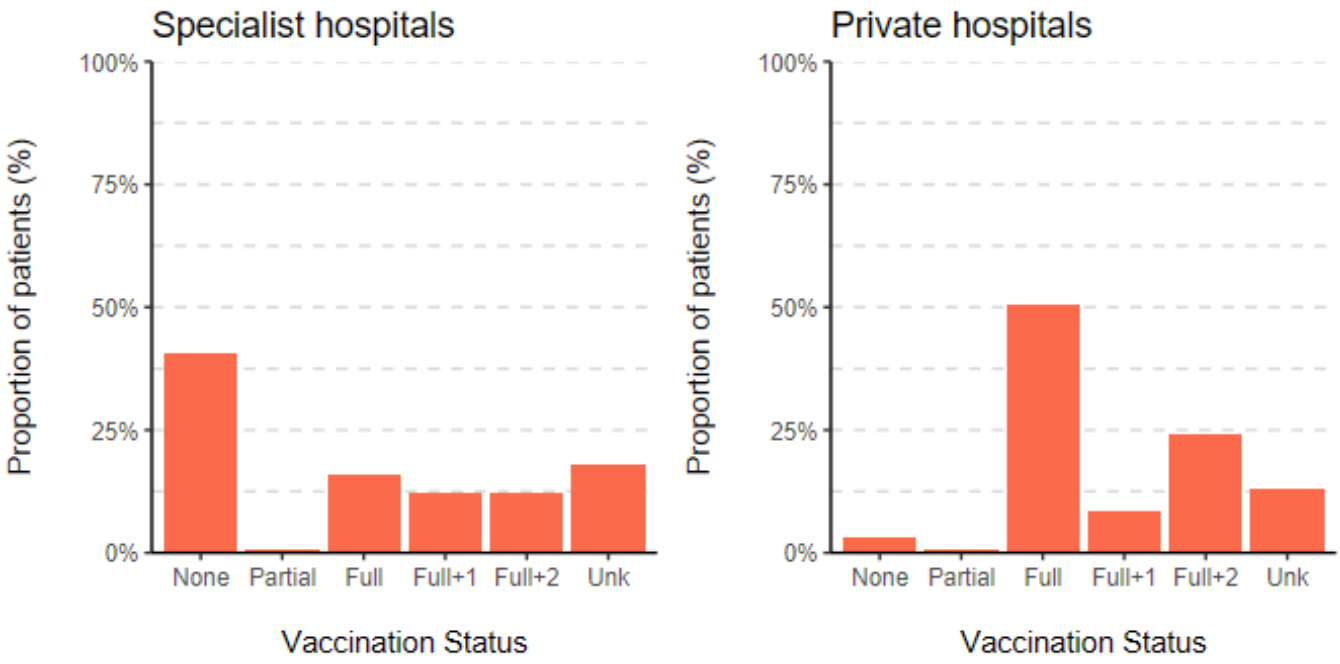
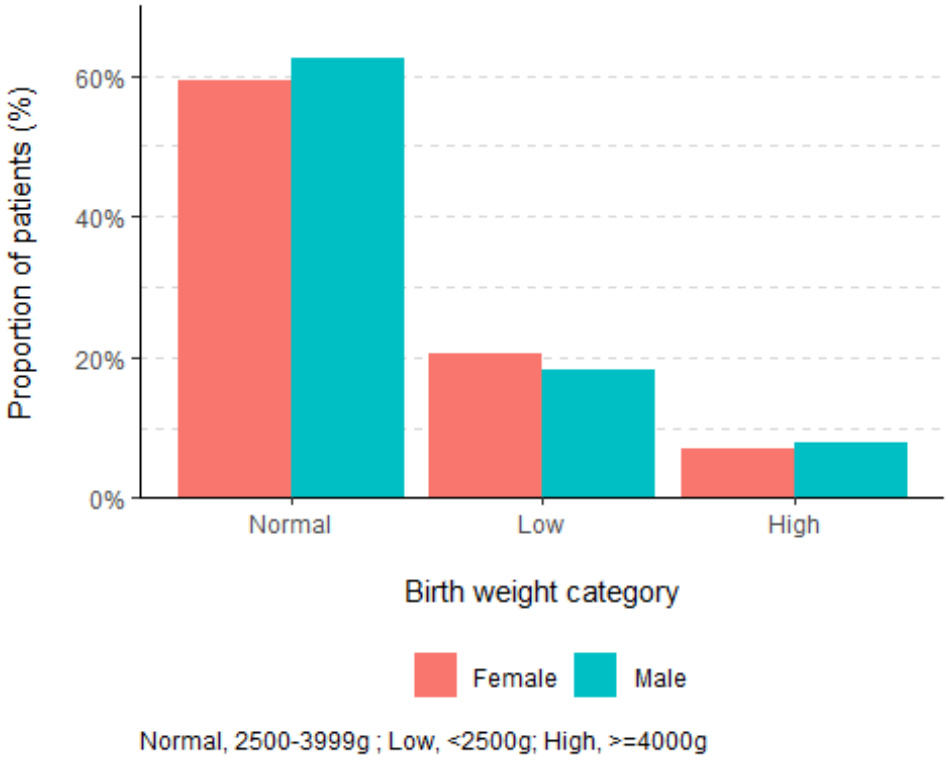


Figure 6. Birth weight category for all neonates by gender



Normal, 2500-3999g ; Low, <2500g; High, >=4000g

Table 8. Numbers of Patients by ward specialty, by hospital type

Ward specialties are arranged by number (in descending order) for the overall national data (column on right of table)

Ward specialty	Hospital type						National
	Tertiary	Secondary	Primary	Paediatric	Specialist	Private	
Medical specialties	2,365 (43.6%)	2,152 (54.0%)	497 (76.7%)	0 (0.0%)	0 (0.0%)	407 (30.3%)	5,421 (42.9%)
Surgical specialties	1,426 (26.3%)	603 (15.1%)	41 (6.3%)	0 (0.0%)	87 (9.2%)	505 (37.6%)	2,662 (21.0%)
Mixed	437 (8.1%)	300 (7.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	291 (21.7%)	1,028 (8.1%)
Gynaecology/Obstetrics	114 (2.1%)	270 (6.8%)	0 (0.0%)	0 (0.0%)	545 (57.6%)	0 (0.0%)	929 (7.3%)
Geriatrics	450 (8.3%)	143 (3.6%)	37 (5.7%)	0 (0.0%)	0 (0.0%)	20 (1.5%)	650 (5.1%)
Other	293 (5.4%)	206 (5.2%)	0 (0.0%)	0 (0.0%)	49 (5.2%)	77 (5.7%)	625 (4.9%)
Paediatrics	110 (2.0%)	150 (3.8%)	6 (0.9%)	291 (94.8%)	6 (0.6%)	6 (0.4%)	569 (4.5%)
Intensive care medicine	165 (3.0%)	72 (1.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	37 (2.8%)	274 (2.2%)
Rehabilitation	34 (0.6%)	43 (1.1%)	44 (6.8%)	0 (0.0%)	131 (13.8%)	0 (0.0%)	252 (2.0%)
Neonatology	16 (0.3%)	47 (1.2%)	0 (0.0%)	16 (5.2%)	128 (13.5%)	0 (0.0%)	207 (1.6%)
Long-term care	0 (0.0%)	0 (0.0%)	23 (3.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	23 (0.2%)
Psychiatry	10 (0.2%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	10 (0.1%)
Total	5,420 (100.0%)	3,986 (100.0%)	648 (100.0%)	307 (100.0%)	946 (100.0%)	1,343 (100.0%)	12,650 (100.0%)

Other, <80% of patients on the ward belong to a single specialty, but there are mixed medical and surgical patients admitted to the ward (includes admitted patients who remain in the ED or who are accommodated on a Day ward as admitted patients); Mixed, <80% of patients on the ward belong to a single specialty but there are only two specialties of patients admitted to the ward (e.g. haematology & oncology)

Table 9a. Patients by patient specialty, top 10: tertiary and secondary hospitals

Rank	Tertiary (n = 5420)		Secondary (n = 3986)		National (n = 12650)	
	Patient specialty	n (%)	Patient specialty	n (%)	Patient specialty	n (%)
1	General medicine	1,295 (24.0%)	General medicine	1,951 (49.0%)	General medicine	3,976 (31.5%)
2	Geriatrics, care for the elderly	521 (9.6%)	General surgery	406 (10.2%)	General surgery	918 (7.3%)
3	General surgery	409 (7.6%)	Geriatrics, care for the elderly	211 (5.3%)	Orthopaedics	843 (6.7%)
4	Orthopaedics	321 (5.9%)	Obstetrics /maternity	172 (4.3%)	Geriatrics, care for the elderly	793 (6.3%)
5	Oncology	281 (5.2%)	Orthopaedics	160 (4.0%)	Obstetrics /maternity	560 (4.4%)
6	Cardiology	222 (4.1%)	Paediatrics general, not specialised	148 (3.7%)	Oncology	521 (4.1%)
7	Nephrology	193 (3.6%)	Cardiology	117 (2.9%)	Paediatrics general, not specialised	482 (3.8%)
8	Haematology	189 (3.5%)	Pneumology	99 (2.5%)	Cardiology	472 (3.7%)
9	Vascular surgery	189 (3.5%)	Gastroenterology	85 (2.1%)	Pneumology	367 (2.9%)
10	Pneumology	180 (3.3%)	Healthy neonates (maternity)	69 (1.7%)	Gastroenterology	296 (2.3%)

Note: a number of patients did not have a patient specialty specified

See Appendix A for the complete list of patient specialties

Table 9b. Patients by patient specialty, top 10: primary and paediatric hospitals

Rank	Primary (n = 648)		Paediatric (n = 307)		National (n = 12650)	
	Patient specialty	n (%)	Patient specialty	n (%)	Patient specialty	n (%)
1	General medicine	461 (71.1%)	Paediatrics general, not specialised	239 (78.6%)	General medicine	3,976 (31.5%)
2	Geriatrics, care for the elderly	54 (8.3%)	Paediatric general surgery	33 (10.9%)	General surgery	918 (7.3%)
3	Orthopaedics	46 (7.1%)	Paediatric ICU	11 (3.6%)	Orthopaedics	843 (6.7%)
4	Long-term care	21 (3.2%)	Neonatology (excl. healthy neonates)	7 (2.3%)	Geriatrics, care for the elderly	793 (6.3%)
5	ENT	16 (2.5%)	Oncology	6 (2.0%)	Obstetrics /maternity	560 (4.4%)
6	Rehabilitation	15 (2.3%)	Haematology	4 (1.3%)	Oncology	521 (4.1%)
7	General surgery	8 (1.2%)	Neonatal ICU	2 (0.7%)	Paediatrics general, not specialised	482 (3.8%)
8	Other medical	7 (1.1%)	General surgery	1 (0.3%)	Cardiology	472 (3.7%)
9	Gynaecology	4 (0.6%)	Healthy neonates (paediatrics)	1 (0.3%)	Pneumology	367 (2.9%)
10	Pneumology	4 (0.6%)			Gastroenterology	296 (2.3%)

Note: a number of patients did not have a patient specialty specified

See Appendix A for the complete list of patient specialties

Table 9c. Patients by patient specialty, top 10: specialist and private hospitals

Rank	Specialist (n = 946)		Private (n = 1343)		National (n = 12650)	
	Patient specialty	n (%)	Patient specialty	n (%)	Patient specialty	n (%)
1	Obstetrics /maternity	330 (34.9%)	General medicine	269 (20.0%)	General medicine	3,976 (31.5%)
2	Healthy neonates (maternity)	169 (17.9%)	Orthopaedics	233 (17.3%)	General surgery	918 (7.3%)
3	Rehabilitation	131 (13.9%)	Oncology	138 (10.3%)	Orthopaedics	843 (6.7%)
4	Orthopaedics	83 (8.8%)	Cardiology	133 (9.9%)	Geriatrics, care for the elderly	793 (6.3%)
5	Neonatal ICU	76 (8.0%)	General surgery	94 (7.0%)	Obstetrics /maternity	560 (4.4%)
6	Healthy neonates (paediatrics)	59 (6.2%)	Pneumology	84 (6.3%)	Oncology	521 (4.1%)
7	Oncology	31 (3.3%)	Cardio surgery	61 (4.5%)	Paediatrics general, not specialised	482 (3.8%)
8	Neonatology (excl. healthy neonates)	26 (2.8%)	Urology	59 (4.4%)	Cardiology	472 (3.7%)
9	Ophthalmology	14 (1.5%)	Digestive tract surgery	57 (4.2%)	Pneumology	367 (2.9%)
10	Gynaecology	12 (1.3%)	Gastroenterology	41 (3.1%)	Gastroenterology	296 (2.3%)

Note: a number of patients did not have a patient specialty specified

See Appendix A for the complete list of patient specialties

Healthcare-Acquired Infections (HAI)

Demographics

Table 10. HAI prevalence and demographics, by hospital type

	Hospital type						National
	Tertiary	Secondary	Primary	Paediatric	Specialist	Private	
N patients	5420	3986	648	307	946	1343	12650
N with HAI	486	287	39	16	49	55	932
% with HAI (or HAI prev)	9.0%	7.2%	6.0%	5.2%	5.2%	4.1%	7.4%
Of which N receiving AMs	466	262	34	15	47	54	878
Has 1 HAI	472	278	38	12	49	52	901
Has 2 HAIs	12	9	1	3	0	3	28
Has 3 HAIs	2	0	0	1	0	0	3
Total HAIs	502	296	40	21	49	58	966
% Male	56.2%	47.4%	41.0%	56.2%	53.1%	58.2%	52.8%
% Aged >=65 years	66.7%	77.0%	92.3%	0.0%	20.4%	69.1%	67.5%
% had Surgery	30.9%	11.1%	2.6%	62.5%	16.3%	54.5%	24.8%
% with CVC	22.6%	11.5%	0.0%	68.8%	28.6%	32.7%	20.0%
% with Urinary catheter	31.7%	34.1%	20.5%	18.8%	10.2%	20.0%	29.9%
% Intubated	4.7%	1.7%	0.0%	37.5%	14.3%	1.8%	4.5%
McCabe score							
% McCabe: non-fatal	53.5%	59.2%	64.1%	75.0%	83.7%	61.8%	58.2%
% McCabe: life-limiting	37.9%	34.5%	23.1%	25.0%	8.2%	29.1%	33.9%
% McCabe: end-of-life	8.6%	5.6%	12.8%	0.0%	0.0%	9.1%	7.3%
Vaccination status against COVID-19							
% Fully vaccinated*	38.1%	68.6%	30.8%	0.0%	42.9%	87.3%	49.7%
% Partially vaccinated	1.6%	0.3%	0.0%	0.0%	2.0%	0.0%	1.1%
% Not vaccinated	2.9%	5.2%	0.0%	0.0%	49.0%	0.0%	5.7%
% Unknown	57.4%	25.1%	69.2%	100.0%	6.1%	12.7%	43.3%

HAI, Healthcare-Associated Infection; AM, Antimicrobials; CVC, Central Venous Catheter

*Full vaccination also includes those that have received one or two additional doses

Of the 12,650 eligible patients, 932 were found to have an active HAI (as determined using the surveillance case definitions (see PPS 2023 protocol for further information) resulting in a HAI prevalence of 7.4%.

The majority of patients (96.7%) with a HAI only had one HAI, 28 patients (3.3%) were reported to have more than one HAI.

Of 932 patients with an active HAI, 878 (94.2%) were receiving antimicrobials.

Age pyramids

Figure 7a. Total acute hospital inpatients with HAI: Age pyramid with national data

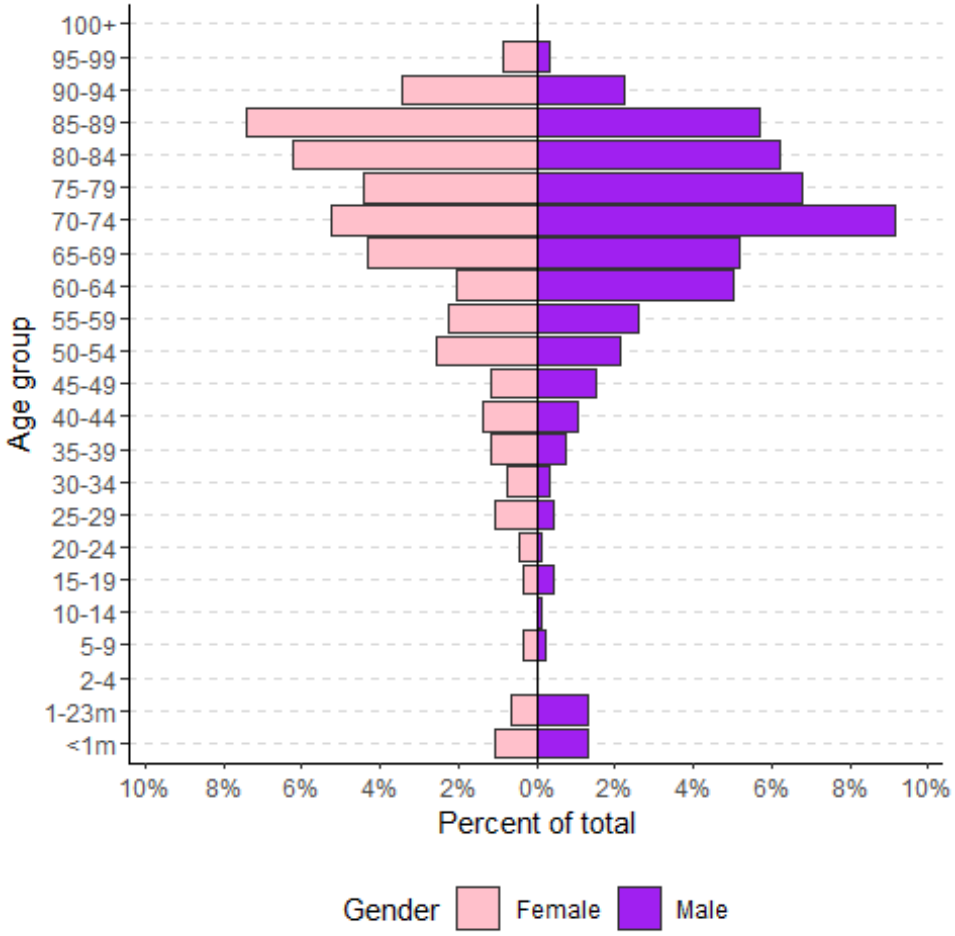


Figure 7b. Total inpatients with HAI in tertiary and secondary hospitals: Age pyramid

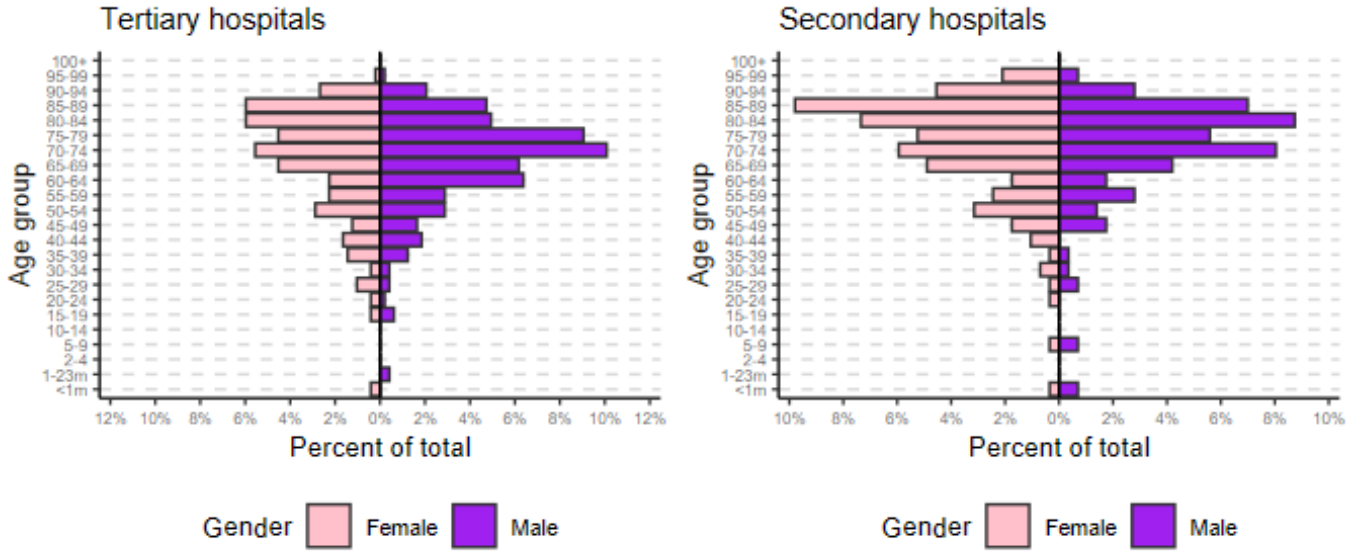


Figure 7c. Total inpatients with HAI in primary and paediatric hospitals: Age pyramid

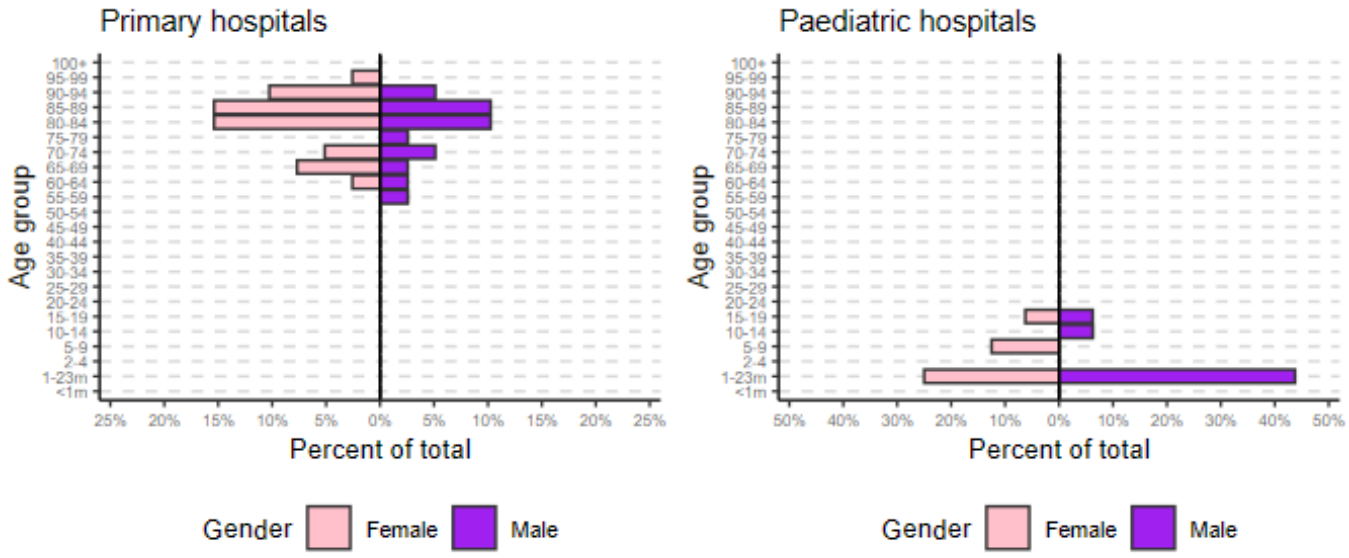
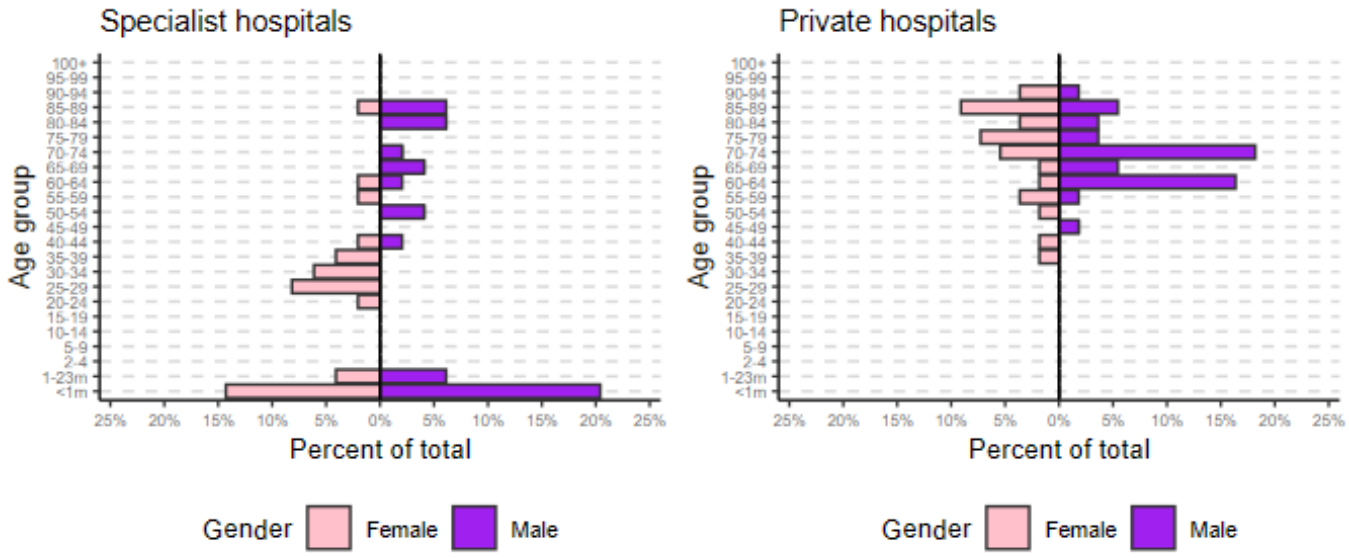


Figure 7d. Total inpatients with HAI in specialist and private hospitals: Age pyramid



Risk factors

Figure 8a. Risk factors for all acute hospital inpatients with HAI: national data

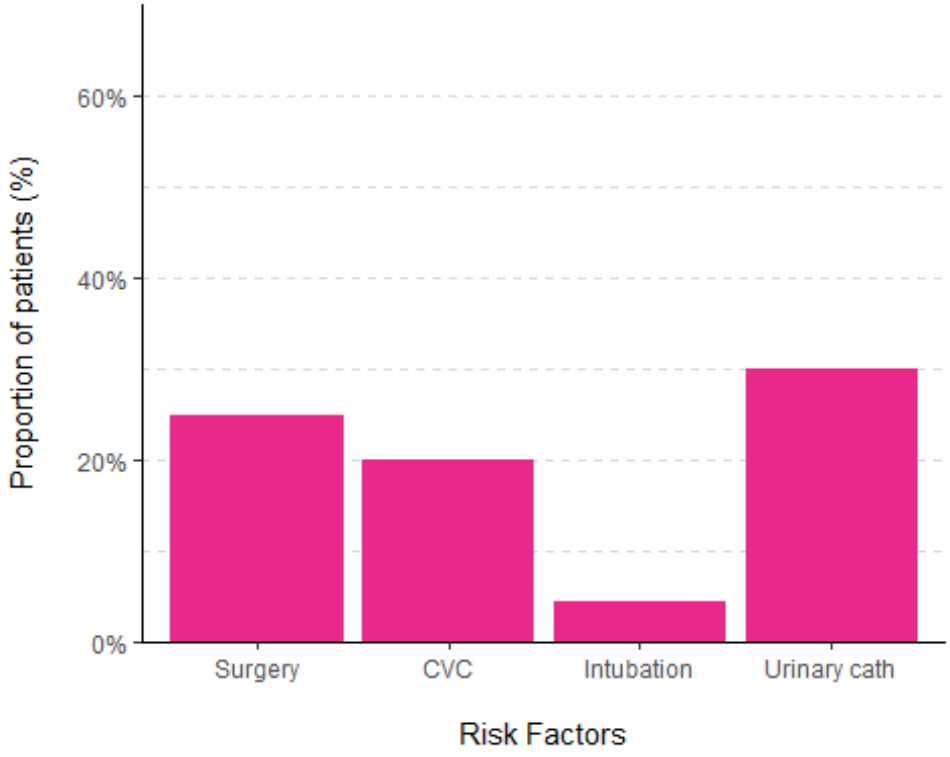


Figure 8b. Risk factors for all inpatients with HAI: tertiary and secondary hospitals

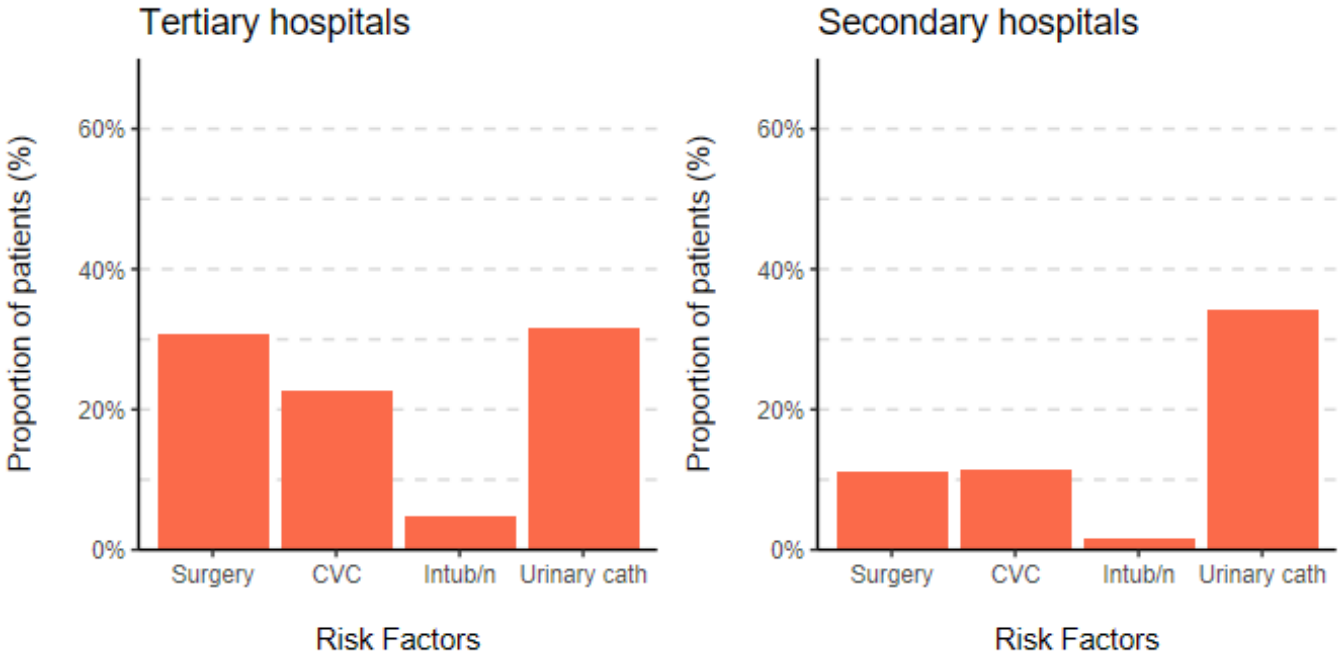


Figure 8c. Risk factors for all inpatients with HAI: primary and paediatric hospitals

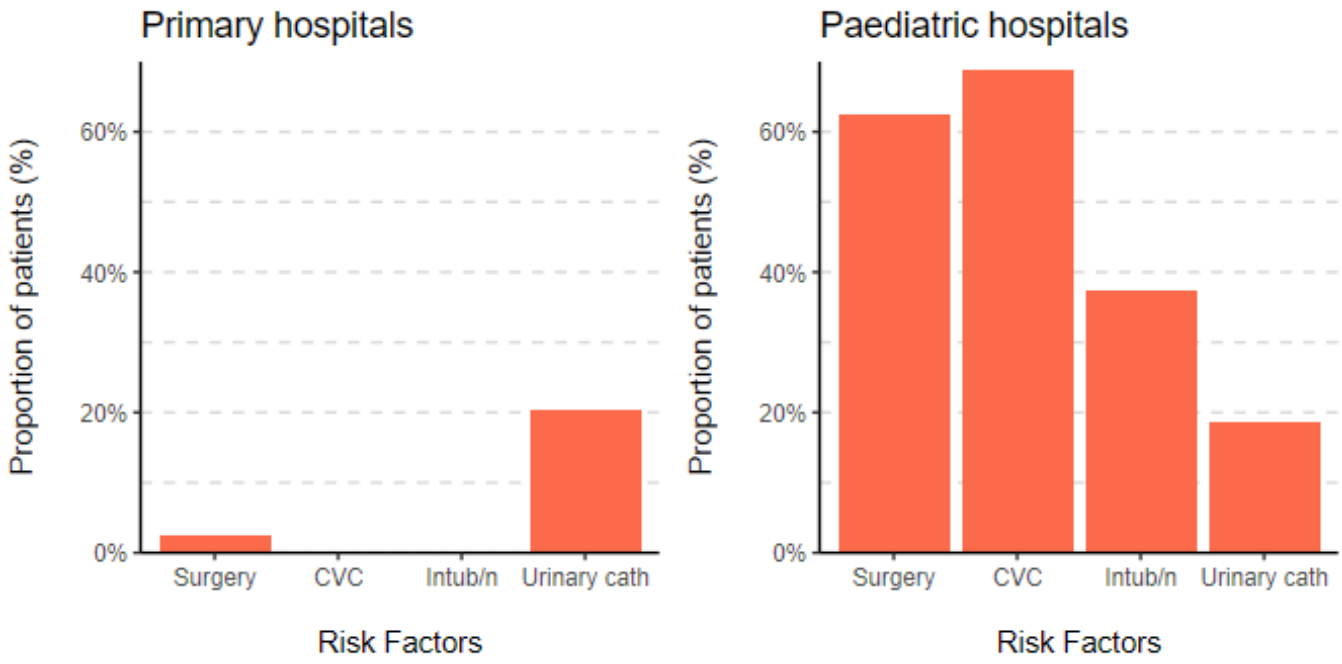
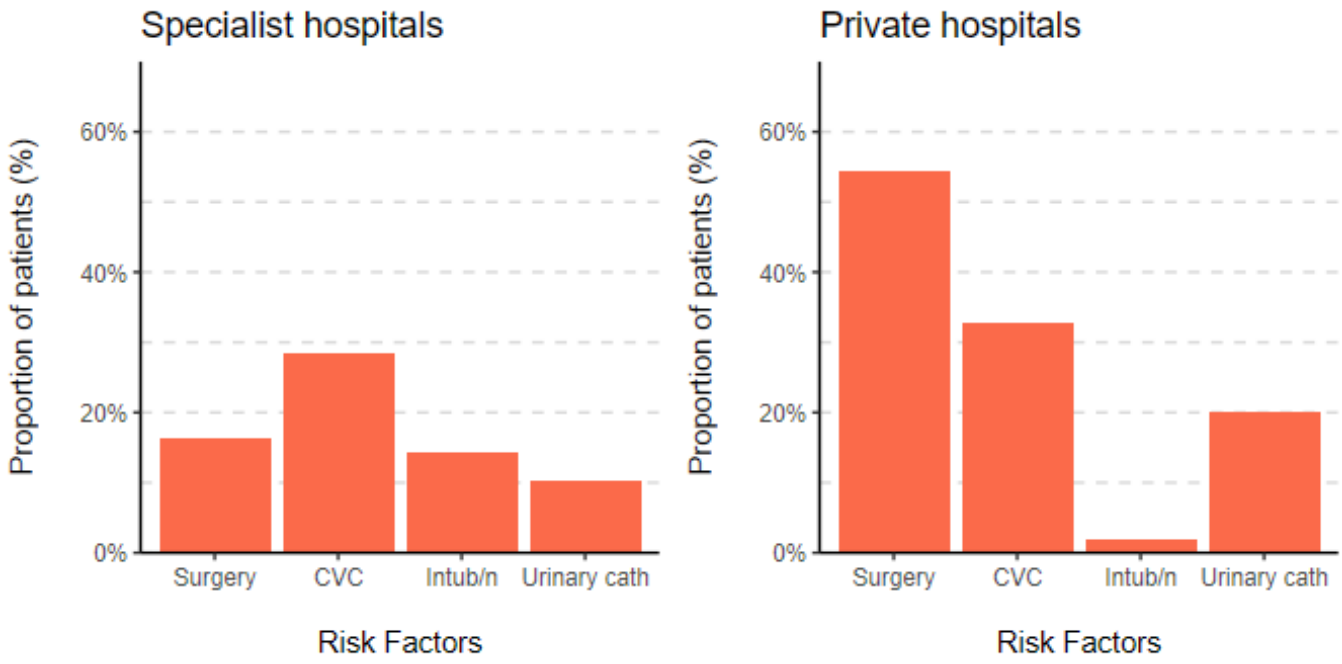


Figure 8d. Risk factors for all inpatients with HAI: specialist and private hospitals



HAI origin

Table 11. HAI origin, by hospital type

	Hospital type						National
	Tertiary	Secondary	Primary	Paediatric	Specialist	Private	
Total patients with HAI	486	287	39	16	49	55	932
Total HAIs	502	296	40	21	49	58	966
% HAI at admission	24.5%	39.5%	27.5%	28.6%	44.9%	44.8%	31.6%
% HAI after admission	75.3%	60.5%	72.5%	71.4%	55.1%	55.2%	68.3%
Association							
N assoc. with current hospital	409	202	30	20	37	51	749
% assoc. with current hospital	81.5%	68.2%	75.0%	95.2%	75.5%	87.9%	77.5%
N assoc. with other acute hospital	45	29	7	1	6	4	92
% assoc. with other acute hospital	9.0%	9.8%	17.5%	4.8%	12.2%	6.9%	9.5%
N assoc. with long-term care	45	63	2	0	0	2	112
% assoc. with long-term care	9.0%	21.3%	5.0%	0.0%	0.0%	3.4%	12%
% other origin or unknown	0.6%	0.7%	2.5%	0.0%	12.2%	1.7%	1%
Association with current ward							
N assoc. with current ward	299	156	27	14	22	42	560
% assoc. with current ward	59.6%	52.7%	67.5%	66.7%	44.9%	72.4%	58.0%
Device association							
N with BSI	49	16	1	0	3	5	74
% device-assoc. BSI	26.5%	25.0%	0.0%		0.0%	0.0%	23.0%
N with PN	134	104	10	8	1	8	265
% device-assoc. PN	7.5%	6.7%	0.0%	50.0%	0.0%	25.0%	8.7%
N with UTI	63	51	10	3	7	7	141
% device-assoc. UTI	39.7%	39.2%	30.0%	33.3%	28.6%	42.9%	38.3%

BSI includes NEO-LCBI, but excludes CRI3-CVC, for this calculation

HAI onset

Table 12. Onset of HAI cases (based on LOS), by hospital type

LOS (days)	Hospital type						National
	Tertiary	Secondary	Primary	Paediatric	Specialist	Private	
0-3 days	72 (19.0%)	35 (19.6%)	3 (10.3%)	0 (0.0%)	13 (48.1%)	10 (31.2%)	133 (20.1%)
4-7 days	44 (11.6%)	22 (12.3%)	6 (20.7%)	0 (0.0%)	3 (11.1%)	3 (9.4%)	78 (11.8%)
8-14 days	75 (19.8%)	37 (20.7%)	2 (6.9%)	0 (0.0%)	3 (11.1%)	10 (31.2%)	127 (19.2%)
15-21 days	53 (14.0%)	21 (11.7%)	6 (20.7%)	1 (6.7%)	2 (7.4%)	4 (12.5%)	87 (13.2%)
22+ days	121 (31.9%)	63 (35.2%)	10 (34.5%)	14 (93.3%)	5 (18.5%)	5 (15.6%)	218 (33.0%)
Unknown	14 (3.7%)	1 (0.6%)	2 (6.9%)	0 (0.0%)	1 (3.7%)	0 (0.0%)	18 (2.7%)
Total	379 (100.0%)	179 (100.0%)	29 (100.0%)	15 (100.0%)	27 (100.0%)	32 (100.0%)	661 (100.0%)

This table excludes HAIs present at admission (n=305 for national total)

LOS, length-of-stay until HAI onset

HAI by invasive device

Table 13a. HAI by invasive device: tertiary and secondary hospitals

HAI	Tertiary		Secondary		National	
	Invasive device present	Invasive device absent	Invasive device present	Invasive device absent	Invasive device present	Invasive device absent
BSI	20 (35.7%)	36 (64.3%)	5 (29.4%)	12 (70.6%)	26 (31.3%)	57 (68.7%)
PN	10 (7.5%)	124 (92.5%)	7 (6.7%)	97 (93.3%)	23 (8.7%)	242 (91.3%)
UTI	25 (39.7%)	38 (60.3%)	20 (39.2%)	31 (60.8%)	54 (38.3%)	87 (61.7%)
Total	55 (21.7%)	198 (78.3%)	32 (18.6%)	140 (81.4%)	103 (21.1%)	386 (78.9%)

BSI, bloodtream infection; PN, pneumonia; UTI, urinary tract infection

BSI includes NEO-LCBI and CRI3-CVC

Table 13b. HAI by invasive device: primary and paediatric hospitals

HAI	Primary		Paediatric		National	
	Invasive device present	Invasive device absent	Invasive device present	Invasive device absent	Invasive device present	Invasive device absent
BSI	0 (0.0%)	1 (100.0%)	1 (100.0%)	0 (0.0%)	26 (31.3%)	57 (68.7%)
PN	0 (0.0%)	10 (100.0%)	4 (50.0%)	4 (50.0%)	23 (8.7%)	242 (91.3%)
UTI	3 (30.0%)	7 (70.0%)	1 (33.3%)	2 (66.7%)	54 (38.3%)	87 (61.7%)
Total	3 (14.3%)	18 (85.7%)	6 (50.0%)	6 (50.0%)	103 (21.1%)	386 (78.9%)

BSI, bloodtream infection; PN, pneumonia; UTI, urinary tract infection

BSI includes NEO-LCBI and CRI3-CVC

Table 13c. HAI by invasive device: specialist and private hospitals

HAI	Specialist		Private		National	
	Invasive device present	Invasive device absent	Invasive device present	Invasive device absent	Invasive device present	Invasive device absent
BSI	0 (0.0%)	3 (100.0%)	0 (0.0%)	5 (100.0%)	26 (31.3%)	57 (68.7%)
PN	0 (0.0%)	1 (100.0%)	2 (25.0%)	6 (75.0%)	23 (8.7%)	242 (91.3%)
UTI	2 (28.6%)	5 (71.4%)	3 (42.9%)	4 (57.1%)	54 (38.3%)	87 (61.7%)
Total	2 (18.2%)	9 (81.8%)	5 (25.0%)	15 (75.0%)	103 (21.1%)	386 (78.9%)

BSI, bloodtream infection; PN, pneumonia; UTI, urinary tract infection

BSI includes NEO-LCBI and CRI3-CVC

HAI prevalence by HAI grouping and hospital type

Table 14a. HAI prevalence by HAI grouping: tertiary and secondary hospitals

Rank	Tertiary				Secondary				National			
	HAI group	n	%	Prev	HAI group	n	%	Prev	HAI group	n	%	Prev
1	PN	134	26.7%	2.5%	PN	104	35.1%	2.6%	PN	265	27.4%	2.1%
2	SSI	69	13.7%	1.3%	UTI	51	17.2%	1.3%	UTI	141	14.6%	1.1%
3	UTI	63	12.5%	1.2%	COV	32	10.8%	0.8%	SSI	131	13.6%	1.0%
4	BSI	56	11.2%	1.0%	GI	28	9.5%	0.7%	BSI	83	8.6%	0.7%
5	GI	48	9.6%	0.9%	SSI	22	7.4%	0.6%	GI	82	8.5%	0.6%
6	SYS	45	9.0%	0.8%	BSI	17	5.7%	0.4%	SYS	82	8.5%	0.6%
7	COV	31	6.2%	0.6%	SYS	14	4.7%	0.4%	COV	73	7.6%	0.6%
8	SST	20	4.0%	0.4%	SST	10	3.4%	0.3%	SST	36	3.7%	0.3%
9	BJ	12	2.4%	0.2%	LRI	7	2.4%	0.2%	LRI	29	3.0%	0.2%
10	LRI	11	2.2%	0.2%	BJ	4	1.4%	0.1%	BJ	21	2.2%	0.2%
11	EENT	7	1.4%	0.1%	EENT	4	1.4%	0.1%	EENT	12	1.2%	0.1%
12	CNS	4	0.8%	0.1%	REPR	2	0.7%	0.1%	CNS	5	0.5%	0.0%
13	CRI	1	0.2%	0.0%	CNS	1	0.3%	0.0%	REPR	4	0.4%	0.0%
14	CVS	1	0.2%	0.0%					CRI	1	0.1%	0.0%
15									CVS	1	0.1%	0.0%

BJ, bone and joint infection; BSI, bloodstream infection [including catheter-related BSI (CRI3); and neonatal BSI (NEO-LCBI)]; CNS, central nervous system infection; COV, covid-19 infection; CRI, Catheter-related infection (without BSI); CVS, cardio-vascular system infection; EENT, eye, ear, nose and throat infection; GI, gastro-intestinal infection; LRI, lower respiratory tract infection; PN, pneumonia; REPR, reproductive tract infection; SSI, surgical site infection; SYS, systemic infection, SST, skin and soft tissue infection; UTI, urinary tract infection

Table 14b. HAI prevalence by HAI grouping: primary and paediatric hospitals

Rank	Primary				Paediatric				National			
	HAI group	n	%	Prev	HAI group	n	%	Prev	HAI group	n	%	Prev
1	PN	10	25.0%	1.5%	PN	8	38.1%	2.6%	PN	265	27.4%	2.1%
2	UTI	10	25.0%	1.5%	SSI	3	14.3%	1.0%	UTI	141	14.6%	1.1%
3	COV	8	20.0%	1.2%	UTI	3	14.3%	1.0%	SSI	131	13.6%	1.0%
4	LRI	6	15.0%	0.9%	SYS	2	9.5%	0.7%	BSI	83	8.6%	0.7%
5	SST	2	5.0%	0.3%	BJ	1	4.8%	0.3%	GI	82	8.5%	0.6%
6	BJ	1	2.5%	0.2%	BSI	1	4.8%	0.3%	SYS	82	8.5%	0.6%
7	BSI	1	2.5%	0.2%	EENT	1	4.8%	0.3%	COV	73	7.6%	0.6%
8	GI	1	2.5%	0.2%	GI	1	4.8%	0.3%	SST	36	3.7%	0.3%
9	SSI	1	2.5%	0.2%	LRI	1	4.8%	0.3%	LRI	29	3.0%	0.2%
10									BJ	21	2.2%	0.2%
11									EENT	12	1.2%	0.1%
12									CNS	5	0.5%	0.0%
13									REPR	4	0.4%	0.0%
14									CRI	1	0.1%	0.0%
15									CVS	1	0.1%	0.0%

BJ, bone and joint infection; BSI, bloodstream infection [including catheter-related BSI (CRI3); and neonatal BSI (NEO-LCBI)]; CNS, central nervous system infection; COV, covid-19 infection; CRI, Catheter-related infection (without BSI); CVS, cardio-vascular system infection; EENT, eye, ear, nose and throat infection; GI, gastro-intestinal infection; LRI, lower respiratory tract infection; PN, pneumonia; REPR, reproductive tract infection; SSI, surgical site infection; SYS, systemic infection, SST, skin and soft tissue infection; UTI, urinary tract infection

Table 14c. HAI prevalence by HAI grouping: specialist and private hospitals

Rank	Specialist				Private				National			
	HAI group	n	%	Prev	HAI group	n	%	Prev	HAI group	n	%	Prev
1	SYS	19	38.8%	2.0%	SSI	26	44.8%	1.9%	PN	265	27.4%	2.1%
2	SSI	10	20.4%	1.1%	PN	8	13.8%	0.6%	UTI	141	14.6%	1.1%
3	UTI	7	14.3%	0.7%	UTI	7	12.1%	0.5%	SSI	131	13.6%	1.0%
4	BSI	3	6.1%	0.3%	BSI	5	8.6%	0.4%	BSI	83	8.6%	0.7%
5	BJ	2	4.1%	0.2%	GI	4	6.9%	0.3%	GI	82	8.5%	0.6%
6	LRI	2	4.1%	0.2%	LRI	2	3.4%	0.1%	SYS	82	8.5%	0.6%
7	REPR	2	4.1%	0.2%	SST	2	3.4%	0.1%	COV	73	7.6%	0.6%
8	SST	2	4.1%	0.2%	SYS	2	3.4%	0.1%	SST	36	3.7%	0.3%
9	COV	1	2.0%	0.1%	BJ	1	1.7%	0.1%	LRI	29	3.0%	0.2%
10	PN	1	2.0%	0.1%	COV	1	1.7%	0.1%	BJ	21	2.2%	0.2%
11									EENT	12	1.2%	0.1%
12									CNS	5	0.5%	0.0%
13									REPR	4	0.4%	0.0%
14									CRI	1	0.1%	0.0%
15									CVS	1	0.1%	0.0%

BJ, bone and joint infection; BSI, bloodstream infection [including catheter-related BSI (CRI3); and neonatal BSI (NEO-LCBI)]; CNS, central nervous system infection; COV, covid-19 infection; CRI, Catheter-related infection (without BSI); CVS, cardio-vascular system infection; EENT, eye, ear, nose and throat infection; GI, gastro-intestinal infection; LRI, lower respiratory tract infection; PN, pneumonia; REPR, reproductive tract infection; SSI, surgical site infection; SYS, systemic infection, SST, skin and soft tissue infection; UTI, urinary tract infection

HAI prevalence by top 10 HAI type and hospital type

Table 15a. HAI prevalence by top 10 HAI type: tertiary and secondary hospitals

Rank	Tertiary				Secondary				National			
	HAI type	n	%	Prev	HAI type	n	%	Prev	HAI type	n	%	Prev
1	PN5	113	22.5%	2.1%	PN5	95	32.1%	2.4%	PN5	225	23.3%	1.8%
2	BSI	49	9.8%	0.9%	UTI-B	31	10.5%	0.8%	UTI-A	79	8.2%	0.6%
3	SYS-CSEP	41	8.2%	0.8%	COV-MM	22	7.4%	0.6%	BSI	72	7.5%	0.6%
4	UTI-A	38	7.6%	0.7%	UTI-A	20	6.8%	0.5%	UTI-B	62	6.4%	0.5%
5	SSI-D	26	5.2%	0.5%	GI-CDI	18	6.1%	0.5%	SYS-CSEP	58	6.0%	0.5%
6	SSI-O	26	5.2%	0.5%	BSI	16	5.4%	0.4%	SSI-D	55	5.7%	0.4%
7	UTI-B	25	5.0%	0.5%	SYS-CSEP	13	4.4%	0.3%	COV-MM	52	5.4%	0.4%
8	GI-CDI	24	4.8%	0.4%	SSI-O	9	3.0%	0.2%	GI-CDI	46	4.8%	0.4%
9	COV-MM	20	4.0%	0.4%	SSI-S	8	2.7%	0.2%	SSI-O	44	4.6%	0.3%
10	SSI-S	17	3.4%	0.3%	COV-ASY	7	2.4%	0.2%	SSI-S	32	3.3%	0.3%

Top 10 national codes: BSI, bloodtream infection; COV, COVID-19 infection; GI-CDI, gastro-intestinal Clostridioides difficile infection; PN5, pneumonia (not lab-confirmed); SSI-D, surgical site infection (deep incisional); SSI-O, surgical site infection (organ/space); SSI-S, surgical site infection (superficial incisional); SYS-CSEP, systemic infection-clinical sepsis (not lab-confirmed); UTI-A, urinary tract infection (lab-confirmed); UTI-B, urinary tract infection (not lab-confirmed)

See Appendix C for full list and description of other codes

Table 15b. HAI prevalence by top 10 HAI type: primary and paediatric hospitals

Rank	Primary				Paediatric				National			
	HAI type	n	%	Prev	HAI type	n	%	Prev	HAI type	n	%	Prev
1	PN5	10	25.0%	1.5%	PN4	3	14.3%	1.0%	PN5	225	23.3%	1.8%
2	UTI-A	9	22.5%	1.4%	UTI-A	3	14.3%	1.0%	UTI-A	79	8.2%	0.6%
3	COV-MM	8	20.0%	1.2%	PN1	2	9.5%	0.7%	BSI	72	7.5%	0.6%
4	LRI-LUNG	4	10.0%	0.6%	PN3	2	9.5%	0.7%	UTI-B	62	6.4%	0.5%
5	LRI-BRON	2	5.0%	0.3%	SSI-O	2	9.5%	0.7%	SYS-CSEP	58	6.0%	0.5%
6	SST-SKIN	2	5.0%	0.3%	BJ-BONE	1	4.8%	0.3%	SSI-D	55	5.7%	0.4%
7	BJ-JNT	1	2.5%	0.2%	CRI3-CVC	1	4.8%	0.3%	COV-MM	52	5.4%	0.4%
8	BSI	1	2.5%	0.2%	EENT-Nos	1	4.8%	0.3%	GI-CDI	46	4.8%	0.4%
9	GI-CDI	1	2.5%	0.2%	GI-GE	1	4.8%	0.3%	SSI-O	44	4.6%	0.3%
10	SSI-S	1	2.5%	0.2%	LRI-BRON	1	4.8%	0.3%	SSI-S	32	3.3%	0.3%

Top 10 national codes: BSI, bloodtream infection; COV, COVID-19 infection; GI-CDI, gastro-intestinal Clostridioides difficile infection; PN5, pneumonia (not lab-confirmed); SSI-D, surgical site infection (deep incisional); SSI-O, surgical site infection (organ/space); SSI-S, surgical site infection (superficial incisional); SYS-CSEP, systemic infection-clinical sepsis (not lab-confirmed); UTI-A, urinary tract infection (lab-confirmed); UTI-B, urinary tract infection (not lab-confirmed)

See Appendix C for full list and description of other codes

Table 15c. HAI prevalence by top 10 HAI type: specialist and private hospitals

Rank	Specialist				Private				National			
	HAI type	n	%	Prev	HAI type	n	%	Prev	HAI type	n	%	Prev
1	NEO-CSEP	17	34.7%	1.8%	SSI-D	17	29.3%	1.3%	PN5	225	23.3%	1.8%
2	SSI-D	6	12.2%	0.6%	BSI	5	8.6%	0.4%	UTI-A	79	8.2%	0.6%
3	UTI-A	5	10.2%	0.5%	PN5	5	8.6%	0.4%	BSI	72	7.5%	0.6%
4	LRI-BRON	2	4.1%	0.2%	SSI-O	5	8.6%	0.4%	UTI-B	62	6.4%	0.5%
5	NEO-LCBI	2	4.1%	0.2%	SSI-S	4	6.9%	0.3%	SYS-CSEP	58	6.0%	0.5%
6	REPR-OREP	2	4.1%	0.2%	UTI-A	4	6.9%	0.3%	SSI-D	55	5.7%	0.4%
7	SSI-O	2	4.1%	0.2%	GI-CDI	3	5.2%	0.2%	COV-MM	52	5.4%	0.4%
8	SSI-S	2	4.1%	0.2%	UTI-B	3	5.2%	0.2%	GI-CDI	46	4.8%	0.4%
9	SST-SKIN	2	4.1%	0.2%	LRI-LUNG	2	3.4%	0.1%	SSI-O	44	4.6%	0.3%
10	SYS-CSEP	2	4.1%	0.2%	SST-SKIN	2	3.4%	0.1%	SSI-S	32	3.3%	0.3%

Top 10 national codes: BSI, bloodtream infection; COV, COVID-19 infection; GI-CDI, gastro-intestinal Clostridioides difficile infection; PN5, pneumonia (not lab-confirmed); SSI-D, surgical site infection (deep incisional); SSI-O, surgical site infection (organ/space); SSI-S, surgical site infection (superficial incisional); SYS-CSEP, systemic infection-clinical sepsis (not lab-confirmed); UTI-A, urinary tract infection (lab-confirmed); UTI-B, urinary tract infection (not lab-confirmed)

See Appendix C for full list and description of other codes

Figure 9a. Top 10 HAIs: national data

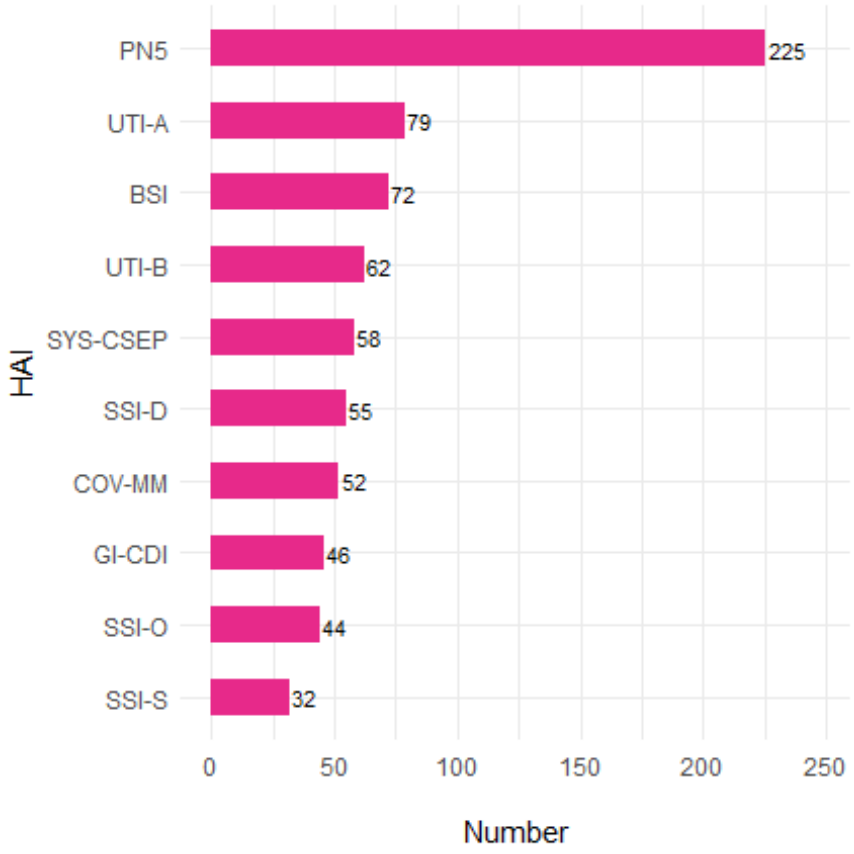


Figure 9b. Top 10 HAIs: tertiary and secondary hospitals

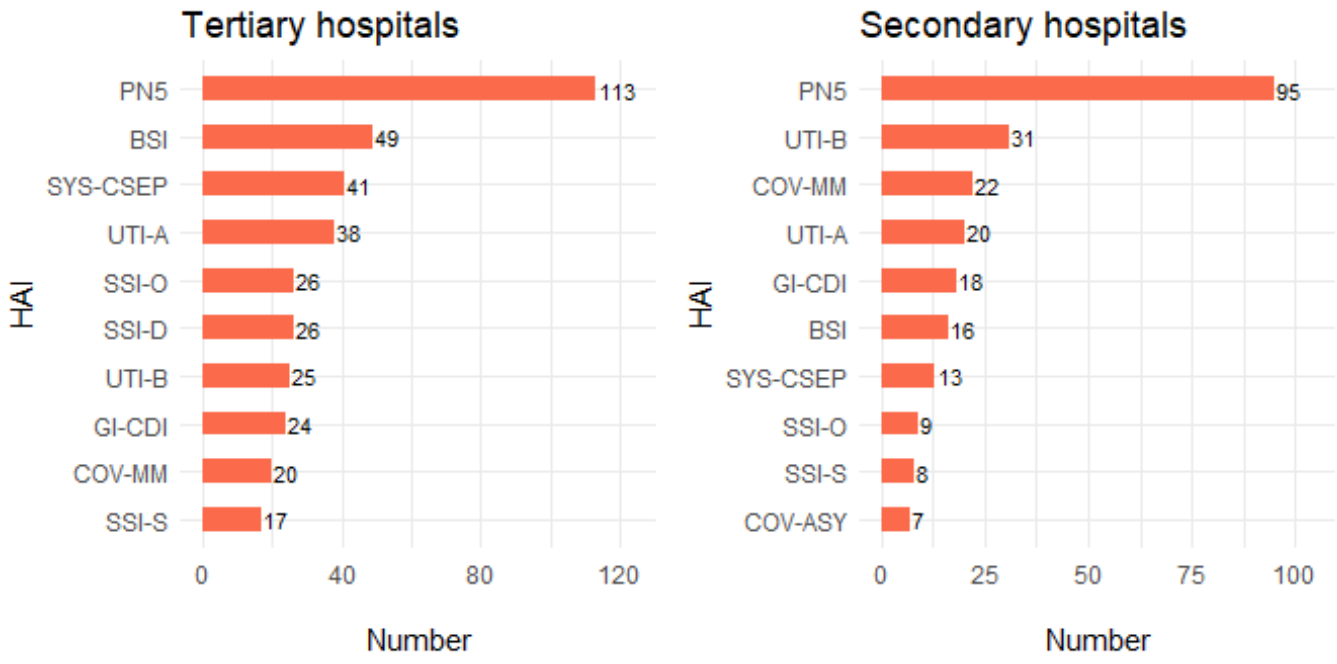


Figure 9c. Top 10 HAIs: primary and paediatric hospitals

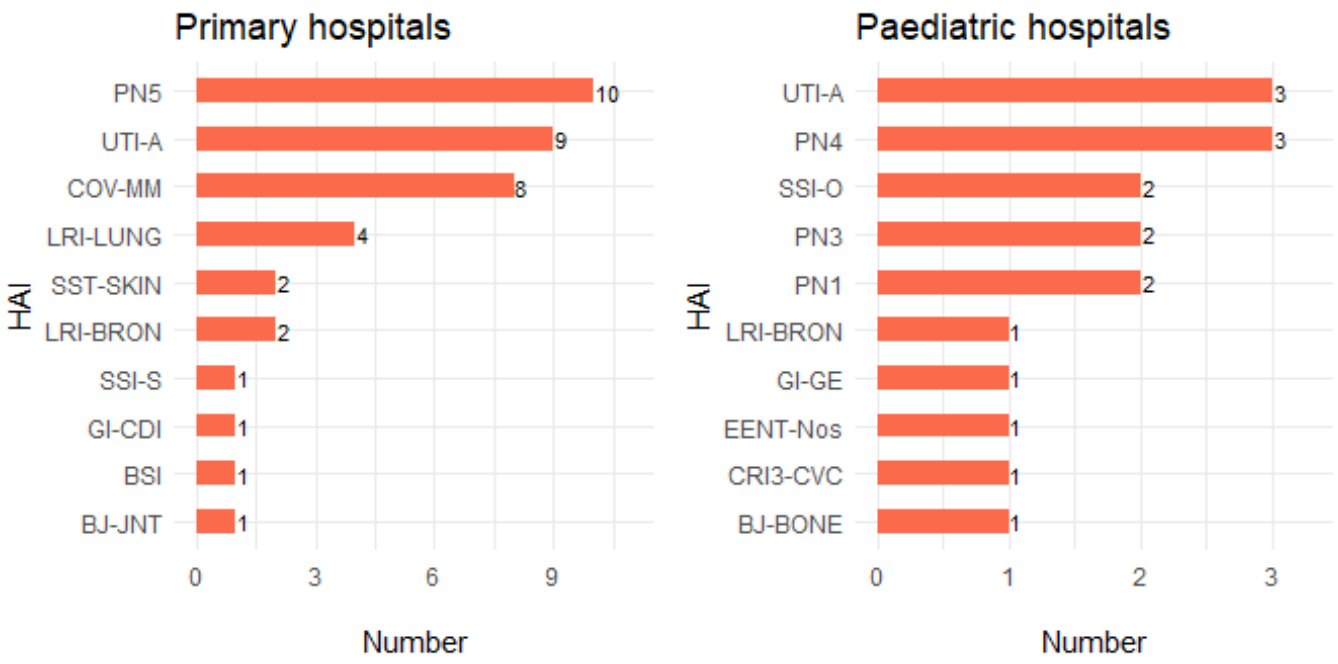
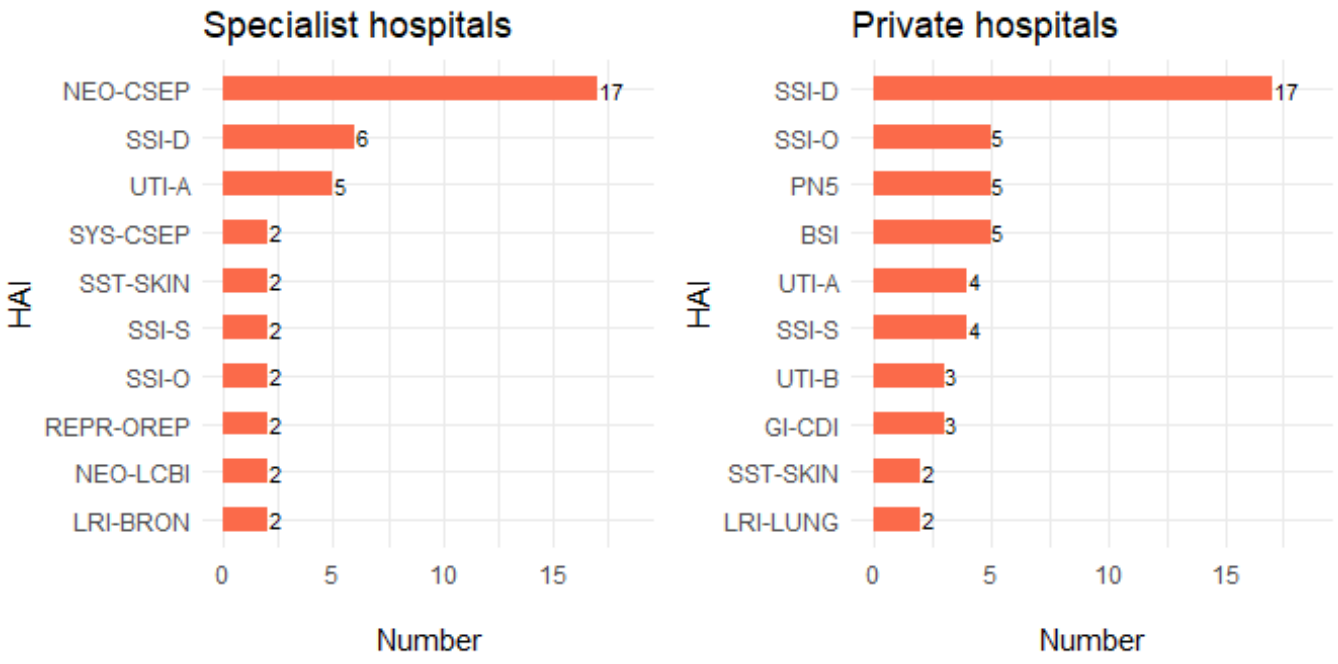


Figure 9d. Top 10 HAIs: specialist and private hospitals



BSI by source, by hospital type

Table 16. BSI by source, by hospital type

	Hospital type						National
	Tertiary	Secondary	Primary	Paediatric	Specialist	Private	
N with BSI*	56	17	1	1	3	5	83
N with BSI	49	16	1	0	1	5	72
N with CRI3	7	1	0	1	0	0	9
N with NEO-LCBI	0	0	0	0	2	0	2
N device-assoc. BSI	20	5	0	1	0	0	26
% device-assoc. BSI*	35.7%	29.4%	0.0%	100.0%	0.0%	0.0%	31.3%
N with primary BSI	21	4	1	0	2	1	29
N with source C-CVC	2	0	0	0	0	0	2
N with source C-PVC	3	1	0	0	0	0	4
N with source UO	14	3	1	0	1	1	20
N with source Unknown	2	0	0	0	1	0	3
N with secondary BSI	19	12	0	0	1	3	35
N with source S-UTI	8	7	0	0	0	1	16
N with source S-DIG	7	2	0	0	0	2	11
N with source S-SST	2	0	0	0	0	1	3
N with source S-SSI	1	0	0	0	1	0	2
N with source S-PUL	0	1	0	0	0	0	1
N with source S-OTH	3	2	0	0	0	0	5

No information on BSI source was provided for 7 cases from Tertiary hospitals and one from a private hospitals

*The broader category of BSI includes BSI, catheter-related BSI (CRI3); and neonatal BSI (NEO-LCBI)

C-CVC, Central venous catheter; C-PVC, Peripheral venous catheter; UO, Unknown origin (confirmed); UNK, Unknown; S-UTI, Secondary to urinary tract infection; S-DIG, Secondary to gastrointestinal infection; S-SST, Secondary to skin and soft tissue infection; S-SSI, Secondary to surgical site infection; S-PUL, Secondary to pulmonary infection; S-OTH, Secondary to other infection (e.g. meningitis, osteomyelitis, etc.)

Microbiology results by hospital type

Table 17. Microbiology results, by hospital type

Microbiology result	Hospital type						National
	Tertiary	Secondary	Primary	Paediatric	Specialist	Private	
Pathogen detected	378 (78.8%)	169 (70.1%)	17 (63.0%)	26 (96.3%)	28 (50.9%)	54 (78.3%)	672 (74.7%)
No microbiology data provided	28 (5.8%)	33 (13.7%)	8 (29.6%)	0 (0.0%)	2 (3.6%)	5 (7.2%)	76 (8.5%)
Specimen not sent	37 (7.7%)	28 (11.6%)	1 (3.7%)	1 (3.7%)	2 (3.6%)	5 (7.2%)	74 (8.2%)
Results not available or missing	15 (3.1%)	7 (2.9%)	1 (3.7%)	0 (0.0%)	15 (27.3%)	3 (4.3%)	41 (4.6%)
Pathogen not isolated	22 (4.6%)	4 (1.7%)	0 (0.0%)	0 (0.0%)	8 (14.5%)	2 (2.9%)	36 (4.0%)
Total	480 (100.0%)	241 (100.0%)	27 (100.0%)	27 (100.0%)	55 (100.0%)	69 (100.0%)	899 (100.0%)

Microorganisms by hospital type

Table 18. Microorganisms (summary, including pathogens where n >=10), by hospital type

Microorganisms are arranged by number (in descending order) for the overall national data (column on right of table)

Microorganism	Hospital type						National
	Tertiary	Secondary	Primary	Paediatric	Specialist	Private	
Escherichia coli	48 (18.0%)	14 (11.7%)	3 (23.1%)	1 (4.8%)	3 (12.5%)	4 (10.0%)	73 (15.1%)
Staphylococcus aureus	42 (15.8%)	18 (15.0%)	0 (0.0%)	3 (14.3%)	2 (8.3%)	6 (15.0%)	71 (14.7%)
SARS-CoV-2	14 (5.3%)	23 (19.2%)	6 (46.2%)	0 (0.0%)	1 (4.2%)	1 (2.5%)	45 (9.3%)
Clostridioides difficile	21 (7.9%)	18 (15.0%)	1 (7.7%)	0 (0.0%)	0 (0.0%)	3 (7.5%)	43 (8.9%)
Enterococcus faecium	21 (7.9%)	6 (5.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (5.0%)	29 (6.0%)
Klebsiella pneumoniae complex	13 (4.9%)	10 (8.3%)	0 (0.0%)	2 (9.5%)	1 (4.2%)	1 (2.5%)	27 (5.6%)
Pseudomonas aeruginosa	13 (4.9%)	5 (4.2%)	1 (7.7%)	1 (4.8%)	1 (4.2%)	0 (0.0%)	21 (4.3%)
Enterococcus faecalis	10 (3.8%)	3 (2.5%)	0 (0.0%)	1 (4.8%)	2 (8.3%)	2 (5.0%)	18 (3.7%)
Staphylococcus epidermidis	5 (1.9%)	1 (0.8%)	0 (0.0%)	0 (0.0%)	3 (12.5%)	6 (15.0%)	15 (3.1%)
Proteus mirabilis	6 (2.3%)	3 (2.5%)	1 (7.7%)	0 (0.0%)	0 (0.0%)	2 (5.0%)	12 (2.5%)
Candida albicans	7 (2.6%)	1 (0.8%)	0 (0.0%)	1 (4.8%)	0 (0.0%)	2 (5.0%)	11 (2.3%)
Others	66 (24.8%)	18 (15.0%)	1 (7.7%)	12 (57.1%)	11 (45.8%)	11 (27.5%)	119 (24.6%)
Total	266 (100.0%)	120 (100.0%)	13 (100.0%)	21 (100.0%)	24 (100.0%)	40 (100.0%)	484 (100.0%)

See Appendix D for the complete list of Microorganisms

Antimicrobial resistance by hospital type

Table 19. Resistance, by hospital type

	Hospital type						National
	Tertiary	Secondary	Primary	Paediatric	Specialist	Private	
N Enterobacterales spp.	74	29	4	4	4	11	126
% 3GC-R Enterobacterales spp.	8.1%	3.4%	0.0%	0.0%	0.0%	0.0%	5.6%
% CAR-R Enterobacterales spp.	1.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%
N Staphylococcus aureus	42	18	0	3	2	4	69
% OXA-R S. aureus	21.4%	11.1%		66.7%	50.0%	25.0%	21.7%
% GLY-R S. aureus	0.0%	0.0%		0.0%	0.0%	0.0%	0.0%
N Enterococcus spp.	34	10	0	1	3	4	52
% GLY-R Enterococcus spp.	17.6%	20.0%		0.0%	0.0%	25.0%	17.3%
N Pseudomonas aeruginosa	13	5	1	1	1	0	21
% CAR-R P. aeruginosa	7.7%	0.0%	0.0%	0.0%	0.0%		4.8%
N PDR (all)	0	0	0	0	0	0	0

3GC, 3rd-Generation Cephalosporin; CAR, Carbapenem; OXA, Oxacillin; GLY, Glycopeptide; R, Resistant; PDR, Pan-Drug Resistant

Antimicrobial use (AMU)

Demographics

Table 20. AMU prevalence and demographics, by hospital type

	Hospital type						National
	Tertiary	Secondary	Primary	Paediatric	Specialist	Private	
N patients	5420	3986	648	307	946	1343	12650
N receiving AMs	2280	1613	217	127	204	646	5087
% receiving AMs (or AMU prev)	42.1%	40.5%	33.5%	41.4%	21.6%	48.1%	40.2%
Of which N has HAI	466	262	34	15	47	54	878
Receives 1 AM	1643	1244	186	89	140	478	3780
Receives 2 AMs	473	306	29	27	58	152	1045
Receives 3 AMs	128	54	2	9	6	14	213
Receives 4 AMs	29	7	0	1	0	2	39
Receives 5 AMs	7	2	0	1	0	0	10
Total AMs	3124	2056	250	179	274	832	6715
% Male	55.3%	51.5%	47.0%	57.5%	30.9%	52.2%	52.4%
% Aged >=65 years	58.6%	64.5%	84.3%	0.0%	23.5%	63.0%	59.2%
% Aged <10 years	2.2%	5.9%	0.9%	71.7%	33.4%	0.6%	7.2%
% had Surgery	22.7%	12.1%	12.0%	23.6%	52.0%	47.8%	23.3%
% with CVC	18.3%	7.2%	1.4%	24.4%	12.3%	10.8%	13.0%
% with Urinary catheter	23.0%	22.3%	10.6%	8.7%	12.7%	13.9%	20.3%
% Intubated	3%	2%	0%	9%	4%	1%	2.4%
McCabe score							
% McCabe: non-fatal	60.5%	70.4%	68.2%	89.8%	89.7%	79.9%	68.3%
% McCabe: life-limiting	33.6%	25.0%	25.3%	7.1%	5.4%	16.9%	26.6%
% McCabe: end-of-life	5.4%	3.9%	6.5%	0.0%	2.9%	2.8%	4.4%
Vaccination status against COVID-19							
% Fully vaccinated*	38.5%	66.2%	59.0%	0.8%	52.0%	84.8%	53.6%
% Partially vaccinated	1.0%	0.5%	0.0%	0.0%	1.5%	0.8%	0.8%
% Not vaccinated	3.8%	9.7%	0.9%	18.1%	26.0%	3.6%	6.7%
% Unknown	56.8%	23.4%	40.1%	75.6%	20.6%	10.8%	38.6%

AM, Antimicrobial; HAI, Healthcare-Associated Infection; CVC, Central Venous Catheter

*Full vaccination also includes those that have received one or two additional doses

Of the 12,650 eligible patients, 5,087 were found to be receiving antimicrobials (as determined using the surveillance case definitions (see PPS 2023 protocol for further information) resulting in an AMU prevalence of 40.2%.

The majority of patients (74.3%) on antimicrobials were receiving only one antimicrobial. Over one-in-four patients (25.7%) were receiving two or more antimcrobials.

Of 5,087 patients receiving antimicrobials, 878 (17.3%) had an active HAI.

Age pyramids

Figure 10a. Total acute hospital inpatients receiving AMs: Age pyramid with national data

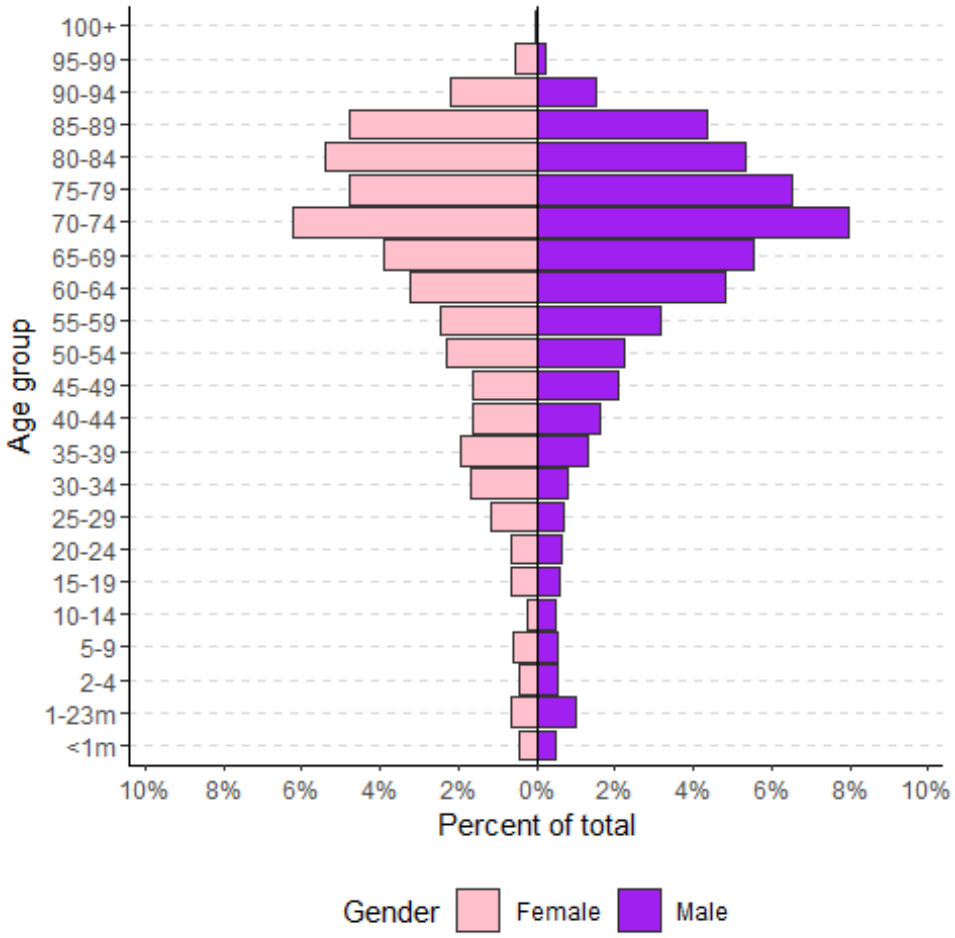


Figure 10b. Total inpatients receiving AMs in tertiary and secondary hospitals: Age pyramid

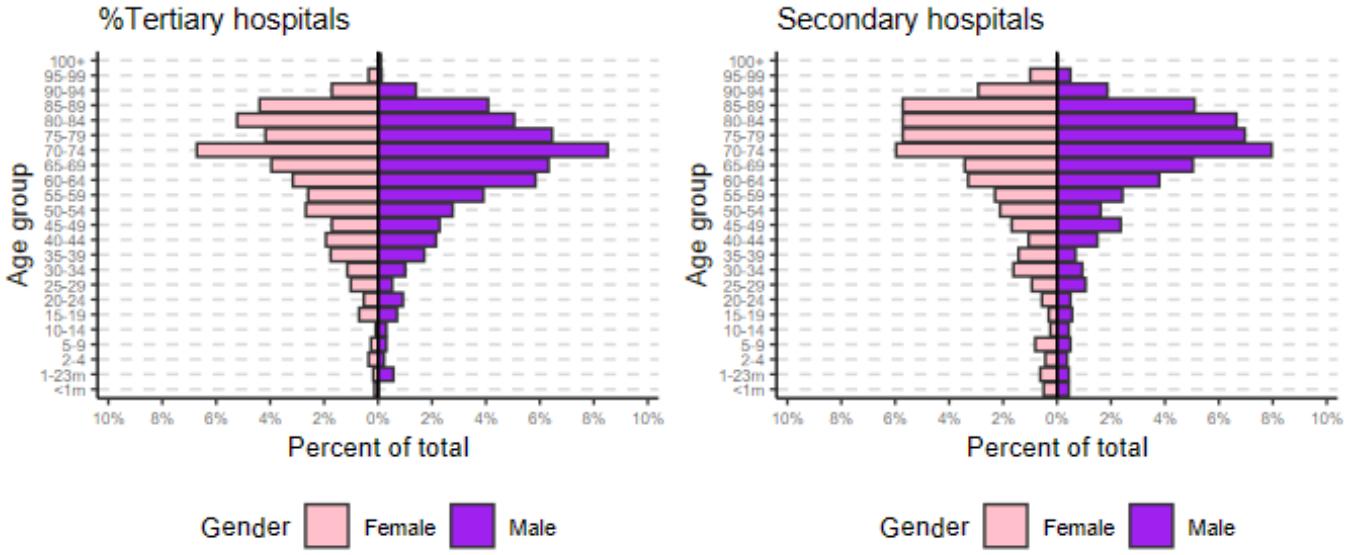


Figure 10c. Total inpatients receiving AMs in primary and paediatric hospitals: Age pyramid

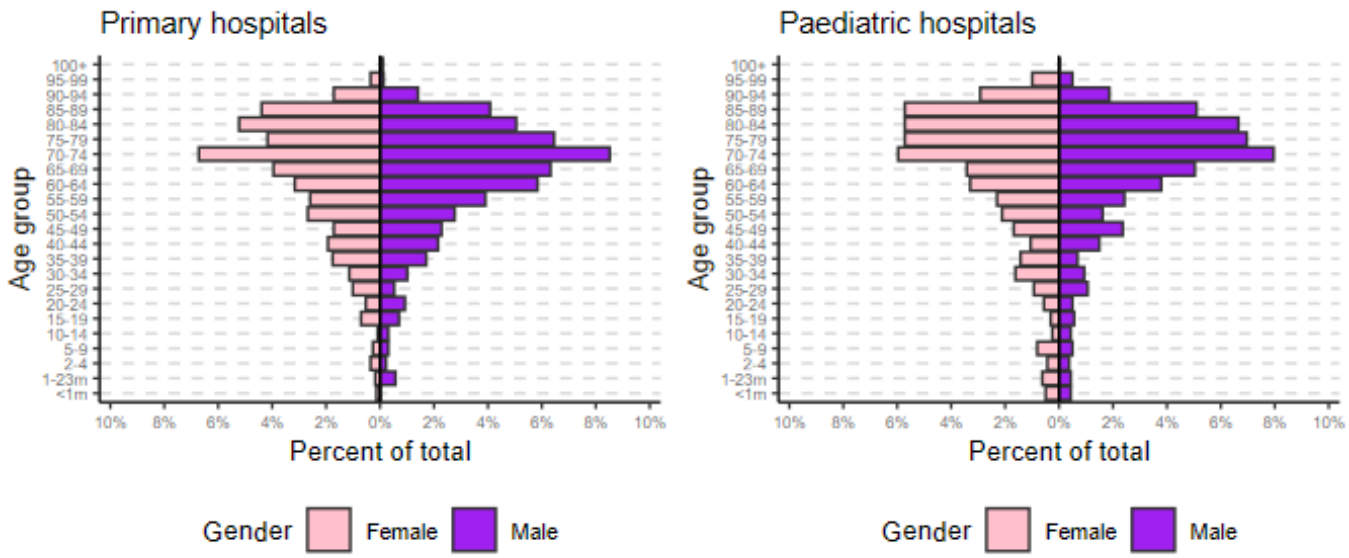
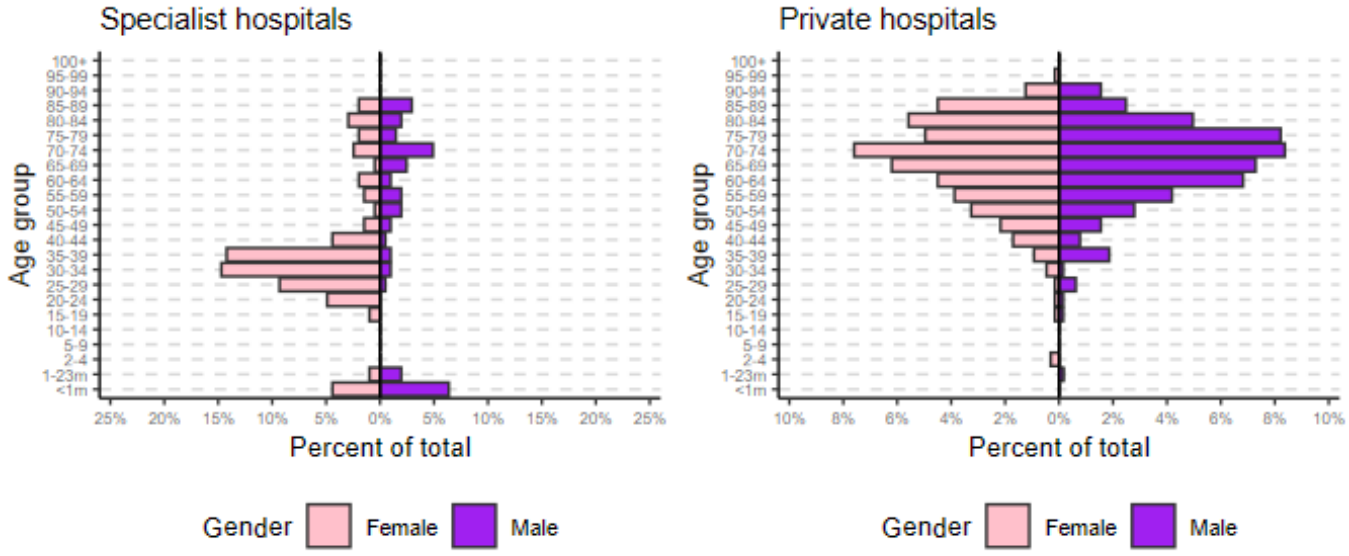


Figure 10d. Total inpatients receiving AMs in specialist and private hospitals: Age pyramid



Risk factors

Figure 11a. Risk factors for all acute hospital inpatients receiving AMs: national data

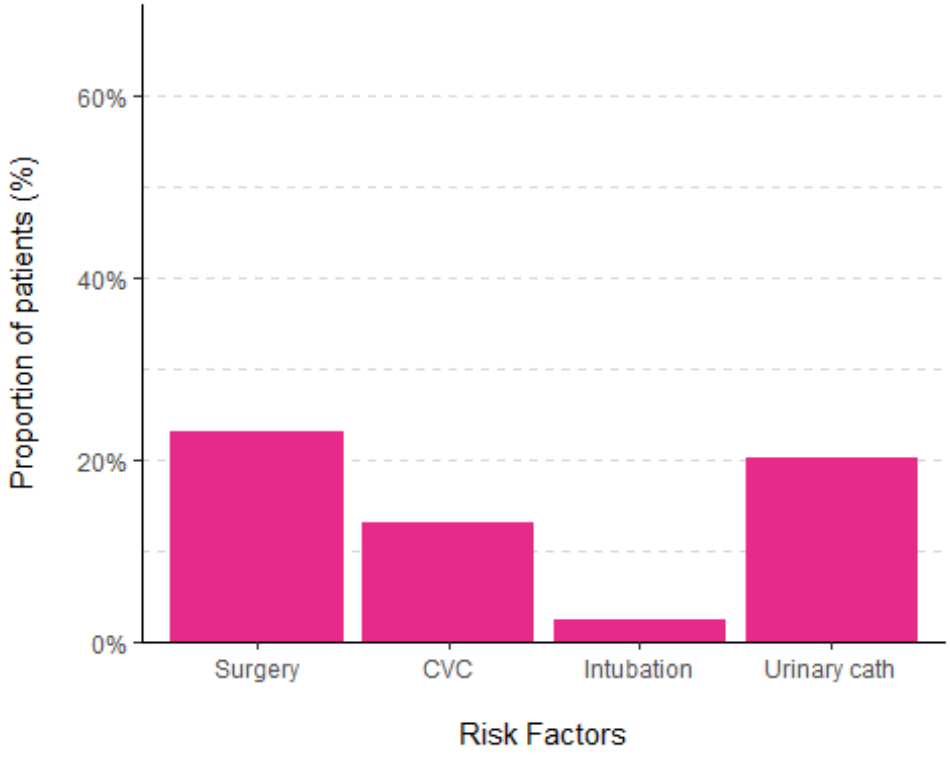


Figure 11b. Risk factors for all inpatients receiving AMs: tertiary and secondary hospitals

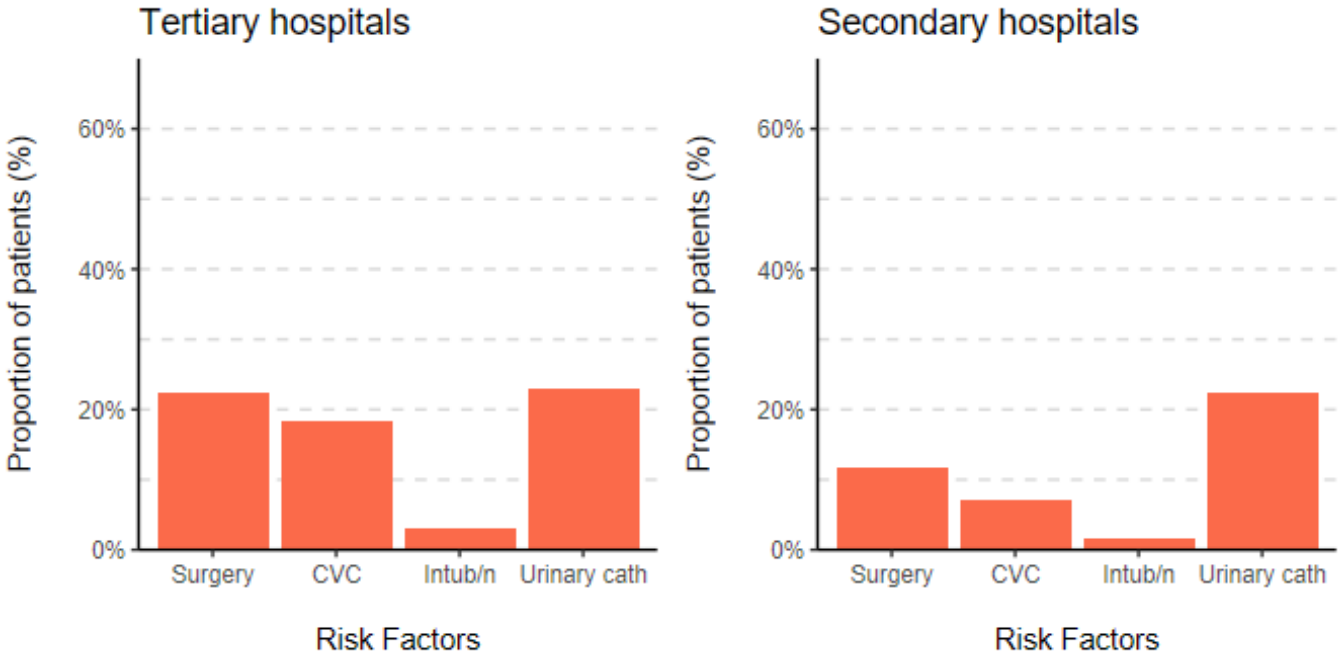


Figure 11c. Risk factors for all inpatients receiving AMs: primary and paediatric hospitals

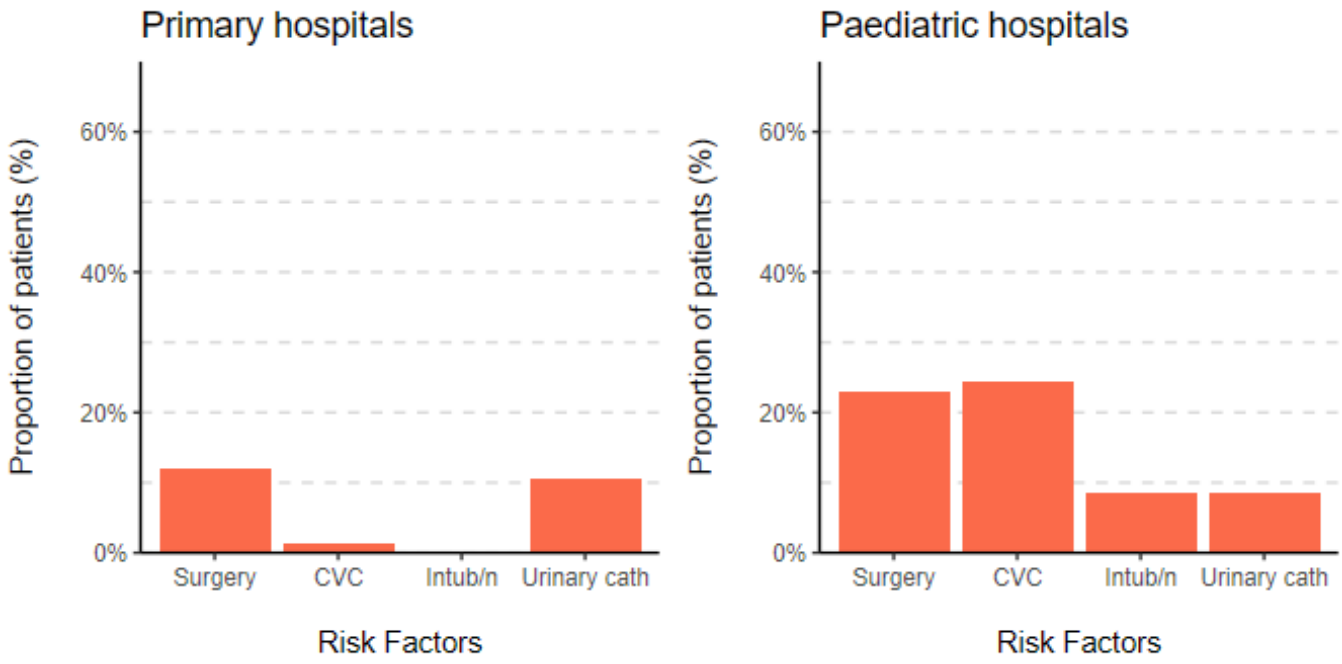
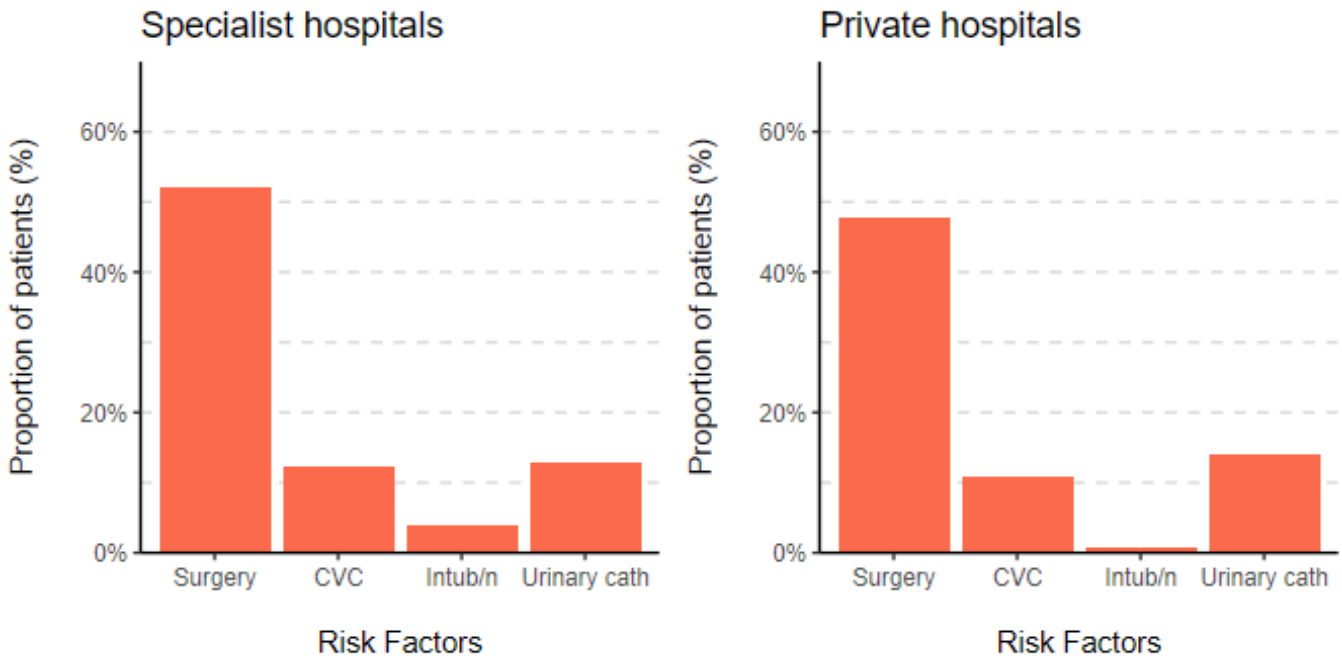


Figure 11d. Risk factors for all inpatients receiving AMs: specialist and private hosptitals



Indication for antimicrobial use by hospital type

Table 21. AMU treatment, by hospital type

	Hospital type						National
	Tertiary	**Secondary**	**Primary**	**Paediatric**	**Specialist**	**Private**	
Total AMs prescribed	3124	2056	250	179	274	832	6715
Prescriber's indication for AM use							
Reason in notes	2830 (90.6%)	1874 (91.1%)	234 (93.6%)	160 (89.4%)	250 (91.2%)	742 (89.2%)	6090 (90.7%)
Treatment of infection:	2616 (83.7%)	1819 (88.5%)	199 (79.6%)	124 (69.3%)	151 (55.1%)	454 (54.6%)	5363 (79.9%)
Acute hospital	728 (23.3%)	317 (15.4%)	50 (20.0%)	26 (14.5%)	92 (33.6%)	78 (9.4%)	1291 (19.2%)
Community	1798 (57.6%)	1415 (68.8%)	140 (56.0%)	98 (54.7%)	59 (21.5%)	372 (44.7%)	3882 (57.8%)
LTCF	90 (2.9%)	87 (4.2%)	9 (3.6%)	0 (0.0%)	0 (0.0%)	4 (0.5%)	190 (2.8%)
Surgical prophylaxis (SP):	166 (5.3%)	108 (5.3%)	21 (8.4%)	8 (4.5%)	102 (37.2%)	273 (32.8%)	678 (10.1%)
SP, single dose	36 (1.2%)	31 (1.5%)	6 (2.4%)	3 (1.7%)	72 (26.3%)	93 (11.2%)	241 (3.6%)
SP, one day	54 (1.7%)	29 (1.4%)	11 (4.4%)	4 (2.2%)	24 (8.8%)	115 (13.8%)	237 (3.5%)
SP, > one day	76 (2.4%)	48 (2.3%)	4 (1.6%)	1 (0.6%)	6 (2.2%)	65 (7.8%)	200 (3.0%)
Medical prophylaxis	297 (9.5%)	93 (4.5%)	26 (10.4%)	33 (18.4%)	20 (7.3%)	68 (8.2%)	537 (8.0%)
Unknown indication/reason	29 (0.9%)	18 (0.9%)	3 (1.2%)	1 (0.6%)	0 (0.0%)	18 (2.2%)	69 (1.0%)
Other	14 (0.4%)	15 (0.7%)	1 (0.4%)	13 (7.3%)	1 (0.4%)	17 (2.0%)	61 (0.9%)
Unknown	2 (0.1%)	3 (0.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (0.2%)	7 (0.1%)

Overview of antimicrobial classes prescribed

Table 22a. AMU prevalence by antimicrobial class, top 10: tertiary and secondary hospitals

Rank	Tertiary				Secondary				National			
	AM class	n	%	Prev	AM class	n	%	Prev	AM class	n	%	Prev
1	Penicillins	1,157	37.0%	21.3%	Penicillins	862	41.9%	21.6%	Penicillins	2,488	37.1%	19.7%
2	3GCs	169	5.4%	3.1%	Macrolides	130	6.3%	3.3%	2GCs	409	6.1%	3.2%
3	Sulfonamides and trimethoprim	167	5.3%	3.1%	Beta-lact-R penicillins	112	5.4%	2.8%	Macrolides	359	5.3%	2.8%
4	Carbapenems	160	5.1%	3.0%	3GCs	104	5.1%	2.6%	3GCs	355	5.3%	2.8%
5	Glycopeptides	160	5.1%	3.0%	2GCs	82	4.0%	2.1%	Beta-lact-R penicillins	335	5.0%	2.6%
6	Beta-lact-R penicillins	154	4.9%	2.8%	Imidazoles	75	3.6%	1.9%	Glycopeptides	283	4.2%	2.2%
7	Macrolides	140	4.5%	2.6%	Glycopeptides	66	3.2%	1.7%	Sulfonamides and trimethoprim	276	4.1%	2.2%
8	Antifungals	128	4.1%	2.4%	Quinolones	61	3.0%	1.5%	Carbapenems	246	3.7%	1.9%
9	Imidazoles	113	3.6%	2.1%	Carbapenems	53	2.6%	1.3%	Imidazoles	242	3.6%	1.9%
10	Other	101	3.2%	1.9%	Other	53	2.6%	1.3%	Quinolones	199	3.0%	1.6%

AM, antimicrobial; n, number of patients prescribed this antimicrobial; %, proportion of all antimicrobial prescribed; Prev, prevalence (%) in the overall population; 1GC/2GC/3GC, 1st/2nd/3rd generation cephalosporins

See Appendix E for the complete list of antimicrobial classes prescribed

Table 22b. AMU prevalence by antimicrobial class, top 10: primary and paediatric hospitals

Rank	Primary				Paediatric				National			
	AM class	n	%	Prev	AM class	n	%	Prev	AM class	n	%	Prev
1	Penicillins	1,157	37.0%	21.3%	Penicillins	862	41.9%	21.6%	Penicillins	2,488	37.1%	19.7%
2	3GCs	169	5.4%	3.1%	Macrolides	130	6.3%	3.3%	2GCs	409	6.1%	3.2%
3	Sulfonamides and trimethoprim	167	5.3%	3.1%	Beta-lact-R penicillins	112	5.4%	2.8%	Macrolides	359	5.3%	2.8%
4	Carbapenems	160	5.1%	3.0%	3GCs	104	5.1%	2.6%	3GCs	355	5.3%	2.8%
5	Glycopeptides	160	5.1%	3.0%	2GCs	82	4.0%	2.1%	Beta-lact-R penicillins	335	5.0%	2.6%
6	Beta-lact-R penicillins	154	4.9%	2.8%	Imidazoles	75	3.6%	1.9%	Glycopeptides	283	4.2%	2.2%
7	Macrolides	140	4.5%	2.6%	Glycopeptides	66	3.2%	1.7%	Sulfonamides and trimethoprim	276	4.1%	2.2%
8	Antifungals	128	4.1%	2.4%	Quinolones	61	3.0%	1.5%	Carbapenems	246	3.7%	1.9%
9	Imidazoles	113	3.6%	2.1%	Carbapenems	53	2.6%	1.3%	Imidazoles	242	3.6%	1.9%
10	Other	101	3.2%	1.9%	Other	53	2.6%	1.3%	Quinolones	199	3.0%	1.6%

AM, antimicrobial; n, number of patients prescribed this antimicrobial; %, proportion of all antimicrobial prescribed; Prev, prevalence (%) in the overall population; 1GC/2GC/3GC, 1st/2nd/3rd generation cephalosporins

See Appendix E for the complete list of antimicrobial classes prescribed

Table 22c. AMU prevalence by antimicrobial class, top 10: specialist and private hospitals

Rank	Specialist				Private				National			
	AM class	n	%	Prev	AM class	n	%	Prev	AM class	n	%	Prev
1	2GCs	61	22.3%	6.4%	Penicillins	275	33.1%	20.5%	Penicillins	2,488	37.1%	19.7%
2	Penicillins	53	19.3%	5.6%	2GCs	160	19.2%	11.9%	2GCs	409	6.1%	3.2%
3	Aminoglycosides	27	9.9%	2.9%	Aminoglycosides	42	5.0%	3.1%	Macrolides	359	5.3%	2.8%
4	Beta-lact-S penicillins	21	7.7%	2.2%	Glycopeptides	40	4.8%	3.0%	3GCs	355	5.3%	2.8%
5	Imidazoles	15	5.5%	1.6%	Macrolides	40	4.8%	3.0%	Beta-lact-R penicillins	335	5.0%	2.6%
6	Antifungals	12	4.4%	1.3%	Beta-lact-R penicillins	39	4.7%	2.9%	Glycopeptides	283	4.2%	2.2%
7	3GCs	11	4.0%	1.2%	3GCs	36	4.3%	2.7%	Sulfonamides and trimethoprim	276	4.1%	2.2%
8	Glycopeptides	9	3.3%	1.0%	Imidazoles	33	4.0%	2.5%	Carbapenems	246	3.7%	1.9%
9	1GCs	8	2.9%	0.8%	Sulfonamides and trimethoprim	31	3.7%	2.3%	Imidazoles	242	3.6%	1.9%
10	Beta-lact-R penicillins	8	2.9%	0.8%	Quinolones	24	2.9%	1.8%	Quinolones	199	3.0%	1.6%

AM, antimicrobial; n, number of patients prescribed this antimicrobial; %, proportion of all antimicrobial prescribed; Prev, prevalence (%) in the overall population; 1GC/2GC/3GC, 1st/2nd/3rd generation cephalosporins

See Appendix E for the complete list of antimicrobial classes prescribed

Overview of indiviudal antimicrobials prescribed

Table 23a. AMU prevalence by specific antimicrobial, top 10: tertiary and secondary hospitals

Rank	Tertiary				Secondary				National			
	Antimicrobial	n	%	Prev	Antimicrobial	n	%	Prev	Antimicrobial	n	%	Prev
1	Piperacillin/ tazobactam	655	21.0%	12.1%	Amoxicillin/ clavulanic acid	460	22.4%	11.5%	Amoxicillin/ clavulanic acid	1,261	18.8%	10.0%
2	Amoxicillin/ clavulanic acid	501	16.0%	9.2%	Piperacillin/ tazobactam	402	19.6%	10.1%	Piperacillin/ tazobactam	1,226	18.3%	9.7%
3	Meropenem	155	5.0%	2.9%	Flucloxacillin	111	5.4%	2.8%	Cefuroxime	403	6.0%	3.2%
4	Flucloxacillin	153	4.9%	2.8%	Ceftriaxone	88	4.3%	2.2%	Flucloxacillin	332	4.9%	2.6%
5	Vancomycin - parenteral	148	4.7%	2.7%	Clarithromycin	85	4.1%	2.1%	Vancomycin - parenteral	262	3.9%	2.1%
6	Sulfamethoxazole/ trimethoprim	136	4.4%	2.5%	Cefuroxime	77	3.7%	1.9%	Ceftriaxone	260	3.9%	2.1%
7	Ceftriaxone	126	4.0%	2.3%	Metronidazole - parenteral	75	3.6%	1.9%	Metronidazole - parenteral	242	3.6%	1.9%
8	Metronidazole - parenteral	113	3.6%	2.1%	Vancomycin - parenteral	60	2.9%	1.5%	Meropenem	238	3.5%	1.9%
9	Cefuroxime	85	2.7%	1.6%	Doxycycline	50	2.4%	1.3%	Clarithromycin	197	2.9%	1.6%
10	Clarithromycin	79	2.5%	1.5%	Meropenem	50	2.4%	1.3%	Sulfamethoxazole/ trimethoprim	192	2.9%	1.5%

Table 23b. AMU prevalence by specific antimicrobial, top 10: primary and paediatric hospitals

Rank	Primary				Paediatric				National			
	Antimicrobial	n	%	Prev	Antimicrobial	n	%	Prev	Antimicrobial	n	%	Prev
1	Amoxicillin/ clavulanic acid	67	26.8%	10.3%	Amoxicillin/ clavulanic acid	17	9.5%	5.5%	Amoxicillin/ clavulanic acid	1,261	18.8%	10.0%
2	Piperacillin/ tazobactam	47	18.8%	7.3%	Amoxicillin	16	8.9%	5.2%	Piperacillin/ tazobactam	1,226	18.3%	9.7%
3	Flucloxacillin	17	6.8%	2.6%	Cefotaxime	12	6.7%	3.9%	Cefuroxime	403	6.0%	3.2%
4	Clarithromycin	14	5.6%	2.2%	Ceftriaxone	11	6.1%	3.6%	Flucloxacillin	332	4.9%	2.6%
5	Azithromycin	10	4.0%	1.5%	Cefuroxime	11	6.1%	3.6%	Vancomycin - parenteral	262	3.9%	2.1%
6	Cefuroxime	10	4.0%	1.5%	Piperacillin/ tazobactam	10	5.6%	3.3%	Ceftriaxone	260	3.9%	2.1%
7	Doxycycline	10	4.0%	1.5%	Sulfamethoxazole/ trimethoprim	9	5.0%	2.9%	Metronidazole - parenteral	242	3.6%	1.9%
8	Cefalexin	7	2.8%	1.1%	Azithromycin	8	4.5%	2.6%	Meropenem	238	3.5%	1.9%
9	Meropenem	7	2.8%	1.1%	Trimethoprim	8	4.5%	2.6%	Clarithromycin	197	2.9%	1.6%
10	Benzylpenicillin	6	2.4%	0.9%	Gentamicin	7	3.9%	2.3%	Sulfamethoxazole/ trimethoprim	192	2.9%	1.5%

n, number of patients prescribed this antibiotic; %, proportion of all antibiotics prescribed; Prev, prevalence (%) in the overall population

See Appendix F for the complete list of antimicrobials prescribed

Table 23c. AMU prevalence by specific antimicrobial, top 10: specialist and private hospitals

Rank	Specialist				Private				National			
	Antimicrobial	n	%	Prev	Antimicrobial	n	%	Prev	Antimicrobial	n	%	Prev
1	Cefuroxime	61	22.3%	6.4%	Amoxicillin/ clavulanic acid	176	21.2%	13.1%	Amoxicillin/ clavulanic acid	1,261	18.8%	10.0%
2	Amoxicillin/ clavulanic acid	40	14.6%	4.2%	Cefuroxime	159	19.1%	11.8%	Piperacillin/ tazobactam	1,226	18.3%	9.7%
3	Gentamicin	27	9.9%	2.9%	Piperacillin/ tazobactam	99	11.9%	7.4%	Cefuroxime	403	6.0%	3.2%
4	Benzylpenicillin	20	7.3%	2.1%	Gentamicin	42	5.0%	3.1%	Flucloxacillin	332	4.9%	2.6%
5	Metronidazole - parenteral	15	5.5%	1.6%	Flucloxacillin	38	4.6%	2.8%	Vancomycin - parenteral	262	3.9%	2.1%
6	Piperacillin/ tazobactam	13	4.7%	1.4%	Vancomycin - parenteral	38	4.6%	2.8%	Ceftriaxone	260	3.9%	2.1%
7	Fluconazole	9	3.3%	1.0%	Metronidazole - parenteral	33	4.0%	2.5%	Metronidazole - parenteral	242	3.6%	1.9%
8	Vancomycin - parenteral	9	3.3%	1.0%	Ceftriaxone	23	2.8%	1.7%	Meropenem	238	3.5%	1.9%
9	Cefalexin	8	2.9%	0.8%	Ciprofloxacin	23	2.8%	1.7%	Clarithromycin	197	2.9%	1.6%
10	Flucloxacillin	8	2.9%	0.8%	Azithromycin	22	2.6%	1.6%	Sulfamethoxazole/ trimethoprim	192	2.9%	1.5%

n, number of patients prescribed this antibiotic; %, proportion of all antibiotics prescribed; Prev, prevalence (%) in the overall population

See Appendix F for the complete list of antimicrobials prescribed

Figure 12a. Top 10 antimicrobials prescribed: national data

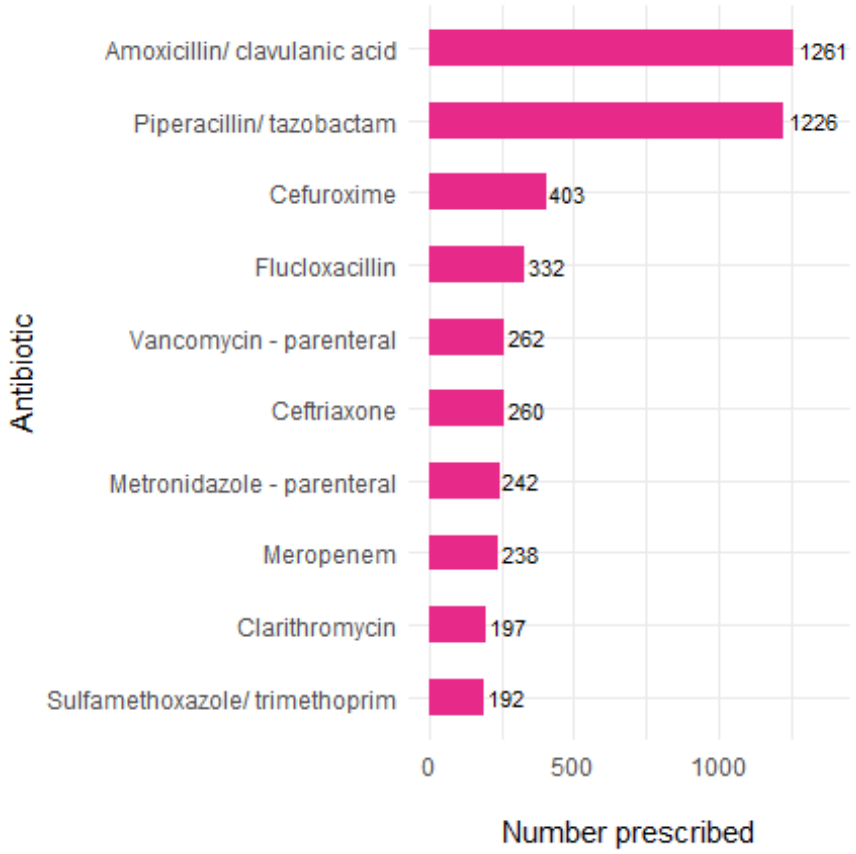


Figure 12b. Top 10 antimicrobials prescribed: tertiary and secondary hospitals

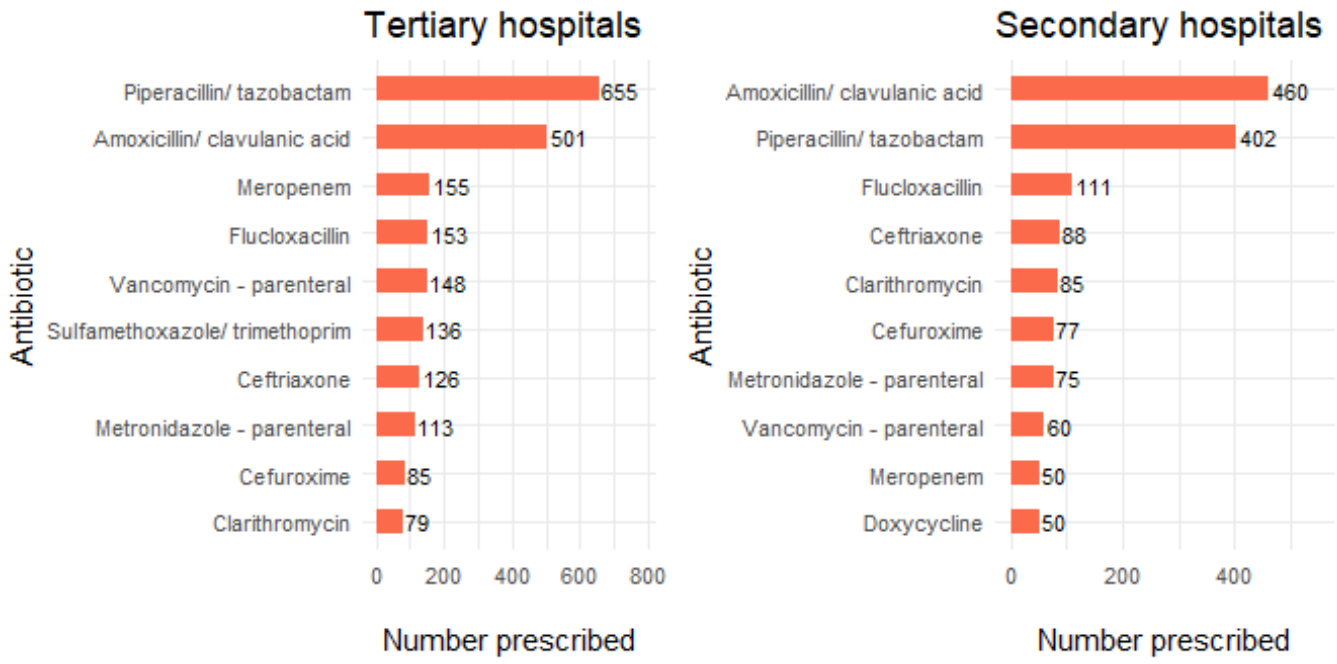


Figure 12c. Top 10 antimicrobials prescribed: primary and paediatric hospitals

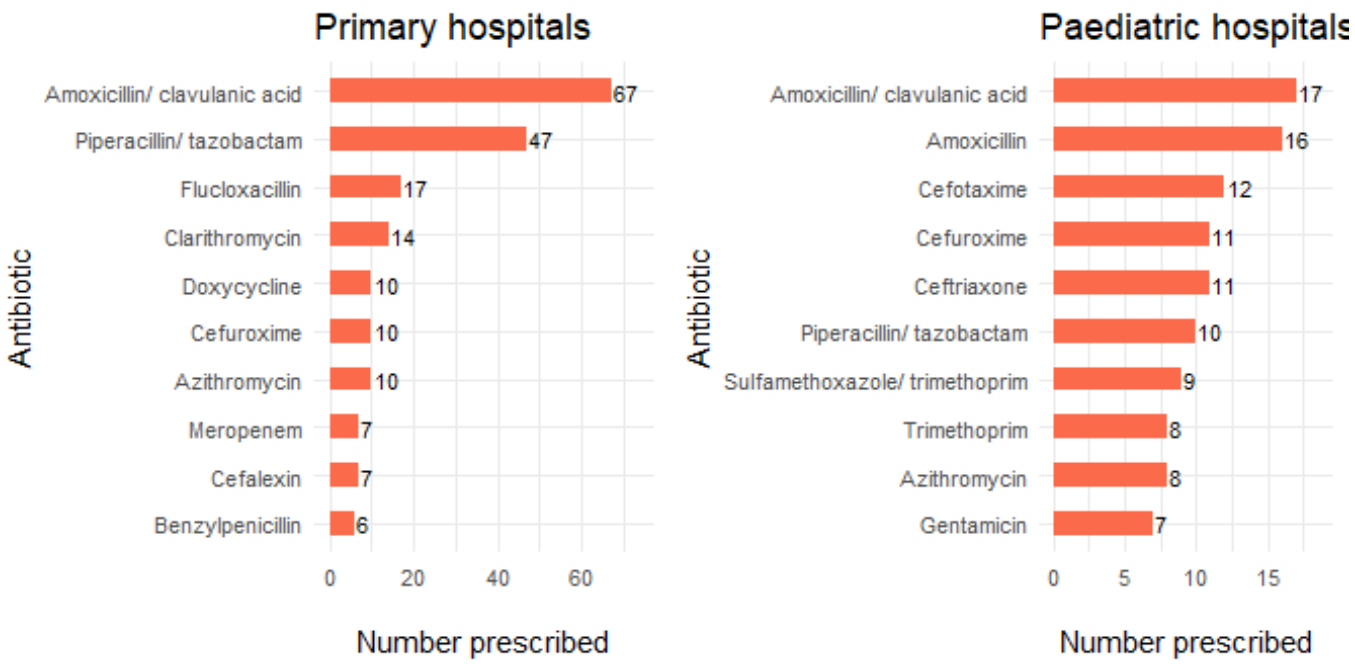
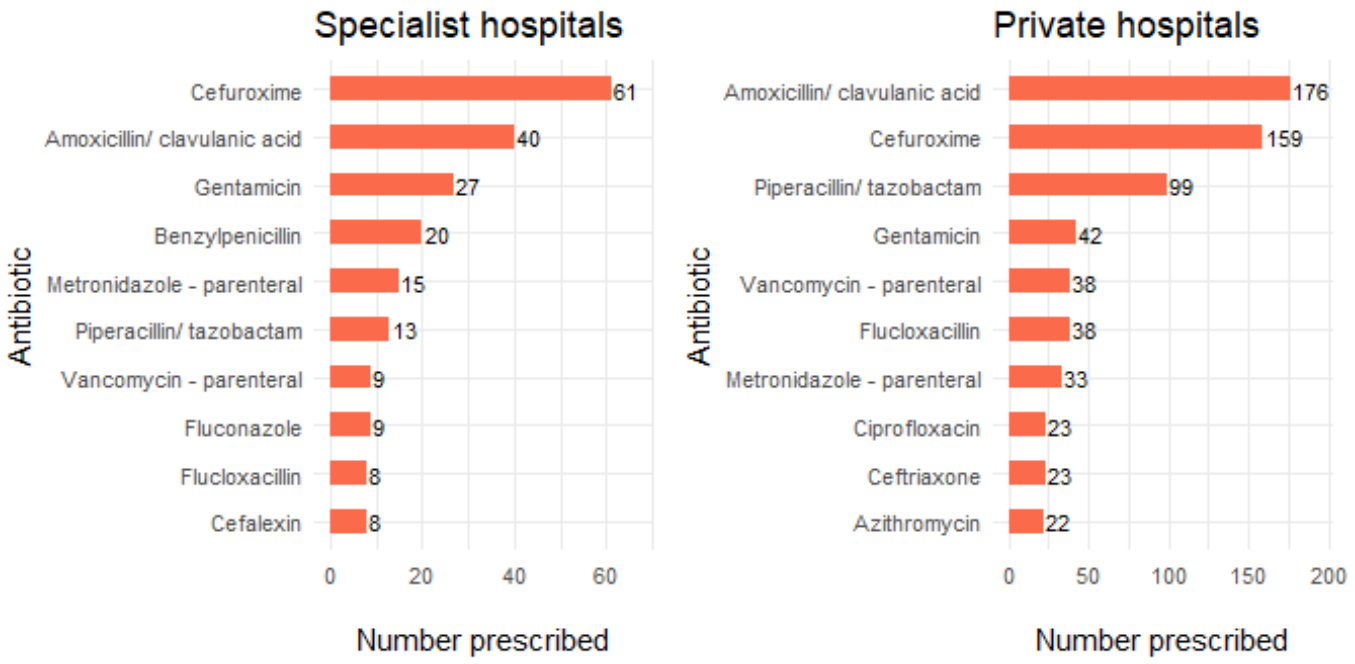


Figure 12d. Top 10 antimicrobials prescribed: specialist and private hospitals



Route of administration of antimicrobials

Table 24. AMU treatment: route and change, by hospital type

Route	Hospital type						National
	Tertiary	Secondary	Primary	Paediatric	Specialist	Private	
Parenteral	2,193 (70.3%)	1,402 (68.2%)	149 (59.6%)	107 (59.8%)	219 (79.9%)	628 (75.5%)	4,698 (70.0%)
Oral	909 (29.1%)	649 (31.6%)	99 (39.6%)	68 (38.0%)	54 (19.7%)	197 (23.7%)	1,976 (29.4%)
Inhalation	12 (0.4%)	4 (0.2%)	2 (0.8%)	4 (2.2%)	1 (0.4%)	2 (0.2%)	25 (0.4%)
Rectal	6 (0.2%)	1 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	5 (0.6%)	12 (0.2%)
Total	3,120 (100.0%)	2,056 (100.0%)	250 (100.0%)	179 (100.0%)	274 (100.0%)	832 (100.0%)	6,711 (100.0%)

Change	Hospital type						National
	Tertiary	Secondary	Primary	Paediatric	Specialist	Private	
No change	2,183 (70.8%)	1,417 (69.3%)	170 (68.3%)	129 (72.5%)	225 (83.0%)	668 (82.4%)	4,792 (72.2%)
Escalation	483 (15.7%)	347 (17.0%)	49 (19.7%)	14 (7.9%)	23 (8.5%)	74 (9.1%)	990 (14.9%)
De-escalation	195 (6.3%)	120 (5.9%)	10 (4.0%)	13 (7.3%)	11 (4.1%)	29 (3.6%)	378 (5.7%)
Switch	108 (3.5%)	108 (5.3%)	13 (5.2%)	11 (6.2%)	5 (1.8%)	30 (3.7%)	275 (4.1%)
Adverse effects	14 (0.5%)	8 (0.4%)	1 (0.4%)	0 (0.0%)	4 (1.5%)	6 (0.7%)	33 (0.5%)
Unknown reason	17 (0.6%)	7 (0.3%)	0 (0.0%)	3 (1.7%)	0 (0.0%)	1 (0.1%)	28 (0.4%)
Unknown	82 (2.7%)	37 (1.8%)	6 (2.4%)	8 (4.5%)	3 (1.1%)	3 (0.4%)	139 (2.1%)
Total	3,082 (100.0%)	2,044 (100.0%)	249 (100.0%)	178 (100.0%)	271 (100.0%)	811 (100.0%)	6,635 (100.0%)

Excludes cases where no answer provided

Treatment of infection by prescriber's diagnosis site by hospital type

Table 25a. AMU treatment of infection by diagnosis site: tertiary and secondary hospitals

Rank	Tertiary (n = 2616)		Secondary (n = 1819)		National (n = 5363)	
	Diagnosis code	n (%)	Diagnosis code	n (%)	Diagnosis code	n (%)
1	PNEU	740 (28.3%)	PNEU	542 (29.8%)	PNEU	1,489 (27.8%)
2	IA	332 (12.7%)	BRON	202 (11.1%)	IA	605 (11.3%)
3	SST-O	294 (11.2%)	IA	194 (10.7%)	SST-O	575 (10.7%)
4	BRON	136 (5.2%)	SST-O	192 (10.6%)	BRON	414 (7.7%)
5	BAC	134 (5.1%)	CYS	140 (7.7%)	CYS	342 (6.4%)
6	CYS	133 (5.1%)	GI	90 (4.9%)	PYE	253 (4.7%)
7	PYE	127 (4.9%)	PYE	78 (4.3%)	BAC	216 (4.0%)
8	BJ-O	114 (4.4%)	CSEP	69 (3.8%)	GI	203 (3.8%)
9	FN	86 (3.3%)	BAC	47 (2.6%)	BJ-O	177 (3.3%)
10	GI	85 (3.2%)	BJ-O	36 (2.0%)	CSEP	174 (3.2%)
11	SST-SSI	77 (2.9%)	BJ-SSI	29 (1.6%)	FN	136 (2.5%)
12	SIRS	65 (2.5%)	CNS	29 (1.6%)	SST-SSI	136 (2.5%)
13	BJ-SSI	55 (2.1%)	FN	27 (1.5%)	BJ-SSI	120 (2.2%)
14	CNS	47 (1.8%)	SIRS	26 (1.4%)	ENT	103 (1.9%)
15	ENT	42 (1.6%)	OBGY	25 (1.4%)	SIRS	97 (1.8%)
16	CSEP	37 (1.4%)	SST-SSI	25 (1.4%)	CNS	83 (1.5%)
17	CVS	35 (1.3%)	ENT	21 (1.2%)	OBGY	65 (1.2%)
18	CF	28 (1.1%)	UND	20 (1.1%)	UND	60 (1.1%)
19	UND	26 (1.0%)	CVS	10 (0.5%)	CVS	53 (1.0%)
20	OBGY	14 (0.5%)	GUM	9 (0.5%)	CF	28 (0.5%)
21	ASB	4 (0.2%)	UNK	4 (0.2%)	GUM	14 (0.3%)
22	GUM	2 (0.1%)	EYE	3 (0.2%)	ASB	9 (0.2%)
23	UNK	2 (0.1%)	ASB	1 (0.1%)	UNK	7 (0.1%)
24	EYE	1 (0.0%)			EYE	4 (0.1%)

ASB, Asymptomatic bacteriuria; BAC, Laboratory-confirmed bacteraemia; BJ-O, Septic arthritis, osteomyelitis, not related to surgery; BJ-SSI, Septic arthritis, osteomyelitis of surgical site; CF, Cystic fibrosis; CNS, Infections of the central nervous system; CSEP, Clinical sepsis (suspected bloodstream infection without lab confirmation/results are not available, no blood cultures collected or negative blood culture), excluding febrile neutropenia; CVS, Cardiovascular infections: endocarditis, vascular graft; CYS, Symptomatic lower urinary tract infection (e.g. cystitis); ENT, Infections of ear, nose, throat, larynx and mouth; EYE, Endophthalmitis; FN, Febrile neutropenia or other form of manifestation of infection in immunocompromised host (e.g. HIV, chemotherapy, etc) with no clear anatomical site; GI, Gastrointestinal infections (e.g. salmonellosis, antibiotic-associated diarrhoea); GUM, Prostatitis, epididymo- orchitis, STD in men; IA, Intra-abdominal sepsis, including hepatobiliary; OBGY, Obstetric or gynaecological infections, STD in women; PNEU, Pneumonia; PYE, Symptomatic upper urinary tract infection (e.g. pyelonephritis); SIRS, Systemic inflammatory response with no clear anatomical site; SST-O, Cellulitis, wound, deep soft tissue not involving bone, not related to surgery; SST-SSI, Surgical site infection involving skin or soft tissue but not bone; UND, Completely undefined; site with no systemic inflammation

Table 25b. AMU treatment of infection by diagnosis site: primary and paediatric hospitals

Rank	Primary (n = 199)		Paediatric (n = 124)		National (n = 5363)	
	Diagnosis code	n (%)	Diagnosis code	n (%)	Diagnosis code	n (%)
1	PNEU	79 (39.7%)	PNEU	30 (24.2%)	PNEU	1,489 (27.8%)
2	BRON	29 (14.6%)	ENT	22 (17.7%)	IA	605 (11.3%)
3	CYS	29 (14.6%)	PYE	12 (9.7%)	SST-O	575 (10.7%)
4	SST-O	19 (9.5%)	FN	10 (8.1%)	BRON	414 (7.7%)
5	PYE	7 (3.5%)	SST-O	10 (8.1%)	CYS	342 (6.4%)
6	BAC	5 (2.5%)	IA	9 (7.3%)	PYE	253 (4.7%)
7	ENT	5 (2.5%)	CSEP	8 (6.5%)	BAC	216 (4.0%)
8	BJ-O	4 (2.0%)	BJ-O	5 (4.0%)	GI	203 (3.8%)
9	BJ-SSI	4 (2.0%)	CNS	4 (3.2%)	BJ-O	177 (3.3%)
10	GI	4 (2.0%)	BAC	3 (2.4%)	CSEP	174 (3.2%)
11	IA	4 (2.0%)	BJ-SSI	2 (1.6%)	FN	136 (2.5%)
12	CVS	3 (1.5%)	BRON	2 (1.6%)	SST-SSI	136 (2.5%)
13	CSEP	2 (1.0%)	GI	2 (1.6%)	BJ-SSI	120 (2.2%)
14	UND	2 (1.0%)	SIRS	2 (1.6%)	ENT	103 (1.9%)
15	ASB	1 (0.5%)	SST-SSI	2 (1.6%)	SIRS	97 (1.8%)
16	CNS	1 (0.5%)	UND	1 (0.8%)	CNS	83 (1.5%)
17	GUM	1 (0.5%)			OBGY	65 (1.2%)
18					UND	60 (1.1%)
19					CVS	53 (1.0%)
20					CF	28 (0.5%)
21					GUM	14 (0.3%)
22					ASB	9 (0.2%)
23					UNK	7 (0.1%)
24					EYE	4 (0.1%)

ASB, Asymptomatic bacteriuria; BAC, Laboratory-confirmed bacteraemia; BJ-O, Septic arthritis, osteomyelitis, not related to surgery; BJ-SSI, Septic arthritis, osteomyelitis of surgical site; CF, Cystic fibrosis; CNS, Infections of the central nervous system; CSEP, Clinical sepsis (suspected bloodstream infection without lab confirmation/results are not available, no blood cultures collected or negative blood culture), excluding febrile neutropenia; CVS, Cardiovascular infections: endocarditis, vascular graft; CYS, Symptomatic lower urinary tract infection (e.g. cystitis); ENT, Infections of ear, nose, throat, larynx and mouth; EYE, Endophthalmitis; FN, Febrile neutropenia or other form of manifestation of infection in immunocompromised host (e.g. HIV, chemotherapy, etc) with no clear anatomical site; GI, Gastrointestinal infections (e.g. salmonellosis, antibiotic-associated diarrhoea); GUM, Prostatitis, epididymo- orchitis, STD in men; IA, Intra-abdominal sepsis, including hepatobiliary; OBGY, Obstetric or gynaecological infections, STD in women; PNEU, Pneumonia; PYE, Symptomatic upper urinary tract infection (e.g. pyelonephritis); SIRS, Systemic inflammatory response with no clear anatomical site; SST-O, Cellulitis, wound, deep soft tissue not involving bone, not related to surgery; SST-SSI, Surgical site infection involving skin or soft tissue but not bone; UND, Completely undefined; site with no systemic inflammation

Table 25c. AMU treatment of infection by diagnosis site: specialist and private hospitals

Rank	Specialist (n = 151)		Private (n = 454)		National (n = 5363)	
	Diagnosis code	n (%)	Diagnosis code	n (%)	Diagnosis code	n (%)
1	CSEP	45 (29.8%)	PNEU	97 (21.4%)	PNEU	1,489 (27.8%)
2	OBGY	26 (17.2%)	IA	66 (14.5%)	IA	605 (11.3%)
3	BJ-SSI	17 (11.3%)	SST-O	47 (10.4%)	SST-O	575 (10.7%)
4	SST-O	13 (8.6%)	BRON	42 (9.3%)	BRON	414 (7.7%)
5	CYS	12 (7.9%)	CYS	28 (6.2%)	CYS	342 (6.4%)
6	PYE	9 (6.0%)	SST-SSI	27 (5.9%)	PYE	253 (4.7%)
7	BAC	6 (4.0%)	GI	22 (4.8%)	BAC	216 (4.0%)
8	SST-SSI	5 (3.3%)	BAC	21 (4.6%)	GI	203 (3.8%)
9	ENT	4 (2.6%)	PYE	20 (4.4%)	BJ-O	177 (3.3%)
10	BRON	3 (2.0%)	BJ-O	16 (3.5%)	CSEP	174 (3.2%)
11	ASB	2 (1.3%)	BJ-SSI	13 (2.9%)	FN	136 (2.5%)
12	BJ-O	2 (1.3%)	CSEP	13 (2.9%)	SST-SSI	136 (2.5%)
13	SIRS	2 (1.3%)	FN	12 (2.6%)	BJ-SSI	120 (2.2%)
14	UND	2 (1.3%)	ENT	9 (2.0%)	ENT	103 (1.9%)
15	FN	1 (0.7%)	UND	9 (2.0%)	SIRS	97 (1.8%)
16	PNEU	1 (0.7%)	CVS	5 (1.1%)	CNS	83 (1.5%)
17	UNK	1 (0.7%)	CNS	2 (0.4%)	OBGY	65 (1.2%)
18			GUM	2 (0.4%)	UND	60 (1.1%)
19			SIRS	2 (0.4%)	CVS	53 (1.0%)
20			ASB	1 (0.2%)	CF	28 (0.5%)
21					GUM	14 (0.3%)
22					ASB	9 (0.2%)
23					UNK	7 (0.1%)
24					EYE	4 (0.1%)

ASB, Asymptomatic bacteriuria; BAC, Laboratory-confirmed bacteraemia; BJ-O, Septic arthritis, osteomyelitis, not related to surgery; BJ-SSI, Septic arthritis, osteomyelitis of surgical site; CF, Cystic fibrosis; CNS, Infections of the central nervous system; CSEP, Clinical sepsis (suspected bloodstream infection without lab confirmation/results are not available, no blood cultures collected or negative blood culture), excluding febrile neutropenia; CVS, Cardiovascular infections: endocarditis, vascular graft; CYS, Symptomatic lower urinary tract infection (e.g. cystitis); ENT, Infections of ear, nose, throat, larynx and mouth; EYE, Endophthalmitis; FN, Febrile neutropenia or other form of manifestation of infection in immunocompromised host (e.g. HIV, chemotherapy, etc) with no clear anatomical site; GI, Gastrointestinal infections (e.g. salmonellosis, antibiotic-associated diarrhoea); GUM, Prostatitis, epididymo- orchitis, STD in men; IA, Intra-abdominal sepsis, including hepatobiliary; OBGY, Obstetric or gynaecological infections, STD in women; PNEU, Pneumonia; PYE, Symptomatic upper urinary tract infection (e.g. pyelonephritis); SIRS, Systemic inflammatory response with no clear anatomical site; SST-O, Cellulitis, wound, deep soft tissue not involving bone, not related to surgery; SST-SSI, Surgical site infection involving skin or soft tissue but not bone; UND, Completely undefined; site with no systemic inflammation

Appendix A. Patients by patient specialty and hospital type

Patient specialties are arranged by alphabetical order

Patient Speciality	Hospital type						National
	Tertiary	Secondary	Primary	Paediatric	Specialist	Private	
Bone marrow transplantation (BMT)	5 (0.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	5 (0.0%)
Burns care	6 (0.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	6 (0.0%)
Cardio surgery	63 (1.2%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	61 (4.5%)	124 (1.0%)
Cardio surgery and vascular surgery	3 (0.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	4 (0.3%)	7 (0.1%)
Cardiology	222 (4.1%)	117 (2.9%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	133 (9.9%)	472 (3.7%)
Combination of specialties	2 (0.0%)	12 (0.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	14 (0.1%)
COVID-19 (non-ICU)	3 (0.1%)	2 (0.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	5 (0.0%)
COVID-19 ICU	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.1%)	1 (0.0%)
Dermatology	2 (0.0%)	0 (0.0%)	1 (0.2%)	0 (0.0%)	0 (0.0%)	2 (0.1%)	5 (0.0%)
Digestive tract surgery	79 (1.5%)	49 (1.2%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	57 (4.2%)	185 (1.5%)
Endocrinology	85 (1.6%)	63 (1.6%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	8 (0.6%)	156 (1.2%)
ENT	61 (1.1%)	11 (0.3%)	16 (2.5%)	0 (0.0%)	10 (1.1%)	18 (1.3%)	116 (0.9%)
Gastroenterology	168 (3.1%)	85 (2.1%)	2 (0.3%)	0 (0.0%)	0 (0.0%)	41 (3.1%)	296 (2.3%)
General medicine	1,295 (24.0%)	1,951 (49.0%)	461 (71.1%)	0 (0.0%)	0 (0.0%)	269 (20.0%)	3,976 (31.5%)
General surgery	409 (7.6%)	406 (10.2%)	8 (1.2%)	1 (0.3%)	0 (0.0%)	94 (7.0%)	918 (7.3%)
Geriatrics, care for the elderly	521 (9.6%)	211 (5.3%)	54 (8.3%)	0 (0.0%)	0 (0.0%)	7 (0.5%)	793 (6.3%)
Gynaecology	29 (0.5%)	26 (0.7%)	4 (0.6%)	0 (0.0%)	12 (1.3%)	19 (1.4%)	90 (0.7%)
Haematology	189 (3.5%)	25 (0.6%)	0 (0.0%)	4 (1.3%)	0 (0.0%)	16 (1.2%)	234 (1.9%)
Haematology/BMT	4 (0.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	4 (0.0%)
Healthy neonates (maternity)	22 (0.4%)	69 (1.7%)	0 (0.0%)	0 (0.0%)	169 (17.9%)	0 (0.0%)	260 (2.1%)
Healthy neonates (paediatrics)	0 (0.0%)	13 (0.3%)	0 (0.0%)	1 (0.3%)	59 (6.2%)	0 (0.0%)	73 (0.6%)
Hepatology	22 (0.4%)	1 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.1%)	24 (0.2%)
Infectious diseases	90 (1.7%)	16 (0.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	106 (0.8%)
Long-term care	0 (0.0%)	0 (0.0%)	21 (3.2%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	21 (0.2%)
Maxillo-facial surgery	18 (0.3%)	0 (0.0%)	1 (0.2%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	19 (0.2%)
Medical ICU	18 (0.3%)	7 (0.2%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.1%)	26 (0.2%)
Mixed (polyvalent) ICU, general intensive or critical care	26 (0.5%)	14 (0.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	40 (0.3%)
Neonatal ICU	4 (0.1%)	19 (0.5%)	0 (0.0%)	2 (0.7%)	76 (8.0%)	0 (0.0%)	101 (0.8%)
Neonatology (excl. healthy neonates)	12 (0.2%)	17 (0.4%)	0 (0.0%)	7 (2.3%)	26 (2.8%)	0 (0.0%)	62 (0.5%)

Patient Speciality	Hospital type						National
	Tertiary	Secondary	Primary	Paediatric	Specialist	Private	
Nephrology	193 (3.6%)	47 (1.2%)	2 (0.3%)	0 (0.0%)	0 (0.0%)	8 (0.6%)	250 (2.0%)
Neurology	124 (2.3%)	24 (0.6%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	11 (0.8%)	159 (1.3%)
Neurosurgery	119 (2.2%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	19 (1.4%)	138 (1.1%)
Obstetrics /maternity	58 (1.1%)	172 (4.3%)	0 (0.0%)	0 (0.0%)	330 (34.9%)	0 (0.0%)	560 (4.4%)
Oncology	281 (5.2%)	65 (1.6%)	0 (0.0%)	6 (2.0%)	31 (3.3%)	138 (10.3%)	521 (4.1%)
Ophthalmology	3 (0.1%)	1 (0.0%)	0 (0.0%)	0 (0.0%)	14 (1.5%)	1 (0.1%)	19 (0.2%)
Orthopaedics	321 (5.9%)	160 (4.0%)	46 (7.1%)	0 (0.0%)	83 (8.8%)	233 (17.3%)	843 (6.7%)
Orthopaedics and surgical traumatology	73 (1.4%)	36 (0.9%)	0 (0.0%)	0 (0.0%)	3 (0.3%)	2 (0.1%)	114 (0.9%)
Other medical	74 (1.4%)	32 (0.8%)	7 (1.1%)	0 (0.0%)	0 (0.0%)	7 (0.5%)	120 (1.0%)
Other surgery	15 (0.3%)	3 (0.1%)	3 (0.5%)	0 (0.0%)	0 (0.0%)	3 (0.2%)	24 (0.2%)
Paediatric general surgery	1 (0.0%)	7 (0.2%)	0 (0.0%)	33 (10.9%)	0 (0.0%)	0 (0.0%)	41 (0.3%)
Paediatric ICU	0 (0.0%)	0 (0.0%)	0 (0.0%)	11 (3.6%)	1 (0.1%)	0 (0.0%)	12 (0.1%)
Paediatrics general, not specialised	90 (1.7%)	148 (3.7%)	0 (0.0%)	239 (78.6%)	0 (0.0%)	5 (0.4%)	482 (3.8%)
Plastic and reconstructive surgery	34 (0.6%)	6 (0.2%)	3 (0.5%)	0 (0.0%)	0 (0.0%)	5 (0.4%)	48 (0.4%)
Pneumology	180 (3.3%)	99 (2.5%)	4 (0.6%)	0 (0.0%)	0 (0.0%)	84 (6.3%)	367 (2.9%)
Psychiatry	11 (0.2%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	11 (0.1%)
Rehabilitation	1 (0.0%)	32 (0.8%)	15 (2.3%)	0 (0.0%)	131 (13.9%)	0 (0.0%)	179 (1.4%)
Rheumatology	97 (1.8%)	2 (0.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	21 (1.6%)	120 (1.0%)
Surgery for cancer	16 (0.3%)	1 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.1%)	18 (0.1%)
Surgical ICU	19 (0.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	19 (0.2%)
Thoracic surgery	22 (0.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	6 (0.4%)	28 (0.2%)
Transplantation surgery	1 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.0%)
Traumatology	1 (0.0%)	2 (0.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	3 (0.0%)
Urology	123 (2.3%)	19 (0.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	59 (4.4%)	201 (1.6%)
Vascular surgery	189 (3.5%)	12 (0.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	8 (0.6%)	209 (1.7%)
Total	5,404 (100.0%)	3,982 (100.0%)	648 (100.0%)	304 (100.0%)	945 (100.0%)	1,343 (100.0%)	12,626 (100.0%)

ENT, Ear, nose and throat

Appendix B. NHSN surgery type by hospital type

NHSN surgery types are arranged by number (in descending order) for the overall national data (column on right of table)

NHSN surgery code	Hospital type						National
	Tertiary	Secondary	Primary	Paediatric	Specialist	Private	
NHSN-HPRO	95 (35.1%)	58 (21.4%)	7 (2.6%)	0 (0.0%)	33 (12.2%)	78 (28.8%)	271 (100.0%)
NHSN-FX	131 (74.4%)	38 (21.6%)	0 (0.0%)	2 (1.1%)	3 (1.7%)	2 (1.1%)	176 (100.0%)
NHSN-CSEC	15 (9.1%)	50 (30.3%)	0 (0.0%)	0 (0.0%)	100 (60.6%)	0 (0.0%)	165 (100.0%)
NHSN-COLO	74 (58.3%)	42 (33.1%)	0 (0.0%)	1 (0.8%)	0 (0.0%)	10 (7.9%)	127 (100.0%)
NHSN-KPRO	9 (8.9%)	9 (8.9%)	5 (5.0%)	0 (0.0%)	22 (21.8%)	56 (55.4%)	101 (100.0%)
NHSN-AMP	63 (84.0%)	4 (5.3%)	4 (5.3%)	0 (0.0%)	1 (1.3%)	3 (4.0%)	75 (100.0%)
NHSN	10 (14.3%)	5 (7.1%)	0 (0.0%)	2 (2.9%)	8 (11.4%)	45 (64.3%)	70 (100.0%)
NHSN-CRAN	56 (88.9%)	2 (3.2%)	0 (0.0%)	3 (4.8%)	0 (0.0%)	2 (3.2%)	63 (100.0%)
NHSN-CBGB	17 (34.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	33 (66.0%)	50 (100.0%)
NHSN-CARD	21 (43.8%)	1 (2.1%)	0 (0.0%)	10 (20.8%)	0 (0.0%)	16 (33.3%)	48 (100.0%)
NHSN-NECK	28 (59.6%)	3 (6.4%)	4 (8.5%)	12 (25.5%)	0 (0.0%)	0 (0.0%)	47 (100.0%)
NHSN-SB	29 (64.4%)	12 (26.7%)	0 (0.0%)	2 (4.4%)	0 (0.0%)	2 (4.4%)	45 (100.0%)
NHSN-FUSN	26 (59.1%)	0 (0.0%)	1 (2.3%)	5 (11.4%)	0 (0.0%)	12 (27.3%)	44 (100.0%)
NHSN-GAST	22 (53.7%)	3 (7.3%)	1 (2.4%)	8 (19.5%)	0 (0.0%)	7 (17.1%)	41 (100.0%)
NHSN-THOR	25 (65.8%)	0 (0.0%)	0 (0.0%)	4 (10.5%)	0 (0.0%)	9 (23.7%)	38 (100.0%)
NHSN-LAM	16 (45.7%)	3 (8.6%)	0 (0.0%)	1 (2.9%)	1 (2.9%)	14 (40.0%)	35 (100.0%)
NHSN-HER	10 (37.0%)	8 (29.6%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	9 (33.3%)	27 (100.0%)
NHSN-APPY	10 (38.5%)	13 (50.0%)	1 (3.8%)	1 (3.8%)	0 (0.0%)	1 (3.8%)	26 (100.0%)
NHSN-BRST	15 (57.7%)	0 (0.0%)	1 (3.8%)	0 (0.0%)	0 (0.0%)	10 (38.5%)	26 (100.0%)
NHSN-HYST	11 (45.8%)	1 (4.2%)	1 (4.2%)	0 (0.0%)	3 (12.5%)	8 (33.3%)	24 (100.0%)
NHSN-BILI	6 (26.1%)	9 (39.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	8 (34.8%)	23 (100.0%)
NHSN-NEPH	16 (76.2%)	1 (4.8%)	0 (0.0%)	1 (4.8%)	0 (0.0%)	3 (14.3%)	21 (100.0%)
NHSN-PVBY	17 (85.0%)	1 (5.0%)	1 (5.0%)	0 (0.0%)	0 (0.0%)	1 (5.0%)	20 (100.0%)
NHSN-XLAP	10 (50.0%)	4 (20.0%)	2 (10.0%)	3 (15.0%)	0 (0.0%)	1 (5.0%)	20 (100.0%)
NHSN-VSHN	16 (88.9%)	0 (0.0%)	0 (0.0%)	2 (11.1%)	0 (0.0%)	0 (0.0%)	18 (100.0%)
NHSN-CHOL	2 (11.8%)	6 (35.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	9 (52.9%)	17 (100.0%)
NHSN-REC	12 (85.7%)	2 (14.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	14 (100.0%)
NHSN-PACE	6 (50.0%)	2 (16.7%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	4 (33.3%)	12 (100.0%)
NHSN-PRST	9 (75.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (8.3%)	2 (16.7%)	12 (100.0%)
NHSN-OVRY	3 (30.0%)	2 (20.0%)	0 (0.0%)	1 (10.0%)	0 (0.0%)	4 (40.0%)	10 (100.0%)
NHSN-AAA	8 (88.9%)	0 (0.0%)	1 (11.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	9 (100.0%)
NHSN-THYR	6 (75.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (25.0%)	0 (0.0%)	8 (100.0%)
NHSN-VHYS	0 (0.0%)	1 (12.5%)	0 (0.0%)	0 (0.0%)	3 (37.5%)	4 (50.0%)	8 (100.0%)

NHSN surgery code	Hospital type						National
	Tertiary	Secondary	Primary	Paediatric	Specialist	Private	
NHSN-CBGC	7 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	7 (100.0%)
NHSN-CEA	6 (85.7%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (14.3%)	7 (100.0%)
NHSN-RFUSN	1 (33.3%)	0 (0.0%)	0 (0.0%)	2 (66.7%)	0 (0.0%)	0 (0.0%)	3 (100.0%)
NHSN-KTP	2 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (100.0%)
NHSN-SPLE	0 (0.0%)	2 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (100.0%)
NHSN-AVSD	1 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (100.0%)
NHSN-HTP	1 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (100.0%)
Total	812 (47.4%)	282 (16.5%)	29 (1.7%)	60 (3.5%)	177 (10.3%)	354 (20.7%)	1,714 (100.0%)

NHSN-AAA, Abdominal aortic aneurysm repair; NHSN-AMP, Limb amputation; NHSN-APPY, Appendix surgery; NHSN-AVSD, Shunt for dialysis; NHSN-BILI, Bile duct, liver or pancreatic surgery; NHSN-BRST, Breast surgery; NHSN-CARD, Cardiac surgery; NHSN-CBGB, Coronary artery bypass graft with both chest and donor site incisions; NHSN-CBGC, Coronary artery bypass graft with chest incision only; NHSN-CEA, Carotid endarterectomy;NHSN-CHOL, Gallbladder surgery; NHSN-COLO, Colon surgery; NHSN-CRAN, Craniotomy; NHSN-CSEC, Caesarean section; NHSN-FUSN, Spinal fusion; NHSN-FX, Open reduction of fracture; NHSN-GAST Gastric surgery; NHSN-HER, Herniorrhaphy; NHSN-HPRO, Hip prosthesis,; NHSN-HTP, Heart transplant; NHSN-HYST, Abdominal hysterectomy; NHSN-KTP, Kidney transplant; NHSN-KPRO, Knee prosthesis; NHSN-LAM, Laminectomy; NHSN-LTP, Liver transplant; NHSN-NECK, Neck surgery; NHSN-NEPH, Kidney surgery;NHSN-OVRY, Ovarian surgery;NHSN-PACE, Pacemaker surgery; NHSN-PRST, Prostate surgery; NHSN-PVBY, Peripheral vascular bypass surgery; NHSN-REC, Rectal surgery; NHSN-RFUSN, Refusion of spine; NHSN-SB, Small bowel surgery;NHSN-SPLE, Spleen surgery; NHSN-THOR, Thoracic surgery; NHSN-THYR, Thyroid and/or parathyroid surgery; NHSN-VHYS, Vaginal hysterectomy; NHSN-VSHN, Ventricular shunt; NHSN-XLAP, Exploratory laparotomy

See protocol for full descritption of surgery types

Appendix C. HAI prevalence by HAI type and hospital type

Appendix C1. HAI prevalence by HAI type and hospital type: tertiary and secondary hospitals

Rank	Tertiary				Secondary				National			
	HAI type	n	%	Prev	HAI type	n	%	Prev	HAI type	n	%	Prev
1	PN5	113	22.5%	2.1%	PN5	95	32.1%	2.4%	PN5	225	23.3%	1.8%
2	BSI	49	9.8%	0.9%	UTI-B	31	10.5%	0.8%	UTI-A	79	8.2%	0.6%
3	SYS-CSEP	41	8.2%	0.8%	COV-MM	22	7.4%	0.6%	BSI	72	7.5%	0.6%
4	UTI-A	38	7.6%	0.7%	UTI-A	20	6.8%	0.5%	UTI-B	62	6.4%	0.5%
5	SSI-D	26	5.2%	0.5%	GI-CDI	18	6.1%	0.5%	SYS-CSEP	58	6.0%	0.5%
6	SSI-O	26	5.2%	0.5%	BSI	16	5.4%	0.4%	SSI-D	55	5.7%	0.4%
7	UTI-B	25	5.0%	0.5%	SYS-CSEP	13	4.4%	0.3%	COV-MM	52	5.4%	0.4%
8	GI-CDI	24	4.8%	0.4%	SSI-O	9	3.0%	0.2%	GI-CDI	46	4.8%	0.4%
9	COV-MM	20	4.0%	0.4%	SSI-S	8	2.7%	0.2%	SSI-O	44	4.6%	0.3%
10	SSI-S	17	3.4%	0.3%	COV-ASY	7	2.4%	0.2%	SSI-S	32	3.3%	0.3%
11	GI-IAB	14	2.8%	0.3%	SST-SKIN	7	2.4%	0.2%	SST-SKIN	27	2.8%	0.2%
12	SST-SKIN	14	2.8%	0.3%	GI-IAB	6	2.0%	0.2%	GI-IAB	21	2.2%	0.2%
13	PN4	12	2.4%	0.2%	LRI-BRON	5	1.7%	0.1%	LRI-BRON	21	2.2%	0.2%
14	LRI-BRON	11	2.2%	0.2%	PN4	5	1.7%	0.1%	PN4	21	2.2%	0.2%
15	GI-GIT	8	1.6%	0.1%	SSI-D	5	1.7%	0.1%	NEO-CSEP	19	2.0%	0.2%
16	COV-ASY	7	1.4%	0.1%	BJ-JNT	3	1.0%	0.1%	COV-ASY	14	1.4%	0.1%
17	CRI3-CVC	7	1.4%	0.1%	COV-SEV	3	1.0%	0.1%	GI-GIT	11	1.1%	0.1%
18	EENT-ORAL	7	1.4%	0.1%	EENT-ORAL	3	1.0%	0.1%	PN1	11	1.1%	0.1%
19	SST-ST	6	1.2%	0.1%	GI-GIT	3	1.0%	0.1%	BJ-JNT	10	1.0%	0.1%
20	BJ-BONE	5	1.0%	0.1%	PN1	3	1.0%	0.1%	EENT-ORAL	10	1.0%	0.1%
21	BJ-JNT	5	1.0%	0.1%	SST-ST	2	0.7%	0.1%	CRI3-CVC	9	0.9%	0.1%
22	PN1	5	1.0%	0.1%	BJ-BONE	1	0.3%	0.0%	BJ-BONE	8	0.8%	0.1%
23	COV-SEV	4	0.8%	0.1%	CNS-MEN	1	0.3%	0.0%	SST-ST	8	0.8%	0.1%
24	PN2	3	0.6%	0.1%	CRI3-CVC	1	0.3%	0.0%	COV-SEV	7	0.7%	0.1%
25	SYS-Nos	3	0.6%	0.1%	EENT-CONJ	1	0.3%	0.0%	LRI-LUNG	7	0.7%	0.1%
26	BJ-DISC	2	0.4%	0.0%	GI-GE	1	0.3%	0.0%	GI-GE	4	0.4%	0.0%
27	CNS-MEN	2	0.4%	0.0%	LRI-LUNG	1	0.3%	0.0%	CNS-MEN	3	0.3%	0.0%
28	GI-GE	2	0.4%	0.0%	LRI-Nos	1	0.3%	0.0%	PN2	3	0.3%	0.0%
29	CNS-IC	1	0.2%	0.0%	NEO-CSEP	1	0.3%	0.0%	REPR-OREP	3	0.3%	0.0%
30	CNS-Nos	1	0.2%	0.0%	NEO-PNEU	1	0.3%	0.0%	SYS-Nos	3	0.3%	0.0%
31	CRI1-PVC	1	0.2%	0.0%	REPR-EMET	1	0.3%	0.0%	BJ-DISC	2	0.2%	0.0%
32	CVS-MED	1	0.2%	0.0%	REPR-OREP	1	0.3%	0.0%	NEO-LCBI	2	0.2%	0.0%
33	NEO-CSEP	1	0.2%	0.0%	SST-DECU	1	0.3%	0.0%	NEO-PNEU	2	0.2%	0.0%

Rank	Tertiary				Secondary				National			
	HAI type	n	%	Prev	HAI type	n	%	Prev	HAI type	n	%	Prev
34	NEO-PNEU	1	0.2%	0.0%					PN3	2	0.2%	0.0%
35									SYS-DI	2	0.2%	0.0%
36									BJ-Nos	1	0.1%	0.0%
37									CNS-IC	1	0.1%	0.0%
38									CNS-Nos	1	0.1%	0.0%
39									CRI1-PVC	1	0.1%	0.0%
40									CVS-MED	1	0.1%	0.0%
41									EENT-CONJ	1	0.1%	0.0%
42									EENT-Nos	1	0.1%	0.0%
43									LRI-Nos	1	0.1%	0.0%
44									PN-Nos	1	0.1%	0.0%
45									REPR-EMET	1	0.1%	0.0%
46									SST-DECU	1	0.1%	0.0%

BJ-BONE, Osteomyelitis; BJ-DISC, Disc space infection; BJ-JNT, Joint or bursa; BJ-Nos, Not specified; BSI, Bloodstream infection (laboratory-confirmed); CRI1-PVC, Local PVC-related infection (no positive blood culture); CRI3-CVC, Microbiologically confirmed CVC-related BSI; CVS-MED, Mediastinitis ,CNS-MEN, Meningitis or ventriculitis; CNS-Nos, Not specified; COV-ASY, asymptomatic COVID-19; COV-MM, mild/moderate COVID-19; COV-SEV, severe COVID-19, EENT-CONJ, Conjunctivitis; EENT-ORAL, Oral cavity (mouth, tongue, or gums); EENT-Nos, Not specified; GI-CDI, Clostridium difficile infection; GI-GE, Gastroenteritis (excluding CDI); GI-GIT, Gastrointestinal tract (oesophagus, stomach, small and large bowel, and rectum), excluding GE, CDI; GI-IAB, Intra-abdominal, not specified elsewhere; LRI-BRON, Bronchitis, tracheobronchitis, bronchiolitis, tracheitis, without evidence of pneumonia; LRI-LUNG, Other infections of the lower respiratory tract; LRI-Nos, Not specified; NEO-CSEP, Clinical sepsis in neonates; NEO-LCBI, Laboratory-confirmed bloodstream infection in neonates, non-coagulase-negative staphylococci; NEO-PNEU, Pneumonia in neonates; PN1, Positive quantitative culture from minimally contaminated lower respiratory tract specimen; PN2, Positive quantitative culture from possibly contaminated lower respiratory tract specimen; PN3, Microbiological diagnosis by alternative microbiology methods; PN4, Positive sputum culture or non-quantitative culture from lower respiratory tract specimen; PN5, Clinical signs of pneumonia without positive microbiology; PN-Nos, Not specified; REPR-EMET, Endometritis; REPR-OREP, Other infections of the male or female reproductive tract; SSI-D, Deep incisional; SSI-O, Organ/space; SSI-S, Superficial incisional; SST-DECU, Decubitus ulcer or pressure sore, including both superficial and deep infections; SST-SKIN, Skin; SST-ST, Soft tissue (necrotising fasciitis, infectious gangrene, necrotizing cellulitis, infectious myositis, lymphadenitis, or lymphangitis); SYS-CSEP, Treated unidentified severe infection in adults; SYS-DI, Disseminated infection; SYS-Nos, Not specified; UTI-A, Microbiologically confirmed symptomatic UTI; UTI-B, Not microbiologically confirmed symptomatic UTI

Appendix C2. HAI prevalence by HAI type, by hospital type: primary and paediatric hospitals

Rank	Primary				Paediatric				National			
	HAI type	n	%	Prev	HAI type	n	%	Prev	HAI type	n	%	Prev
1	PN5	10	25.0%	1.5%	PN4	3	14.3%	1.0%	PN5	225	23.3%	1.8%
2	UTI-A	9	22.5%	1.4%	UTI-A	3	14.3%	1.0%	UTI-A	79	8.2%	0.6%
3	COV-MM	8	20.0%	1.2%	PN1	2	9.5%	0.7%	BSI	72	7.5%	0.6%
4	LRI-LUNG	4	10.0%	0.6%	PN3	2	9.5%	0.7%	UTI-B	62	6.4%	0.5%
5	LRI-BRON	2	5.0%	0.3%	SSI-O	2	9.5%	0.7%	SYS-CSEP	58	6.0%	0.5%
6	SST-SKIN	2	5.0%	0.3%	BJ-BONE	1	4.8%	0.3%	SSI-D	55	5.7%	0.4%
7	BJ-JNT	1	2.5%	0.2%	CRI3-CVC	1	4.8%	0.3%	COV-MM	52	5.4%	0.4%
8	BSI	1	2.5%	0.2%	EENT-Nos	1	4.8%	0.3%	GI-CDI	46	4.8%	0.4%
9	GI-CDI	1	2.5%	0.2%	GI-GE	1	4.8%	0.3%	SSI-O	44	4.6%	0.3%
10	SSI-S	1	2.5%	0.2%	LRI-BRON	1	4.8%	0.3%	SSI-S	32	3.3%	0.3%
11	UTI-B	1	2.5%	0.2%	PN5	1	4.8%	0.3%	SST-SKIN	27	2.8%	0.2%
12					SSI-D	1	4.8%	0.3%	GI-IAB	21	2.2%	0.2%
13					SYS-CSEP	1	4.8%	0.3%	LRI-BRON	21	2.2%	0.2%
14					SYS-DI	1	4.8%	0.3%	PN4	21	2.2%	0.2%
15									NEO-CSEP	19	2.0%	0.2%
16									COV-ASY	14	1.4%	0.1%
17									GI-GIT	11	1.1%	0.1%
18									PN1	11	1.1%	0.1%
19									BJ-JNT	10	1.0%	0.1%
20									EENT-ORAL	10	1.0%	0.1%
21									CRI3-CVC	9	0.9%	0.1%
22									BJ-BONE	8	0.8%	0.1%
23									SST-ST	8	0.8%	0.1%
24									COV-SEV	7	0.7%	0.1%
25									LRI-LUNG	7	0.7%	0.1%
26									GI-GE	4	0.4%	0.0%
27									CNS-MEN	3	0.3%	0.0%
28									PN2	3	0.3%	0.0%
29									REPR-OREP	3	0.3%	0.0%
30									SYS-Nos	3	0.3%	0.0%

Rank	Primary				Paediatric				National			
	HAI type	n	%	Prev	HAI type	n	%	Prev	HAI type	n	%	Prev
31									BJ-DISC	2	0.2%	0.0%
32									NEO-LCBI	2	0.2%	0.0%
33									NEO-PNEU	2	0.2%	0.0%
34									PN3	2	0.2%	0.0%
35									SYS-DI	2	0.2%	0.0%
36									BJ-Nos	1	0.1%	0.0%
37									CNS-IC	1	0.1%	0.0%
38									CNS-Nos	1	0.1%	0.0%
39									CRI1-PVC	1	0.1%	0.0%
40									CVS-MED	1	0.1%	0.0%
41									EENT-CONJ	1	0.1%	0.0%
42									EENT-Nos	1	0.1%	0.0%
43									LRI-Nos	1	0.1%	0.0%
44									PN-Nos	1	0.1%	0.0%
45									REPR-EMET	1	0.1%	0.0%
46									SST-DECU	1	0.1%	0.0%

BJ-BONE, Osteomyelitis; BJ-DISC, Disc space infection; BJ-JNT, Joint or bursa; BJ-Nos, Not specified; BSI, Bloodstream infection (laboratory-confirmed); CRI1-PVC, Local PVC-related infection (no positive blood culture); CRI3-CVC, Microbiologically confirmed CVC-related BSI; CVS-MED, Mediastinitis ,CNS-MEN, Meningitis or ventriculitis; CNS-Nos, Not specified; COV-ASY, asymptomatic COVID-19; COV-MM, mild/moderate COVID-19; COV-SEV, severe COVID-19, EENT-CONJ, Conjunctivitis; EENT-ORAL, Oral cavity (mouth, tongue, or gums); EENT-Nos, Not specified; GI-CDI, Clostridium difficile infection; GI-GE, Gastroenteritis (excluding CDI); GI-GIT, Gastrointestinal tract (oesophagus, stomach, small and large bowel, and rectum), excluding GE, CDI; GI-IAB, Intra-abdominal, not specified elsewhere; LRI-BRON, Bronchitis, tracheobronchitis, bronchiolitis, tracheitis, without evidence of pneumonia; LRI-LUNG, Other infections of the lower respiratory tract; LRI-Nos, Not specified; NEO-CSEP, Clinical sepsis in neonates; NEO-LCBI, Laboratory-confirmed bloodstream infection in neonates, non-coagulase-negative staphylococci; NEO-PNEU, Pneumonia in neonates; PN1, Positive quantitative culture from minimally contaminated lower respiratory tract specimen; PN2, Positive quantitative culture from possibly contaminated lower respiratory tract specimen; PN3, Microbiological diagnosis by alternative microbiology methods; PN4, Positive sputum culture or non-quantitative culture from lower respiratory tract specimen; PN5, Clinical signs of pneumonia without positive microbiology; PN-Nos, Not specified; REPR-EMET, Endometritis; REPR-OREP, Other infections of the male or female reproductive tract; SSI-D, Deep incisional; SSI-O, Organ/space; SSI-S, Superficial incisional; SST-DECU, Decubitus ulcer or pressure sore, including both superficial and deep infections; SST-SKIN, Skin; SST-ST, Soft tissue (necrotising fasciitis, infectious gangrene, necrotizing cellulitis, infectious myositis, lymphadenitis, or lymphangitis); SYS-CSEP, Treated unidentified severe infection in adults; SYS-DI, Disseminated infection; SYS-Nos, Not specified; UTI-A, Microbiologically confirmed symptomatic UTI; UTI-B, Not microbiologically confirmed symptomatic UTI

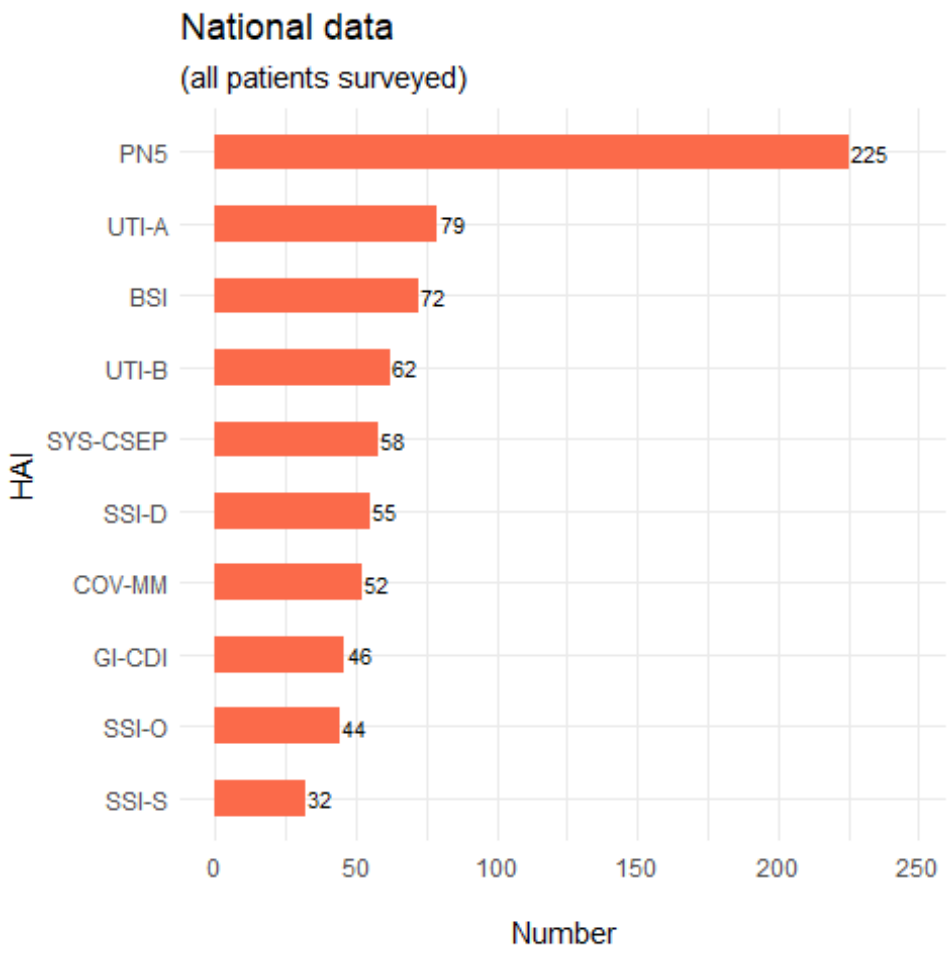
Appendix C3. HAI prevalence by HAI type, by hospital type: specialist and private hospitals

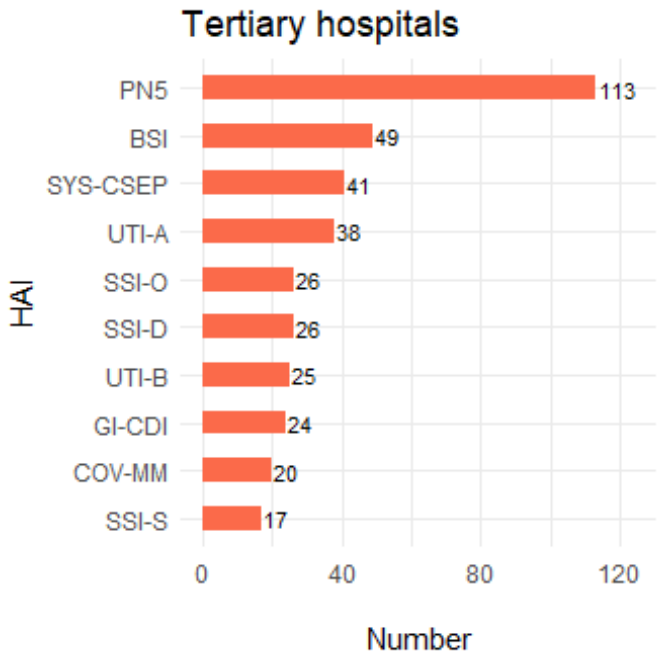
Rank	Specialist				Private				National			
	HAI type	n	%	Prev	HAI type	n	%	Prev	HAI type	n	%	Prev
1	NEO-CSEP	17	34.7%	1.8%	SSI-D	17	29.3%	1.3%	PN5	225	23.3%	1.8%
2	SSI-D	6	12.2%	0.6%	BSI	5	8.6%	0.4%	UTI-A	79	8.2%	0.6%
3	UTI-A	5	10.2%	0.5%	PN5	5	8.6%	0.4%	BSI	72	7.5%	0.6%
4	LRI-BRON	2	4.1%	0.2%	SSI-O	5	8.6%	0.4%	UTI-B	62	6.4%	0.5%
5	NEO-LCBI	2	4.1%	0.2%	SSI-S	4	6.9%	0.3%	SYS-CSEP	58	6.0%	0.5%
6	REPR-OREP	2	4.1%	0.2%	UTI-A	4	6.9%	0.3%	SSI-D	55	5.7%	0.4%
7	SSI-O	2	4.1%	0.2%	GI-CDI	3	5.2%	0.2%	COV-MM	52	5.4%	0.4%
8	SSI-S	2	4.1%	0.2%	UTI-B	3	5.2%	0.2%	GI-CDI	46	4.8%	0.4%
9	SST-SKIN	2	4.1%	0.2%	LRI-LUNG	2	3.4%	0.1%	SSI-O	44	4.6%	0.3%
10	SYS-CSEP	2	4.1%	0.2%	SST-SKIN	2	3.4%	0.1%	SSI-S	32	3.3%	0.3%
11	UTI-B	2	4.1%	0.2%	BJ-Nos	1	1.7%	0.1%	SST-SKIN	27	2.8%	0.2%
12	BJ-BONE	1	2.0%	0.1%	COV-MM	1	1.7%	0.1%	GI-IAB	21	2.2%	0.2%
13	BJ-JNT	1	2.0%	0.1%	GI-IAB	1	1.7%	0.1%	LRI-BRON	21	2.2%	0.2%
14	BSI	1	2.0%	0.1%	PN-Nos	1	1.7%	0.1%	PN4	21	2.2%	0.2%
15	COV-MM	1	2.0%	0.1%	PN1	1	1.7%	0.1%	NEO-CSEP	19	2.0%	0.2%
16	PN5	1	2.0%	0.1%	PN4	1	1.7%	0.1%	COV-ASY	14	1.4%	0.1%
17					SYS-CSEP	1	1.7%	0.1%	GI-GIT	11	1.1%	0.1%
18					SYS-DI	1	1.7%	0.1%	PN1	11	1.1%	0.1%
19									BJ-JNT	10	1.0%	0.1%
20									EENT-ORAL	10	1.0%	0.1%
21									CRI3-CVC	9	0.9%	0.1%
22									BJ-BONE	8	0.8%	0.1%
23									SST-ST	8	0.8%	0.1%
24									COV-SEV	7	0.7%	0.1%
25									LRI-LUNG	7	0.7%	0.1%
26									GI-GE	4	0.4%	0.0%
27									CNS-MEN	3	0.3%	0.0%
28									PN2	3	0.3%	0.0%
29									REPR-OREP	3	0.3%	0.0%
30									SYS-Nos	3	0.3%	0.0%
31									BJ-DISC	2	0.2%	0.0%

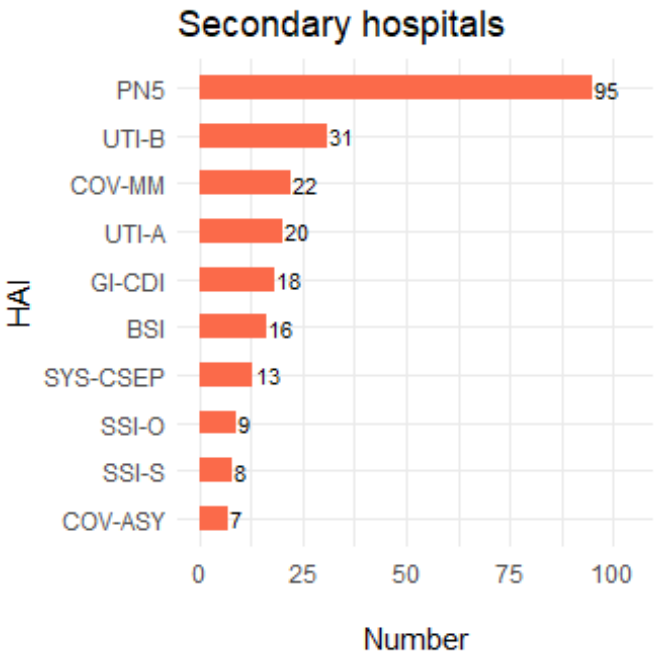
Rank	Specialist				Private				National			
	HAI type	n	%	Prev	HAI type	n	%	Prev	HAI type	n	%	Prev
32									NEO-LCBI	2	0.2%	0.0%
33									NEO-PNEU	2	0.2%	0.0%
34									PN3	2	0.2%	0.0%
35									SYS-DI	2	0.2%	0.0%
36									BJ-Nos	1	0.1%	0.0%
37									CNS-IC	1	0.1%	0.0%
38									CNS-Nos	1	0.1%	0.0%
39									CRI1-PVC	1	0.1%	0.0%
40									CVS-MED	1	0.1%	0.0%
41									EENT-CONJ	1	0.1%	0.0%
42									EENT-Nos	1	0.1%	0.0%
43									LRI-Nos	1	0.1%	0.0%
44									PN-Nos	1	0.1%	0.0%
45									REPR-EMET	1	0.1%	0.0%
46									SST-DECU	1	0.1%	0.0%

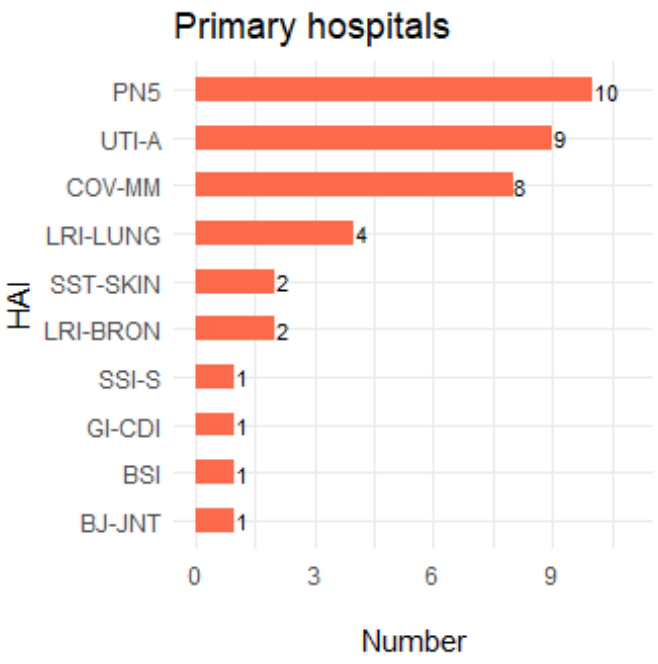
BJ-BONE, Osteomyelitis; BJ-DISC, Disc space infection; BJ-JNT, Joint or bursa; BJ-Nos, Not specified; BSI, Bloodstream infection (laboratory-confirmed); CRI1-PVC, Local PVC-related infection (no positive blood culture); CRI3-CVC, Microbiologically confirmed CVC-related BSI; CVS-MED, Mediastinitis ,CNS-MEN, Meningitis or ventriculitis; CNS-Nos, Not specified; COV-ASY, asymptomatic COVID-19; COV-MM, mild/moderate COVID-19; COV-SEV, severe COVID-19, EENT-CONJ, Conjunctivitis; EENT-ORAL, Oral cavity (mouth, tongue, or gums); EENT-Nos, Not specified; GI-CDI, Clostridium difficile infection; GI-GE, Gastroenteritis (excluding CDI); GI-GIT, Gastrointestinal tract (oesophagus, stomach, small and large bowel, and rectum), excluding GE, CDI; GI-IAB, Intra-abdominal, not specified elsewhere; LRI-BRON, Bronchitis, tracheobronchitis, bronchiolitis, tracheitis, without evidence of pneumonia; LRI-LUNG, Other infections of the lower respiratory tract; LRI-Nos, Not specified; NEO-CSEP, Clinical sepsis in neonates; NEO-LCBI, Laboratory-confirmed bloodstream infection in neonates, non-coagulase-negative staphylococci; NEO-PNEU, Pneumonia in neonates; PN1, Positive quantitative culture from minimally contaminated lower respiratory tract specimen; PN2, Positive quantitative culture from possibly contaminated lower respiratory tract specimen; PN3, Microbiological diagnosis by alternative microbiology methods; PN4, Positive sputum culture or non-quantitative culture from lower respiratory tract specimen; PN5, Clinical signs of pneumonia without positive microbiology; PN-Nos, Not specified; REPR-EMET, Endometritis; REPR-OREP, Other infections of the male or female reproductive tract; SSI-D, Deep incisional; SSI-O, Organ/space; SSI-S, Superficial incisional; SST-DECU, Decubitus ulcer or pressure sore, including both superficial and deep infections; SST-SKIN, Skin; SST-ST, Soft tissue (necrotising fasciitis, infectious gangrene, necrotizing cellulitis, infectious myositis, lymphadenitis, or lymphangitis); SYS-CSEP, Treated unidentified severe infection in adults; SYS-DI, Disseminated infection; SYS-Nos, Not specified; UTI-A, Microbiologically confirmed symptomatic UTI; UTI-B, Not microbiologically confirmed symptomatic UTI

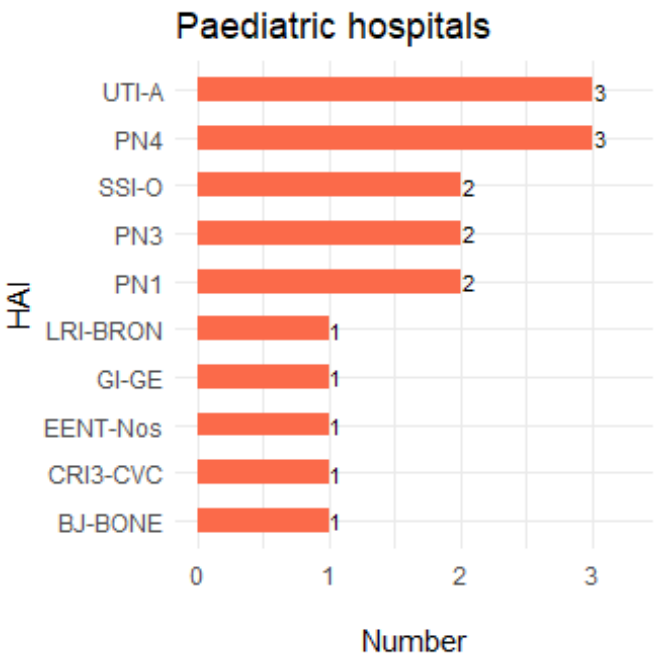
Appendix C4. Top 10 specific HAIs nationally and by hospital type

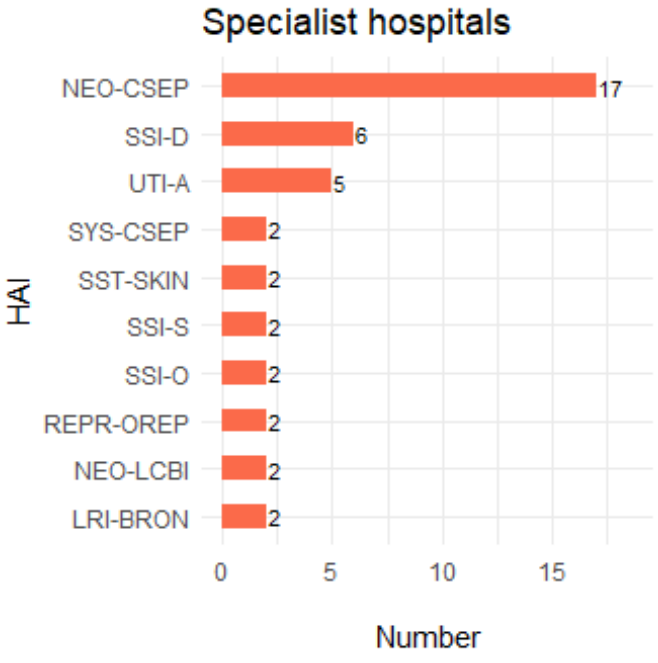


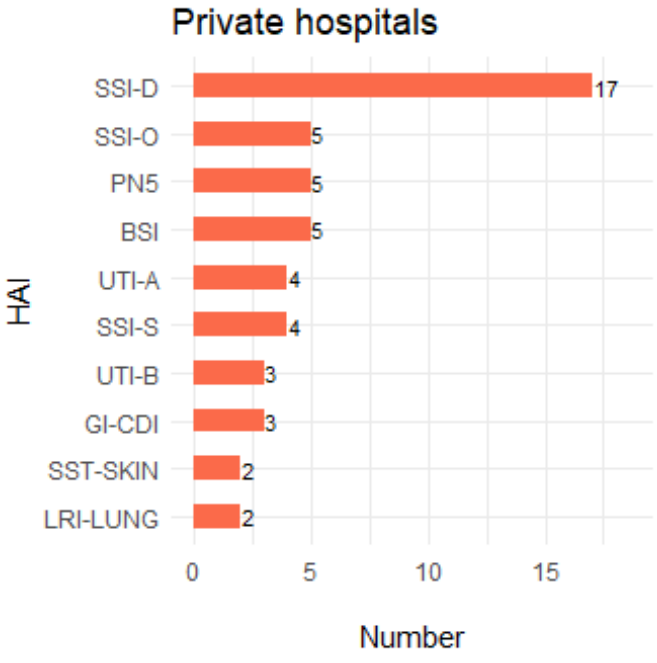





Primary hospitals
PN5
UTI-A
COV-MM
LRI-LUNG
SST-SKIN
LRI-BRON
SSI-S
GI-CDI
BSI
BJ-JNT
10
9
8
4
2
2
1
1
1
1
HAI
0
3
6
9
Number


Paediatric hospitals
UTI-A
PN4
SSI-O
PN3
PN1
LRI-BRON
GI-GE
EENT-Nos
CRI3-CVC
BJ-BONE
3
3
2
2
2
1
1
1
1
1
HAI
0
1
2
3
Number


Specialist hospitals
NEO-CSEP
SSI-D
UTI-A
SYS-CSEP
SST-SKIN
SSI-S
SSI-O
REPR-OREP
NEO-LCBI
LRI-BRON
17
6
5
2
2
2
2
2
2
2
HAI
0
5
10
15
Number


Private hospitals
SSI-D
SSI-O
PN5
BSI
UTI-A
SSI-S
UTI-B
GI-CDI
SST-SKIN
LRI-LUNG
17
5
5
5
4
4
3
3
2
2
HAI
0
5
10
15
Number

Appendix D. Microorganisms by hospital type

Microorganism are arranged by number (in descending order) for the overall national data (column on right of table)

Microorganism	Hospital type						National
	Tertiary	Secondary	Primary	Paediatric	Specialist	Private	
Escherichia coli	48 (18.0%)	14 (11.7%)	3 (23.1%)	1 (4.8%)	3 (12.5%)	4 (10.0%)	73 (15.1%)
Staphylococcus aureus	42 (15.8%)	18 (15.0%)	0 (0.0%)	3 (14.3%)	2 (8.3%)	6 (15.0%)	71 (14.7%)
SARS-CoV-2	14 (5.3%)	23 (19.2%)	6 (46.2%)	0 (0.0%)	1 (4.2%)	1 (2.5%)	45 (9.3%)
Clostridioides difficile	21 (7.9%)	18 (15.0%)	1 (7.7%)	0 (0.0%)	0 (0.0%)	3 (7.5%)	43 (8.9%)
Enterococcus faecium	21 (7.9%)	6 (5.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (5.0%)	29 (6.0%)
Klebsiella pneumoniae complex	13 (4.9%)	10 (8.3%)	0 (0.0%)	2 (9.5%)	1 (4.2%)	1 (2.5%)	27 (5.6%)
Pseudomonas aeruginosa	13 (4.9%)	5 (4.2%)	1 (7.7%)	1 (4.8%)	1 (4.2%)	0 (0.0%)	21 (4.3%)
Enterococcus faecalis	10 (3.8%)	3 (2.5%)	0 (0.0%)	1 (4.8%)	2 (8.3%)	2 (5.0%)	18 (3.7%)
Staphylococcus epidermidis	5 (1.9%)	1 (0.8%)	0 (0.0%)	0 (0.0%)	3 (12.5%)	6 (15.0%)	15 (3.1%)
Proteus mirabilis	6 (2.3%)	3 (2.5%)	1 (7.7%)	0 (0.0%)	0 (0.0%)	2 (5.0%)	12 (2.5%)
Candida albicans	7 (2.6%)	1 (0.8%)	0 (0.0%)	1 (4.8%)	0 (0.0%)	2 (5.0%)	11 (2.3%)
Klebsiella oxytoca	4 (1.5%)	1 (0.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	4 (10.0%)	9 (1.9%)
Anaerobes, not specified	7 (2.6%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	7 (1.4%)
Candida glabrata	4 (1.5%)	0 (0.0%)	0 (0.0%)	1 (4.8%)	0 (0.0%)	1 (2.5%)	6 (1.2%)
Enterobacter cloacae	4 (1.5%)	1 (0.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (2.5%)	6 (1.2%)
Other coagulase-negative staphylococci (CNS)	3 (1.1%)	2 (1.7%)	0 (0.0%)	0 (0.0%)	1 (4.2%)	0 (0.0%)	6 (1.2%)
Staphylococcus haemolyticus	2 (0.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (8.3%)	2 (5.0%)	6 (1.2%)
Serratia marcescens	4 (1.5%)	0 (0.0%)	0 (0.0%)	1 (4.8%)	0 (0.0%)	0 (0.0%)	5 (1.0%)
Coagulase-negative staphylococci, not specified	1 (0.4%)	2 (1.7%)	0 (0.0%)	0 (0.0%)	1 (4.2%)	0 (0.0%)	4 (0.8%)
Corynebacterium spp.	1 (0.4%)	1 (0.8%)	0 (0.0%)	0 (0.0%)	2 (8.3%)	0 (0.0%)	4 (0.8%)
Stenotrophomonas maltophilia	2 (0.8%)	0 (0.0%)	0 (0.0%)	2 (9.5%)	0 (0.0%)	0 (0.0%)	4 (0.8%)
Candida parapsilosis	1 (0.4%)	1 (0.8%)	0 (0.0%)	1 (4.8%)	0 (0.0%)	0 (0.0%)	3 (0.6%)
Candida spp., not specified	3 (1.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	3 (0.6%)
Enterobacterales, not specified	2 (0.8%)	1 (0.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	3 (0.6%)

Microorganism	Hospital type						National
	Tertiary	Secondary	Primary	Paediatric	Specialist	Private	
Enterococcus spp., other	1 (0.4%)	1 (0.8%)	0 (0.0%)	0 (0.0%)	1 (4.2%)	0 (0.0%)	3 (0.6%)
Gram-negative bacilli, not specified	2 (0.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (4.2%)	0 (0.0%)	3 (0.6%)
Haemophilus influenza	1 (0.4%)	1 (0.8%)	0 (0.0%)	1 (4.8%)	0 (0.0%)	0 (0.0%)	3 (0.6%)
Streptococcus agalactiae (B)	1 (0.4%)	0 (0.0%)	1 (7.7%)	0 (0.0%)	1 (4.2%)	0 (0.0%)	3 (0.6%)
Streptococcus pyogenes (A)	1 (0.4%)	1 (0.8%)	0 (0.0%)	0 (0.0%)	1 (4.2%)	0 (0.0%)	3 (0.6%)
Aspergillus fumigatus	2 (0.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (0.4%)
Candida spp., other	2 (0.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (0.4%)
Enterococcus spp., not specified	2 (0.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (0.4%)
Enterovirus (polio, coxsackie, echo)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (9.5%)	0 (0.0%)	0 (0.0%)	2 (0.4%)
Moraxella catharralis	2 (0.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (0.4%)
Other Gram-positive cocci	1 (0.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (2.5%)	2 (0.4%)
Parainfluenzavirus	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (9.5%)	0 (0.0%)	0 (0.0%)	2 (0.4%)
Rhinovirus	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (9.5%)	0 (0.0%)	0 (0.0%)	2 (0.4%)
Staphylococcus spp., not specified	1 (0.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (2.5%)	2 (0.4%)
Adenovirus	0 (0.0%)	1 (0.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.2%)
Bacteroides other	1 (0.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.2%)
Burkholderia cepacia	1 (0.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.2%)
Citrobacter freundii	0 (0.0%)	1 (0.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.2%)
Citrobacter koseri (e.g., diversus)	1 (0.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.2%)
Citrobacter spp., other	1 (0.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.2%)
Clostridioides other	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (2.5%)	1 (0.2%)
Enterobacter agglomerans	1 (0.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.2%)
Enterobacter spp., other	0 (0.0%)	1 (0.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.2%)
Gram-positive cocci, not specified	0 (0.0%)	1 (0.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.2%)
Haemophilus parainfluenzae	1 (0.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.2%)
Hafnia spp.	1 (0.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.2%)
Moraxella spp., other	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (4.2%)	0 (0.0%)	1 (0.2%)
Morganella spp.	0 (0.0%)	1 (0.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.2%)
Other enterobacterales	1 (0.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.2%)

Microorganism	Hospital type						National
	Tertiary	Secondary	Primary	Paediatric	Specialist	Private	
Other Gram-negative bacilli, non enterobacterales	1 (0.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.2%)
Other yeasts	1 (0.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.2%)
Serratia spp., other	1 (0.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.2%)
Streptococcus spp., other	1 (0.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.2%)
Yersinia spp.	0 (0.0%)	1 (0.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.2%)
Total	266 (100.0%)	120 (100.0%)	13 (100.0%)	21 (100.0%)	24 (100.0%)	40 (100.0%)	484 (100.0%)

Appendix E. AMU prevalence by AM class and hospital type

Appendix E1. AMU prevalence by AM class and hospital type: tertiary and secondary hospitals

Rank	Tertiary				Secondary				National			
	AM class	n	%	Prev	AM class	n	%	Prev	AM class	n	%	Prev
1	Penicillins	1,157	37.0%	21.3%	Penicillins	862	41.9%	21.6%	Penicillins	2,488	37.1%	19.7%
2	3GCs	169	5.4%	3.1%	Macrolides	130	6.3%	3.3%	2GCs	409	6.1%	3.2%
3	Sulfonamides and trimethoprim	167	5.3%	3.1%	Beta-lact-R penicillins	112	5.4%	2.8%	Macrolides	359	5.3%	2.8%
4	Carbapenems	160	5.1%	3.0%	3GCs	104	5.1%	2.6%	3GCs	355	5.3%	2.8%
5	Glycopeptides	160	5.1%	3.0%	2GCs	82	4.0%	2.1%	Beta-lact-R penicillins	335	5.0%	2.6%
6	Beta-lact-R penicillins	154	4.9%	2.8%	Imidazoles	75	3.6%	1.9%	Glycopeptides	283	4.2%	2.2%
7	Macrolides	140	4.5%	2.6%	Glycopeptides	66	3.2%	1.7%	Sulfonamides and trimethoprim	276	4.1%	2.2%
8	Antifungals	128	4.1%	2.4%	Quinolones	61	3.0%	1.5%	Carbapenems	246	3.7%	1.9%
9	Imidazoles	113	3.6%	2.1%	Carbapenems	53	2.6%	1.3%	Imidazoles	242	3.6%	1.9%
10	Other	101	3.2%	1.9%	Other	53	2.6%	1.3%	Quinolones	199	3.0%	1.6%
11	Quinolones	101	3.2%	1.9%	Tetracyclines	53	2.6%	1.3%	Aminoglycosides	185	2.8%	1.5%
12	2GCs	85	2.7%	1.6%	Aminoglycosides	52	2.5%	1.3%	Antifungals	185	2.8%	1.5%
13	Imidazoles - oral, rectal	74	2.4%	1.4%	Sulfonamides and trimethoprim	47	2.3%	1.2%	Other	181	2.7%	1.4%
14	Tetracyclines	71	2.3%	1.3%	Lincosamides	44	2.1%	1.1%	Tetracyclines	152	2.3%	1.2%
15	Aminoglycosides	53	1.7%	1.0%	Ext spec penicillins	43	2.1%	1.1%	Imidazoles - oral, rectal	127	1.9%	1.0%
16	Antidiarrhoeals	46	1.5%	0.8%	Beta-lact-S penicillins	38	1.8%	1.0%	Beta-lact-S penicillins	120	1.8%	0.9%
17	Beta-lact-S penicillins	45	1.4%	0.8%	Monobactams	37	1.8%	0.9%	Ext spec penicillins	114	1.7%	0.9%
18	Monobactams	44	1.4%	0.8%	1GCs	35	1.7%	0.9%	1GCs	104	1.5%	0.8%
19	Ext spec penicillins	40	1.3%	0.7%	Imidazoles - oral, rectal	35	1.7%	0.9%	Lincosamides	100	1.5%	0.8%
20	1GCs	36	1.2%	0.7%	Antifungals	20	1.0%	0.5%	Monobactams	83	1.2%	0.7%
21	Lincosamides	34	1.1%	0.6%	Beta-lactamase inhibitors	18	0.9%	0.5%	Antidiarrhoeals	74	1.1%	0.6%
22	Glycopeptides - oral	24	0.8%	0.4%	Glycopeptides - oral	17	0.8%	0.4%	Glycopeptides - oral	43	0.6%	0.3%
23	Antimycobacterials	10	0.3%	0.2%	Antidiarrhoeals	11	0.5%	0.3%	Beta-lactamase inhibitors	20	0.3%	0.2%
24	Polymyxins	6	0.2%	0.1%	Antimycobacterials	4	0.2%	0.1%	Antimycobacterials	16	0.2%	0.1%
25	Combinations	4	0.1%	0.1%	Combinations	2	0.1%	0.1%	Polymyxins	10	0.1%	0.1%
26	Other cephalosporins	2	0.1%	0.0%	Other cephalosporins	1	0.0%	0.0%	Combinations	6	0.1%	0.0%
27					Polymyxins	1	0.0%	0.0%	Other cephalosporins	3	0.0%	0.0%

AM, antimicrobial; n, number of patients prescribed this antimicrobial; %, proportion of all antimicrobial prescribed; Prev, prevalence (%) in the overall population; 1GC/2GC/3GC, 1st/2nd/3rd generation cephalosporins

Appendix E2. AMU prevalence by AM class, by hospital type (primary/paediatric)

Rank	Primary				Paediatric				National			
	AM class	n	%	Prev	AM class	n	%	Prev	AM class	n	%	Prev
1	Penicillins	114	45.6%	17.6%	Penicillins	27	15.1%	8.8%	Penicillins	2,488	37.1%	19.7%
2	Macrolides	27	10.8%	4.2%	3GCs	24	13.4%	7.8%	2GCs	409	6.1%	3.2%
3	Beta-lact-R penicillins	17	6.8%	2.6%	Sulfonamides and trimethoprim	18	10.1%	5.9%	Macrolides	359	5.3%	2.8%
4	3GCs	11	4.4%	1.7%	Ext spec penicillins	16	8.9%	5.2%	3GCs	355	5.3%	2.8%
5	2GCs	10	4.0%	1.5%	Macrolides	15	8.4%	4.9%	Beta-lact-R penicillins	335	5.0%	2.6%
6	Tetracyclines	10	4.0%	1.5%	2GCs	11	6.1%	3.6%	Glycopeptides	283	4.2%	2.2%
7	Quinolones	8	3.2%	1.2%	Antifungals	10	5.6%	3.3%	Sulfonamides and trimethoprim	276	4.1%	2.2%
8	1GCs	7	2.8%	1.1%	1GCs	9	5.0%	2.9%	Carbapenems	246	3.7%	1.9%
9	Carbapenems	7	2.8%	1.1%	Aminoglycosides	8	4.5%	2.6%	Imidazoles	242	3.6%	1.9%
10	Sulfonamides and trimethoprim	7	2.8%	1.1%	Carbapenems	7	3.9%	2.3%	Quinolones	199	3.0%	1.6%
11	Beta-lact-S penicillins	6	2.4%	0.9%	Glycopeptides	6	3.4%	2.0%	Aminoglycosides	185	2.8%	1.5%
12	Antidiarrhoeals	4	1.6%	0.6%	Lincosamides	6	3.4%	2.0%	Antifungals	185	2.8%	1.5%
13	Imidazoles	4	1.6%	0.6%	Beta-lact-R penicillins	5	2.8%	1.6%	Other	181	2.7%	1.4%
14	Aminoglycosides	3	1.2%	0.5%	Other	4	2.2%	1.3%	Tetracyclines	152	2.3%	1.2%
15	Ext spec penicillins	3	1.2%	0.5%	Quinolones	4	2.2%	1.3%	Imidazoles - oral, rectal	127	1.9%	1.0%
16	Other	3	1.2%	0.5%	Antidiarrhoeals	2	1.1%	0.7%	Beta-lact-S penicillins	120	1.8%	0.9%
17	Antifungals	2	0.8%	0.3%	Beta-lact-S penicillins	2	1.1%	0.7%	Ext spec penicillins	114	1.7%	0.9%
18	Glycopeptides	2	0.8%	0.3%	Imidazoles	2	1.1%	0.7%	1GCs	104	1.5%	0.8%
19	Glycopeptides - oral	1	0.4%	0.2%	Imidazoles - oral, rectal	2	1.1%	0.7%	Lincosamides	100	1.5%	0.8%
20	Imidazoles - oral, rectal	1	0.4%	0.2%	Polymyxins	1	0.6%	0.3%	Monobactams	83	1.2%	0.7%
21	Lincosamides	1	0.4%	0.2%					Antidiarrhoeals	74	1.1%	0.6%
22	Monobactams	1	0.4%	0.2%					Glycopeptides - oral	43	0.6%	0.3%
23	Polymyxins	1	0.4%	0.2%					Beta-lactamase inhibitors	20	0.3%	0.2%
24									Antimycobacterials	16	0.2%	0.1%
25									Polymyxins	10	0.1%	0.1%
26									Combinations	6	0.1%	0.0%
27									Other cephalosporins	3	0.0%	0.0%

AM, antimicrobial; n, number of patients prescribed this antimicrobial; %, proportion of all antimicrobial prescribed; Prev, prevalence (%) in the overall population; 1GC/2GC/3GC, 1st/2nd/3rd generation cephalosporins

Appendix E3. AMU prevalence by AM class, by hospital type: specialist and private hospitals

Rank	Specialist				Private				National			
	AM class	n	%	Prev	AM class	n	%	Prev	AM class	n	%	Prev
1	2GCs	61	22.3%	6.4%	Penicillins	275	33.1%	20.5%	Penicillins	2,488	37.1%	19.7%
2	Penicillins	53	19.3%	5.6%	2GCs	160	19.2%	11.9%	2GCs	409	6.1%	3.2%
3	Aminoglycosides	27	9.9%	2.9%	Aminoglycosides	42	5.0%	3.1%	Macrolides	359	5.3%	2.8%
4	Beta-lact-S penicillins	21	7.7%	2.2%	Glycopeptides	40	4.8%	3.0%	3GCs	355	5.3%	2.8%
5	Imidazoles	15	5.5%	1.6%	Macrolides	40	4.8%	3.0%	Beta-lact-R penicillins	335	5.0%	2.6%
6	Antifungals	12	4.4%	1.3%	Beta-lact-R penicillins	39	4.7%	2.9%	Glycopeptides	283	4.2%	2.2%
7	3GCs	11	4.0%	1.2%	3GCs	36	4.3%	2.7%	Sulfonamides and trimethoprim	276	4.1%	2.2%
8	Glycopeptides	9	3.3%	1.0%	Imidazoles	33	4.0%	2.5%	Carbapenems	246	3.7%	1.9%
9	1GCs	8	2.9%	0.8%	Sulfonamides and trimethoprim	31	3.7%	2.3%	Imidazoles	242	3.6%	1.9%
10	Beta-lact-R penicillins	8	2.9%	0.8%	Quinolones	24	2.9%	1.8%	Quinolones	199	3.0%	1.6%
11	Carbapenems	8	2.9%	0.8%	Other	14	1.7%	1.0%	Aminoglycosides	185	2.8%	1.5%
12	Macrolides	7	2.6%	0.7%	Antifungals	13	1.6%	1.0%	Antifungals	185	2.8%	1.5%
13	Other	6	2.2%	0.6%	Tetracyclines	13	1.6%	1.0%	Other	181	2.7%	1.4%
14	Sulfonamides and trimethoprim	6	2.2%	0.6%	Carbapenems	11	1.3%	0.8%	Tetracyclines	152	2.3%	1.2%
15	Ext spec penicillins	5	1.8%	0.5%	Imidazoles - oral, rectal	11	1.3%	0.8%	Imidazoles - oral, rectal	127	1.9%	1.0%
16	Lincosamides	5	1.8%	0.5%	Antidiarrhoeals	10	1.2%	0.7%	Beta-lact-S penicillins	120	1.8%	0.9%
17	Tetracyclines	5	1.8%	0.5%	Lincosamides	10	1.2%	0.7%	Ext spec penicillins	114	1.7%	0.9%
18	Imidazoles - oral, rectal	4	1.5%	0.4%	1GCs	9	1.1%	0.7%	1GCs	104	1.5%	0.8%
19	Antidiarrhoeals	1	0.4%	0.1%	Beta-lact-S penicillins	8	1.0%	0.6%	Lincosamides	100	1.5%	0.8%
20	Polymyxins	1	0.4%	0.1%	Ext spec penicillins	7	0.8%	0.5%	Monobactams	83	1.2%	0.7%
21	Quinolones	1	0.4%	0.1%	Antimycobacterials	2	0.2%	0.1%	Antidiarrhoeals	74	1.1%	0.6%
22					Beta-lactamase inhibitors	2	0.2%	0.1%	Glycopeptides - oral	43	0.6%	0.3%
23					Glycopeptides - oral	1	0.1%	0.1%	Beta-lactamase inhibitors	20	0.3%	0.2%
24					Monobactams	1	0.1%	0.1%	Antimycobacterials	16	0.2%	0.1%
25									Polymyxins	10	0.1%	0.1%
26									Combinations	6	0.1%	0.0%
27									Other cephalosporins	3	0.0%	0.0%

AM, antimicrobial; n, number of patients prescribed this antimicrobial; %, proportion of all antimicrobial prescribed; Prev, prevalence (%) in the overall population; 1GC/2GC/3GC, 1st/2nd/3rd generation cephalosporins

Appendix F. AMU prevalence by specific antimicrobial and hospital type

Appendix F1. AMU prevalence by specific antimicrobial and hospital type: tertiary and secondary hospitals

See protocol for list of antimicrobials along with their respective ATC code.

Rank	Tertiary				Secondary				National			
	Antimicrobial	n	%	Prev	Antimicrobial	n	%	Prev	Antimicrobial	n	%	Prev
1	Piperacillin/ tazobactam	655	21.0%	12.1%	Amoxicillin/ clavulanic acid	460	22.4%	11.5%	Amoxicillin/ clavulanic acid	1,261	18.8%	10.0%
2	Amoxicillin/ clavulanic acid	501	16.0%	9.2%	Piperacillin/ tazobactam	402	19.6%	10.1%	Piperacillin/ tazobactam	1,226	18.3%	9.7%
3	Meropenem	155	5.0%	2.9%	Flucloxacillin	111	5.4%	2.8%	Cefuroxime	403	6.0%	3.2%
4	Flucloxacillin	153	4.9%	2.8%	Ceftriaxone	88	4.3%	2.2%	Flucloxacillin	332	4.9%	2.6%
5	Vancomycin - parenteral	148	4.7%	2.7%	Clarithromycin	85	4.1%	2.1%	Vancomycin - parenteral	262	3.9%	2.1%
6	Sulfamethoxazole/ trimethoprim	136	4.4%	2.5%	Cefuroxime	77	3.7%	1.9%	Ceftriaxone	260	3.9%	2.1%
7	Ceftriaxone	126	4.0%	2.3%	Metronidazole - parenteral	75	3.6%	1.9%	Metronidazole - parenteral	242	3.6%	1.9%
8	Metronidazole - parenteral	113	3.6%	2.1%	Vancomycin - parenteral	60	2.9%	1.5%	Meropenem	238	3.5%	1.9%
9	Cefuroxime	85	2.7%	1.6%	Doxycycline	50	2.4%	1.3%	Clarithromycin	197	2.9%	1.6%
10	Clarithromycin	79	2.5%	1.5%	Meropenem	50	2.4%	1.3%	Sulfamethoxazole/ trimethoprim	192	2.9%	1.5%
11	Ciprofloxacin	78	2.5%	1.4%	Ciprofloxacin	48	2.3%	1.2%	Gentamicin	160	2.4%	1.3%
12	Metronidazole - oral, rectal	74	2.4%	1.4%	Gentamicin	48	2.3%	1.2%	Ciprofloxacin	159	2.4%	1.3%
13	Doxycycline	59	1.9%	1.1%	Clindamycin	44	2.1%	1.1%	Doxycycline	134	2.0%	1.1%
14	Azithromycin	51	1.6%	0.9%	Amoxicillin	42	2.0%	1.1%	Azithromycin	131	2.0%	1.0%
15	Linezolid	48	1.5%	0.9%	Aztreonam	37	1.8%	0.9%	Metronidazole - oral, rectal	127	1.9%	1.0%
16	Aztreonam	44	1.4%	0.8%	Azithromycin	36	1.8%	0.9%	Amoxicillin	106	1.6%	0.8%
17	Amoxicillin	35	1.1%	0.6%	Metronidazole - oral, rectal	35	1.7%	0.9%	Clindamycin	99	1.5%	0.8%
18	Gentamicin	35	1.1%	0.6%	Benzylpenicillin	34	1.7%	0.9%	Benzylpenicillin	98	1.5%	0.8%
19	Clindamycin	33	1.1%	0.6%	Cefalexin	32	1.6%	0.8%	Aztreonam	83	1.2%	0.7%
20	Benzylpenicillin	32	1.0%	0.6%	Nitrofurantoin	27	1.3%	0.7%	Cefalexin	80	1.2%	0.6%
21	Daptomycin	31	1.0%	0.6%	Sulfamethoxazole/ trimethoprim	27	1.3%	0.7%	Linezolid	69	1.0%	0.5%
22	Fluconazole	31	1.0%	0.6%	Tazobactam	18	0.9%	0.5%	Trimethoprim	67	1.0%	0.5%
23	Caspofungin	30	1.0%	0.6%	Trimethoprim	18	0.9%	0.5%	Fluconazole	64	1.0%	0.5%
24	Posaconazole	29	0.9%	0.5%	Vancomycin - oral	17	0.8%	0.4%	Nitrofurantoin	62	0.9%	0.5%
25	Cefalexin	24	0.8%	0.4%	Linezolid	15	0.7%	0.4%	Cefotaxime	61	0.9%	0.5%
26	Cefotaxime	24	0.8%	0.4%	Levofloxacin	13	0.6%	0.3%	Daptomycin	43	0.6%	0.3%
27	Vancomycin - oral	24	0.8%	0.4%	Cefotaxime	10	0.5%	0.3%	Vancomycin - oral	43	0.6%	0.3%

Rank	Tertiary				Secondary				National			
	Antimicrobial	n	%	Prev	Antimicrobial	n	%	Prev	Antimicrobial	n	%	Prev
28	Levofloxacin	23	0.7%	0.4%	Erythromycin	9	0.4%	0.2%	Levofloxacin	40	0.6%	0.3%
29	Trimethoprim	23	0.7%	0.4%	Fluconazole	9	0.4%	0.2%	Rifaximin	37	0.6%	0.3%
30	Nitrofurantoin	22	0.7%	0.4%	Rifaximin	9	0.4%	0.2%	Caspofungin	35	0.5%	0.3%
31	Rifaximin	18	0.6%	0.3%	Daptomycin	7	0.3%	0.2%	Erythromycin	30	0.4%	0.2%
32	Amphotericin B - parenteral	15	0.5%	0.3%	Teicoplanin	6	0.3%	0.2%	Posaconazole	30	0.4%	0.2%
33	Nystatin	15	0.5%	0.3%	Other 2GCs	5	0.2%	0.1%	Cefazolin	24	0.4%	0.2%
34	Anidulafungin	13	0.4%	0.2%	Caspofungin	4	0.2%	0.1%	Nystatin	21	0.3%	0.2%
35	Cefazolin	12	0.4%	0.2%	Other	4	0.2%	0.1%	Tazobactam	20	0.3%	0.2%
36	Ceftazidime	11	0.4%	0.2%	Other 3GCs	4	0.2%	0.1%	Teicoplanin	20	0.3%	0.2%
37	Teicoplanin	11	0.4%	0.2%	Rifampicin	4	0.2%	0.1%	Amphotericin B - parenteral	19	0.3%	0.2%
38	Tigecycline	11	0.4%	0.2%	Cefazolin	3	0.1%	0.1%	Ceftazidime	18	0.3%	0.1%
39	Amikacin	10	0.3%	0.2%	Other carbapenems	3	0.1%	0.1%	Anidulafungin	17	0.3%	0.1%
40	Erythromycin	10	0.3%	0.2%	Phenoxymethyl-penicillin	3	0.1%	0.1%	Other sulf/trim	17	0.3%	0.1%
41	Fidaxomicin	9	0.3%	0.2%	Voriconazole	3	0.1%	0.1%	Other 3GCs	16	0.2%	0.1%
42	Other 3GCs	8	0.3%	0.1%	Amikacin	2	0.1%	0.1%	Tigecycline	14	0.2%	0.1%
43	Other beta-lact sens penicillins	8	0.3%	0.1%	Anidulafungin	2	0.1%	0.1%	Amikacin	12	0.2%	0.1%
44	Other sulf/trim	8	0.3%	0.1%	Ceftazidime	2	0.1%	0.1%	Fidaxomicin	12	0.2%	0.1%
45	Tobramycin	7	0.2%	0.1%	Fidaxomicin	2	0.1%	0.1%	Phenoxymethyl-penicillin	12	0.2%	0.1%
46	Colistin - injection, infusion	6	0.2%	0.1%	Other combinations	2	0.1%	0.1%	Tobramycin	12	0.2%	0.1%
47	Other anti-TB	6	0.2%	0.1%	Other sulf/trim	2	0.1%	0.1%	Voriconazole	11	0.2%	0.1%
48	Other anti-fungals	5	0.2%	0.1%	Other tetracyclines	2	0.1%	0.1%	Colistin - injection, infusion	10	0.1%	0.1%
49	Other carbapenems	5	0.2%	0.1%	Tobramycin	2	0.1%	0.1%	Other beta-lact sens penicillins	10	0.1%	0.1%
50	Other ext spec beta-lact penicillins	5	0.2%	0.1%	Amphotericin B - parenteral	1	0.0%	0.0%	Rifampicin	10	0.1%	0.1%
51	Phenoxymethyl-penicillin	5	0.2%	0.1%	Beta-lactams, penicillins	1	0.0%	0.0%	Other anti-fungals	9	0.1%	0.1%
52	Voriconazole	5	0.2%	0.1%	Colistin - injection, infusion	1	0.0%	0.0%	Other carbapenems	8	0.1%	0.1%
53	Antidiarrhoeals	4	0.1%	0.1%	Other anti-fungals	1	0.0%	0.0%	Other ext spec beta-lact penicillins	8	0.1%	0.1%
54	Other combinations	4	0.1%	0.1%	Other beta-lact sens penicillins	1	0.0%	0.0%	Other	7	0.1%	0.1%
55	Rifampicin	4	0.1%	0.1%	Other cephalosporins	1	0.0%	0.0%	Other 2GCs	6	0.1%	0.0%

Rank	Tertiary				Secondary				National			
	Antimicrobial	n	%	Prev	Antimicrobial	n	%	Prev	Antimicrobial	n	%	Prev
56	Other cephalosporins	2	0.1%	0.0%	Other ext spec beta-lact penicillins	1	0.0%	0.0%	Other anti-TB	6	0.1%	0.0%
57	Aminoglycosides	1	0.0%	0.0%	Tigecycline	1	0.0%	0.0%	Other combinations	6	0.1%	0.0%
58	Beta-lactams, penicillins	1	0.0%	0.0%					Antidiarrhoeals	4	0.1%	0.0%
59	Other glycopeptides	1	0.0%	0.0%					Other tetracyclines	4	0.1%	0.0%
60	Other lincosamides	1	0.0%	0.0%					Beta-lactams, penicillins	3	0.0%	0.0%
61	Other penicillin combinations	1	0.0%	0.0%					Other cephalosporins	3	0.0%	0.0%
62	Other tetracyclines	1	0.0%	0.0%					Aminoglycosides	1	0.0%	0.0%
63									Other glycopeptides	1	0.0%	0.0%
64									Other lincosamides	1	0.0%	0.0%
65									Other macrolides	1	0.0%	0.0%
66									Other penicillin combinations	1	0.0%	0.0%

n, number of patients prescribed this antibiotic; %, proportion of all antibiotics prescribed; Prev, prevalence (%) in the overall population; 2GC/3GC, 2nd/3rd generation cephalosporins

Appendix F2. AMU prevalence by specific antimicrobial, by hospital type: primary and paediatric) hospitals

See protocol for list of antimicrobials along with their respective ATC code.

Rank	Primary				Paediatric				National			
	Antimicrobial	n	%	Prev	Antimicrobial	n	%	Prev	Antimicrobial	n	%	Prev
1	Amoxicillin/ clavulanic acid	67	26.8%	10.3%	Amoxicillin/ clavulanic acid	17	9.5%	5.5%	Amoxicillin/ clavulanic acid	1,261	18.8%	10.0%
2	Piperacillin/ tazobactam	47	18.8%	7.3%	Amoxicillin	16	8.9%	5.2%	Piperacillin/ tazobactam	1,226	18.3%	9.7%
3	Flucloxacillin	17	6.8%	2.6%	Cefotaxime	12	6.7%	3.9%	Cefuroxime	403	6.0%	3.2%
4	Clarithromycin	14	5.6%	2.2%	Ceftriaxone	11	6.1%	3.6%	Flucloxacillin	332	4.9%	2.6%
5	Azithromycin	10	4.0%	1.5%	Cefuroxime	11	6.1%	3.6%	Vancomycin - parenteral	262	3.9%	2.1%
6	Cefuroxime	10	4.0%	1.5%	Piperacillin/ tazobactam	10	5.6%	3.3%	Ceftriaxone	260	3.9%	2.1%
7	Doxycycline	10	4.0%	1.5%	Sulfamethoxazole/ trimethoprim	9	5.0%	2.9%	Metronidazole - parenteral	242	3.6%	1.9%
8	Cefalexin	7	2.8%	1.1%	Azithromycin	8	4.5%	2.6%	Meropenem	238	3.5%	1.9%
9	Meropenem	7	2.8%	1.1%	Trimethoprim	8	4.5%	2.6%	Clarithromycin	197	2.9%	1.6%
10	Benzylpenicillin	6	2.4%	0.9%	Gentamicin	7	3.9%	2.3%	Sulfamethoxazole/ trimethoprim	192	2.9%	1.5%
11	Ceftriaxone	5	2.0%	0.8%	Meropenem	7	3.9%	2.3%	Gentamicin	160	2.4%	1.3%
12	Ciprofloxacin	5	2.0%	0.8%	Cefazolin	6	3.4%	2.0%	Ciprofloxacin	159	2.4%	1.3%
13	Metronidazole - parenteral	4	1.6%	0.6%	Clindamycin	6	3.4%	2.0%	Doxycycline	134	2.0%	1.1%
14	Rifaximin	4	1.6%	0.6%	Erythromycin	6	3.4%	2.0%	Azithromycin	131	2.0%	1.0%
15	Cefotaxime	3	1.2%	0.5%	Flucloxacillin	5	2.8%	1.6%	Metronidazole - oral, rectal	127	1.9%	1.0%
16	Levofloxacin	3	1.2%	0.5%	Fluconazole	5	2.8%	1.6%	Amoxicillin	106	1.6%	0.8%
17	Nitrofurantoin	3	1.2%	0.5%	Vancomycin - parenteral	5	2.8%	1.6%	Clindamycin	99	1.5%	0.8%
18	Sulfamethoxazole/ trimethoprim	3	1.2%	0.5%	Ciprofloxacin	4	2.2%	1.3%	Benzylpenicillin	98	1.5%	0.8%
19	Trimethoprim	3	1.2%	0.5%	Amphotericin B - parenteral	3	1.7%	1.0%	Aztreonam	83	1.2%	0.7%
20	Amoxicillin	2	0.8%	0.3%	Cefalexin	3	1.7%	1.0%	Cefalexin	80	1.2%	0.6%
21	Erythromycin	2	0.8%	0.3%	Linezolid	2	1.1%	0.7%	Linezolid	69	1.0%	0.5%
22	Fluconazole	2	0.8%	0.3%	Metronidazole - oral, rectal	2	1.1%	0.7%	Trimethoprim	67	1.0%	0.5%
23	Other 3GCs	2	0.8%	0.3%	Metronidazole - parenteral	2	1.1%	0.7%	Fluconazole	64	1.0%	0.5%
24	Tobramycin	2	0.8%	0.3%	Nitrofurantoin	2	1.1%	0.7%	Nitrofurantoin	62	0.9%	0.5%
25	Vancomycin - parenteral	2	0.8%	0.3%	Nystatin	2	1.1%	0.7%	Cefotaxime	61	0.9%	0.5%
26	Aztreonam	1	0.4%	0.2%	Phenoxymethyl-penicillin	2	1.1%	0.7%	Daptomycin	43	0.6%	0.3%

Rank	Primary				Paediatric				National			
	Antimicrobial	n	%	Prev	Antimicrobial	n	%	Prev	Antimicrobial	n	%	Prev
27	Ceftazidime	1	0.4%	0.2%	Ceftazidime	1	0.6%	0.3%	Vancomycin - oral	43	0.6%	0.3%
28	Clindamycin	1	0.4%	0.2%	Clarithromycin	1	0.6%	0.3%	Levofloxacin	40	0.6%	0.3%
29	Colistin - injection, infusion	1	0.4%	0.2%	Colistin - injection, infusion	1	0.6%	0.3%	Rifaximin	37	0.6%	0.3%
30	Gentamicin	1	0.4%	0.2%	Other sulf/trim	1	0.6%	0.3%	Caspofungin	35	0.5%	0.3%
31	Metronidazole - oral, rectal	1	0.4%	0.2%	Posaconazole	1	0.6%	0.3%	Erythromycin	30	0.4%	0.2%
32	Other ext spec beta-lact penicillins	1	0.4%	0.2%	Teicoplanin	1	0.6%	0.3%	Posaconazole	30	0.4%	0.2%
33	Other macrolides	1	0.4%	0.2%	Tobramycin	1	0.6%	0.3%	Cefazolin	24	0.4%	0.2%
34	Other sulf/trim	1	0.4%	0.2%	Voriconazole	1	0.6%	0.3%	Nystatin	21	0.3%	0.2%
35	Vancomycin - oral	1	0.4%	0.2%					Tazobactam	20	0.3%	0.2%
36									Teicoplanin	20	0.3%	0.2%
37									Amphotericin B - parenteral	19	0.3%	0.2%
38									Ceftazidime	18	0.3%	0.1%
39									Anidulafungin	17	0.3%	0.1%
40									Other sulf/trim	17	0.3%	0.1%
41									Other 3GCs	16	0.2%	0.1%
42									Tigecycline	14	0.2%	0.1%
43									Amikacin	12	0.2%	0.1%
44									Fidaxomicin	12	0.2%	0.1%
45									Phenoxymethyl-penicillin	12	0.2%	0.1%
46									Tobramycin	12	0.2%	0.1%
47									Voriconazole	11	0.2%	0.1%
48									Colistin - injection, infusion	10	0.1%	0.1%
49									Other beta-lact sens penicillins	10	0.1%	0.1%
50									Rifampicin	10	0.1%	0.1%
51									Other anti-fungals	9	0.1%	0.1%
52									Other carbapenems	8	0.1%	0.1%
53									Other ext spec beta-lact penicillins	8	0.1%	0.1%
54									Other	7	0.1%	0.1%

Rank	Primary				Paediatric				National			
	Antimicrobial	n	%	Prev	Antimicrobial	n	%	Prev	Antimicrobial	n	%	Prev
55									Other 2GCs	6	0.1%	0.0%
56									Other anti-TB	6	0.1%	0.0%
57									Other combinations	6	0.1%	0.0%
58									Antidiarrhoeals	4	0.1%	0.0%
59									Other tetracyclines	4	0.1%	0.0%
60									Beta-lactams, penicillins	3	0.0%	0.0%
61									Other cephalosporins	3	0.0%	0.0%
62									Aminoglycosides	1	0.0%	0.0%
63									Other glycopeptides	1	0.0%	0.0%
64									Other lincosamides	1	0.0%	0.0%
65									Other macrolides	1	0.0%	0.0%
66									Other penicillin combinations	1	0.0%	0.0%

n, number of patients prescribed this antibiotic; %, proportion of all antibiotics prescribed; Prev, prevalence (%) in the overall population; 2GC/3GC, 2nd/3rd generation cephalosporins

Appendix F3. AMU prevalence by specific antimicrobial, by hospital type: specialist and private hospitals

See protocol for list of antimicrobials along with their respective ATC code.

Rank	Specialist				Private				National			
	Antimicrobial	n	%	Prev	Antimicrobial	n	%	Prev	Antimicrobial	n	%	Prev
1	Cefuroxime	61	22.3%	6.4%	Amoxicillin/ clavulanic acid	176	21.2%	13.1%	Amoxicillin/ clavulanic acid	1,261	18.8%	10.0%
2	Amoxicillin/ clavulanic acid	40	14.6%	4.2%	Cefuroxime	159	19.1%	11.8%	Piperacillin/ tazobactam	1,226	18.3%	9.7%
3	Gentamicin	27	9.9%	2.9%	Piperacillin/ tazobactam	99	11.9%	7.4%	Cefuroxime	403	6.0%	3.2%
4	Benzylpenicillin	20	7.3%	2.1%	Gentamicin	42	5.0%	3.1%	Flucloxacillin	332	4.9%	2.6%
5	Metronidazole - parenteral	15	5.5%	1.6%	Flucloxacillin	38	4.6%	2.8%	Vancomycin - parenteral	262	3.9%	2.1%
6	Piperacillin/ tazobactam	13	4.7%	1.4%	Vancomycin - parenteral	38	4.6%	2.8%	Ceftriaxone	260	3.9%	2.1%
7	Fluconazole	9	3.3%	1.0%	Metronidazole - parenteral	33	4.0%	2.5%	Metronidazole - parenteral	242	3.6%	1.9%
8	Vancomycin - parenteral	9	3.3%	1.0%	Ceftriaxone	23	2.8%	1.7%	Meropenem	238	3.5%	1.9%
9	Cefalexin	8	2.9%	0.8%	Ciprofloxacin	23	2.8%	1.7%	Clarithromycin	197	2.9%	1.6%
10	Flucloxacillin	8	2.9%	0.8%	Azithromycin	22	2.6%	1.6%	Sulfamethoxazole/ trimethoprim	192	2.9%	1.5%
11	Meropenem	8	2.9%	0.8%	Clarithromycin	17	2.0%	1.3%	Gentamicin	160	2.4%	1.3%
12	Ceftriaxone	7	2.6%	0.7%	Sulfamethoxazole/ trimethoprim	15	1.8%	1.1%	Ciprofloxacin	159	2.4%	1.3%
13	Amoxicillin	5	1.8%	0.5%	Trimethoprim	13	1.6%	1.0%	Doxycycline	134	2.0%	1.1%
14	Clindamycin	5	1.8%	0.5%	Doxycycline	11	1.3%	0.8%	Azithromycin	131	2.0%	1.0%
15	Azithromycin	4	1.5%	0.4%	Meropenem	11	1.3%	0.8%	Metronidazole - oral, rectal	127	1.9%	1.0%
16	Doxycycline	4	1.5%	0.4%	Metronidazole - oral, rectal	11	1.3%	0.8%	Amoxicillin	106	1.6%	0.8%
17	Metronidazole - oral, rectal	4	1.5%	0.4%	Clindamycin	10	1.2%	0.7%	Clindamycin	99	1.5%	0.8%
18	Cefotaxime	3	1.1%	0.3%	Cefotaxime	9	1.1%	0.7%	Benzylpenicillin	98	1.5%	0.8%
19	Daptomycin	3	1.1%	0.3%	Fluconazole	8	1.0%	0.6%	Aztreonam	83	1.2%	0.7%
20	Erythromycin	2	0.7%	0.2%	Amoxicillin	6	0.7%	0.4%	Cefalexin	80	1.2%	0.6%
21	Nitrofurantoin	2	0.7%	0.2%	Benzylpenicillin	6	0.7%	0.4%	Linezolid	69	1.0%	0.5%
22	Other anti-fungals	2	0.7%	0.2%	Cefalexin	6	0.7%	0.4%	Trimethoprim	67	1.0%	0.5%
23	Other sulf/trim	2	0.7%	0.2%	Nitrofurantoin	6	0.7%	0.4%	Fluconazole	64	1.0%	0.5%
24	Sulfamethoxazole/ trimethoprim	2	0.7%	0.2%	Rifaximin	6	0.7%	0.4%	Nitrofurantoin	62	0.9%	0.5%
25	Trimethoprim	2	0.7%	0.2%	Cefazolin	3	0.4%	0.2%	Cefotaxime	61	0.9%	0.5%
26	Ceftazidime	1	0.4%	0.1%	Linezolid	3	0.4%	0.2%	Daptomycin	43	0.6%	0.3%
27	Ciprofloxacin	1	0.4%	0.1%	Nystatin	3	0.4%	0.2%	Vancomycin - oral	43	0.6%	0.3%
28	Clarithromycin	1	0.4%	0.1%	Other	3	0.4%	0.2%	Levofloxacin	40	0.6%	0.3%

Rank	Specialist				Private				National			
	Antimicrobial	n	%	Prev	Antimicrobial	n	%	Prev	Antimicrobial	n	%	Prev
29	Colistin - injection, infusion	1	0.4%	0.1%	Other sulf/trim	3	0.4%	0.2%	Rifaximin	37	0.6%	0.3%
30	Linezolid	1	0.4%	0.1%	Anidulafungin	2	0.2%	0.1%	Caspofungin	35	0.5%	0.3%
31	Nystatin	1	0.4%	0.1%	Ceftazidime	2	0.2%	0.1%	Erythromycin	30	0.4%	0.2%
32	Phenoxymethyl-penicillin	1	0.4%	0.1%	Daptomycin	2	0.2%	0.1%	Posaconazole	30	0.4%	0.2%
33	Tigecycline	1	0.4%	0.1%	Other 3GCs	2	0.2%	0.1%	Cefazolin	24	0.4%	0.2%
34	Voriconazole	1	0.4%	0.1%	Rifampicin	2	0.2%	0.1%	Nystatin	21	0.3%	0.2%
35					Tazobactam	2	0.2%	0.1%	Tazobactam	20	0.3%	0.2%
36					Teicoplanin	2	0.2%	0.1%	Teicoplanin	20	0.3%	0.2%
37					Aztreonam	1	0.1%	0.1%	Amphotericin B - parenteral	19	0.3%	0.2%
38					Beta-lactams, penicillins	1	0.1%	0.1%	Ceftazidime	18	0.3%	0.1%
39					Caspofungin	1	0.1%	0.1%	Anidulafungin	17	0.3%	0.1%
40					Erythromycin	1	0.1%	0.1%	Other sulf/trim	17	0.3%	0.1%
41					Fidaxomicin	1	0.1%	0.1%	Other 3GCs	16	0.2%	0.1%
42					Levofloxacin	1	0.1%	0.1%	Tigecycline	14	0.2%	0.1%
43					Other 2GCs	1	0.1%	0.1%	Amikacin	12	0.2%	0.1%
44					Other anti-fungals	1	0.1%	0.1%	Fidaxomicin	12	0.2%	0.1%
45					Other beta-lact sens penicillins	1	0.1%	0.1%	Phenoxymethyl-penicillin	12	0.2%	0.1%
46					Other ext spec beta-lact penicillins	1	0.1%	0.1%	Tobramycin	12	0.2%	0.1%
47					Other tetracyclines	1	0.1%	0.1%	Voriconazole	11	0.2%	0.1%
48					Phenoxymethyl-penicillin	1	0.1%	0.1%	Colistin - injection, infusion	10	0.1%	0.1%
49					Tigecycline	1	0.1%	0.1%	Other beta-lact sens penicillins	10	0.1%	0.1%
50					Vancomycin - oral	1	0.1%	0.1%	Rifampicin	10	0.1%	0.1%
51					Voriconazole	1	0.1%	0.1%	Other anti-fungals	9	0.1%	0.1%
52									Other carbapenems	8	0.1%	0.1%
53									Other ext spec beta-lact penicillins	8	0.1%	0.1%
54									Other	7	0.1%	0.1%
55									Other 2GCs	6	0.1%	0.0%
56									Other anti-TB	6	0.1%	0.0%

Rank	Specialist				Private				National			
	Antimicrobial	n	%	Prev	Antimicrobial	n	%	Prev	Antimicrobial	n	%	Prev
57									Other combinations	6	0.1%	0.0%
58									Antidiarrhoeals	4	0.1%	0.0%
59									Other tetracyclines	4	0.1%	0.0%
60									Beta-lactams, penicillins	3	0.0%	0.0%
61									Other cephalosporins	3	0.0%	0.0%
62									Aminoglycosides	1	0.0%	0.0%
63									Other glycopeptides	1	0.0%	0.0%
64									Other lincosamides	1	0.0%	0.0%
65									Other macrolides	1	0.0%	0.0%
66									Other penicillin combinations	1	0.0%	0.0%

n, number of patients prescribed this antibiotic; %, proportion of all antibiotics prescribed; Prev, prevalence (%) in the overall population; 2GC/3GC, 2nd/3rd generation cephalosporins

Appendix G. Summary of HAI and AMU prevalence by hospital type, with boxplots

Appendix G1. HAI and AMU prevalence by hospital type

Hospital type	N patients	N with HAI	HAI prevalence	N with AMU	AMU prevalence
Tertiary	5,420	486	9.0%	2,280	42.1%
Secondary	3,986	287	7.2%	1,613	40.5%
Private	1,343	55	4.1%	646	48.1%
Specialist	946	49	5.2%	204	21.6%
Primary	648	39	6.0%	217	33.5%
Paediatric	307	16	5.2%	127	41.4%

Appendix G2. Boxplot of HAI and AMU prevalence by hospital type