Swiss Point Prevalence Survey 2025: Healthcare-Associated Infections and Antimicrobial Use

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Abbreviations

ANRESIS	Swiss Centre for Antibiotic Resistance
AU	Antimicrobial use
BSI	Bloodstream infection
CABSI	Catheter-associated bloodstream infection
CAUTI	Catheter-associated urinary tract infection
CDI	Clostridioides difficile infection
COVID-19	Coronavirus disease
CH	Switzerland
CI*	Confidence interval
CLABSI	Central line-associated bloodstream infection
CVC	Central venous catheter
FOPH	Federal Office of Public Health
HAI	Healthcare-associated infection
ICU	Intensive care unit
IPC	Infection Prevention and Control
LRTI	Lower respiratory tract infection
NEO	Neonatal infection
PPS	Point Prevalence Survey
PVC	Peripheral venous catheter
SSI	Surgical site infection
SYS	Systemic infection
UTI	Urinary tract infection
VAP	Ventilator-associated pneumonia

*Unless otherwise specified all confidence intervals are 95% confidence intervals

1. Executive Summary

Switzerland has conducted yearly point prevalence surveys (PPS) since 2017, apart from 2020 due to the COVID-19 pandemic. Participation in the 2025 PPS was voluntary and free of charge for the hospitals due to the generous financial support from the Federal Office of Public Health. Participation has remained stable since the last national survey in 2022 with 97 hospitals and 12265 patients included in the overall analysis. Comparisons to previous years are made for all participating hospitals and the subset of hospitals participating in both national surveys (2017 and 2022) and 2025 (53 hospitals). Comparison with hospitals participating in all previous surveys was not done due to the low number of hospitals (only 9 hospitals have taken part each year since 2017).

2025 was the second year the Minimum Standards survey was done as part of the PPS. This survey defines seven key components for Infection Prevention: Guidelines, Material and Equipment, IPC Organization, Education and Training, Audit and Monitoring, Surveillance and Outbreaks, and HAI prevention. The data from the two years was combined. In total, 113 hospitals have completed this survey.

HAI

648 out of 12265 patients were diagnosed with at least one HAI leading to an overall prevalence of 5.3% (4.9-5.7%). When data from hospitals participating in both national surveys and 2025 were analyzed, the overall HAI prevalence was 5.8% (5.4-6.4%).

The prevalence of patients with one or more HAI has remained stable since 2017, even through the pandemic and the increasing complexity of inpatients.

Antimicrobial use (AU)

Approximately 34.8% of all patients were treated with one or more antimicrobials (CI (34, 35.6)), consistent with estimates from previous years but trending upwards. When including only hospitals participating in both national surveys and 2025 are included, the prevalence is higher in 2025 compared to the prior years (35.7% compared to 33.8% and 33%). However, this could be due to the added collection of anti-viral agents since 2024.

Minimum Standards

The average weighted score was 56.3569322 (CI: 54.6-58.1) points out of a maximum of 70 achievable points. These minimum standards scores can help hospitals understand how to improve their IPC programmes with the objective to prevent HAI.

2. PPS methodology and organisation

2.1 Objectives and methods

The objectives and methods were the same as in the previous year, and no significant changes have been made to the protocol [1].

This year the analysis included the predicted antimicrobial use, which is calculated by adjusting the antimicrobial use for McCabe Score, Age, Gender, Patient Specialty, Hospital Size, Hospital Type, and length of stay [2]. A lower predicted than measured use suggests more antimicrobials are being used than would be expected from the case mix.

2.2 Material and train-the-trainer courses

As in previous years, the training courses were organized online in both German and French. All materials were available on the Swissnoso website and protocol changes were highlighted during the training sessions.

2.3 Data management

The PPS-period started from 1 April and ended on 30 June; data could be collected until July 2025. Hospitals could choose to enter data into the database either manually or automatically using specifications provided by the coordinating centre. As in the previous year, automatic import was facilitated by a direct upload option in the database. Hospitals could download their data (without benchmarking) in different formats (HTML, CSV, pdf). The data were analysed using R version 4.5.1. [3].

Data downloaded from the Charité database is anonymous and stored on the firewall-protected University Hospital of Zürich servers. Data can only be accessed from within the hospital network.

3. Implementation

3.1 List of Participating Hospitals

97 participated in the survey. Table 1 summarises the hospitals by Canton and Institution name.

Table 1: Participating hospitals by Canton

Canton	Hospital Name	Canton	Hospital Name
AG	Kantonsspital Aarau AG	OW	Kantonsspital Obwalden
	Kantonsspital Baden AG	SH	Spitäler Schaffhausen
	Gesundheitszentrum Fricktal AG	SO	Solothurner Spitäler AG Bürgerspital Solothurn
	Gesundheitszentrum Fricktal AG		Solothurner Spitäler AG Olten
	Spital Muri		Solothurner Spitäler AG Dornach
	Spital Zofingen AG	SZ	Spital Lachen AG

Canton	Hospital Name	Canton	Hospital Name
	Asana Gruppe AG		Spital Schwyz
	Asana Gruppe AG	TG	Spital Thurgau AG Münsterlingen
	Hirslanden Klinik Aarau		Spital Thurgau AG Frauenfeld
	Klinik Villa im Park	TI	Ospedale Regionale di Lugano Civico
BE	Insel Gruppe AG Inselspital		Ospedale Regionale Bellinzona e Valli Bellinzona
	Regionalspital Emmental AG Burgdorf		Ospedale Regionale di Locarno
	SRO AG Langenthal		Ospedeale Regionale di Mendrisio
	Spitäler FMI AG Unterseen/Interlaken		Ospedale Regionale di Lugano
	Spitäler FMI AG Frutigen		Fondazione Cardiocentro Ticino
	Hôpital de Saint-Imier		Clinica Moncucco
	Hôpital de Moutier		Clinica Santa Chiara SA
	Lindenhofgruppe Bern Lindenhofspital	UR	Kantonsspital Uri
	Lindenhofgruppe Sonnenhofspital	VD	Centre Hospitalier Universitaire Vaudois
BL	Klinik Arlesheim AG		Etablissements Hospitaliers du Nord Vaudois Yverdon-les-Bains
BS	Universitätsspital Basel		Etablissements Hospitaliers du Nord Vaudois St-Loup
	St. Claraspital		Ensemble Hospitalier de la Côte
	Universitäts-Kinderspital beider Basel UKBB		Hôpital Riviera-Chablais
	Bethesda Spital AG		Groupement Hospitalier de l'Ouest Lémanique
	Felix Platter-Spital		Hôpital intercantonal de La Broye HIB
	Merian Iselin Klinik für Orthopädie und Chirurgie		Hôpital du Pays-d'Enhaut
	REHAB Basel		Réseau Santé Balcon du Jura.vd
	Adullam Spital/Pflegezentrum Basel		Hôpital de Rolle
	Adullam Spital/Pflegezentren Riehen		Clinique Bois-Cerf
FR	HFR Fribourg		Clinique de La Source
	Hôpital Daler		Clinique Cecil SA
GE	Hôpitaux universitaires de Genève		Clinique CIC Montreux
	La Tour Réseau de Soins SA Hôpital de La Tour		Pôle Santé Vallée de Joux
	Clinique Générale-Beaulieu	VS	Hôpital du Valais
	Clinique des Grangettes		Clinique de Valère

Canton	Hospital Name	Canton	Hospital Name
	Clinique La Colline		Clinique CIC Saxon
GL	Kantonsspital Glarus AG	ZG	Hirslanden AndreasKlinik Cham Zug
GR	Spital Oberengadin	ZH	UniversitätsSpital Zürich
	Spital Thusis		Universitätsklinik Balgrist
	Flury Stiftung Spital Schiers		Kantonsspital Winterthur
	Center da sandà Val Müstair		Spitalverband Limmattal
	Klinik Gut Fläsch		Spital Wetzikon
JU	Hôpital du Jura Delémont		Spital Bülach AG
LU	Luzerner Kantonsspital Luzern		Kinderspital Zürich - Eleonorenstiftung
	Luzerner Kantonsspital Sursee		Spital Männedorf AG
	Luzerner Kantonsspital Wolhusen		Spital Affoltern
	Hirslanden Klinik St. Anna AG		Privatklinik Bethanien
NE	Clinique Montbrillant		Paracelsus-Spital Richterswil AG
NW	Kantonsspital Nidwalden		

4. Results

4.1 Hospital characteristics and most relevant indicators

A total of 97 hospitals participated in the PPS with 12265 patients. This included 70 small-size, 21 medium-sized and 6 large-size hospitals. 5 University hospitals participated this year. There were 44 primary, 28 secondary, 11 tertiary, 12 specialized, and 2 free-standing paediatric hospitals. Table 2 summarises details from the participating hospitals.

Table 2: Characteristics of hospitals participating in PPS 2025

	Hospitals, N	Patients, N
Total	97	12,265
Large hospitals (>650 beds)	6	4,119
Medium hospitals (200-650 beds)	21	4,137
Small hospitals (<200 beds)	70	4,009
University hospitals	5	3,780
Primary hospitals	44	2,996
Secondary hospitals	28	3,439
Tertiary hospitals	11	4,874
Specialized hospitals	12	808
Pediatric hospitals	2	148
Public hospitals	48	8,878
Private non-for-profit hospitals	31	2,161
Private for-profit hospitals	17	1,143

4.2 Healthcare-associated infections

The total HAI prevalence was 5.3% (4.9-5.7%). Of these 4.4% (4-4.8%) were attributable to the hospital and 3.3% (3-3.6%) occurred during the current hospital stay.

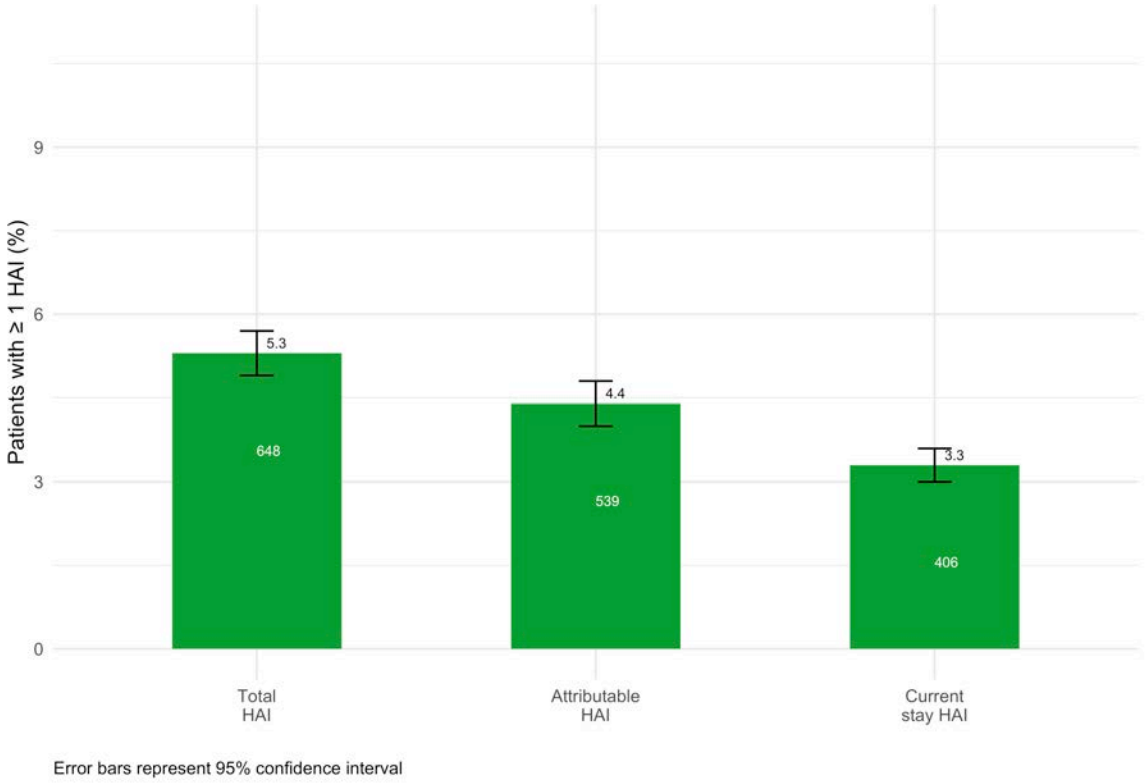


Figure 1: HAI prevalence in all participating hospitals (2025)

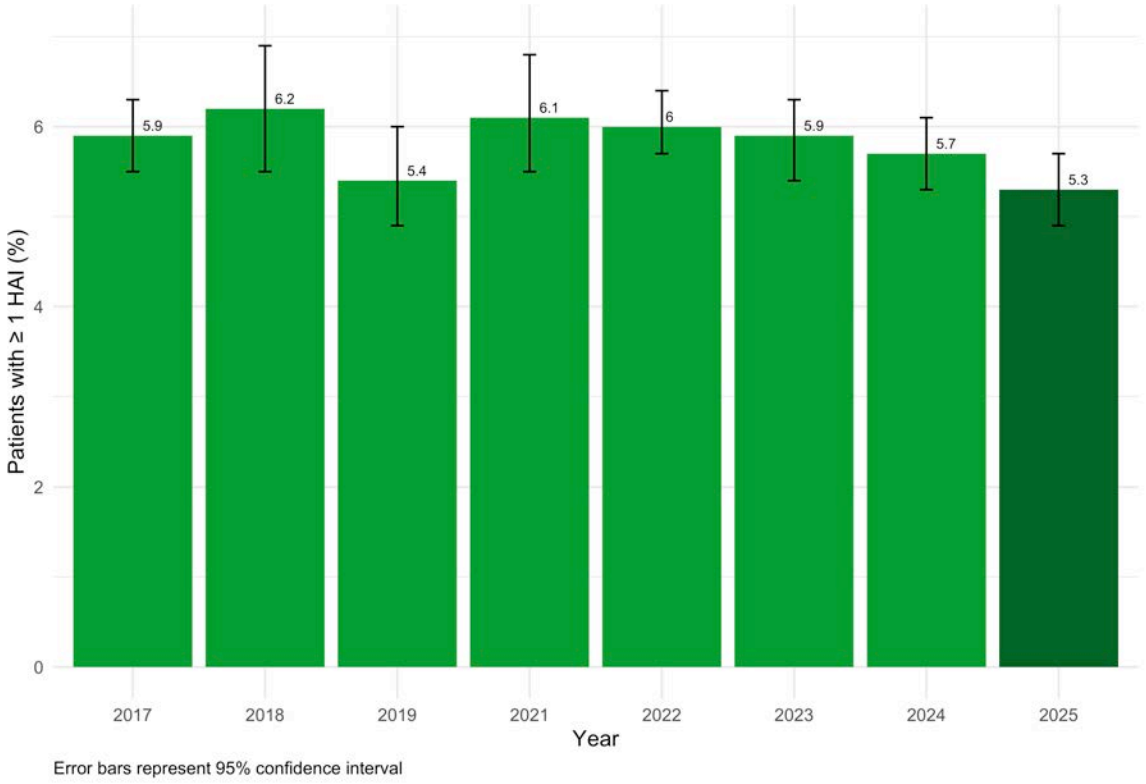


Figure 2: HAI prevalence in all participating hospitals over time

Figure 2 summarizes the trend of HAI prevalence since 2017 in all participating hospitals. No significant changes in HAI rate can be observed, although the prevalence has been trending down since 2021.

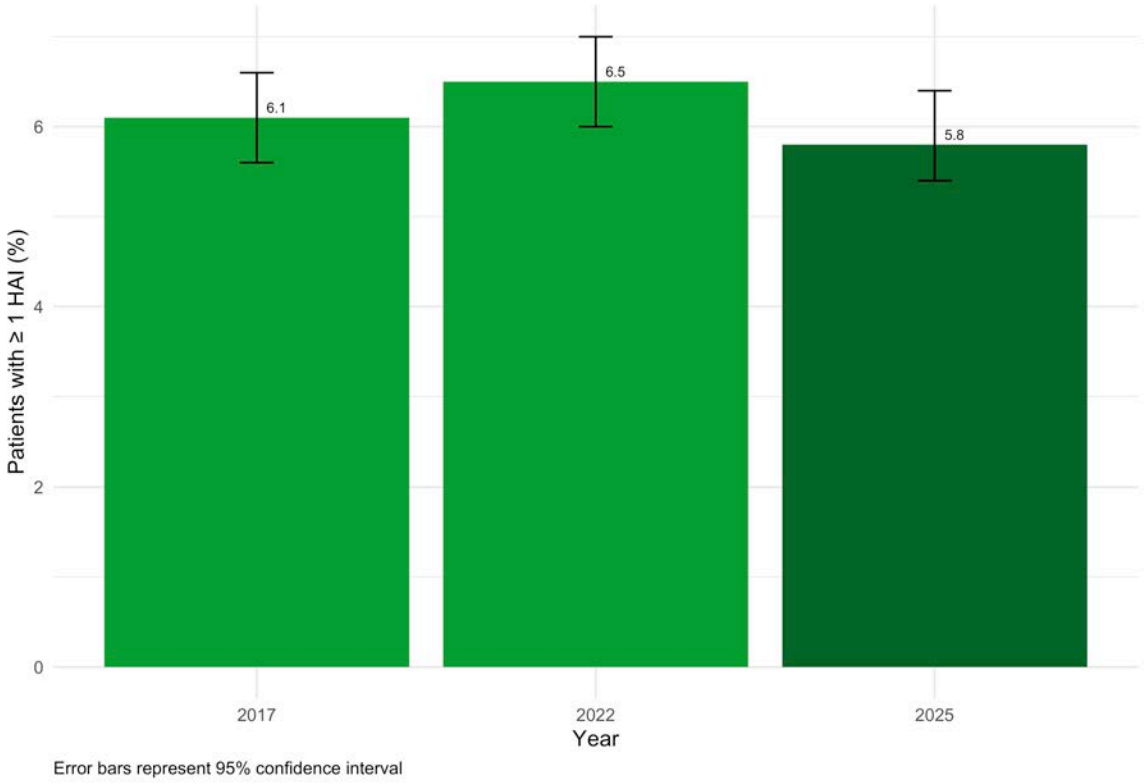


Figure 3: HAI prevalence over time including hospitals participating in both national surveys and 2025

Due to the small number of hospitals participating consistently since 2017, comparisons were made for the hospitals participating in both national surveys in 2017 and 2022, and in 2025 (N = 53 hospitals). Figure 3 shows no significant trends.

4.3 HAI prevalence by intrinsic factors

The HAI prevalence by intrinsic patient-related risk factors identified similar trends to previous years(increased risk for male sex, with increasing age, and for poorer prognosis (ultimately and rapidly fatal outcomes by the McCabe score). (See Figure 4)

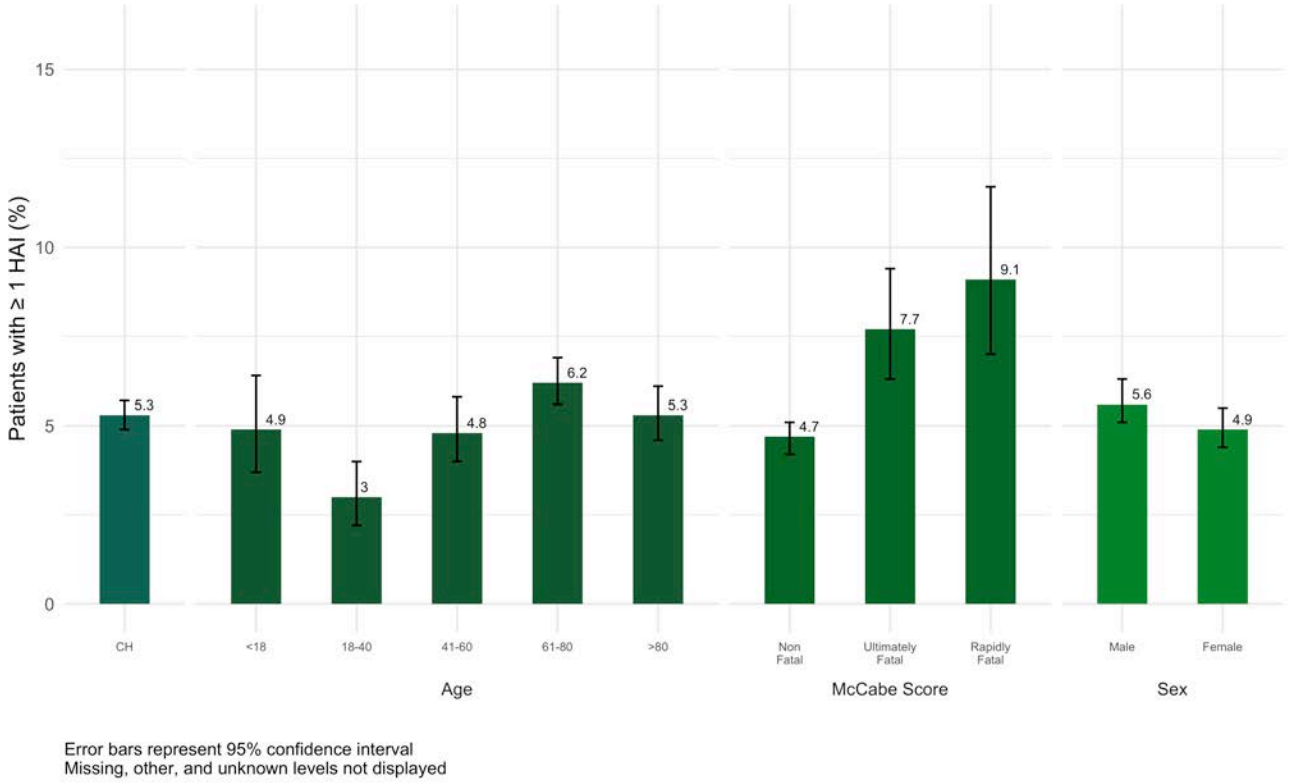


Figure 4: HAI prevalence by intrinsic risk factors (all hospitals)

4.4 HAI Prevalence by Hospital Factors

The HAI prevalence was also analyzed by hospital size, type, ownership, and university affiliation (Figure 5). Differences are largely due to patient differences and type of care provided as university and tertiary hospitals tend to have more complex cases and higher intensive care capacity.

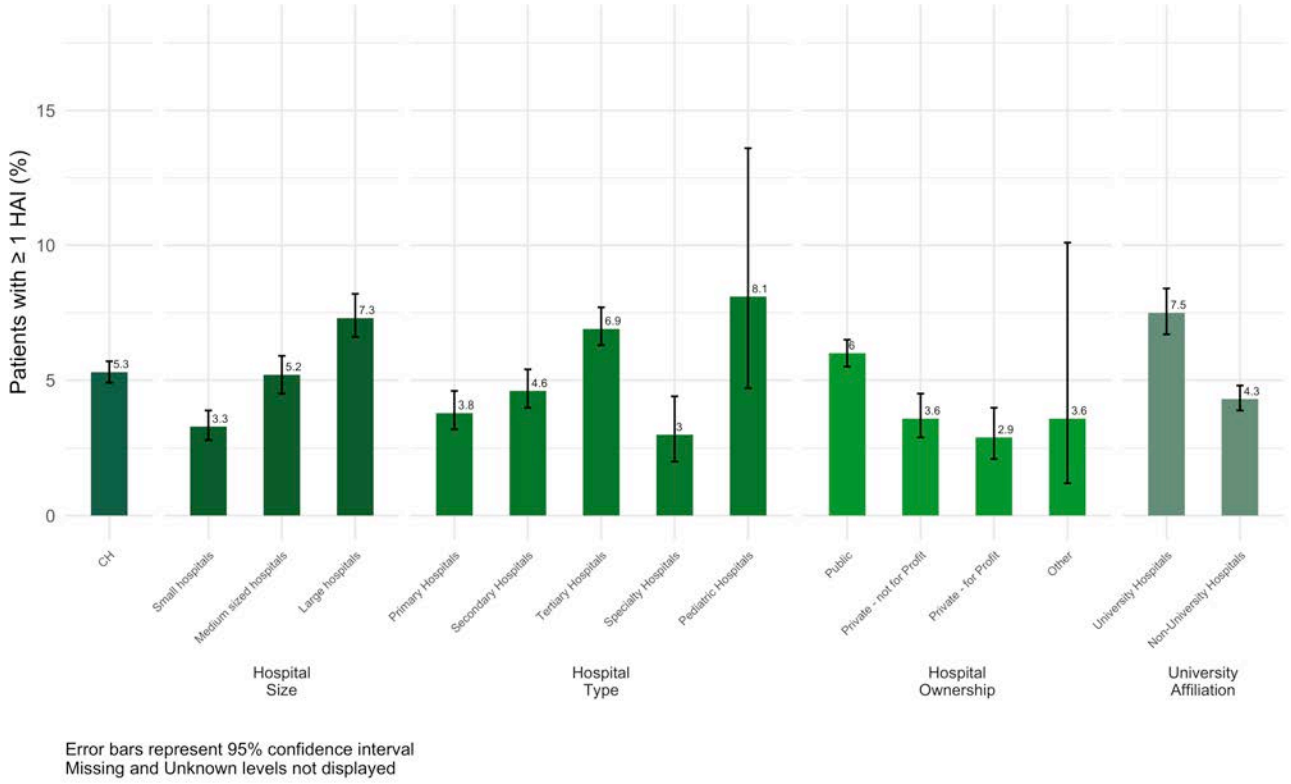


Figure 5: HAI prevalence by hospital size, type, ownership, and university affiliation

4.5 HAI Prevalence by Specialty

Similar to last year, intensive care has the highest and obstetrics and gynecology and psychiatry have the lowest HAI prevalence (6). Patients in intensive care are complex with higher risk of fatal outcome whereas in obstetrics and gynecology they are younger and have fewer comorbidities.

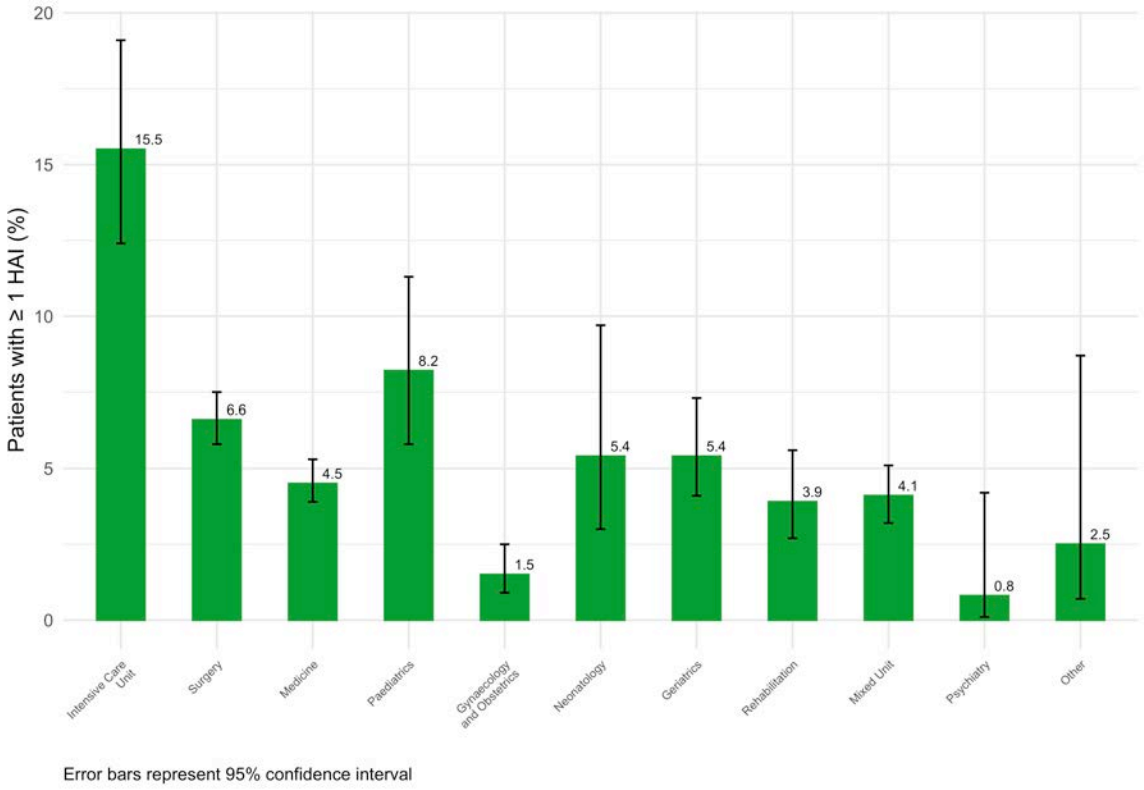


Figure 6: HAI prevalence by ward specialty

4.6 Device Associated Infections

Figure 7 provides an overview of HAIs associated with surgery or invasive devices such as intravascular catheters, urinary catheters, and mechanical ventilation. Surgical site infections (SSI) are calculated as the number of surgical site infections occurring during present hospital stay as a proportion of NHSN (National Healthcare Safety Network) surgeries during current hospital stay and the devices associated infections are calculated as the number of infections as a proportion of patients with relevant devices in place on the day of survey.

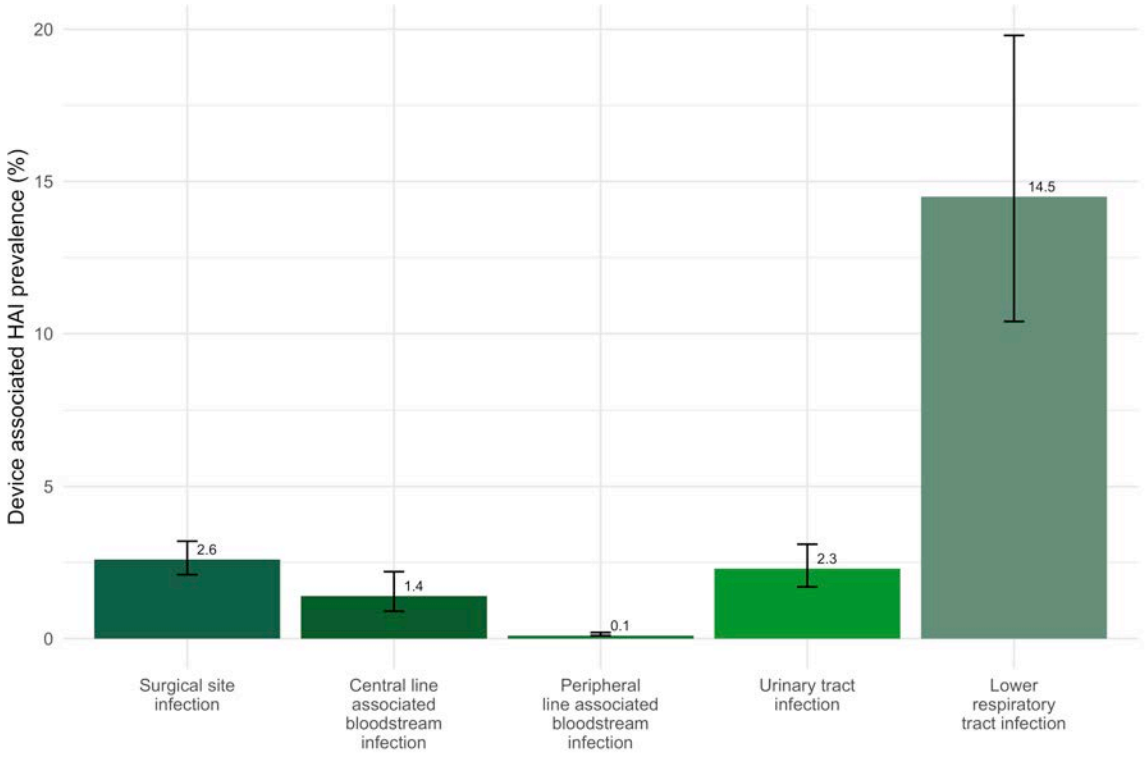


Figure 7: SSI and device-associated HAI prevalence in patients underwent surgery during or with devices during the current stay

4.7 HAI Distribution

The most common infection types are surgical site infections, lower respiratory tract infections, urinary tract infections, and bloodstream infections. The distribution of infections remained consistent (See Figures 8 and 9). Figures 10 and 11 include hospitals participating in both national surveys and 2025.

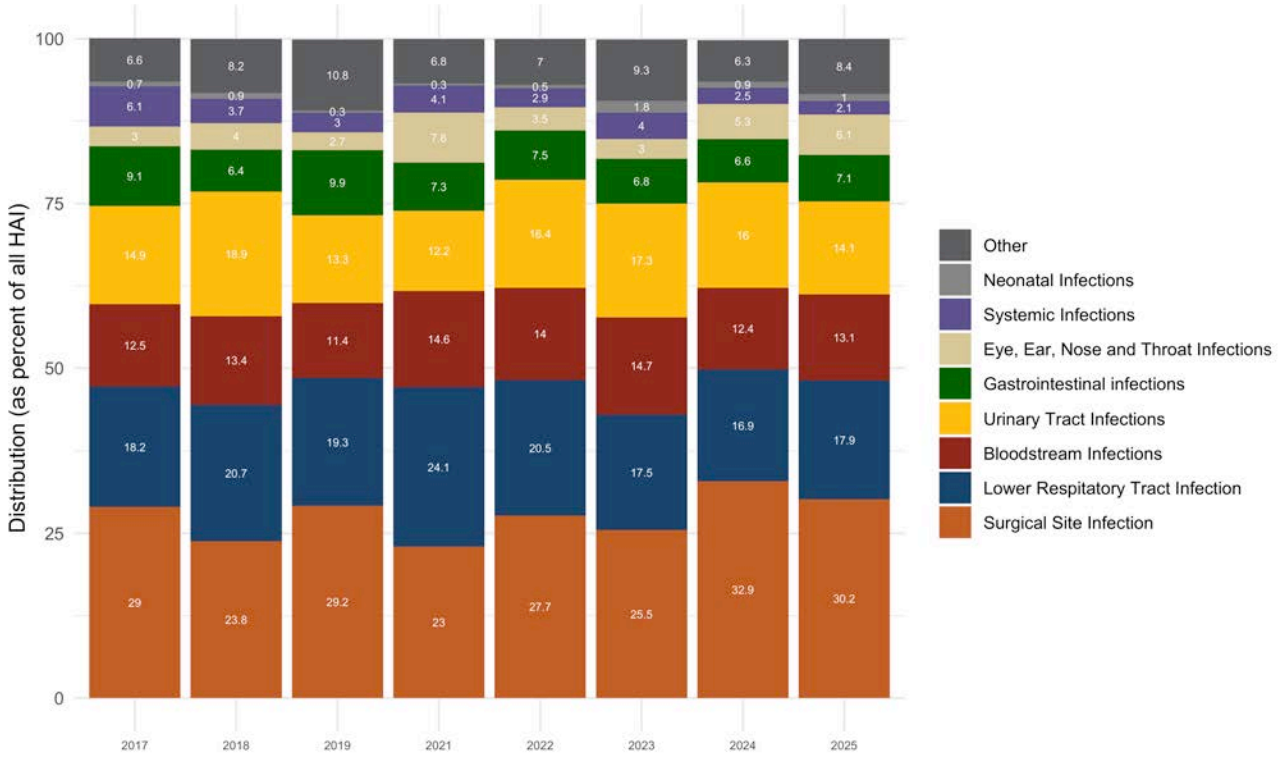


Figure 8: Distribution of HAI types (as percent of all HAI) in all participating hospitals 2017-2025

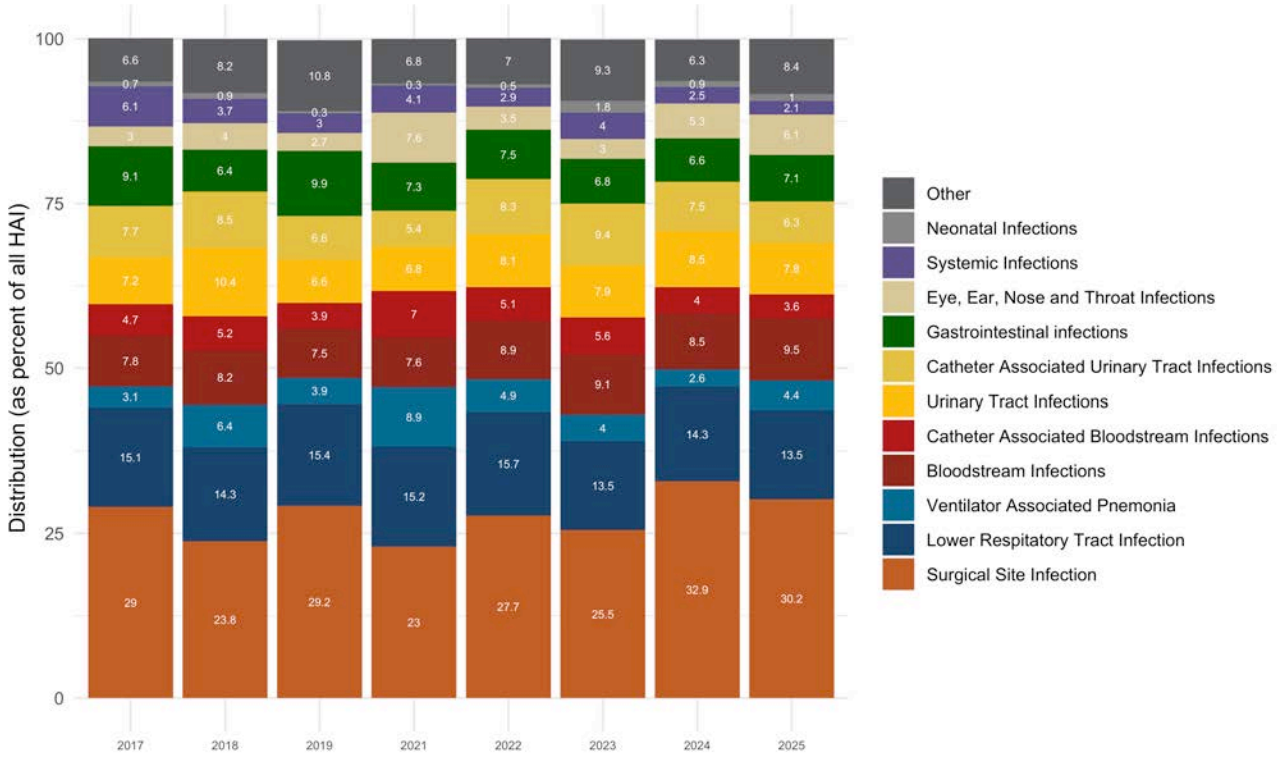


Figure 9: Distribution of HAI types with device related infections (as percent of all HAI) in all participating hospitals 2017-2025

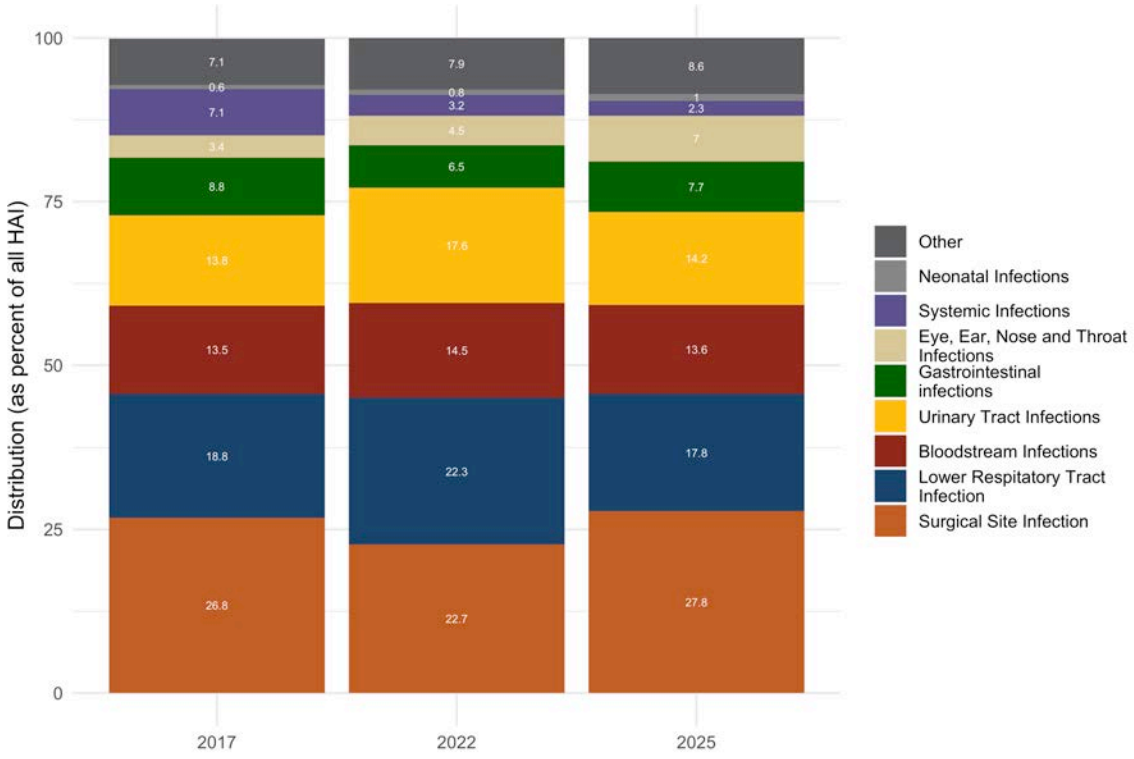


Figure 10: Distribution of HAI types (as percent of all HAI) in hospitals participating in both national surveys and 2025

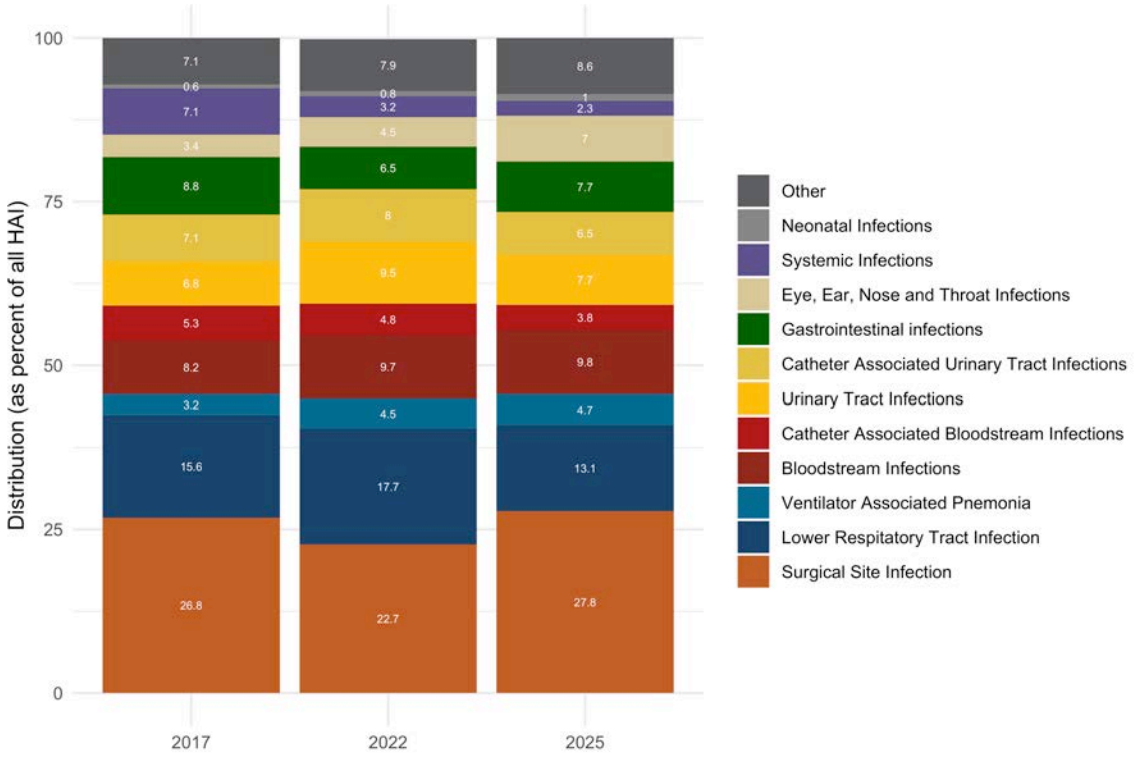


Figure 11: Distribution of HAI types with device related infections (as percent of all HAI) in hospitals participating in both national surveys and 2025

4.8 Pathogen distribution

Figures 12 and 13 summarise the distribution of HAI pathogens over the years in all participating hospitals and in hospitals participating in both national surveys and 2025.

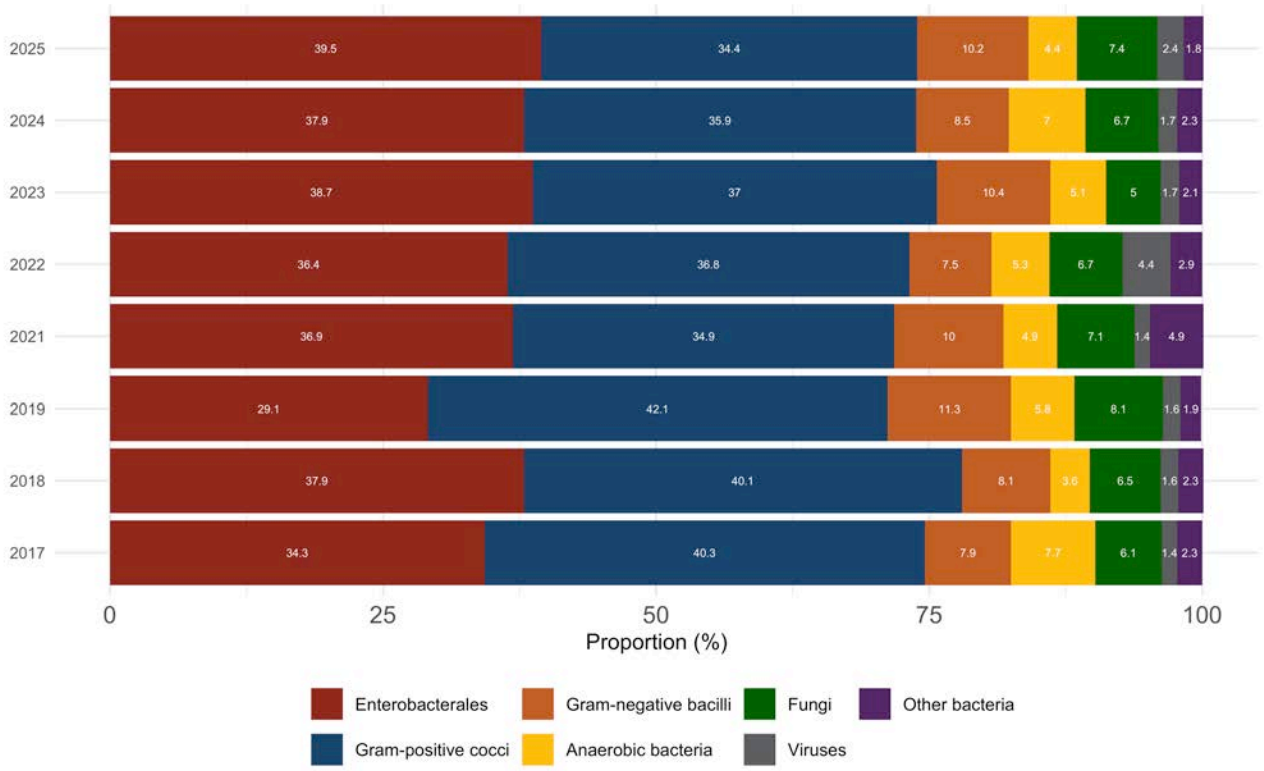


Figure 12: Distribution of pathogens in all participating hospitals over the years

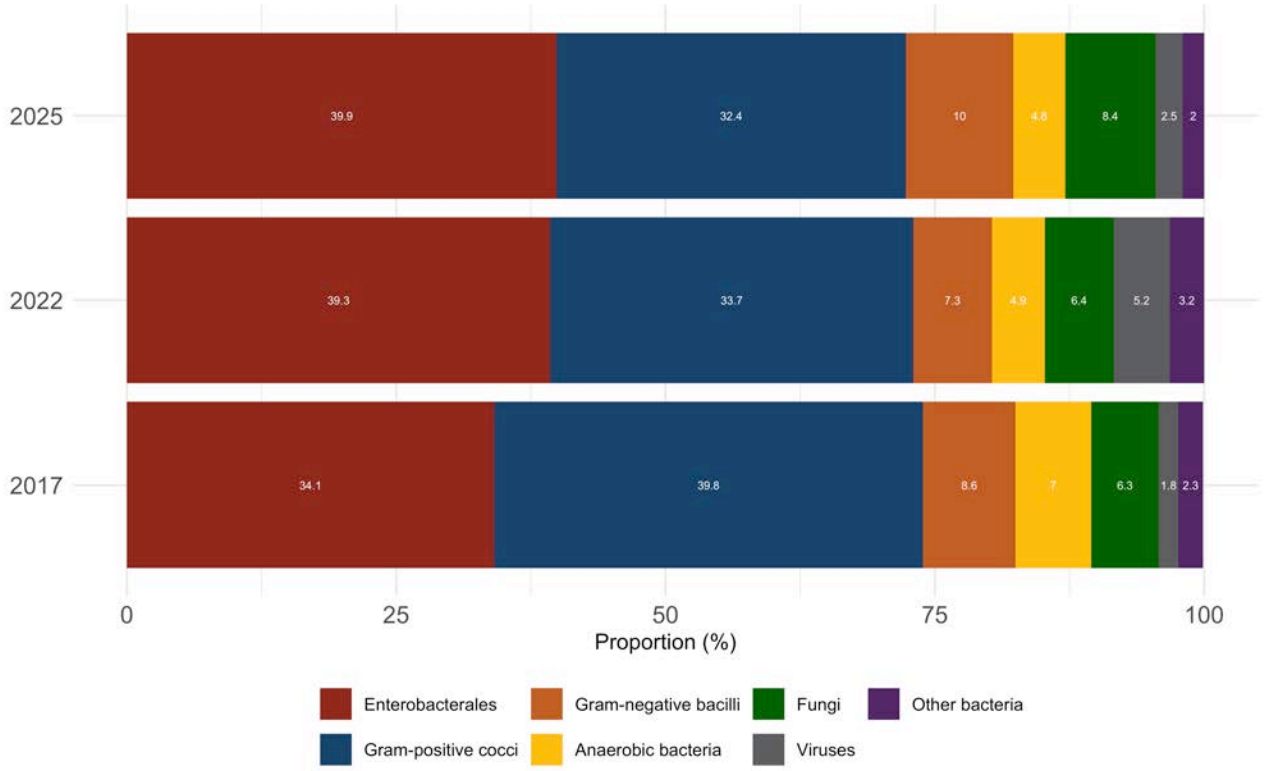


Figure 13: Distribution of pathogens in hospitals participating in all surveys

4.9 Antimicrobial use

The proportion of patients prescribed antimicrobials has remained relatively constant since 2022, however the proportion on medical prophylaxis has increased slightly. Predicted antimicrobial use (seen as translucent bars next to total use in Figure 14) is similar to measured use.

Figure 15 depicts the same data but for the 53 hospitals that participated in all three years. There is a slight trend towards increasing antimicrobial use, but the predicted and measured use are still similar.

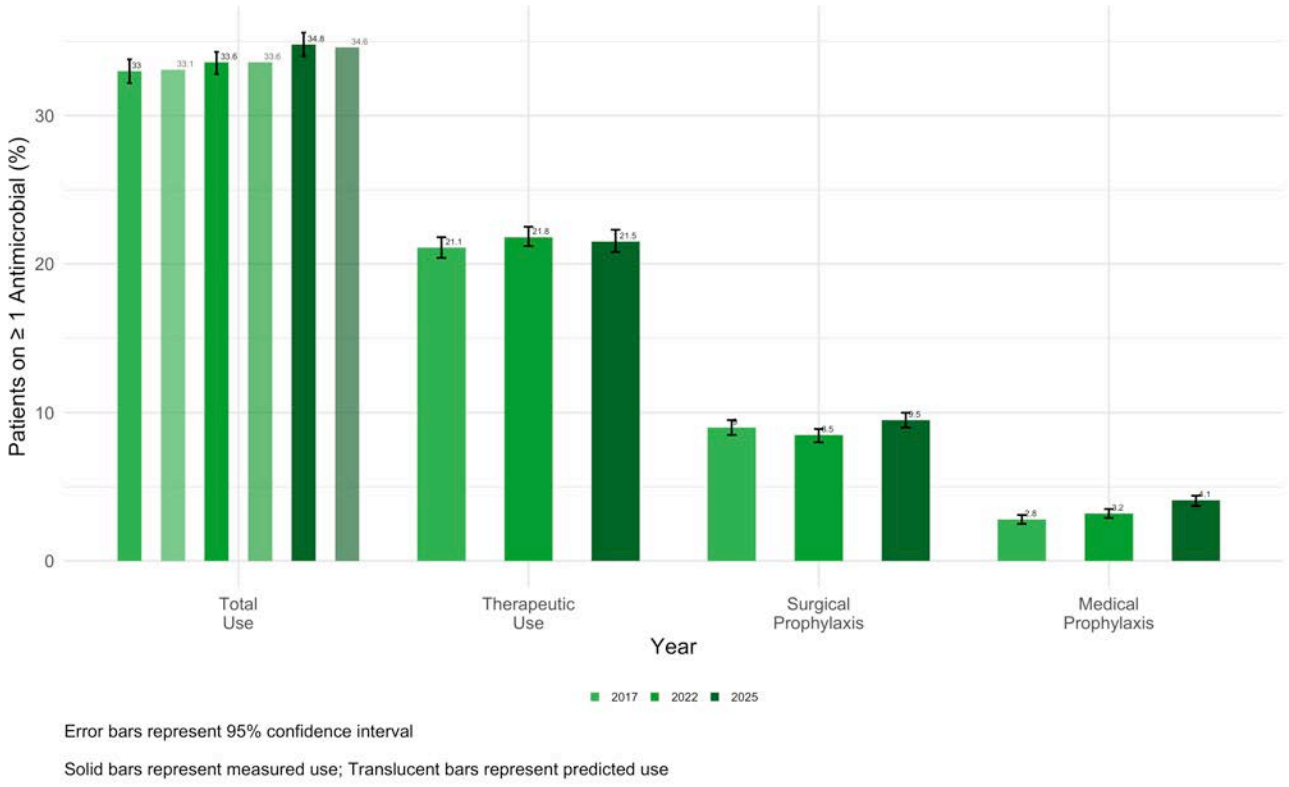


Figure 14: Proportion of patients prescribed one or more antimicrobials by total use and by indication (all hospitals)

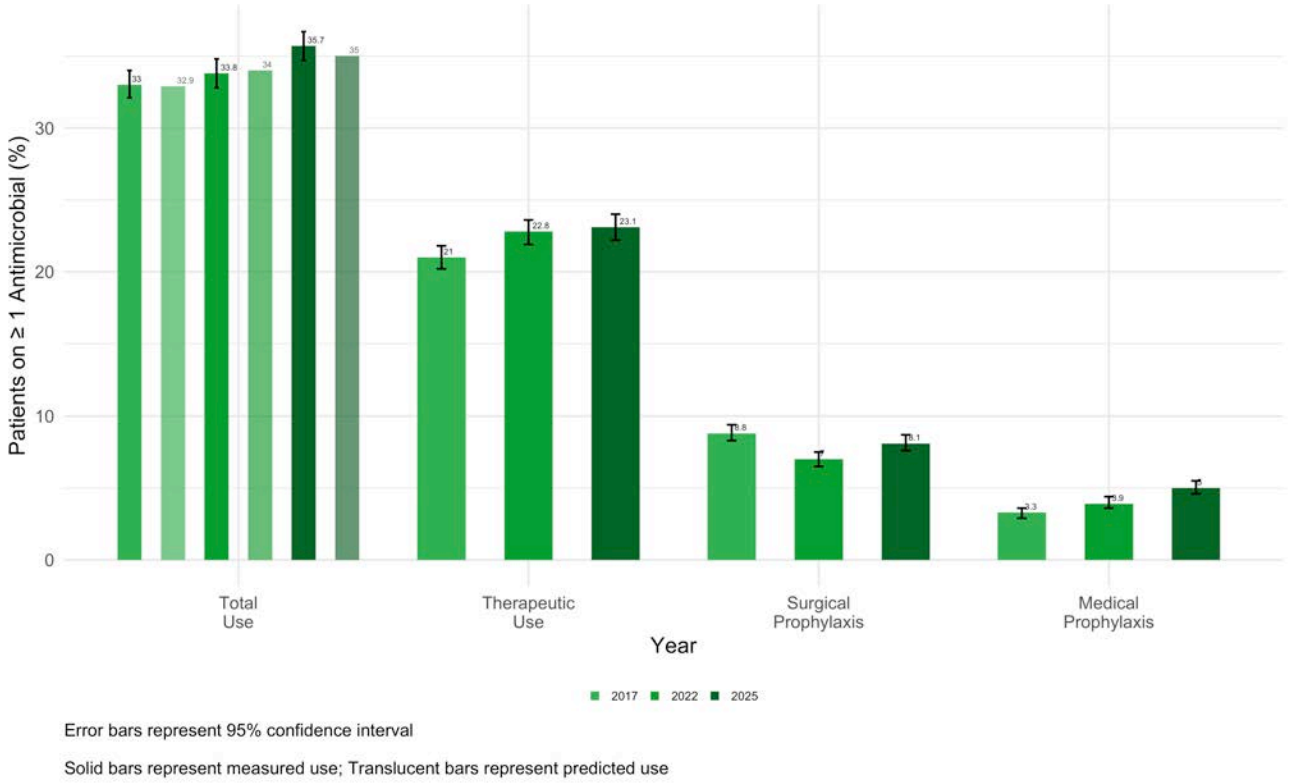


Figure 15: Proportion of patients prescribed one or more antimicrobials by total use and by indication (hospitals participating in all three years)

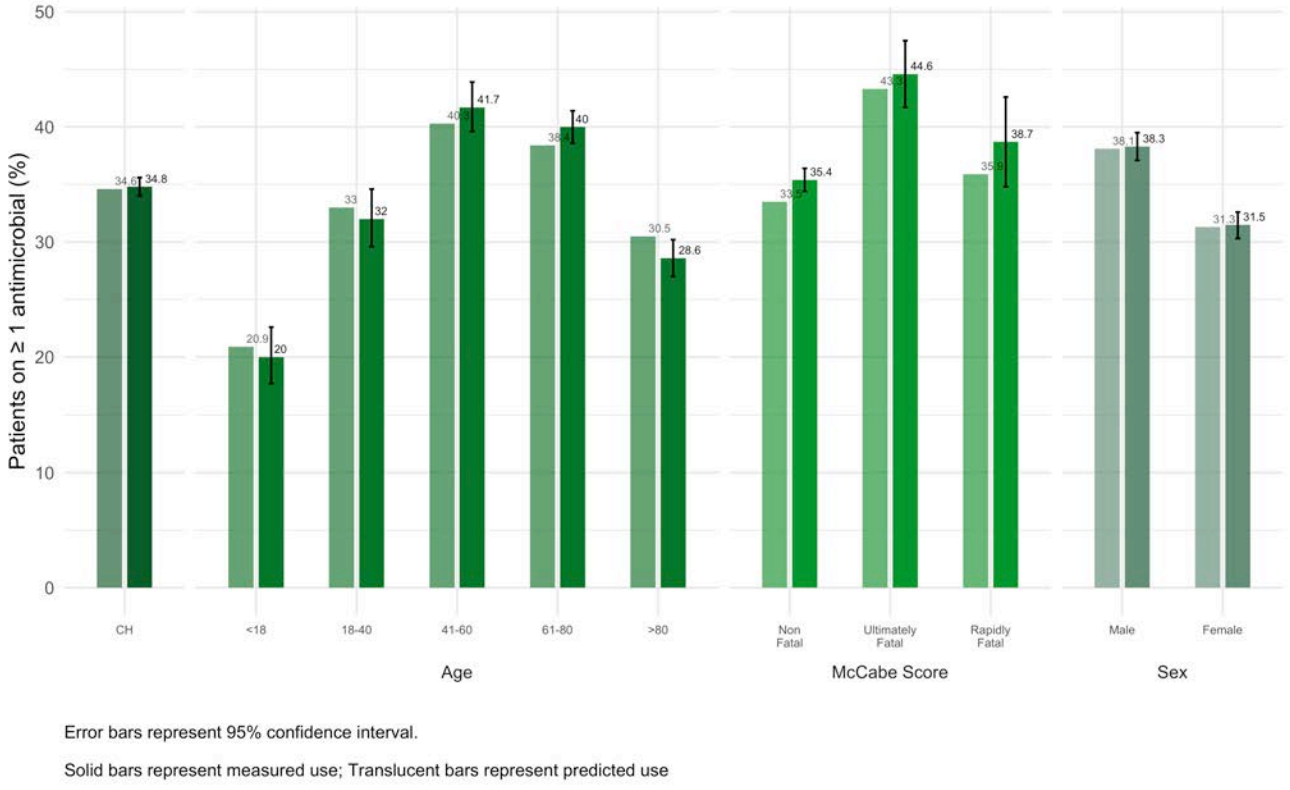
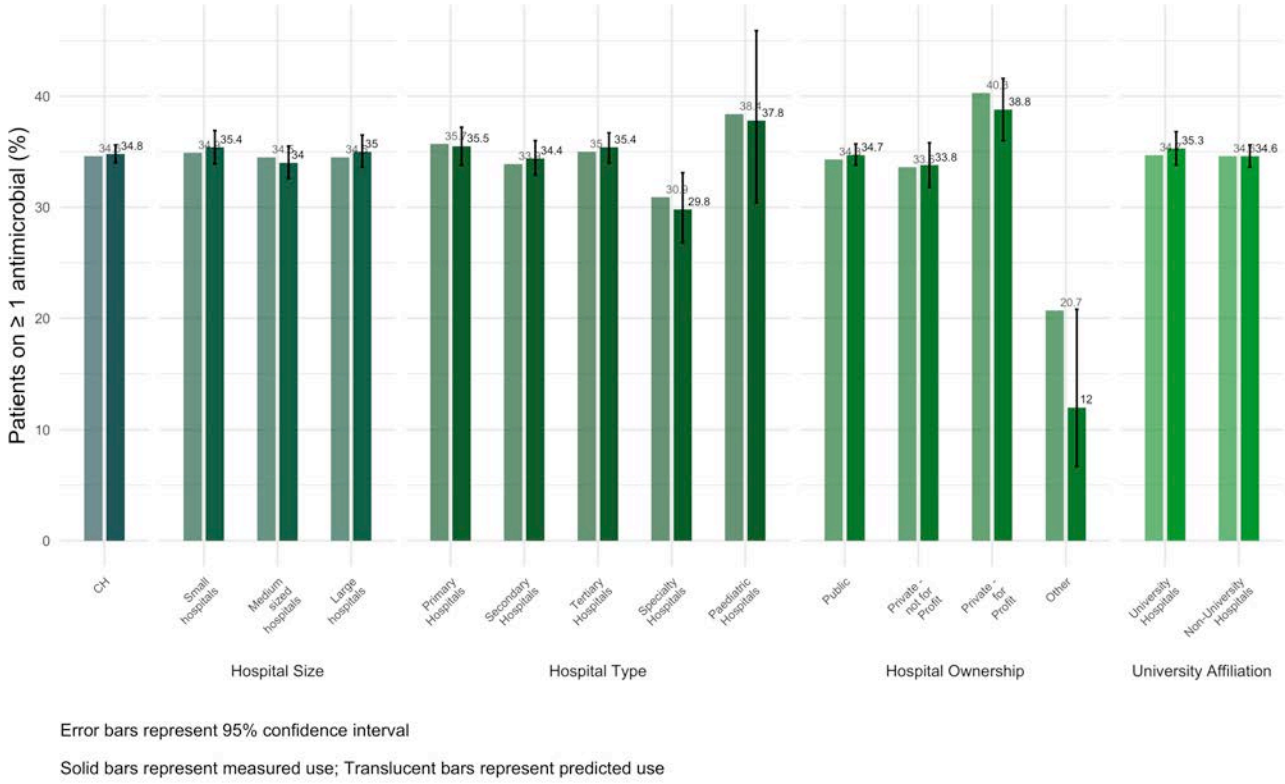


Figure 16: Antimicrobial Use prevalence by intrinsic risk factors

The use of antimicrobials varies with intrinsic patient related risk factors (Figure 16). Similar to last year, male sex, ultimately or rapidly fatal McCabe scores and increasing age were associated with increased antimicrobial use (AU). Hospital characteristics (size, type, ownership, university affiliation) were not associated with AU (Figure 17.



Error bars represent 95% confidence interval

Solid bars represent measured use; Translucent bars represent predicted use

Figure 17: Antimicrobial Use prevalence by hospital size, type, ownership, and university affiliation

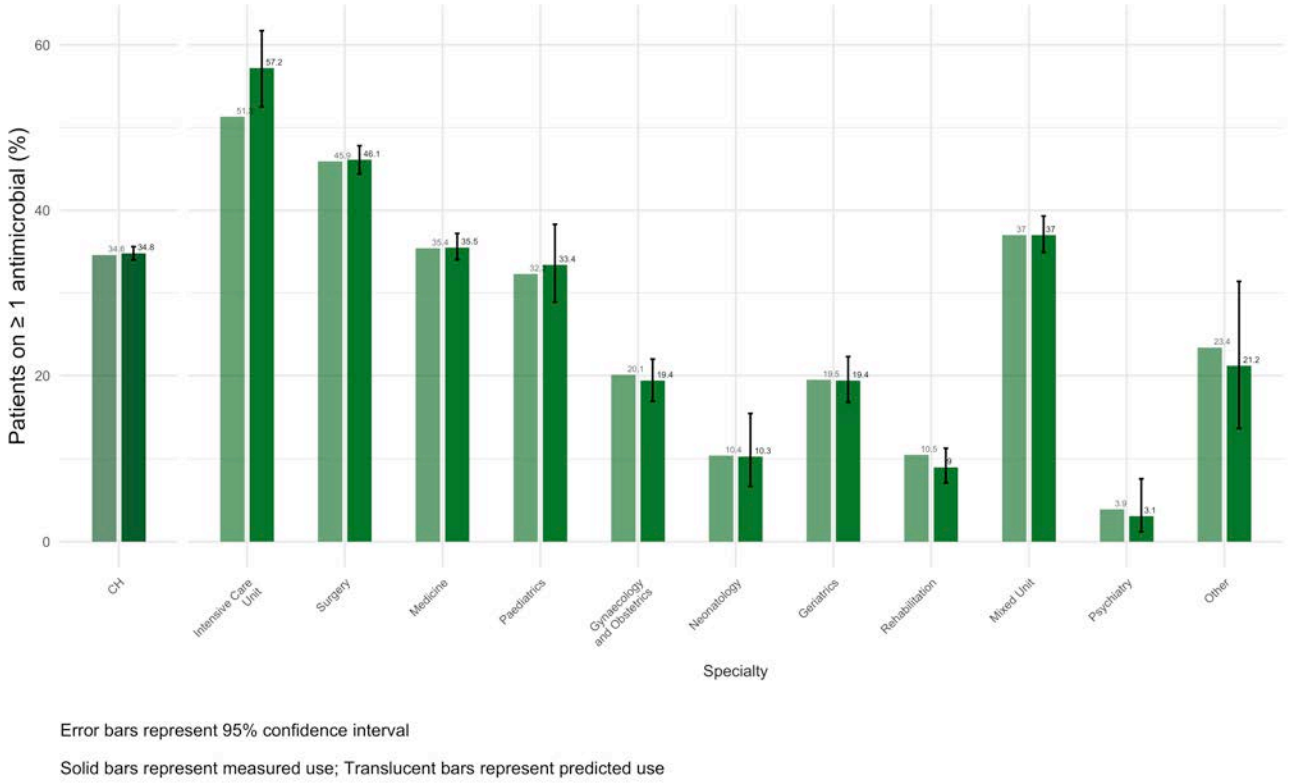


Figure 18: Antimicrobial Use prevalence by ward specialty

Use of antimicrobials was highest in intensive care, followed by surgery, medicine, paediatrics, and mixed units (See Figure 18). Predicted use is similar to measured use in all wards except intensive care units.

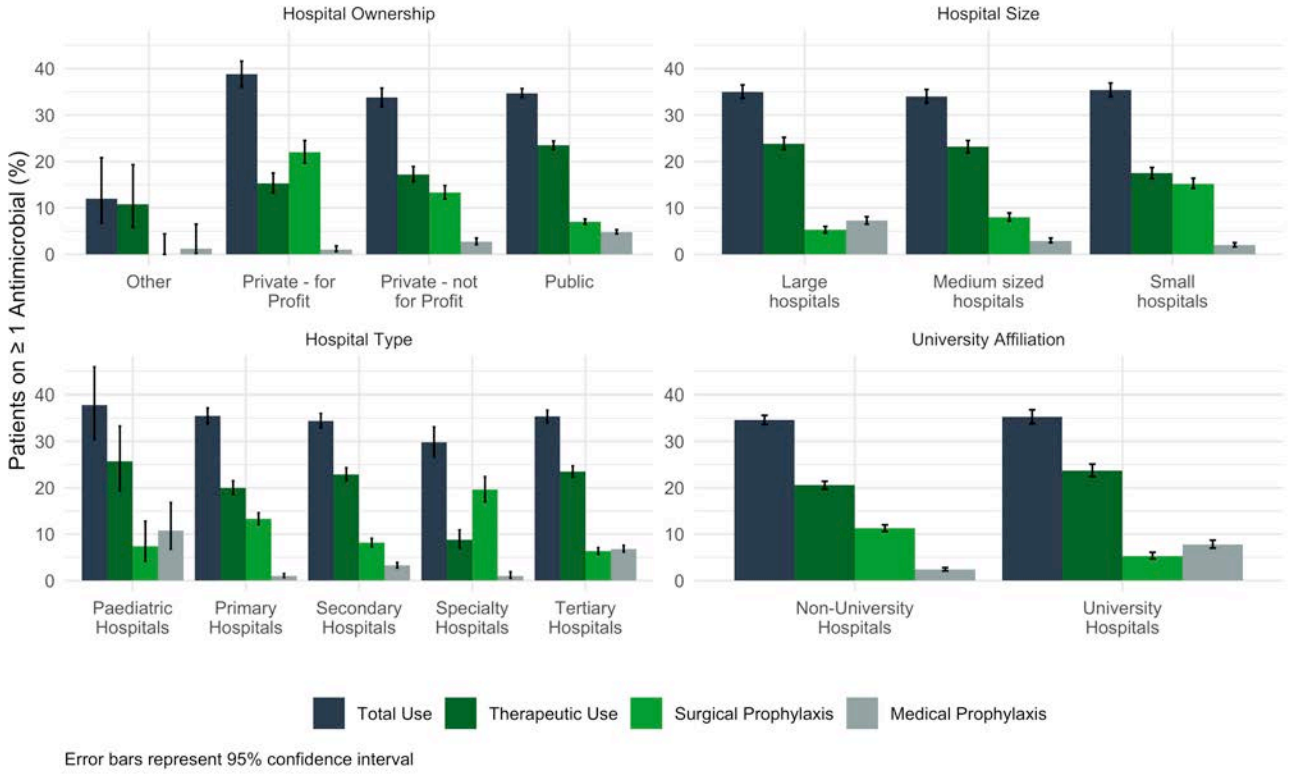


Figure 19: Indications for antimicrobial use by hospital factors

Figure 19 shows the proportion of patients on antimicrobials by indication by hospital size, type, ownership and university affiliation. Large and University hospitals use more antimicrobials for medical prophylaxis compared to medium and small sized hospitals while smaller and specialty hospitals use more antimicrobials for surgical prophylaxis.

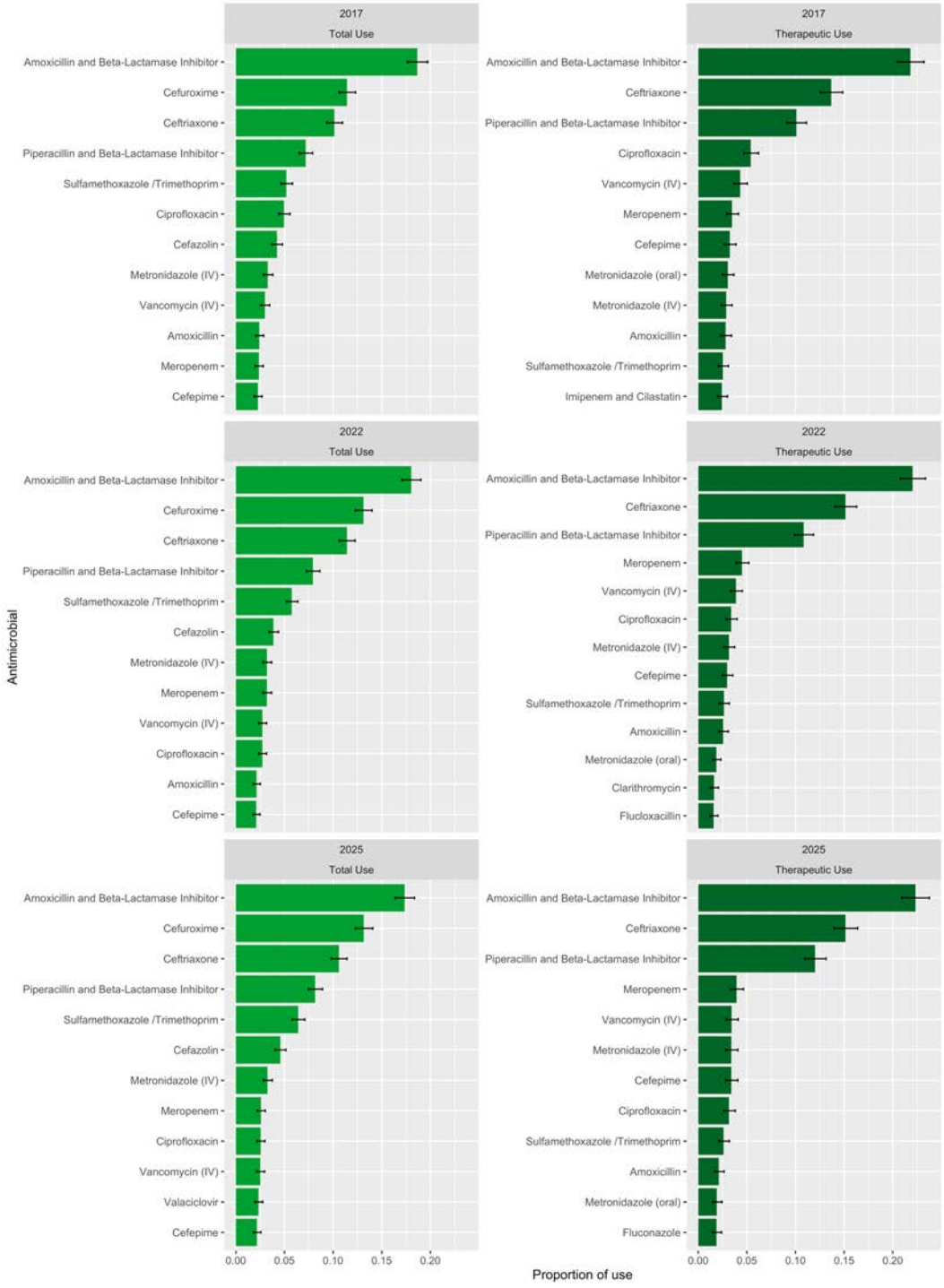


Figure 20: Antimicrobial agents that accounted for 75% of total antimicrobial use (all hospitals)

Figure 20 summarises the antimicrobial agents accounting for 75% of antimicrobial prescriptions by total use (left) and therapeutic use (right). Co-amoxicillin was the most commonly prescribed antimicrobial,

followed by cefuroxime and ceftriaxone for total use and ceftriaxone and piperacillin-tazobactam for therapeutic use. Figure 21 depicts the same information but for hospitals participating in all 3 years.

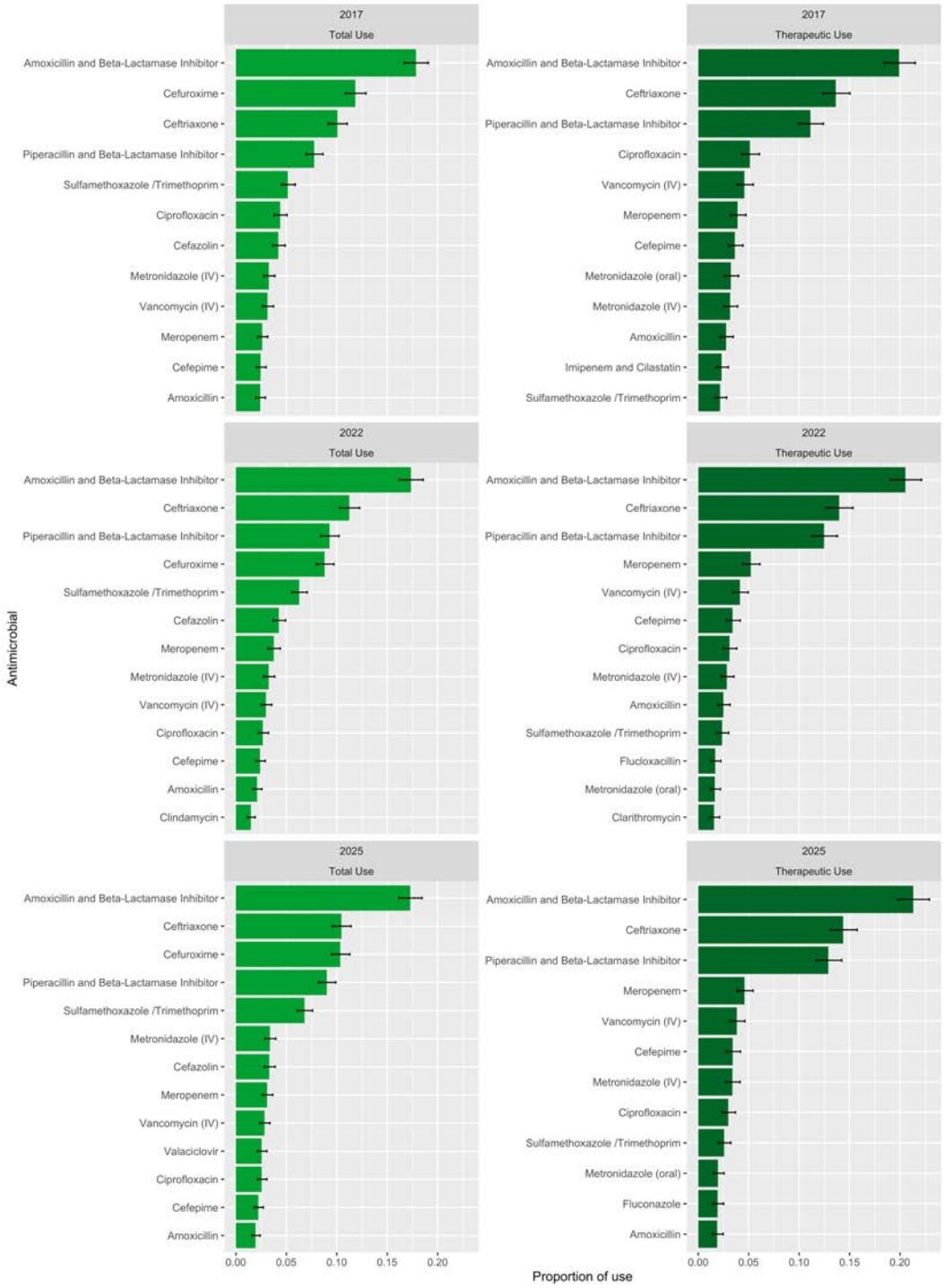


Figure 21: Antimicrobial agents that accounted for 75% of total antimicrobial (hospitals participating in all 3

surveys)

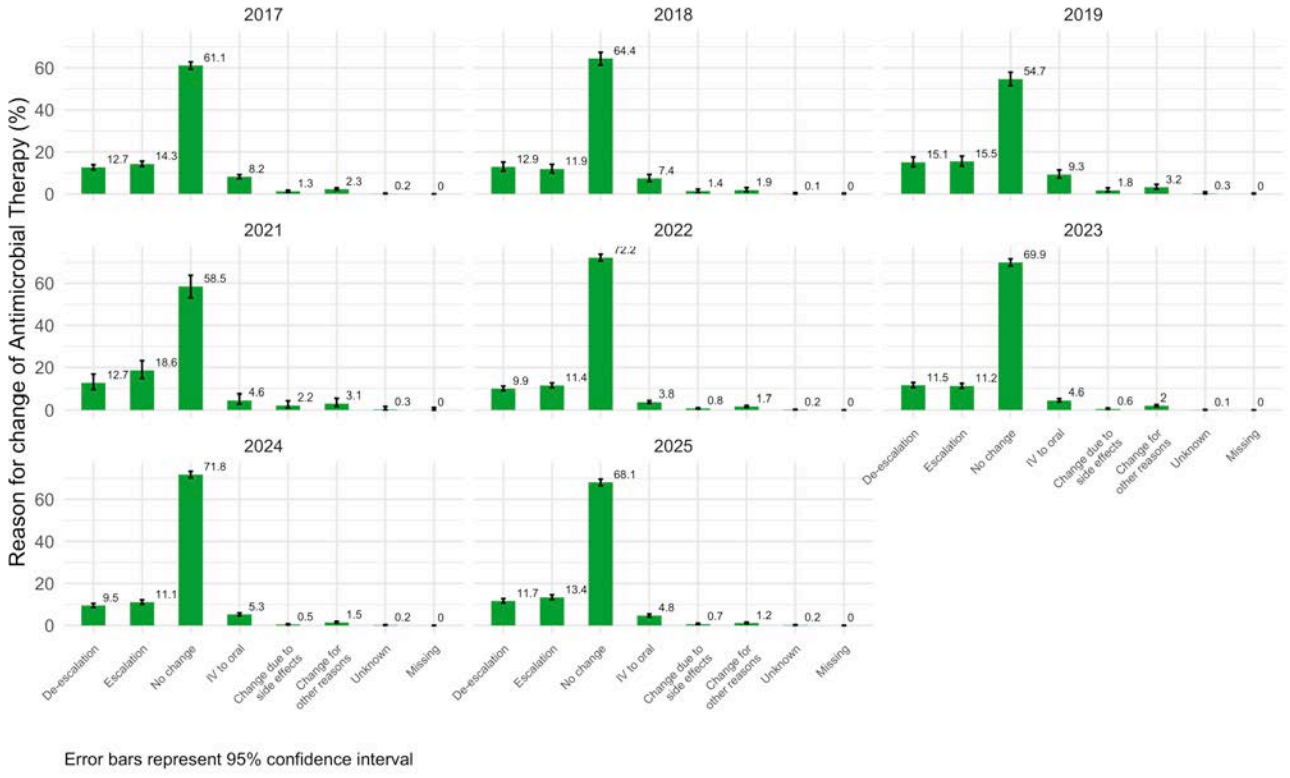


Figure 22: Reason for change in antimicrobial therapy (all participating hospitals)

The reason for antimicrobial change is shown in Figure 22. No change occurs most frequently followed by escalation and then de-escalation.

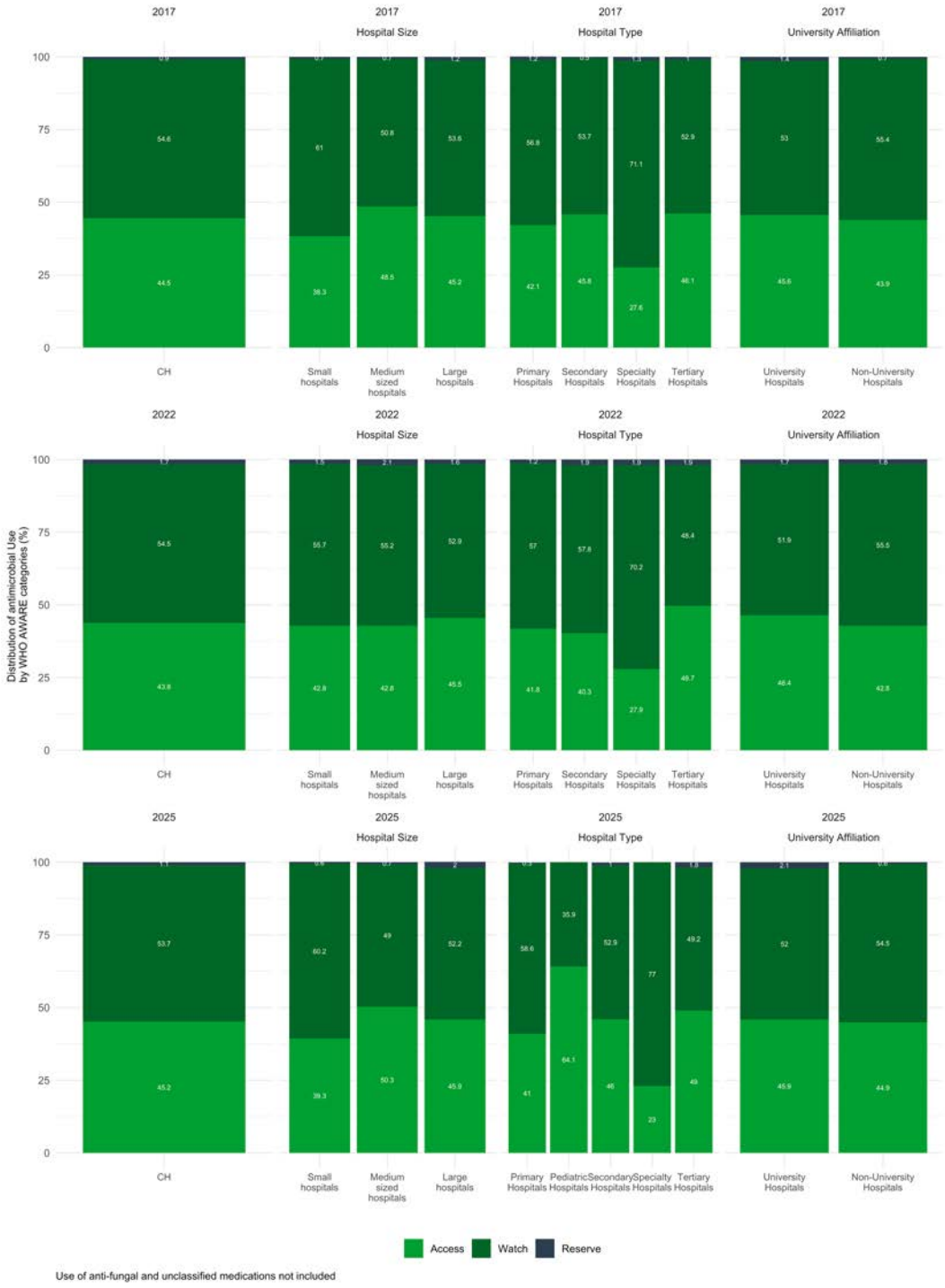


Figure 23: Antimicrobial use by WHO AWaRe categories by hospital size, hospital type, and university affiliation (all hospitals)

Use of antimicrobials was grouped by the WHO AWaRe classification. Introduced in 2017 to support Antimicrobial Stewardship activities, it classifies antimicrobials into three categories – Access, Watch, and Reserve based on their impact on antimicrobial resistance (REF).

Use of antimicrobials by WHO AWaRe classification is shown in figure 23.

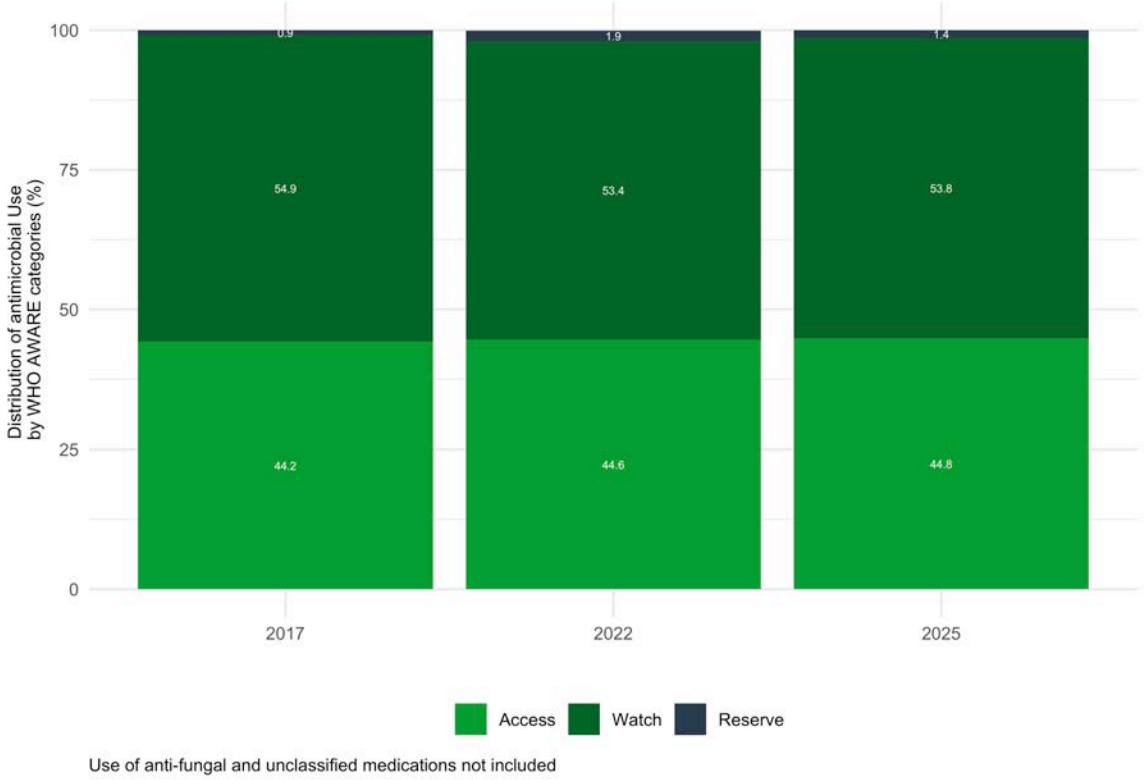


Figure 24: Antimicrobial use by WHO AWaRe categories in hospitals participating in all three surveys

Figure 24 summarise the use of antimicrobials by WHO AWaRe categories with only participating in all three surveys).

4.10 Antimicrobial Resistance

Figure 25 and Figure 26 show resistance over time in all hospitals and hospitals participating in all three surveys, respectively. In hospitals that participated in all surveys, the proportion of CRPA has increased compared to 2017 (difference between 2017 to 2025 for CRPA 27% (CI: 2.7-50.9)) but other organisms do not have a clear trend.

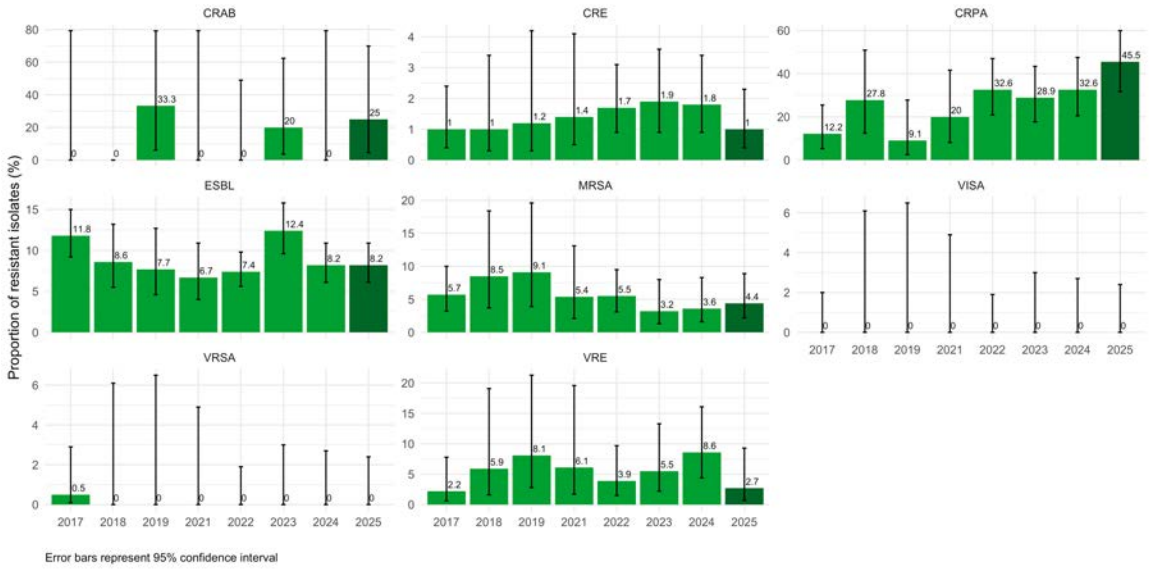


Figure 25: Proportion of microbiology isolates classified as resistant in all participating hospitals

ESBL: Extended spectrum beta-lactamase producing organisms; CRAB: Carbapenem resistant *Acinetobacter baumanii*; CRE: Carbapenem resistant enterobacterales; CRPA: Carbapenem resistant *Pseudomonas aeruginosa*; MRSA: Methicillin resistant *Staphylococcus aureus*; VISA: Vancomycin intermediate *Staphylococcus aureus*; VRE: Vancomycin resistant Enterococci; VRSA: Vancomycin resistant *Staphylococcus aureus*

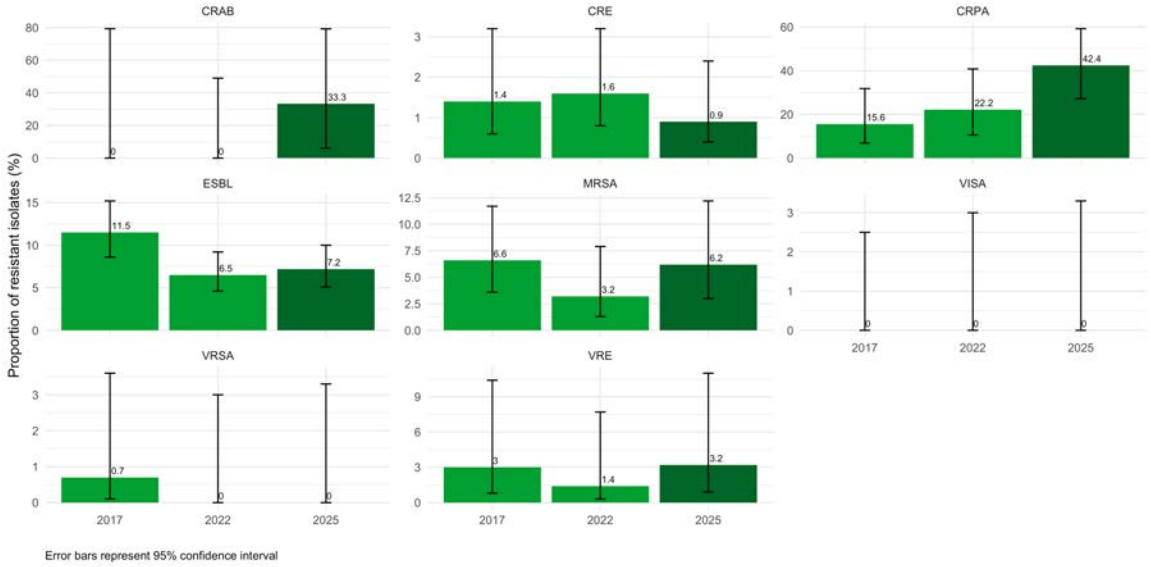


Figure 26: Proportion of microbiology isolates classified as resistant in hospitals participating in all three surveys

ESBL: Extended spectrum beta-lactamase producing organisms; CRAB: Carbapenem resistant *Acinetobacter baumanii*; CRE: Carbapenem resistant enterobacterales; CRPA: Carbapenem resistant *Pseudomonas aeruginosa*; MRSA: Methicillin resistant *Staphylococcus aureus*; VISA: Vancomycin intermediate *Staphylococcus aureus*; VRE: Vancomycin resistant Enterococci; VRSA: Vancomycin resistant *Staphylococcus aureus*

4.11 Minimum Standards

Figure 27 shows the total weighted minimum standards by hospital size and type. Weighted scores are calculated per minimum standard by standardizing the maximum possible score to 10 for every minimum standard (for a maximum total score of 70). The responses from 2024 and 2025 were combined for this analysis. Similar to last year, large hospitals had a higher weighted score compared to small and medium sized hospitals.

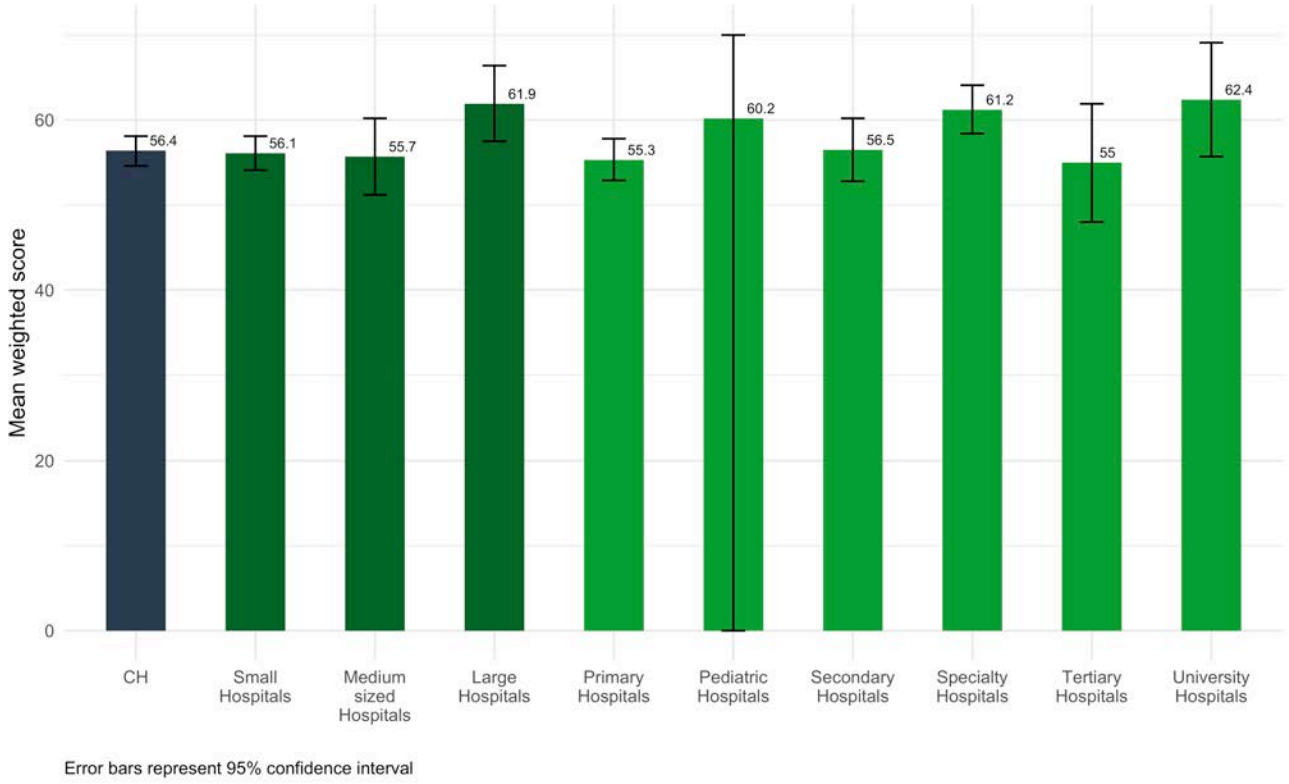


Figure 27: Total weighted minimum standards score for Switzerland and by Hospital size and type

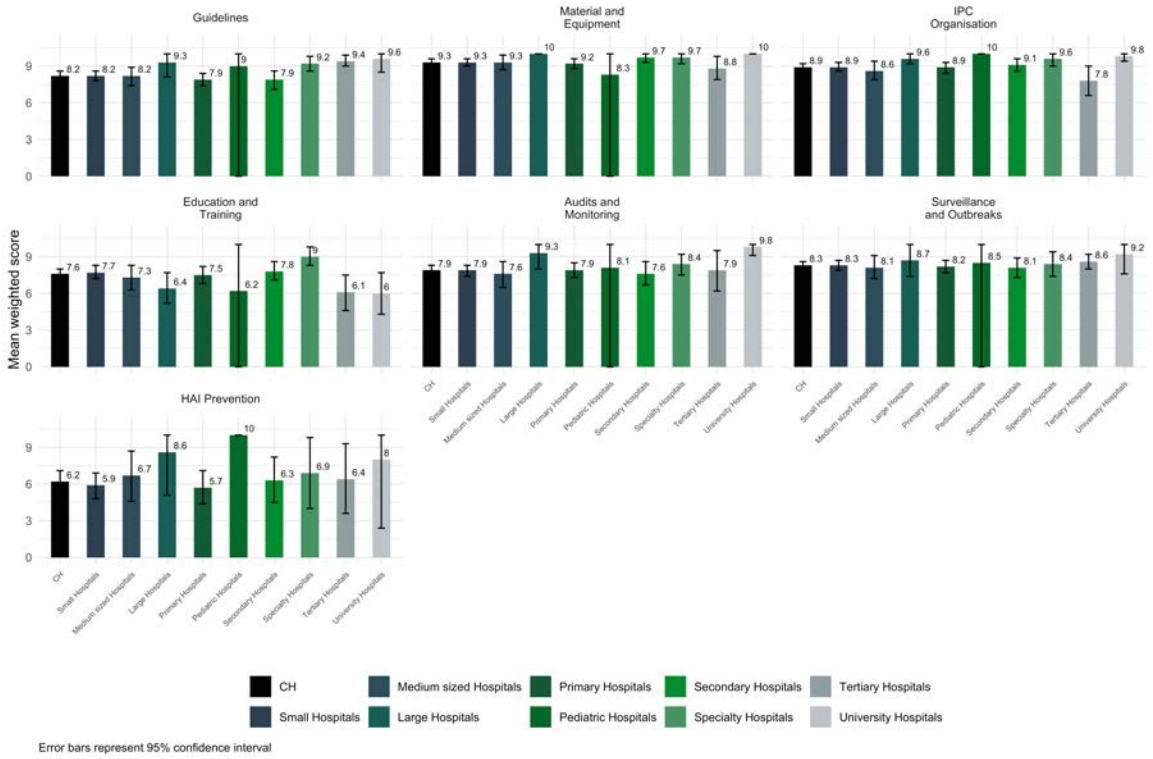


Figure 28: Mean weighted score per minimum standard for all participating hospitals

Figure 28 shows the mean weighted score by each minimum standard for all participating hospitals.

The lowest score was for HAI prevention and the highest for material and equipment. Figure 29 – Figure 37 depict the proportion of participating hospitals that have implemented each minimum standard component. These components allow hospitals to easy identify areas for improvement within their IPC programmes.

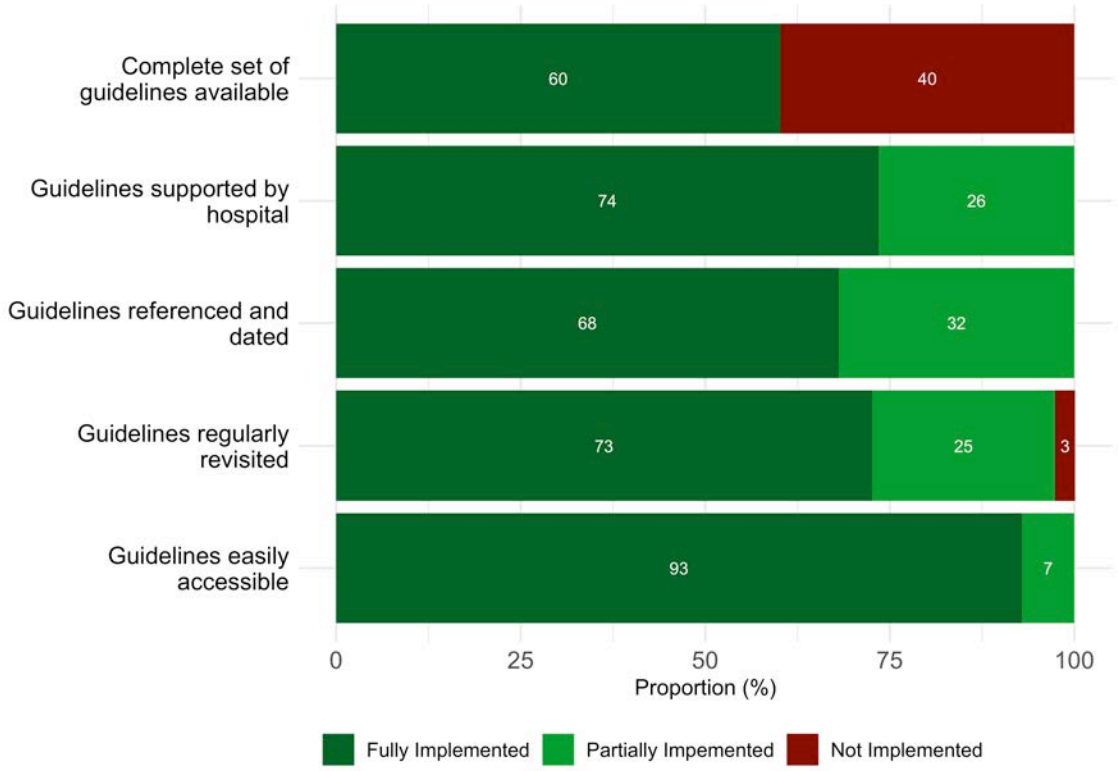


Figure 29: Proportion of hospitals that have implemented components of Minimum Standard 1 – Guidelines

Figure 29 shows the proportion of hospitals that have implemented the components of minimum standard 1 (Guidelines). The vast majority of hospitals have easily accessible guidelines, however, only approximately two-thirds have a complete set of guidelines available.

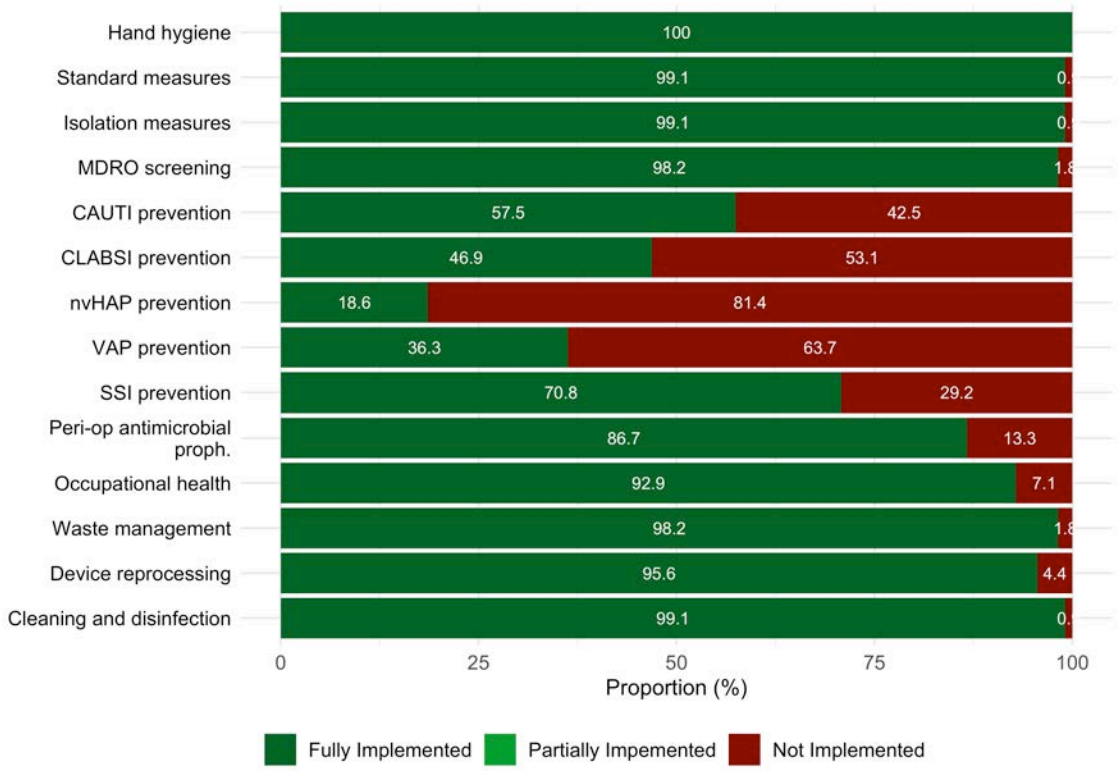


Figure 30: Proportion of hospitals that have implemented guidelines recommended within Minimum Standard

Figure 30 shows the proportion of hospitals that have implemented each guideline encompassed by "complete set of guidelines". The guidelines for infection prevention (CAUTI, CLABSI, nvHAP, VAP, SSI prevention) were counted as one guideline for the summary in Figure 29.

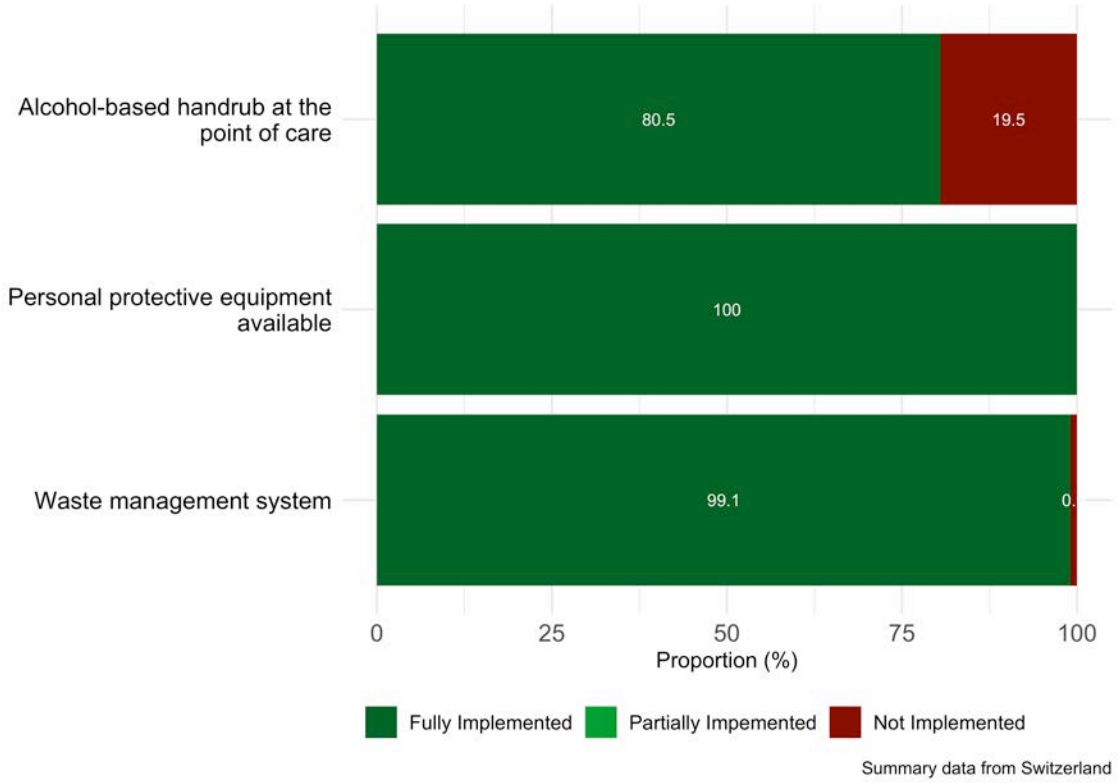


Figure 31: Proportion of hospitals that have implemented the components of Minimum Standard 2 – Material and Equipment

Figure 31 depicts the proportion of hospitals that have implemented the components of Minimum Standard 2 – Material and Equipment. Nearly all the hospitals have personal protective equipment available and a waste management system but availability of ABHR at point of care could still be improved.

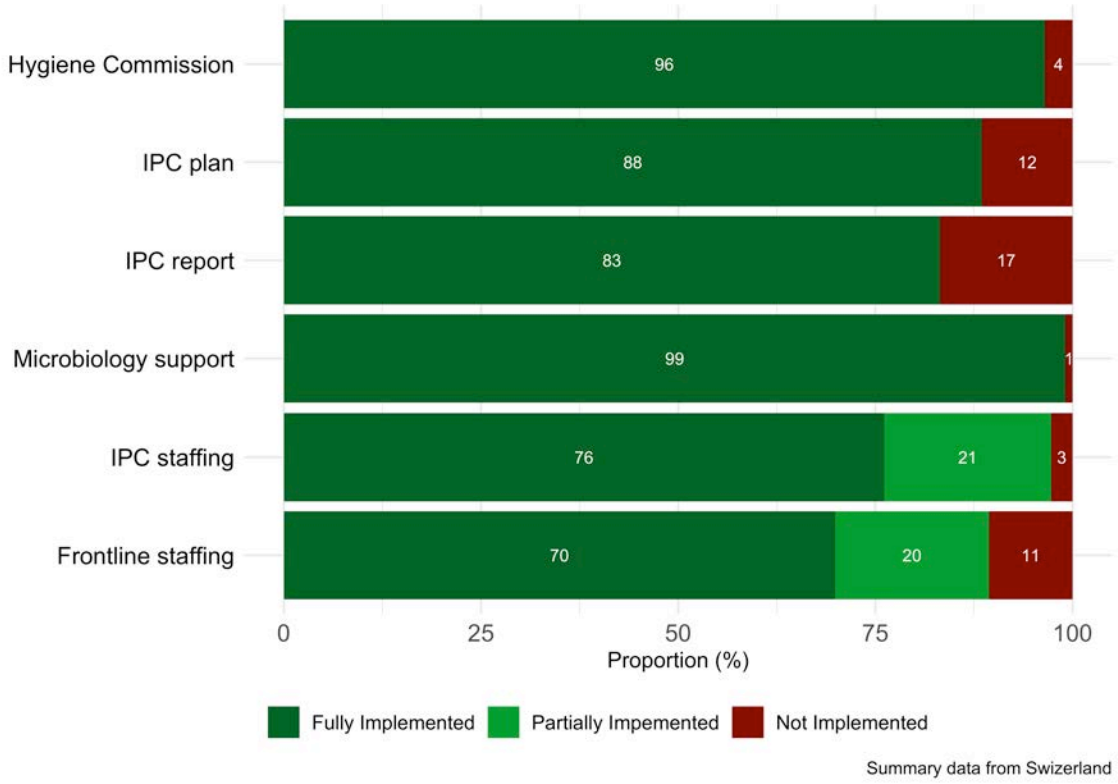


Figure 32: Proportion of hospitals that have implemented the components of Minimum Standard 3 – IPC Organisation

Figure 32 illustrates the proportion of hospitals that have implemented components of Minimum Standard 3 – IPC Organisation. Most hospitals have an interdisciplinary IPC Committee, a yearly plan, and microbiology support. However, only approximately 80% of hospitals have a yearly IPC report and have fully met the IPC staffing criteria (1 full time equivalent Infection Control Practitioner (ICP) per 150 patient beds). Fewer hospitals fully met the frontline staffing criteria.

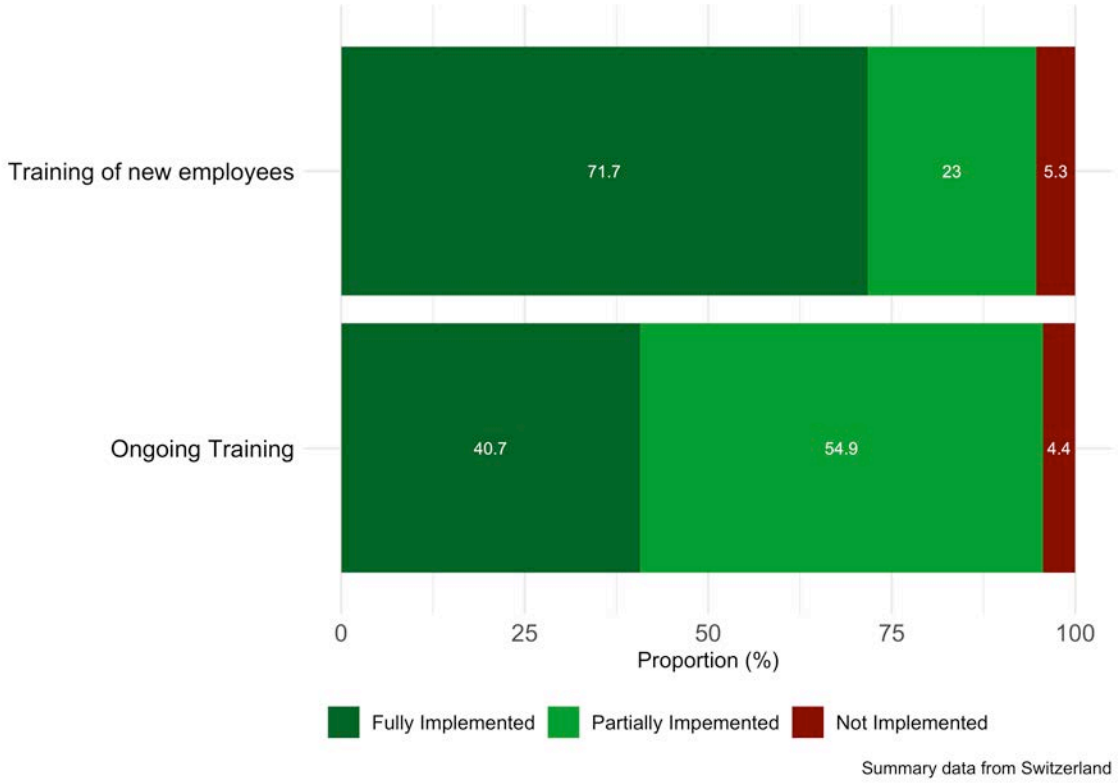


Figure 33: Proportion of hospitals that have implemented the components of Minimum Standard 4 – Education and Training

Figure 33 depicts the proportion of hospitals that have implemented components of Minimum Standard 4 – Education and Training. Only 70% have a fully implemented programme to train new employees and less than 50% have one for ongoing training. This represents an area for improvement in the majority of Swiss hospitals.

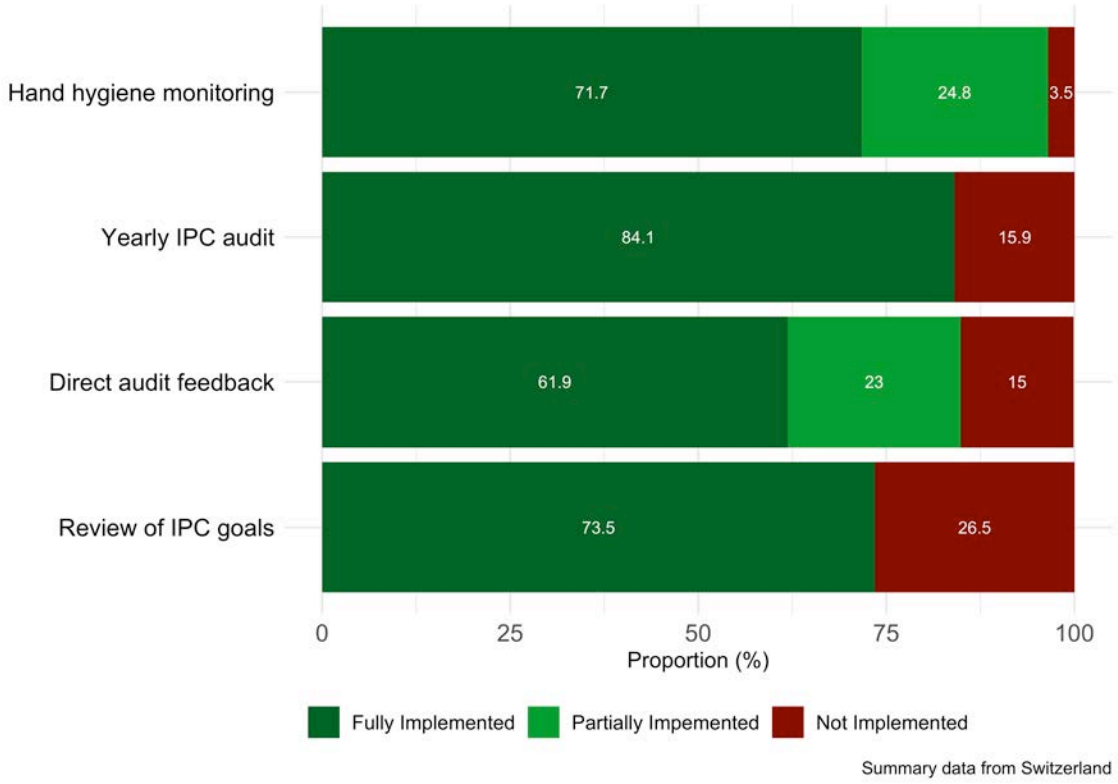


Figure 34: Proportion of hospitals that have implemented the components of Minimum Standard 5 – Audit and Monitoring

Figure 34 illustrates the proportion of hospitals that have implemented the components of Minimum Standard 5 – Audit and Monitoring. Most hospitals have fully or partially implemented hand hygiene monitoring but only 70% review their IPC goals yearly.

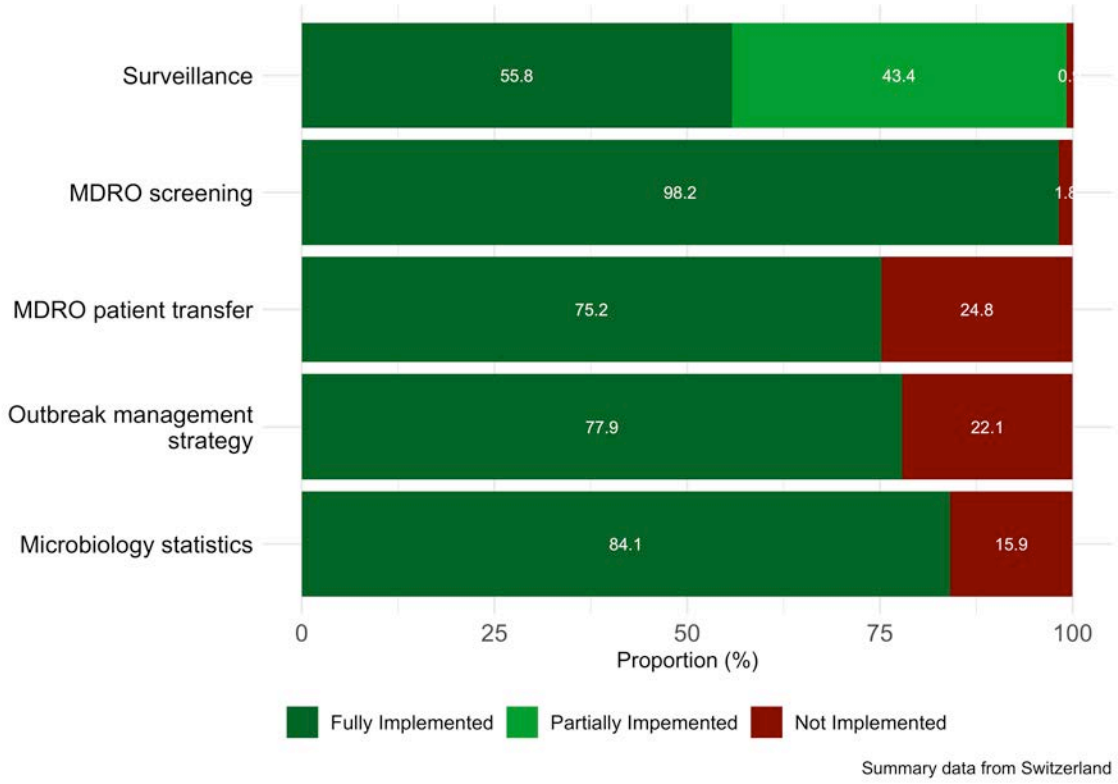


Figure 35: Proportion of hospitals that have implemented the components of Minimum Standard 6 – Surveillance and Outbreaks

Figure 35 shows the proportion of hospitals that have implemented components of Minimum Standard 6 – Surveillance and Outbreaks. Almost all hospitals perform MDRO screening but only three-fourths have a outbreak management strategy or a method to transmit MDRO information on patient transfer.

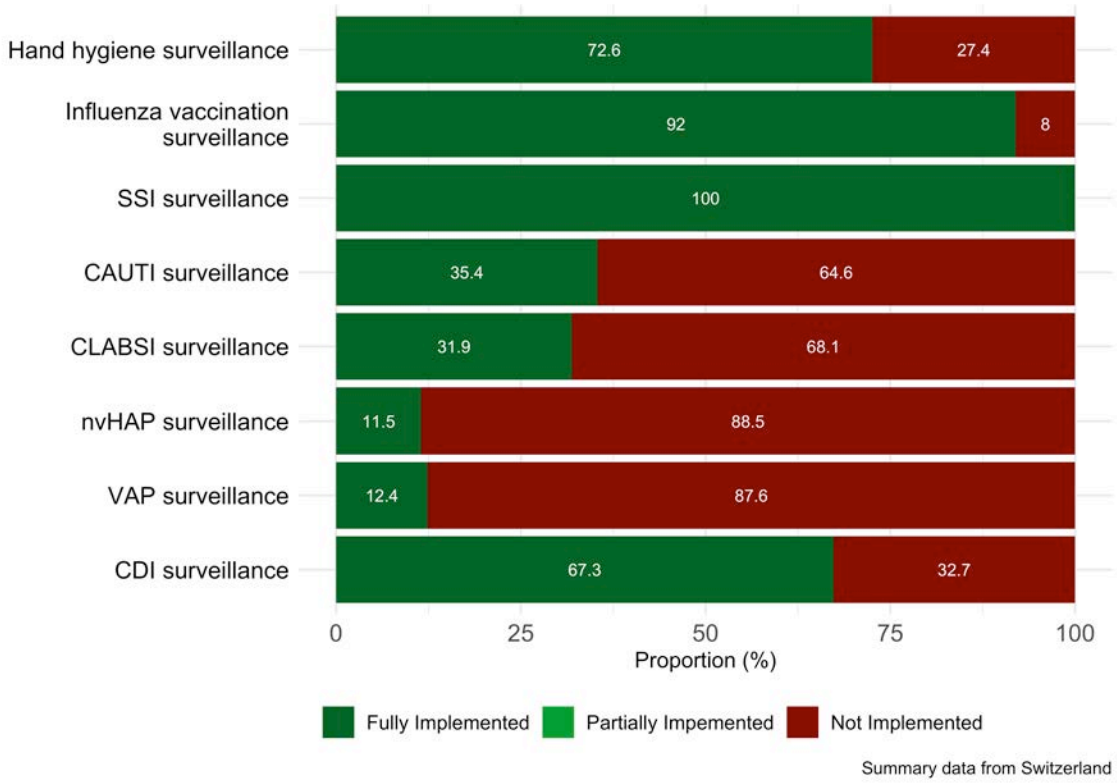


Figure 36: Proportion of hospitals that have implemented the Surveillance modules (part of Minimum Standard 6)

Figure 36 depicts the proportion of hospitals that have implemented the surveillance modules that are part of Minimum Standard 6. All hospitals have implemented the SSI surveillance module with Influenza vaccination and Hand hygiene surveillance modules being the next most frequent. Very few hospitals have implemented nvHAP or VAP surveillance and only a third have implemented CAUTI and CLABSI surveillance.

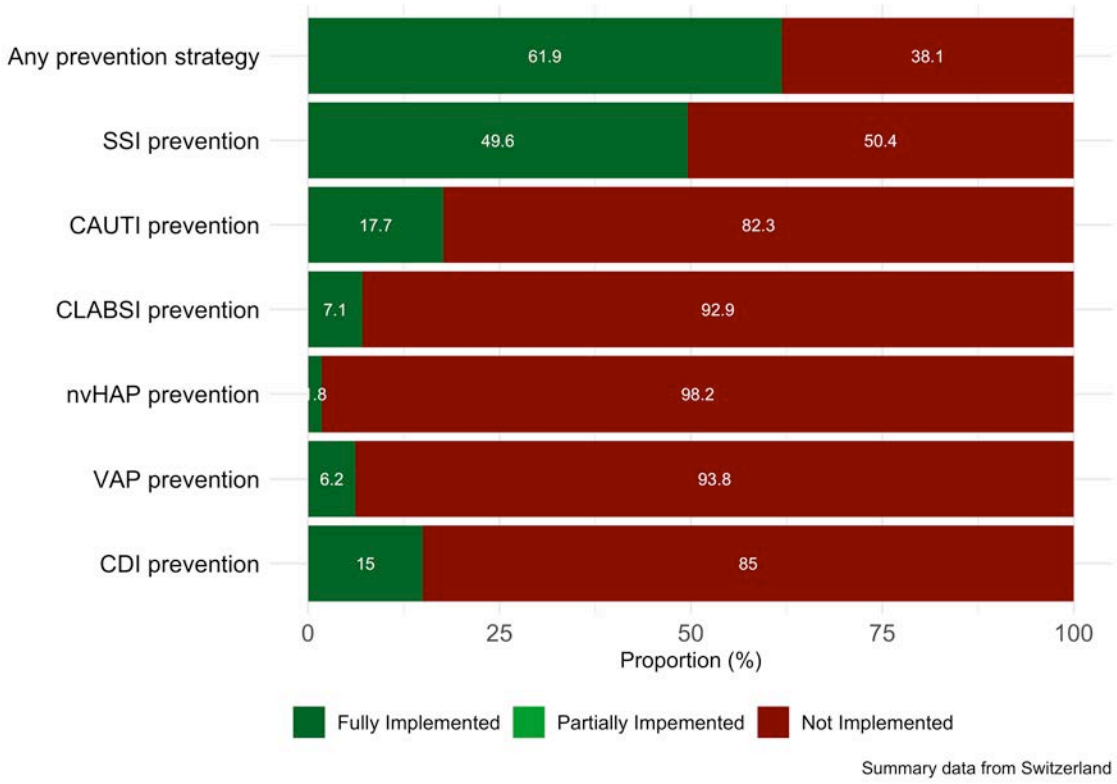


Figure 37: Proportion of hospitals that have implemented the components of Minimum Standard 7 – HAI prevention

Figure 37 shows the proportion of hospitals that have implemented components of Minimum Standard 7 – HAI prevention. Less than two-thirds of hospitals have implemented at least one prevention strategy with SSI prevention being the most common. Few hospitals have implemented any other strategies.

5. References

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