swissnoso
Nationales Zentrum für Infektionsprävention
Centre national de prévention des infections
Centro nazionale per la prevenzione delle infezioni
National Center for Infection Control

Point Prevalence Survey 2021 of healthcare-associated infections and antimicrobial use in Swiss acute care hospitals

Coordination Center Prevalence Survey CH
03/03/2022

Abbreviations

AU	Antimicrobial use
BSI	Bloodstream infection
CH	Switzerland
CH-PPS	Swiss Point Prevalence Survey
ECDC	European Centre for Disease Prevention and Control
FOPH	Federal Office of Public Health
HAI	Healthcare-associated infection
ICU	Intensive care
IPC	Infection Prevention and Control
LRTI	Lower respiratory tract infection
PPS	Point Prevalence Survey
PRIM	Primary care
PRIVFP	Private ownership, for-profit
PRIVNFP	Private ownership, not-for-profit
PUB	Public hospitals
SEC	Secondary care
SPEC	Specialised care
SSI	Surgical site infection
TERT	Tertiary care
UTI	Urinary tract infection

Executive Summary

After a one-year pause in 2020 due to the COVID-19 pandemic, the Swiss point prevalence survey on healthcare-associated infections (HAIs) and antimicrobial use in acute care hospitals could be conducted again in 2021. An official invitation was sent to all acute care hospitals in Switzerland.

Between April and July 2021, 29 acute care hospitals provided data on 5,511 patients. Of these hospitals, 18 were small (<200 beds), 6 were medium (200-650 beds), and 5 were large-size (>650 beds). All large hospitals were university-affiliated.

The combined HAI prevalence (patients with one or more HAI) was 6.1%. In the subset of hospitals participating in all surveys, the HAI prevalence was 5.8%, which was similar compared to previous years: 5.8% in 2017, 5.7% in 2018, and 5.8% in 2019. Large hospitals and university-affiliated hospitals had a significantly higher prevalence (7.1%) compared with non-university-affiliated hospitals. The two most common HAI-types were lower respiratory tract infections (LRTIs) and surgical site infections (SSIs), which accounted for half of all HAIs.

Approximately one-third of patients received one or more antimicrobials (29.8%) on the day of the survey. This was lower compared to 2017 (33%) and 2018 (30.4%); amoxicillin-clavulanic acid, piperacillin-tazobactam, and ceftriaxone were the most frequently used antimicrobials.

Introduction

The point prevalence survey (PPS) on healthcare-associated infection (HAI) and antimicrobial use in Swiss acute care hospitals is an integral part of the "NOSO Strategy" (www.bag.admin.ch/NOSO), which is a public health priority within the "Health2020" agenda of the Swiss Confederation. It is also part of the antibiotic resistance strategy (StAR, www.star.admin.ch) and the minimum standards for the prevention and control of HAIs in acute care hospitals (https://www.swissnoso.ch/fileadmin/swissnoso/Dokumente/5_Forschung_und_Entwicklung/8_Swissnoso_Publikationen/Swissnoso_Minimalstandards_FR_210127-def.pdf).

Switzerland conducted its first PPS on HAI and antimicrobial use (AU) between April and May 2017. Participation was representative for Switzerland with data of around 13,000 patients from 96 acute care hospitals were collected and analyzed. The HAI prevalence was 5.9%, which placed Switzerland in the European average.

Due to the COVID-19 pandemic, the survey was not conducted in 2020. However, it was taken up again in 2021, and data were collected between April and July of that year.

Swissnoso will organize the second national point prevalence survey on HAIs and AU in Swiss acute care hospitals in spring 2022. The European Centre for Disease Prevention and Control (ECDC) will carry out its PPS at the same time, which will allow Swiss data to be compared with countries of the European Union and the European Economic Area.

Survey design and methodology

Invitation for voluntary participation was sent to all Swiss acute care hospitals in October 2020. Due to COVID-19 with limited hospital resources, data collection focused on HAI. Hospital indicators were not collected, and antimicrobial information was collected on a voluntary basis, aiming at obtaining information on substances without detailing on diagnosis and indication for use. The protocol and forms remained largely the same as in previous years, with the exception of minor updates to take into account for nosocomial COVID-19.

In addition, the survey period was expanded and hospitals were asked to complete their PPS between April and July 2021 for up to 14 days, and to include all acute care patients (adults, children, and neonates), excluding patients in the emergency department and psychiatry.

Implementation

Training courses

Due to online travel and gathering restrictions, train-he-trainer courses were organized online. The following table presents dates and language of the training courses.

Table 1: Training-the trainer courses schedule

Date	Place	Language
05.05.2021	1st online course	DE
12.05.2021	2nd online course	DE
25.05.2021	3rd online course	FR

List of participating hospitals

Twenty-nine hospitals accepted the invitation and collected data (Table 2).

Table 2: Participating hospitals by canton in alphabetic order

BS	Universitätsspital Basel
	Klinik Merian Iselin
FR	Daler-Spital
GE	Hôpitaux Universitaires de Genève
	Clinique de la Plaine
GR	Regionalspital Surselva AG
	Flury Stiftung – Spital Schiers
JU	Hôpital du Jura
LU	Luzerner Kantonsspital
SZ	Spital Schwyz
TI	EOC – Ospedale Civico di Lugano
	EOC – Ospedale Regionale Bellinzona e Valli
	EOC – Ospedale Regionale di Locarno
	EOC – Ospedale Regionale di Mendrisio
	EOC – Ospedale Regionale di Lugano Italiano
VD	CHUV
	Hôpital Riviera-Chablais - Rennaz
	Hôpital ophtalmique Jules-Gonin
	Hôpital intercantonal de La Broye HIB – Site de Payerne
	Hôpital du Pays-d'Enhaut
	Réseau Santé Balcon du Jura.vd
	Clinique de Genolier
	Pôle Santé Vallée de Joux
VS	Hôpital du Valais

	Spital Wallis
	Clinique médicochirurgicale de Valère
ZG	Zuger Kantonsspital AG
ZH	Universitätsspital Zürich
	Spital Bülach AG

Swiss PPS website

The CH-PPS website (https://www.swissnoso.ch/punktpraevalenz-erhebung/ueber-die-punktpraevalenz-erhebung) was updated to include all PPS-related information such as the project description, protocols, dates of training courses, web link for data collection, and contact details of the Coordination Center.

Data management

The PPS database, which was slightly updated to include new infection codes, was used for data collection by local investigators. Hospitals participating in previous surveys used their existing identifiers to access the database.

Results

Results are presented in comparison with previous surveys for all hospitals, and for the subset of hospitals participating in all surveys (2017, 2018, 2019, and 2021)

Table 3: Characteristics of participating hospitals in PPS 2021

	Hospitals, N	Patients, N
All	29	5511
<200 beds	18	831
200-650 beds	6	1157
>650 beds	5	3523
University hospitals	4	3194
Primary care hospitals	10	446
Secondary care hospitals	10	1270
Tertiary care hospitals	6	3717
Specialised care hospitals	3	78
Public hospitals	18	5131
Private not-for-profit hospitals	4	215
Private for-profit hospitals	7	165

Figure 1: HAI Prevalence in 2021 compared to previous years

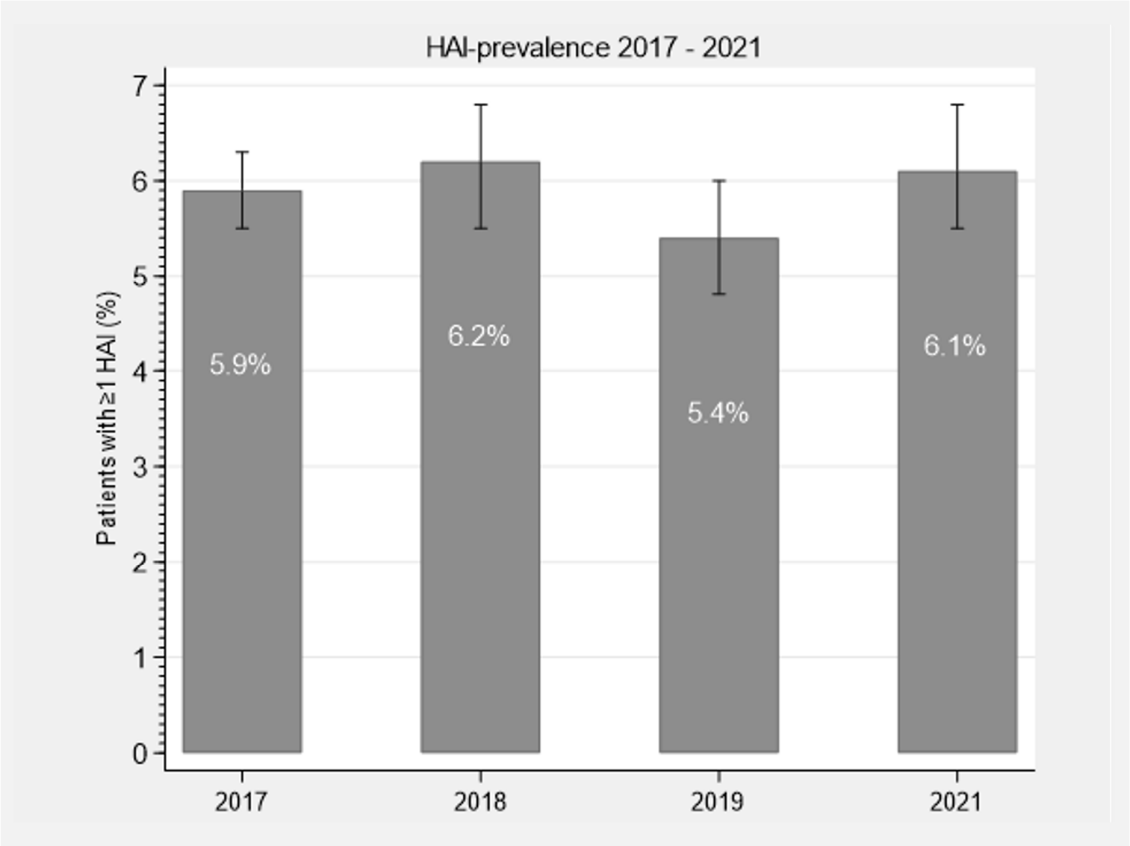


Figure 2: HAI prevalence for hospitals participating in all surveys

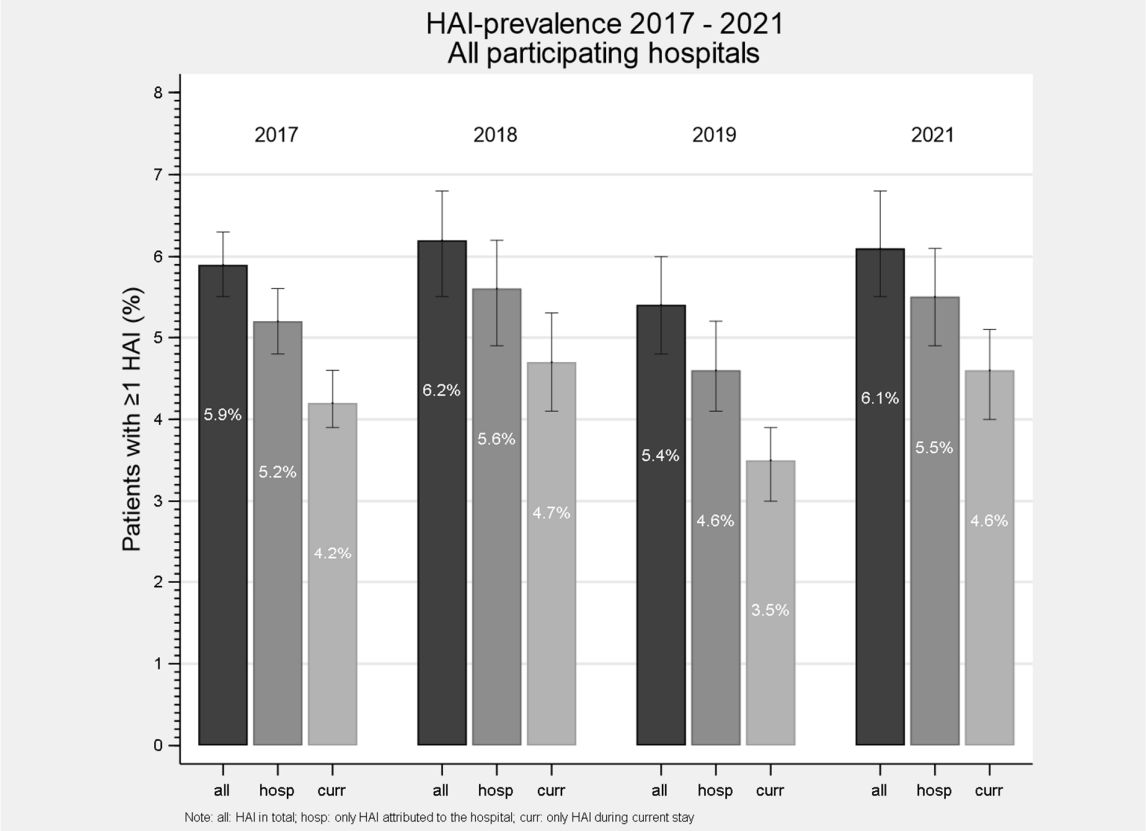
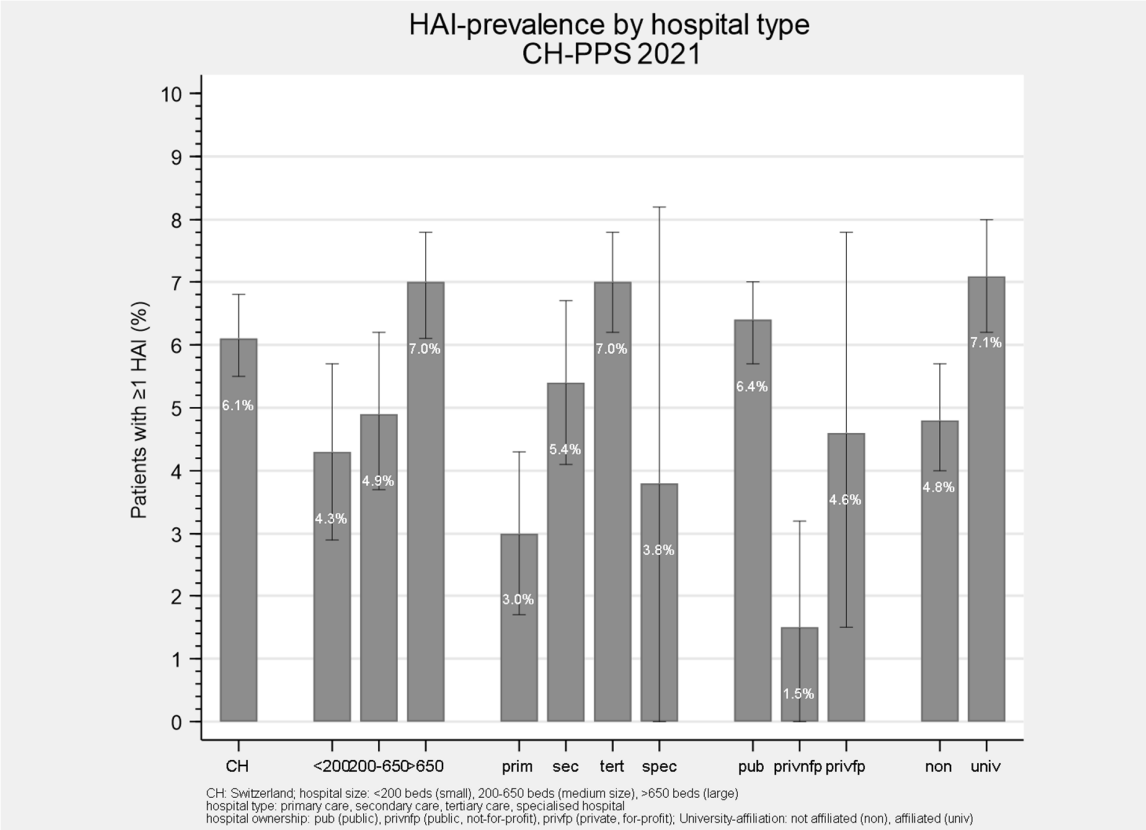
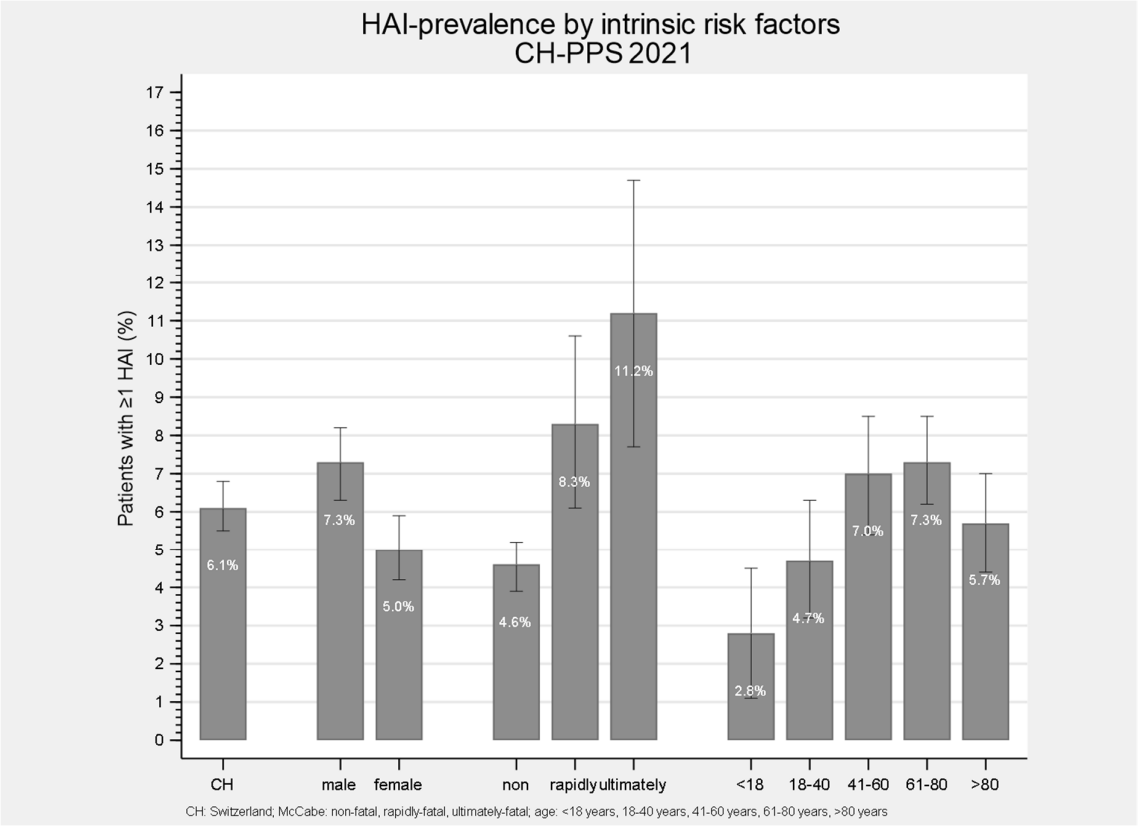


Figure 3: HAIs by hospital-size, type and ownership



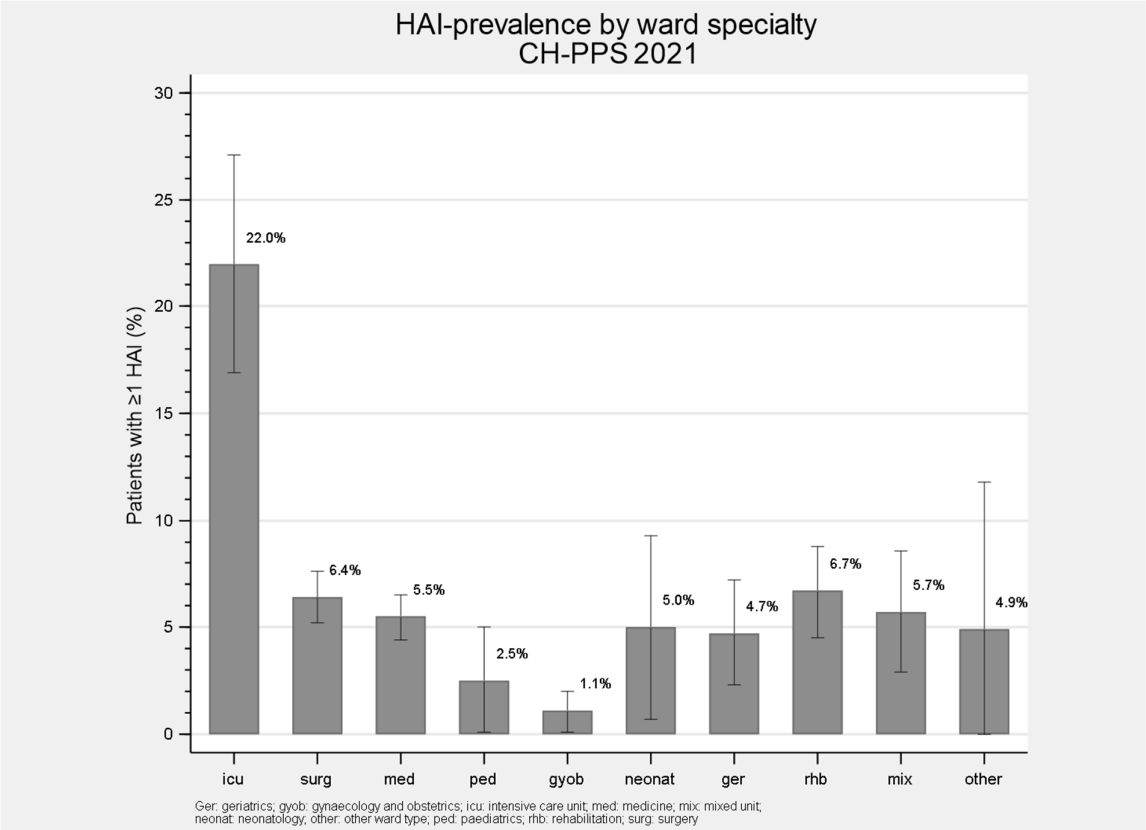
<200: small-size hospitals; 200-650: medium-size hospitals; >650: large-size hospitals; prim: primary care hospitals; sec: secondary care hospitals; tert: tertiary care hospitals; spec: specialized hospitals; pub: public hospitals; privnfp: private not-for-profit hospitals; privfp: private for-profit hospitals; non-univ: non-university affiliated hospitals; univ: university affiliated hospitals

Figure 4: HAIs by patient gender, McCabe score and age (in years)



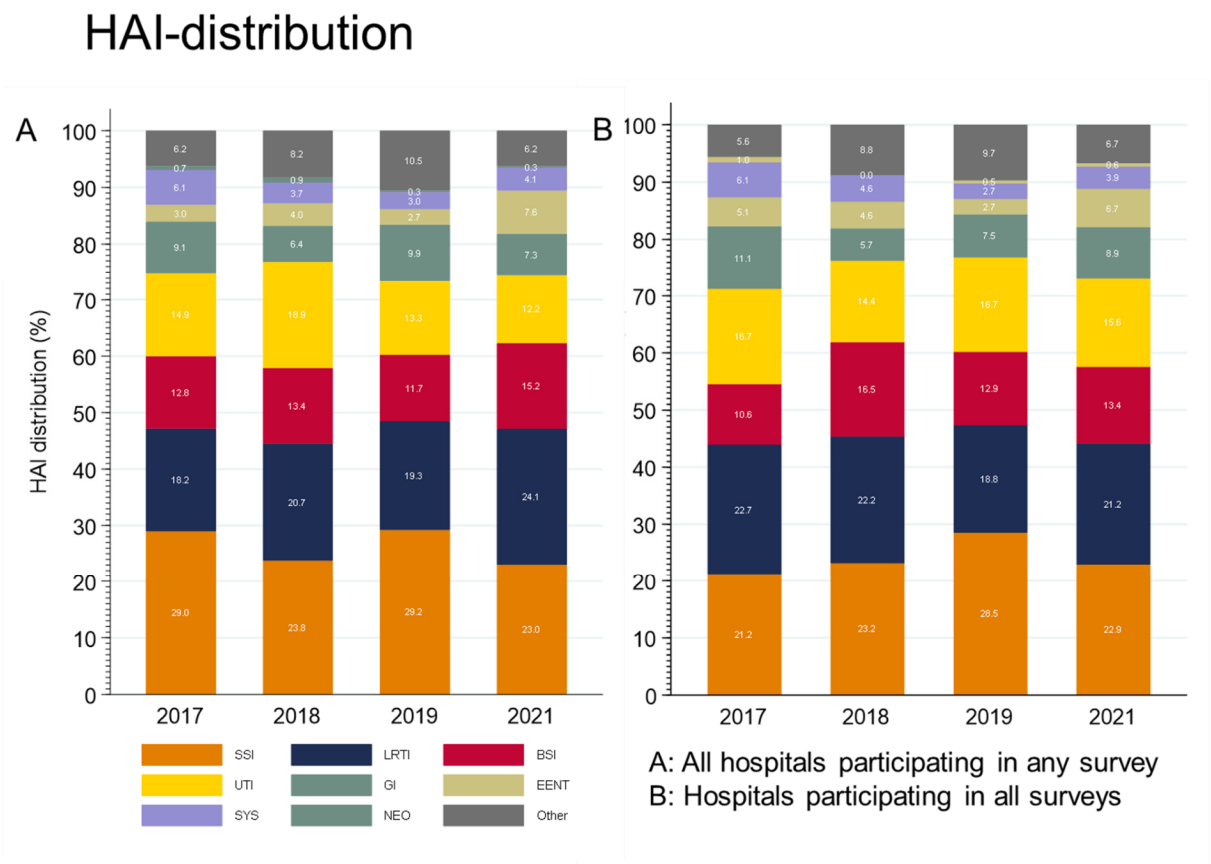
McCabe score: non: non fatal (>5 years of expected survival); rapidly: rapidly fatal (1-5 years of expected survival); ultimately: ultimately fatal (<1 year of expected survival), <18: <18 years old, 18-40: 18-40 years old, 41-60: 41-60 years old, 61-80: 61-80 years old, >80: >80 years old

Figure 5: HAIs by ward specialty



ICU: Intensive care unit; surg: surgery; med: medicine; ped: paediatrics; gyob: gynaecology-obstretics; neonat: neonatology, ger: geriatrics; rhb: rehabilitation; mix: mixed, other: other wards

Figure 6: HAI distribution by infection type in all hospitals (A) and the subset of hospitals participating in all surveys (B)



SSI: surgical-site infection, LRTI: lower respiratory tract infection, BSI: bloodstream infection, UTI: urinary tract infection, GI: gastrointestinal infection, EENT: eye ; ear ; nose ; throat ; or mouth infection, SYS: systemic infection, NEO: specific neonatal case definitons

Figure 7: Antimicrobial use in 2021 PPS and in previous surveys

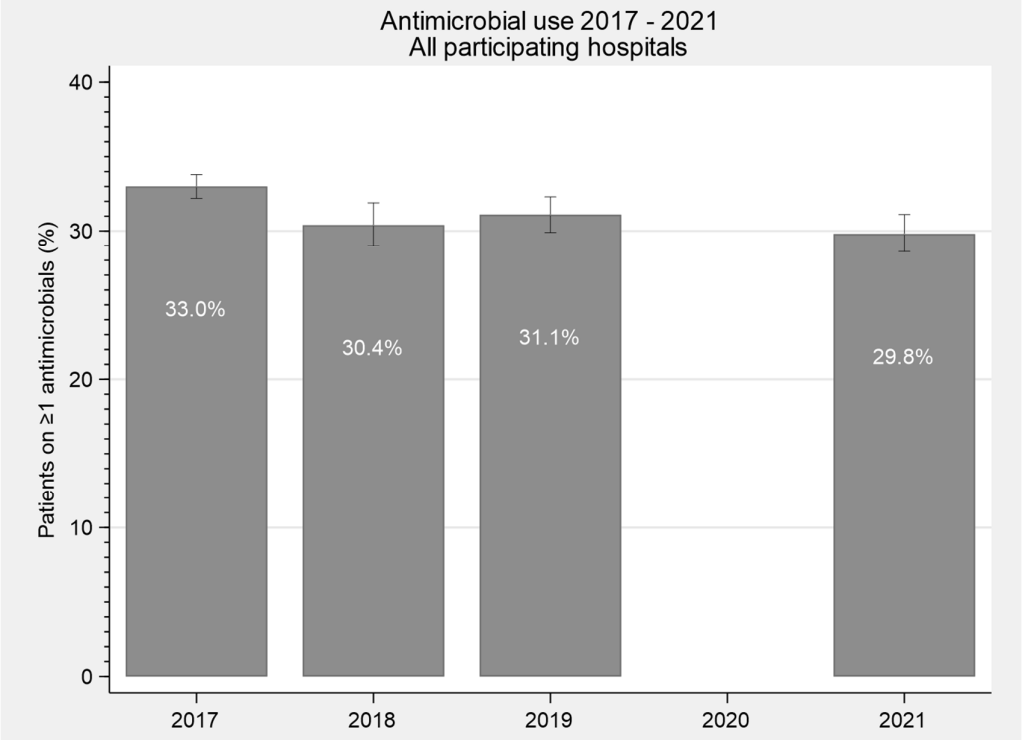


Figure 8: Antimicrobial use in hospitals participating in all surveys

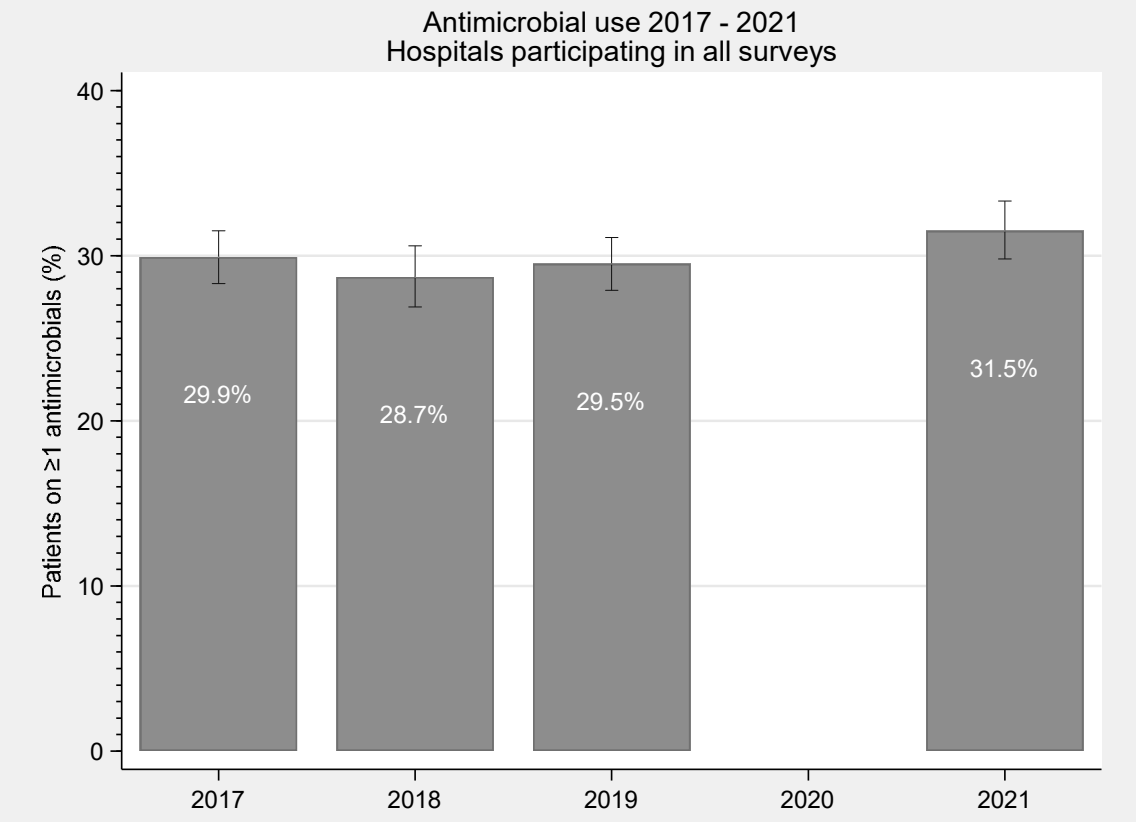


Figure 9: AU by patient gender, McCabe score and age (in years)

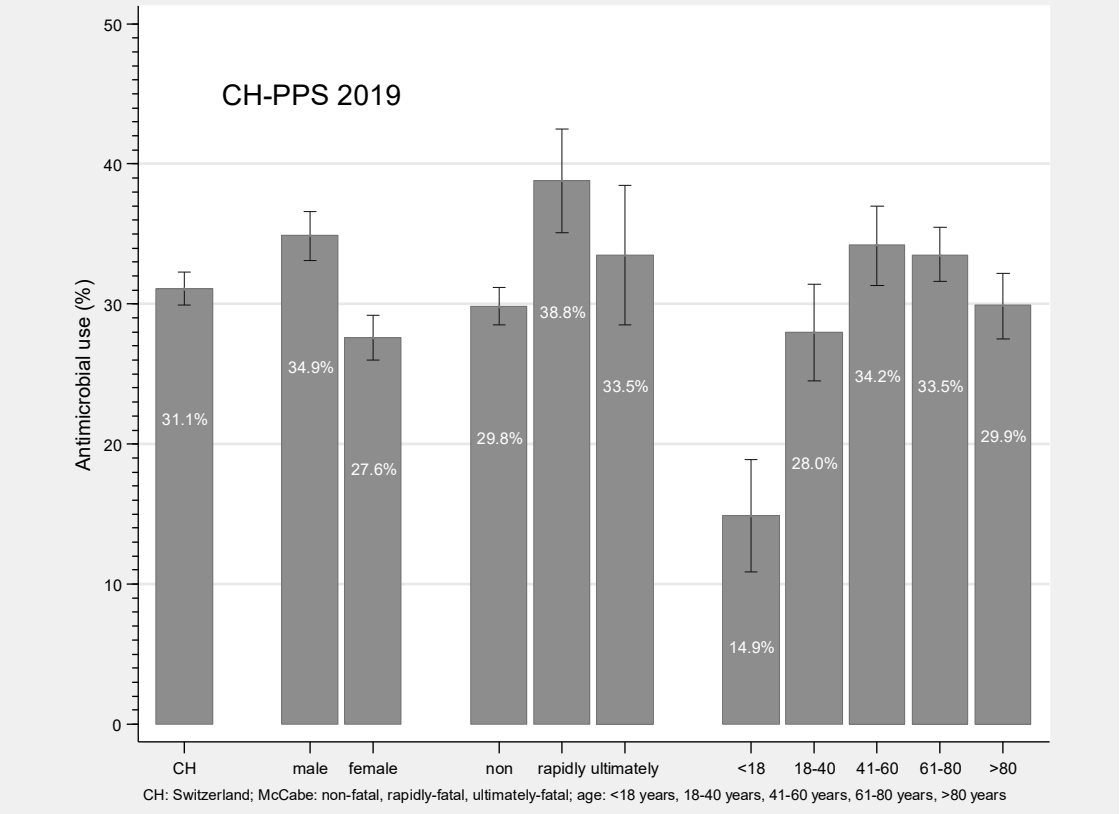


Figure 10: Antimicrobials accounting for 75% of antimicrobial use