

Hôpitaux Universitaires de Genève

Point Prevalence Survey 2018 of healthcare-associated infections and antimicrobial use in Swiss acute care hospitals

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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
HUG	University Hospitals of Geneva (Hôpitaux Universitaires de Genève)
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

Switzerland performed its first point prevalence survey (CH-PPS) on healthcare-associated infections (HAI) and antimicrobial use (AU) between April and May 2017. Participation exceeded expectations with approximately 13,000 patients from 96 acute care hospitals throughout Switzerland. The data analysis revealed a HAI-prevalence of 5.9%, which places Switzerland at the European average. CH-PPS is part of the “Strategy NOSO”, which is a public health priority within the “Health2020” agenda of the Swiss Confederation. “Strategy NOSO” aims at reducing HAIs and containing the emergence and spread of antimicrobial resistance in the various healthcare settings in Switzerland. In this framework, the first national PPS generated results of substantial value at national level allowing direct comparison to countries within the European Union and the European Economic Area.

In 2018 there was interest expressed by a number of hospital administrations and Infection Prevention and Control (IPC) experts in providing the opportunity of estimating the burden of HAIs and AU at a hospital level on a yearly basis. Prospective PPSs will allow monitoring of HAI ratios in the country and will serve as an index of progress in the efforts dedicated to HAI reduction. Thanks to the support of the Swiss Federal Office of Public Health (FOPH), the Swissnoso infrastructure and the Coordination Center of the Swiss prevalence survey (database, training, study protocol, counselling) remained available to hospitals interested in carrying out such PPS on a yearly basis.

Between April and June 2018, 21 acute care hospitals accepted voluntary participation in the PPS and provided data on 4'828 patients. Among these hospitals, 12 were small-size (<200 beds), 6 medium-size (200-650 beds) and 3 large-size (>650 beds). These latter were also university-affiliated.

The HAI prevalence was 6.2%; among hospitals participating in both surveys, the HAI prevalence was at 6.2% compared to the prevalence of 6.9% in 2017. Large-size, tertiary care hospitals and university-affiliated had a higher prevalence of HAIs compared to their category comparators (7.0%). Surgical site infections (SSI) were the most common type of infections, followed by lower respiratory tract infections (LRTI), urinary tract infections (UTI) and bloodstream infections (BSI).

Approximately a third of the patients received on or more antimicrobials (30.4%) on the day of survey (one of the university-affiliated hospitals did not provide data on AU); 3rd and 4th-generation cephalosporins, piperacillin-tazobactam, fluoroquinolones and carbapenems were the antimicrobials the most frequently used groups of antimicrobials.

Differences of HAI and AU between 2017 and 2018 were not statistically significant, neither in the overall PPS populations, nor among hospitals participating in both surveys. PPS will be repeated in 2020 at a national level; results and outputs are expected with great interest as systematic efforts are made to ensure an optimal HAI prevention and management.

Survey design and methodology

As in the previous year, an invitation letter was sent to all Swiss acute-care hospitals. Participation was voluntary, and there was neither financial incentive, nor reimbursement. Hospitals were invited to perform their PPS between April and June 2018 in a 14 day timeframe, and include all acute-care patients (adults, children and neonates) in the survey, except patients in the emergency department and in psychiatric wards.

The **Swiss protocol of point prevalence survey on HAI and AU** issued in 2017 was also applied in 2018. This protocol, based to the standard version of the second ECDC-PPS protocol (*ECDC Protocol version 5.3 for the ECDC-PPS II*), was available in three official Swiss languages (German, French and Italian). In order to decrease the workload for hospital investigators and to encourage participation, reporting of hospital indicators was optional in 2018.

Implementation

Training courses

Three training courses were realized; one in German-speaking part, one in French-speaking part and one in Ticino. The following table presents the locations of the three courses.

Table 1: Training-the trainer courses schedule

Date	Place	Language
02.05.2018	Centre Hospitalier Universitaire Vaudois, Lausanne	FR
24.05.2018	FREI connect, Zürich	DE
07.05.2018	Ospedale Civico Lugano	FR

List of participating hospitals

Twenty-one hospitals accepted to participate in the survey (Table 2).

Table 2: Participating hospitals by canton in alphabetic order

AI	Kantonales Spital und Pflegezentrum Appenzell
BE	Regionalspital Emmental AG – Burgdorf SRO AG – Spital Region Oberaargau
BS	Claraspital Merian Iselin Klinik
FR	Hôpital Daler
GE	Hôpitaux Universitaires de Genève Clinique Générale Beaulieu
GR	Flury Stiftung - Spital Schiers
JU	Hôpital du Jura – Hôpital Delémont
LU	Schweizer Paraplegiker-Zentrum, Nottwil
SO	Privatklinik Obach
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 Clinica Luganese Moncucco
VD	CHUV
ZH	Universitätsspital Zürich Spital Bülach

Swiss PPS website

PPS website (<https://www.swissnoso.ch/forschung-entwicklung/punktpraevalenz-erhebung-2017/ueber-die-punktpraevalenz-erhebung/>) was updated and included all PPS-relative information included methodology and protocols, date of training courses and contact of the Coordination Center.

Data management

PPS database remained also the same; hospitals which have already participated in 2017 could use their credentials for database access.

Results

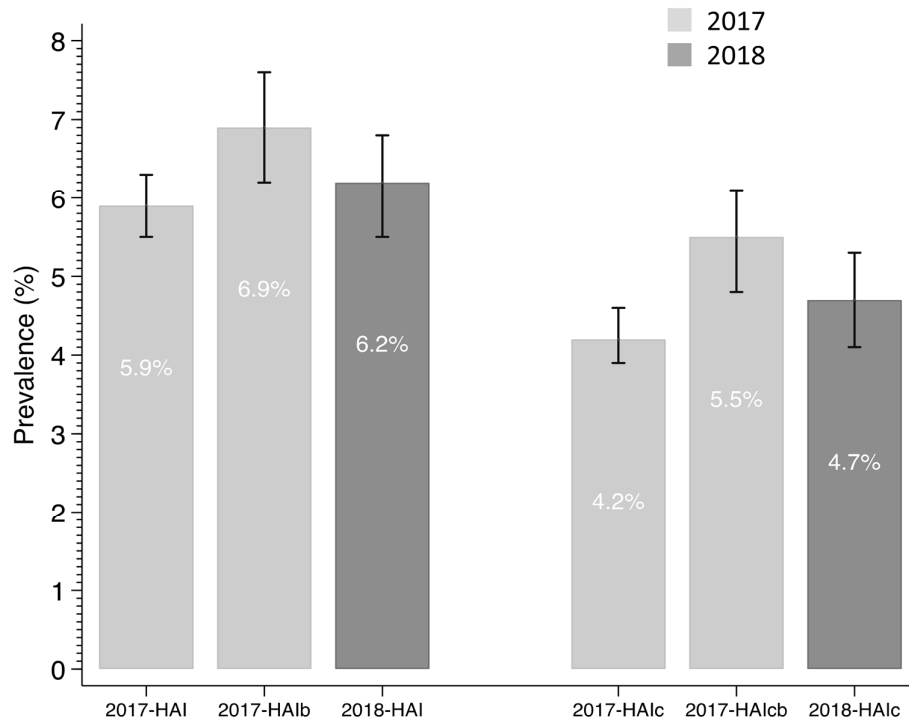
Results are presented in comparison with 2017 PPS, and for hospitals participating in both surveys.

Table 3: Characteristics of hospitals and patients

		2017	2018
Hospitals			
	N	96	21
	<200	63	14
	200-650	26	4
	>650	7	3
	University-affiliation	5	3
Patients			
	N	12'931	4'828
	Age	64 (48-80)	69 (48-81)
	Male gender	47.8 (47.0-48.7)	48.1 (46.7-49.5)
	Fatal McCabe	19.2 (18.5-19.9)	20.7 (19.6-21.9)

Figure 1: HAI Prevalence

CH-PPS – HAI in 2017/2018



B: hospitals participating in both surveys; c: HAI during current hospitalisation

Figure 2: HAIs by hospital-size

CH-PPS – HAI by hospital size

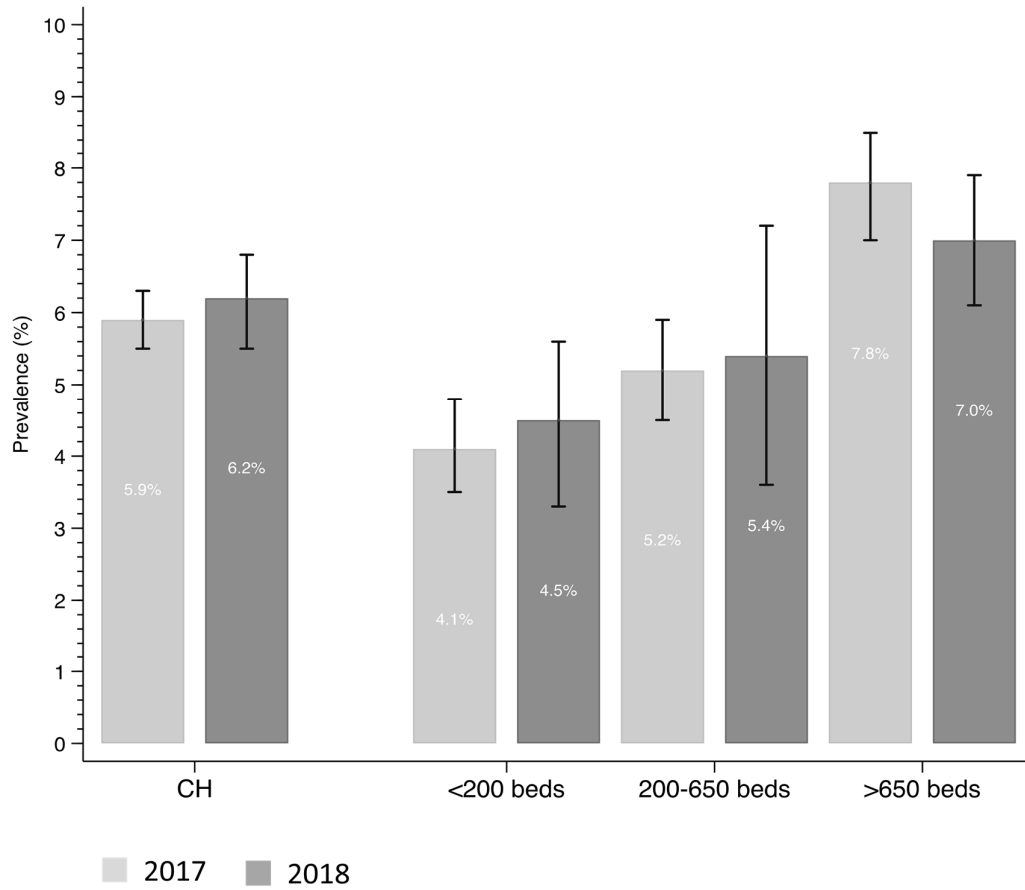
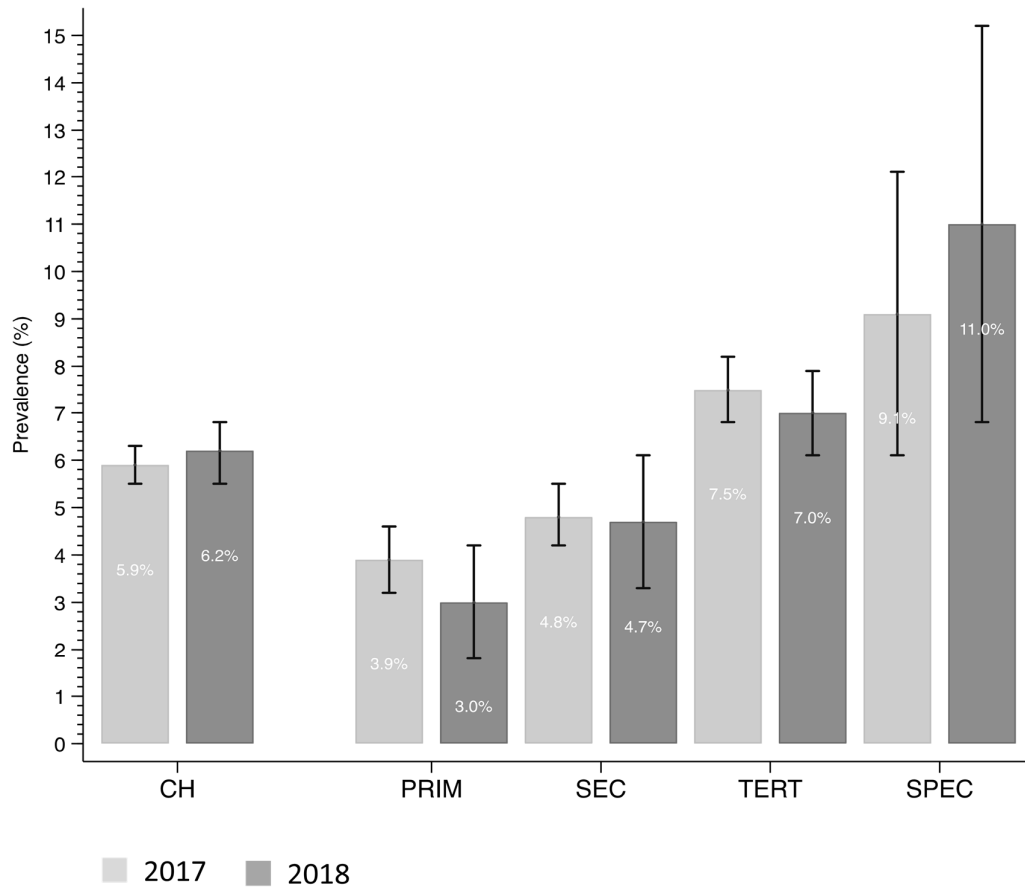


Figure 3: HAIs by hospital category

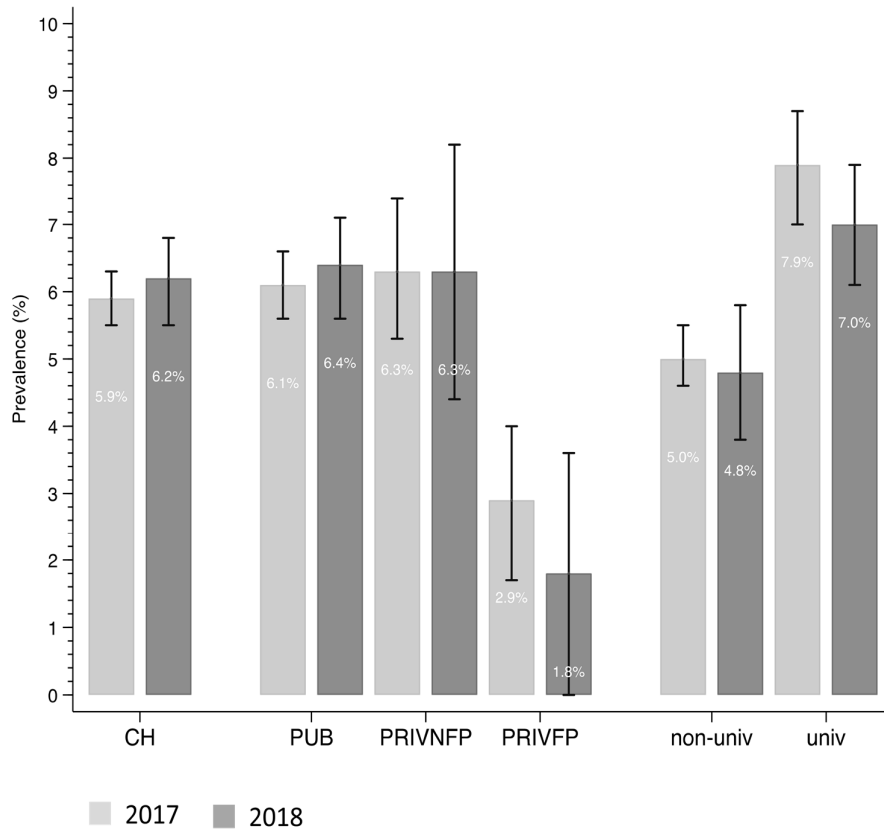
CH-PPS – HAI by hospital category



PRIM: primary care hospitals, SEC: secondary care hospitals, TERT: tertiary care hospitals, SPEC: Specialized hospitals

Figure 4: HAIs by hospital ownership and university-affiliation

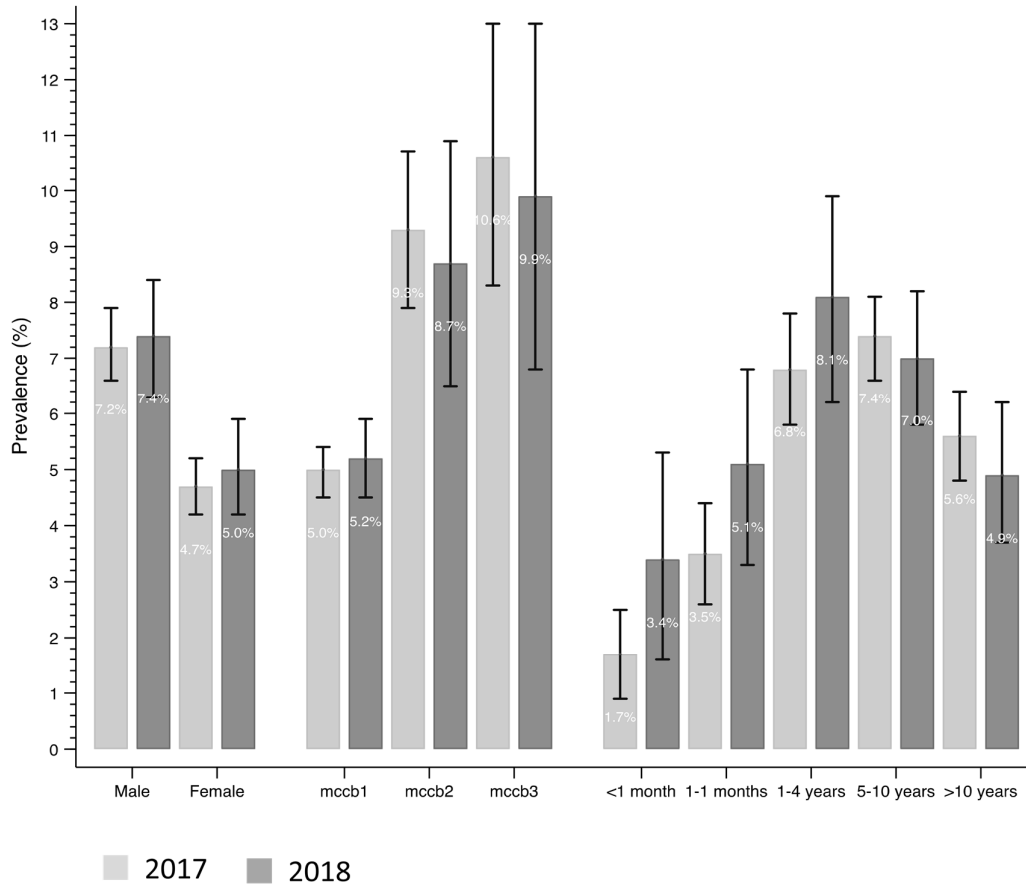
CH-PPS – HAI by ownership and university-affiliation



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 5: HAIs by patient characteristics (sex, McCabe score, age)

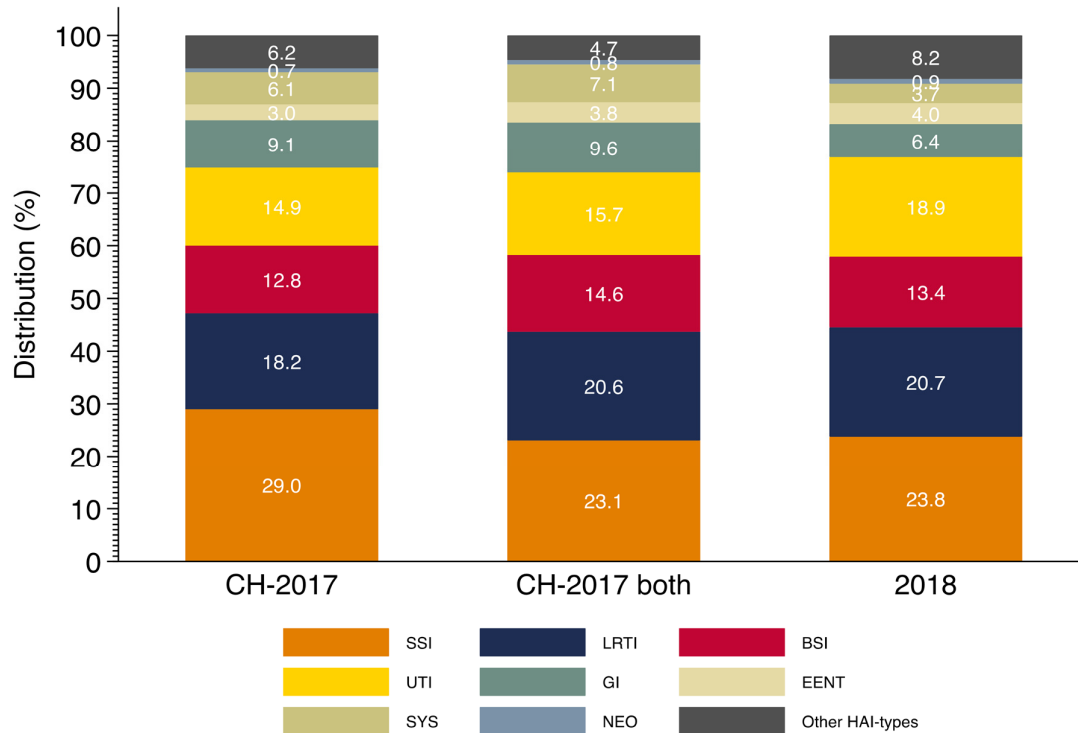
CH-PPS – HAI by patient characteristics



Mccb: McCabe score

Figure 6: HAI distribution by infection type

CH-PPS – HAI distribution



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

CH-PPS – Antimicrobial use

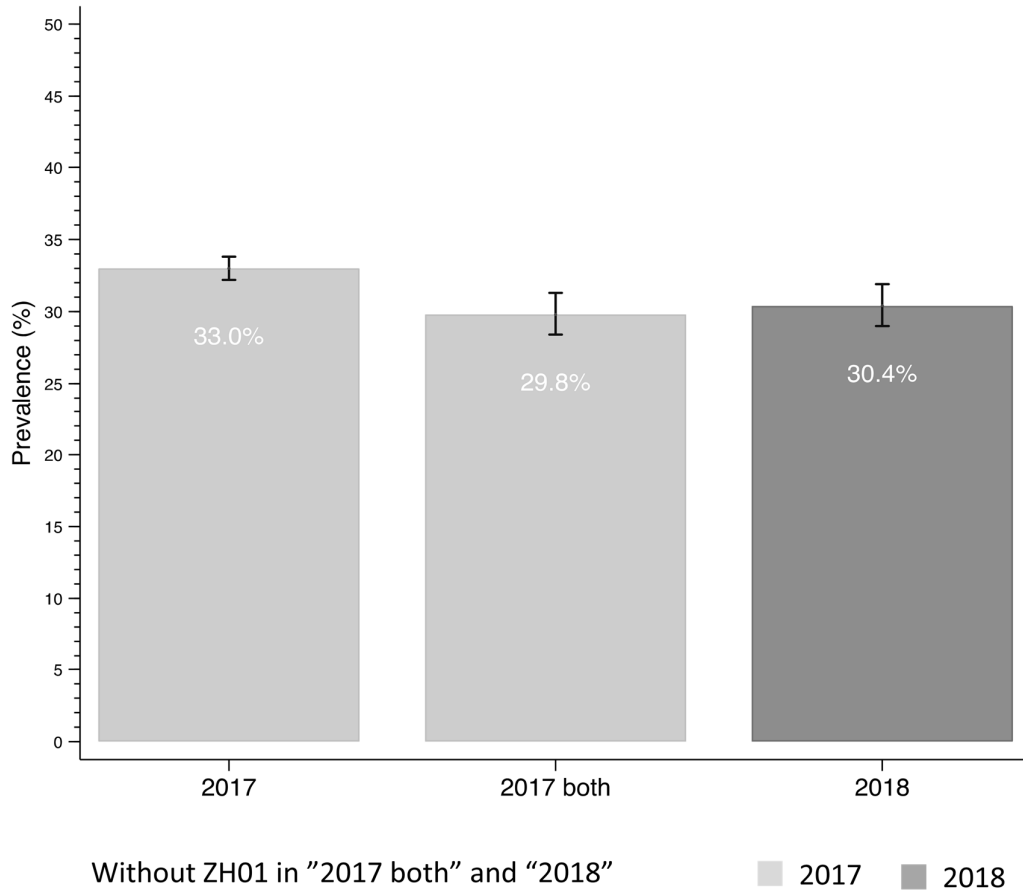
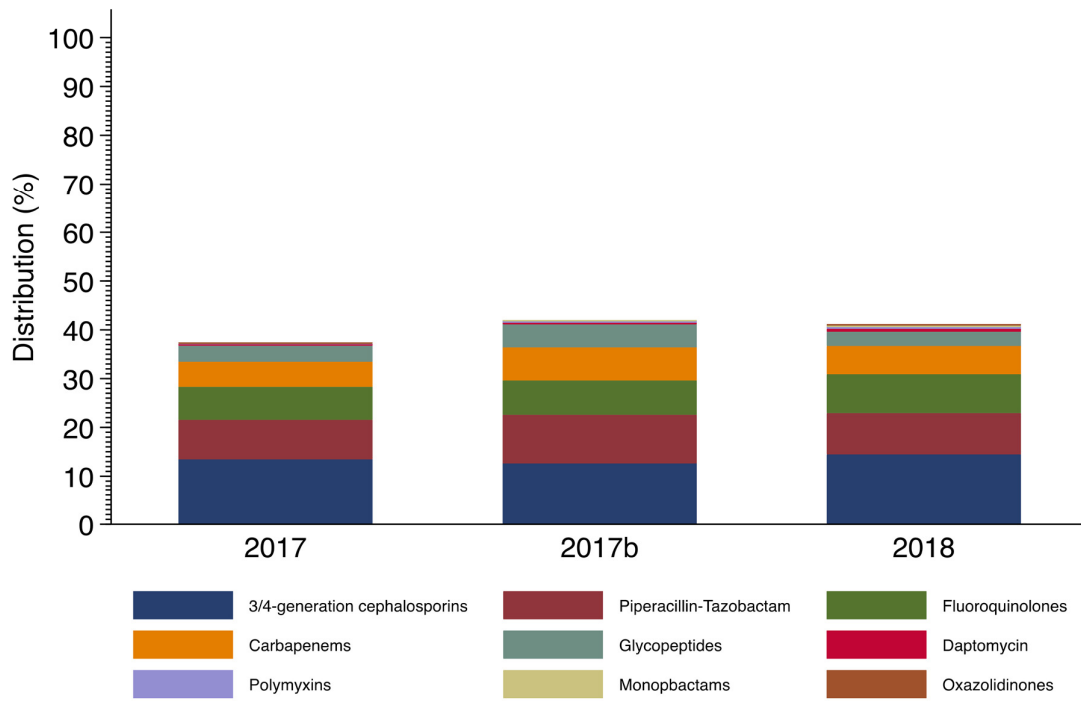


Figure 8: Use of broad-spectrum antibiotics

CH-PPS – Use of broad-spectrum antibiotics



2017b: hospitals participating in both surveys