Supplemental material

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Supplementary file

Table 1: Ethiopia's healthcare system profile

S.N	Variable	Response
1.	ISO code of Ethiopia	ETH
2.	Total number of hospitals at any level (tertiary, secondary, primary and specialized) in the country.	464
3.	Number of public hospitals in the country.	378
4.	Estimated number of private hospitals in the country	86
5.	Estimated number of tertiary level (university teaching and specialized hospital) hospitals in the country.	25
6.	Number of secondary level (General) hospitals in the country.	58
7.	Estimated number of primary hospitals in the country.	381
8.	Is Hospital grouping exist in the country	No
9.	Hospital survey sampling strategy	Convenience sampling
10.	Number of hospitals for the survey	**10**
11.	Does a national treatment guideline exist?	Yes
12.	Does facility-based treatment guidelines exist	No
13.	Does a national hospital ASP exists	Yes

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Table 2: The 10 surveyed hospitals profile

S.N	Variable	Mean ± SD	Median(Range)
1.	Number of beds in the surveyed hospitals	443 ± 164	410(223-700)
2.	Number of acute care beds	349 ± 134	314(186-600)
3.	Number of intensive care unit beds	34 ± 24	32(6-82)
4.	Number of high risk beds	22 ± 19	18(0-51)
5.	Annual overall admissions in the hospitals in the previous physical year, i.e. 2012 E.C.#	16471 ± 7405	13885 (7025-30456)
6.	Overall patient days in the hospitals for the previous physical year i.e. 2012 E.C.*	94679 ± 45583	79254(48931-176,742)
7.	Average length of hospital stay in days	6 .53 ± 1.48	6.0(4.8-10.2)
8.	Sum of the number of beds of the wards included in the survey (Total= 2628 beds)	293 ± 153	214(103-541)
9.	Number of patients eligible for inclusion in the survey. (Total= 2209 patients)	240 ± 115	203(103-474)
10.	Number of patients included in the survey (Total= 1820).	182± 61	161(103-325)

#emergency admission over 24 hours was not included. * **Patient days:** over all admission * average length of hospital stay.

Current and past medical history, January 7-29, 2021 G.C.

Variable		Number of patients	Percentage
Current hospitalization malarial status	Yes	33	1.8
	No	1439	79.1
	Unknown	348	19.1
Previous malarial treatment history	Yes	41	2.3
	No	1517	83.3
	Unknown	262	14.4
Active tuberculosis	Yes	76	4.2

	No	1499	82.4
	Unknown	245	13.4
COPD	Yes	28	1.5
	No	1792	98.5
Malnutrition	Yes	277	15.2
	No	1543	84.8
McCabe Score	RF	86	4.7
	UF	258	14.2
	NF	1476	81.1
Referred from another hospital		501	27.5
Referred from another facility other than hospital		447	25.1
Hospitalization history within 90 days		562	30.9

RF= Rapidly fatal, UF= Ultimately fatal, NF= Non-fatal, COPD= Chronic obstructive pulmonary disease, RVI= Retroviral infection

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Table 3: Existing surveyed hospitals capacity to promote rational use of antibiotics

Variable	Yes, N(%)
Hospital infrastructure	
Functioning Drugs and Therapeutics Committee	8(80.0)
Functioning Infection Prevention & Control Committee	10(100.0)
Microbiological laboratory service	8(80.0)
Availability of a formal organizational structure responsible for ASP	10(100.0)
A physician ASP leader	10(100.0)
Availability of a ASP team	7(70.0)
Availability of functional ASP in the hospital	0(0.0)
Availability of pharmacist responsible for ensuring appropriate antibiotic use	9(90.0)
Incentive package for dedicated staff for ASP	0(0.0)
IT support for ASP	0(0.0)
Availability of outpatient parenteral antibiotic therapy (OPAT) unit	0(0.0)
Policy and practice	
Availability of antibiotic formulary (including unrestricted and restricted antibiotics) updated continuously	0(0.0)
Antibiotic formulary based on the Essential Drug List	0(0.0)
Institutional antibiotic guideline	3(30.0)
Institutional antibiotic guidelines based on local Antibiogram	1(10.0)

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A written policy that requires prescribers to document an indication in the medical records	2(20.0)
Preauthorization policy	1(10.0)
Post-prescription review service	7(70.0)
Monitoring and feedback	
Monitoring of antibiotics indications on medical record	5(50.0)
Monitoring of surgical antibiotic prophylaxis choice and duration	2(20.0)
Results of antibiotic audits are communicated directly with prescribers	7(70.0)
Monitor of antibiotic use	1(10.0)
Monitoring of antibiotic use by DDD or DOT	0(0.0)
Antibiotic use reported by hospital activity denominator	0(0.0)
Annual report focused on ASP in the past year	2(20.0)
A cumulative antibiotic susceptibility report in the past year	3(30.0)
A national antibiotic resistance surveillance program participation	4(40.0)
A national antibiotic use surveillance program participation	0(0.0)
Number of blood cultures done in the past year, N= 7- hospitals	Mean ± SD	2625 ± 3307
	Median(Range) IQR	1707(452-9860), 680-2786
List of antibiotics out of stock at the facility during the survey period.	Cefepime 1g, Meropenam 1g and 0.5g, Piperacillin-Tazobactam 4.5g, Ciprofloxacin 0.4mg , ceftazidime 1gm, Metronidazole 0.5g and Gentamycin 80mg injections were stock out in all of the surveyed hospitals. Vancomycin 1g and 0.5g was also stock out at two surveyed hospitals.	

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Table 5: Antibiotics prescription and indication

Variable		Number	Percentage
Total number of antibiotics prescribed since admission		3192	
Number of antibiotics prescribed/ patient since admission: **N= 1410 patients**			
	1	379	26.9
	2	632	44.8
	3	203	14.3
	4	117	8.3
	5	42	3.0
	6	19	1.3
	Others*	18	1.2
Overall antibiotics prescribed on the day of survey		2058	
Number of antibiotics given/patient at a time of survey: **N= 1162 patients**			
	1	432	37.1
	2	585	50.4
	3	124	10.7
	4	18	1.6
	5	3	0.3
Route of administration: **N= 2059 antibiotics**			
	Oral	201	9.8
	Parenteral	1858	90.2
Antibiotics prescription note: **N= 2059 antibiotics**			
	Brand	61	2.9
	Generic	1998	97.1
Indication of antibiotics written on patient notes: **N= 1162 patients**			
	No	51	4.4
	Yes	1111	95.6
Antibiotics duration in days (From time of initiation to survey date):Median: 5 days; IQR: 3-10 days			
Type of treatment**, N=866 patients			
	Empiric	837	96.7
	Definitive	29	3.3
Guideline compliance			
	Yes	637	54.8
	No	255	21.9
	Not assessable	237	20.4
	No information	33	2.8
Prescriber type			
	General practitioner	178	15.3
	Resident	949	81.7
	Specialist	35	3.0

*Others: 7 antibiotics= 5 patients; 8 antibiotics=8 patients; 9 antibiotics=3 patients; 10 antibiotics= 1 patient; 12 antibiotics=1 patient; ****Is** only for patients whose antibiotics indication is for HCAIs and CAIs