

Web Material

Rethinking Antimicrobial Resistance Surveillance:

A Role for Lot Quality Assurance Sampling

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Web Table 1: Description of sites participating in conventional AMR survey (April 2014 – May 2015) and LQAS-based AMR survey (September 2016 – June 2017) in Medan and Bandung, Indonesia

Location	Name	Setting	Description
Bandung	Hasan Sadikin Hospital	Urology outpatient	Tertiary hospital for greater Bandung region and the west Java province. Public and private sector
	Salamun hospital	Urology outpatient	Secondary care public sector. Patients referred from primary health care centers Northern parts of Bandung.
	Cibabat hospital	Urology outpatient	Secondary care public sector. Patients referred from primary health care centers Western parts of Bandung.
	Kasih Bunda hospital	OBGYN outpatient	Primary and secondary care private sector. Serves patients from Western district of Bandung
Medan	Martha Friska hospital	Urology outpatient	Secondary care for private sector. West district of Medan city.
	Zaman Kaban clinic	OBGYN outpatient	Primary and secondary care for private sector
	Pelindo hospital	Internal medicine outpatients	Secondary care public sector in area of Belawan Harbour.
	Adam Malik hospital	Internal Medicine ward OBGYN ward Neurology ward Surgery ward	Tertiary hospital public sector. Referral hospital for Sumatra Island. 750 bed capacities

OBGYN: obstetrics and gynaecology

Web Table 2: Definitions of suspected urinary tract infection to assess eligibility for conventional AMR survey (April 2014 – May 2015) and LQAS-based AMR survey (September 2016 – June 2017) in Medan and Bandung, Indonesia

Definition		Setting	At least one of the following symptoms within last 7 days
Community-acquired UTI			urgency, frequency, dysuria, suprapubic tenderness, costovertebral pain
Hospital-acquired UTI	No urinary catheter in-situ	Hospitalized for at least 48 hours	Urgency, frequency Dysuria, acute hematuria, suprapubic tenderness, costovertebral pain
	Urinary catheter in-situ	Having an indwelling urinary catheter for at least 48 hours	Acute hematuria, suprapubic tenderness, costovertebral pain, pyuria
	After removal of catheter	Having a urinary catheter removed within the last 48 hours	Urgency, frequency, dysuria, acute hematuria, suprapubic tenderness, costovertebral pain

UTI: Urinary Tract Infection

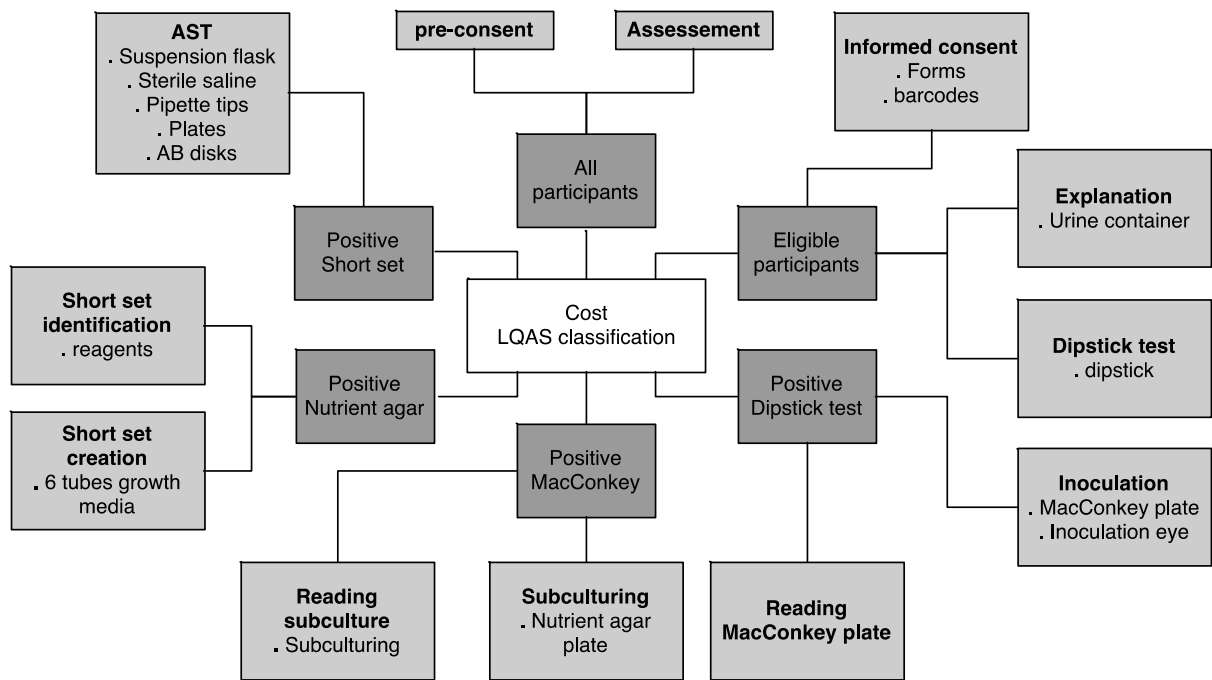
Web Table 3: item cost, sources and methodology used in cost study (May 2017) for LQAS-based AMR survey in two outpatient clinics in Medan, Indonesia

Setting	Category	Activity / item	Quantity	Source	Strategy
Enrolment/assessment	Time	Pre-consent	Nurse time	Nurse salary, financial department	Bottom-up
		Eligibility assessment	Nurse time	Nurse salary, financial department	Bottom-up
		Informed Consent	Nurse time	Nurse salary, financial department	Bottom-up
		Urine collection	Nurse time	Nurse salary, financial department	Bottom-up
		Urine Dipstick	Nurse time	Nurse salary, financial department	Bottom-up
		Administrative tasks	Nurse time	Nurse salary, financial department	Top-down
		Fixed costs	Cool box	Purchased amount	Purchase price, receipts
	consumables	Refrigerator	Purchased amount	Purchase price, receipts	Top-down
		Ice packs	Purchased amount	Purchase price, receipts	Top-down
		Informed consent sheet	Purchased amount	Purchase price, receipts	Top-down
		Bar code stickers	Purchased amount	Purchase price, receipts	Top-down
		Information sheets	Purchased amount	Purchase price, receipts	Top-down
		Sterile urine container	Amount used	Purchase price, receipts	Bottom-up
		Gloves	Amount used	Purchase price, receipts	Bottom-up
Laboratory	Time	Preparation and storage short set	Laboratory time,	Laboratory analyst salary, financial department, interview	Top-down
		Preparation and storage of agar plates	Laboratory time,	Laboratory analyst salary, financial department, interview	Top-down
		Maintenance of freezer / fridge	Laboratory time,	Laboratory analyst salary, financial department, interview	Top-down
		Quality control of Agar	Laboratory time,	Laboratory analyst salary, financial department, interview	Top-down
		Quality control of Short set	Laboratory time,	Laboratory analyst salary, financial department, interview	Top-down
		Manual analysis of plates	Laboratory time,	Laboratory analyst salary, financial department, interview	Bottom-up
		Urine Cultures	Laboratory time,	Laboratory analyst salary, financial department, interview	Bottom-up
		Identification of bacteria in short set	Laboratory time,	Laboratory analyst salary, financial department, interview	Bottom-up
	Fixed costs	Freezer	Purchased amount	Purchase price, receipts	Top-down
		Fridge	Purchased amount	Purchase price, receipts	Top-down
		Ice pack	Purchased amount	Purchase price, receipts	Top-down
	Consumables	Gloves	Amount used	Purchase price, receipts	Bottom-up
		Petri Dishes	Amount used	Purchase price, receipts	Bottom-up
		Pipettes	Amount used	Purchase price, receipts	Bottom-up
		Combur 10 Dipstick	Amount used	Purchase price, receipts	Bottom-up
		Agar plates	Amount prepared	Price of materials and preparation costs, receipts	Bottom-up
		Calibrated loop	Amount used	Purchase price, receipts	Bottom-up
		Forms	Purchased amount	Purchase price, receipts	Bottom-up
		Glass foil	Purchased amount	Purchase price, receipts	Top-down
		Cryotubes	Amount used	Purchase price, receipts	Bottom-up
		Short set reagents	Amount prepared	Price of materials and preparation costs, receipts	Bottom-up

Web Table 4: Prevalence of resistance in conventional AMR survey (April 2014 – May 2015) in Medan and Bandung, Indonesia

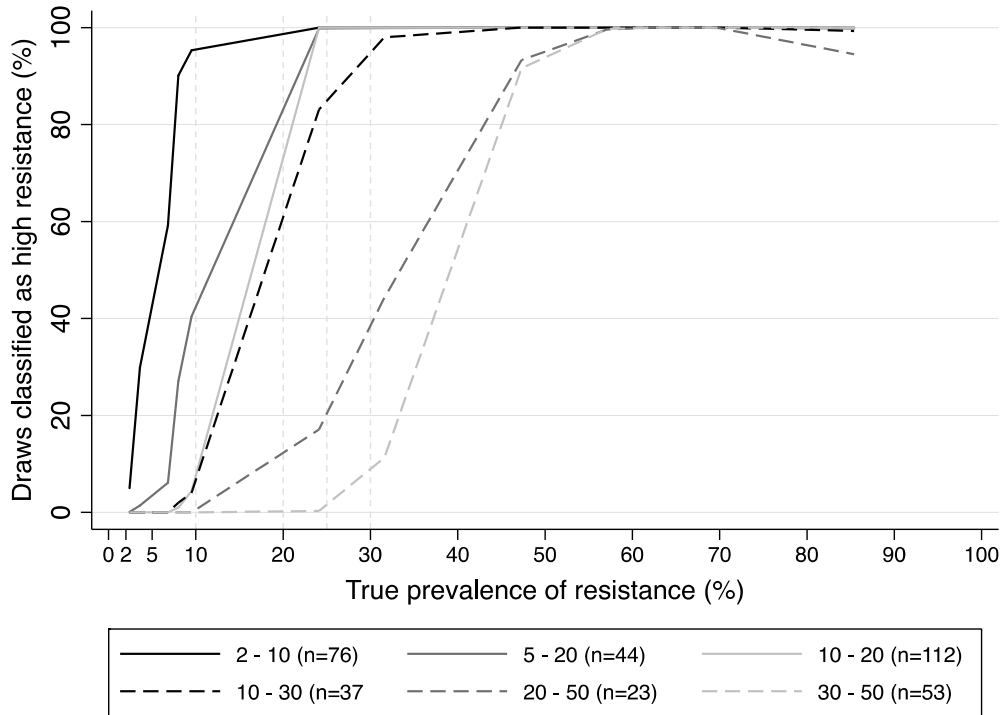
Antibiotic	tested	Resistant		
	n	n	%	95% CI
Amikacin	336	27	8.0	5.1, 10.9
Ampicillin	280	239	85.4	81.2, 89.5
Ciprofloxacin	336	223	66.4	61.3, 71.4
Gentamycin	336	106	31.5	22.6, 36.5
Ceftriaxone	336	192	57.1	51.8, 62.4
Cefuroxime	336	233	69.3	64.4, 74.3
Ertapenem	336	32	9.5	6.4, 12.7
Nitrofurantoin	336	81	24.1	19.5, 28.7
Cefepime	336	159	47.3	42.0, 52.7
Fosfomycin	292	7	2.4	0.6, 4.2
Levofloxacin	336	210	62.5	57.3, 67.7
Meropenem	336	12	3.6	1.6, 5.6
Tigecycline	252	17	6.7	3.6, 9.8

CI: Confidence Interval



Web Figure 1: cost items for specified LQAS process steps

All cost items are combined together in a single cost for obtaining an LQAS-classification for 15 antibiotics for a single site. The figure depicts the populations for which the cost is estimated (dark gray), and the activities with key line items performed for these populations (light gray)



Web Figure 2: Operating curves for identify draws classified as high prevalence of AMR given true prevalence of AMR in the population, for six LQAS-definitions