Observations of infection prevention and control practices in primary health care in Kenya

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Assessing Compliance with IPC Practices at Scale in Kenya

WHY IS THIS IMPORTANT?

CONTEXT Reducing health-care associated infections is a global priority → high costs to society that are preventable

CHALLENGES Little research to assess the extent of the problem in low- and middle-income settings and primary care

- Small samples
- One domain, one site
- Self-reports

To address these limitations, we…

Used an observational, patient-tracking tool to assess compliance with IPC practices across multiple domains and sites

Conducted the largest patient safety survey across LMI countries in 3 Kenyan counties

1,035 facilities (census), 1,680 healthcare workers, 14,328 patients

1. IDENTIFIED 3 PROCEDURES FOR OBSERVATION

Outpatient Services in Kenya*
(% of patients receiving services)

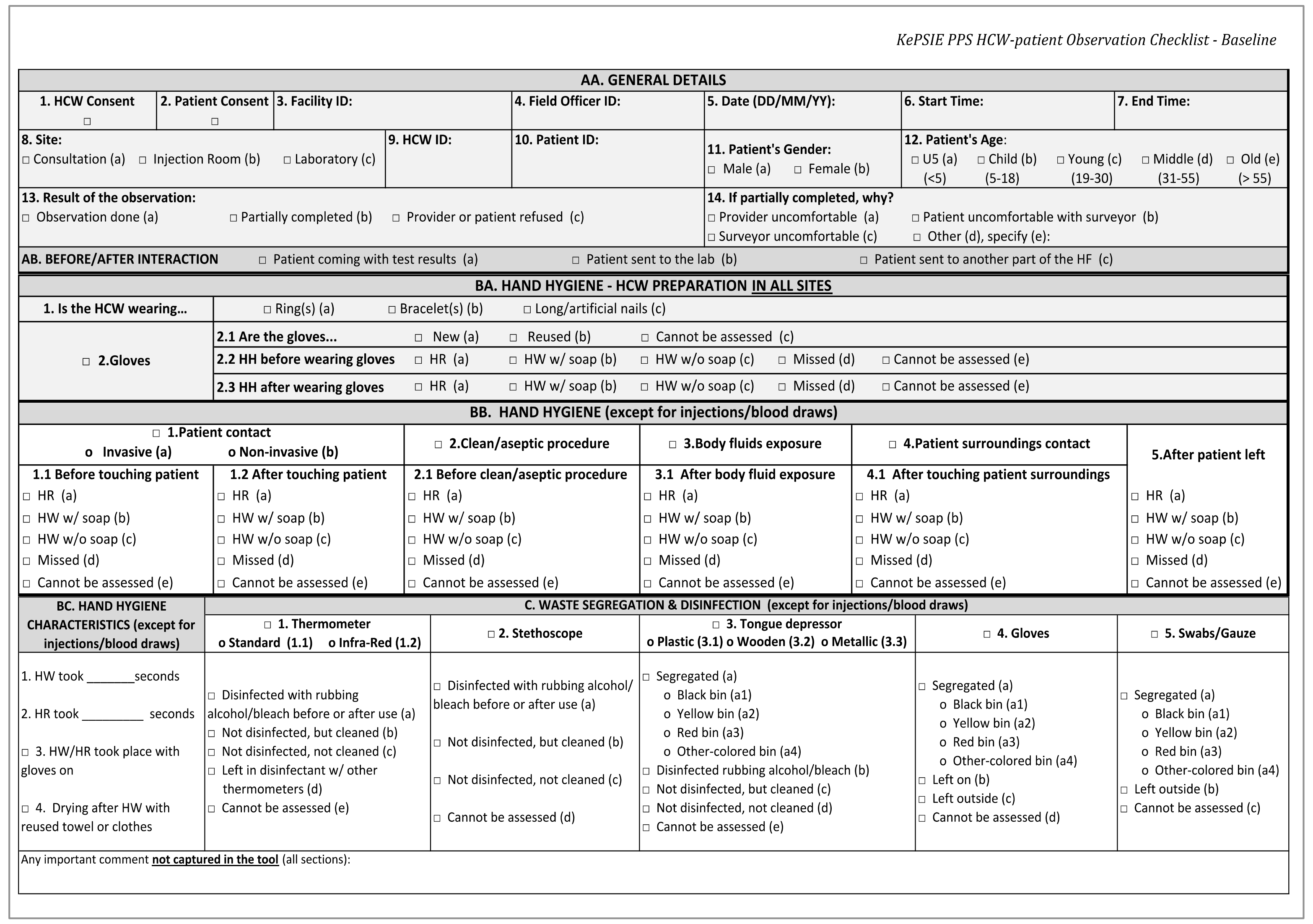
Examination	Injections	Lab Tests
(67% of patients)	(30% of patients)	(25% of patients)

2. IDENTIFIED 5 IPC DOMAINS FOR OBSERVATION

1. Hand Hygiene
2. Protective Gloves
3. Injections and Blood Samples
4. Reusable Equipment
5. Waste Segregation

3. DEVELOPED & PILOTED TOOL

Building on WHO tools



KePSIE PPS HCW-patient Observation Checklist - Baseline

AA. GENERAL DETAILS						
1. HCW Consent ☐	2. Patient Consent ☐	3. Facility ID:	4. Field Officer ID:	5. Date (DD/MM/YY):	6. Start Time:	7. End Time:
8. Site: ☐ Consultation (a) ☐ Injection Room (b) ☐ Laboratory (c)		9. HCW ID:	10. Patient ID:	11. Patient's Gender: ☐ Male (a) ☐ Female (b)	12. Patient's Age: ☐ U5 (a) (<5) ☐ Child (b) (5-18) ☐ Young (c) (19-30) ☐ Middle (d) (31-55) ☐ Old (e) (> 55)	
13. Result of the observation: ☐ Observation done (a) ☐ Partially completed (b) ☐ Provider or patient refused (c)				14. If partially completed, why? ☐ Provider uncomfortable (a) ☐ Patient uncomfortable with surveyor (b) ☐ Surveyor uncomfortable (c) ☐ Other (d), specify (e):		
AB. BEFORE/AFTER INTERACTION	☐ Patient coming with test results (a)		☐ Patient sent to the lab (b)		☐ Patient sent to another part of the HF (c)	

BA. HAND HYGIENE - HCW PREPARATION IN ALL SITES	
1. Is the HCW wearing...	☐ Ring(s) (a) ☐ Bracelet(s) (b) ☐ Long/artificial nails (c)
☐ 2.Gloves	2.1 Are the gloves... ☐ New (a) ☐ Reused (b) ☐ Cannot be assessed (c)
	2.2 HH before wearing gloves ☐ HR (a) ☐ HW w/ soap (b) ☐ HW w/o soap (c) ☐ Missed (d) ☐ Cannot be assessed (e)
	2.3 HH after wearing gloves ☐ HR (a) ☐ HW w/ soap (b) ☐ HW w/o soap (c) ☐ Missed (d) ☐ Cannot be assessed (e)

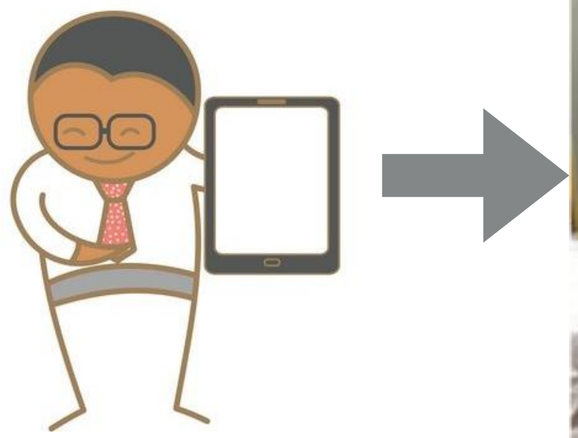
BB. HAND HYGIENE (except for injections/blood draws)					
☐ 1.Patient contact o Invasive (a) o Non-invasive (b)		☐ 2.Clean/aseptic procedure	☐ 3.Body fluids exposure	☐ 4.Patient surroundings contact	5.After patient left
1.1 Before touching patient	1.2 After touching patient	2.1 Before clean/aseptic procedure	3.1 After body fluid exposure	4.1 After touching patient surroundings	
☐ HR (a) ☐ HW w/ soap (b) ☐ HW w/o soap (c) ☐ Missed (d) ☐ Cannot be assessed (e)	☐ HR (a) ☐ HW w/ soap (b) ☐ HW w/o soap (c) ☐ Missed (d) ☐ Cannot be assessed (e)	☐ HR (a) ☐ HW w/ soap (b) ☐ HW w/o soap (c) ☐ Missed (d) ☐ Cannot be assessed (e)	☐ HR (a) ☐ HW w/ soap (b) ☐ HW w/o soap (c) ☐ Missed (d) ☐ Cannot be assessed (e)	☐ HR (a) ☐ HW w/ soap (b) ☐ HW w/o soap (c) ☐ Missed (d) ☐ Cannot be assessed (e)	☐ HR (a) ☐ HW w/ soap (b) ☐ HW w/o soap (c) ☐ Missed (d) ☐ Cannot be assessed (e)

BC. HAND HYGIENE CHARACTERISTICS (except for injections/blood draws)	C. WASTE SEGREGATION & DISINFECTION (except for injections/blood draws)				
	☐ 1. Thermometer o Standard (1.1) o Infra-Red (1.2)	☐ 2. Stethoscope	☐ 3. Tongue depressor o Plastic (3.1) o Wooden (3.2) o Metallic (3.3)	☐ 4. Gloves	☐ 5. Swabs/Gauze
1. HW took ______seconds 2. HR took ________ seconds ☐ 3. HW/HR took place with gloves on ☐ 4. Drying after HW with reused towel or clothes	☐ Disinfected with rubbing alcohol/bleach before or after use (a) ☐ Not disinfected, but cleaned (b) ☐ Not disinfected, not cleaned (c) ☐ Left in disinfectant w/ other thermometers (d) ☐ Cannot be assessed (e)	☐ Disinfected with rubbing alcohol/ bleach before or after use (a) ☐ Not disinfected, but cleaned (b) ☐ Not disinfected, not cleaned (c) ☐ Cannot be assessed (d)	☐ Segregated (a) o Black bin (a1) o Yellow bin (a2) o Red bin (a3) o Other-colored bin (a4) ☐ Disinfected rubbing alcohol/bleach (b) ☐ Not disinfected, but cleaned (c) ☐ Not disinfected, not cleaned (d) ☐ Cannot be assessed (e)	☐ Segregated (a) o Black bin (a1) o Yellow bin (a2) o Red bin (a3) o Other-colored bin (a4) ☐ Left on (b) ☐ Left outside (c) ☐ Cannot be assessed (d)	☐ Segregated (a) o Black bin (a1) o Yellow bin (a2) o Red bin (a3) o Other-colored bin (a4) ☐ Left outside (b) ☐ Cannot be assessed (c)

Any important comment **not captured in the tool** (all sections):

WHAT DID WE DO?

4. COLLECTED DATA IN ALL TYPES OF FACILITIES



tags

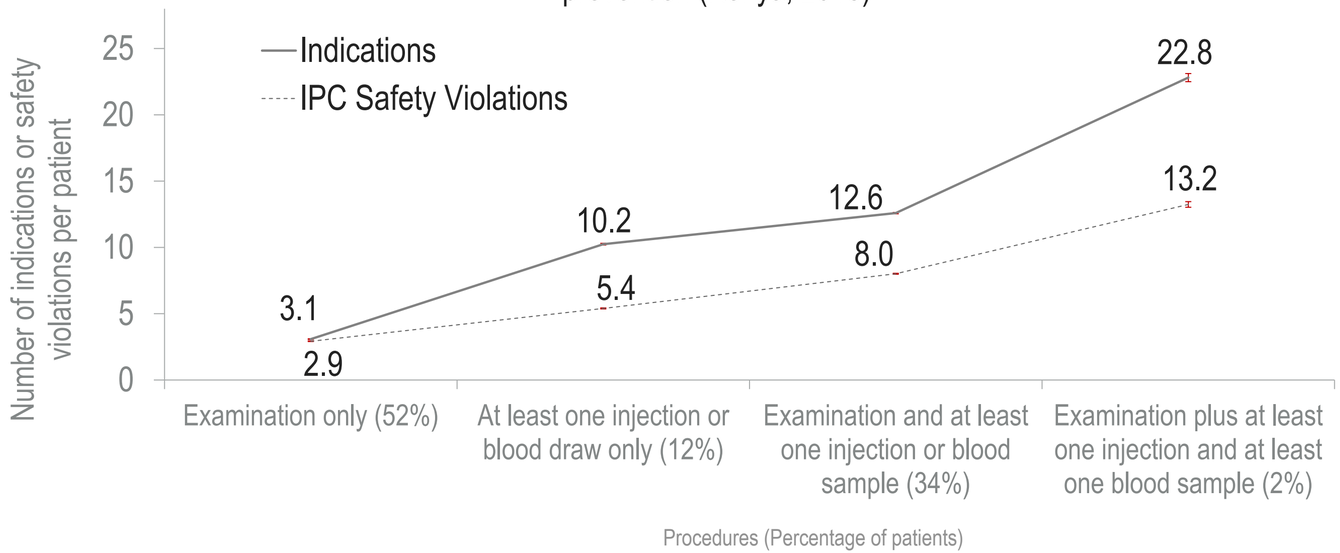
- Indications
- Safety Actions

HCW Practice + Knowledge + Availability of Supplies

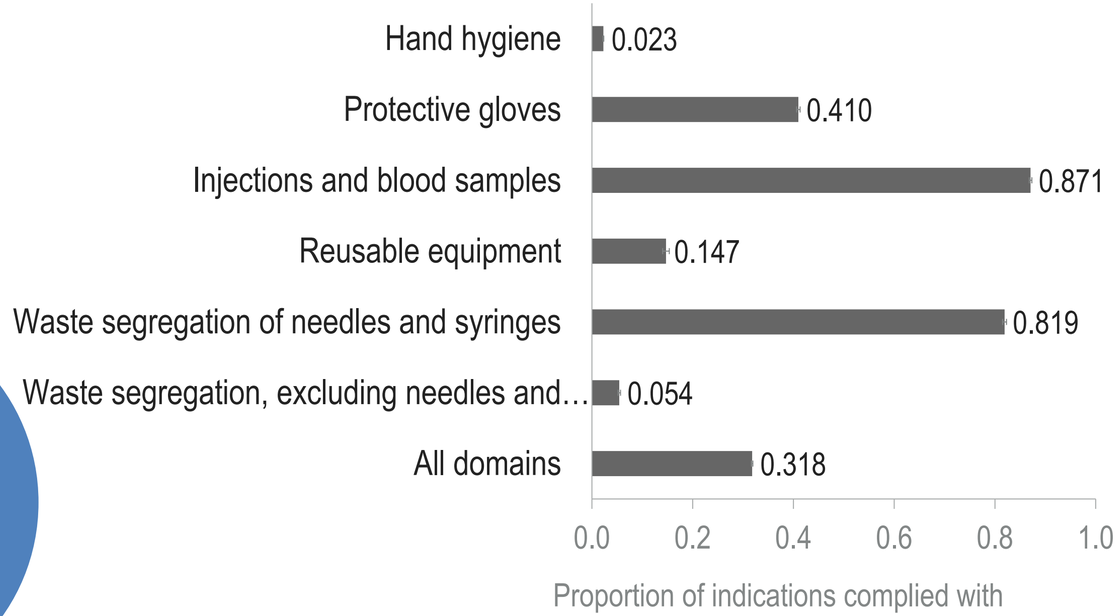
Low overall compliance with the 20 practices analyzed (31.8%) across 106,464 indications

Outpatients faced on average 7.5 safety indications and 5.1 safety violations during their visit (2.9 to 13.2)

Infection prevention and control indications and safety violations, infection prevention (Kenya, 2015)



Compliance with infection prevention and control practices, by infection prevention and control (Kenya, 2015)



Significant variation across domains

Very low compliance with hand hygiene practices (2.3%), the cornerstone of IPC

Very high compliance with practices related to injections and blood samples (87.1%)

WHAT DID WE FIND? 1/2

N …oportion of indications for an infection prevention and control practice for which the corresponding action was taken. An indication refers to a situation in which an infection prevention and control practice must be undertaken to prevent the risk of a pathogen being transmi… …e to another (Table 1). The data in the figure relate to all 106 464 indications observed.

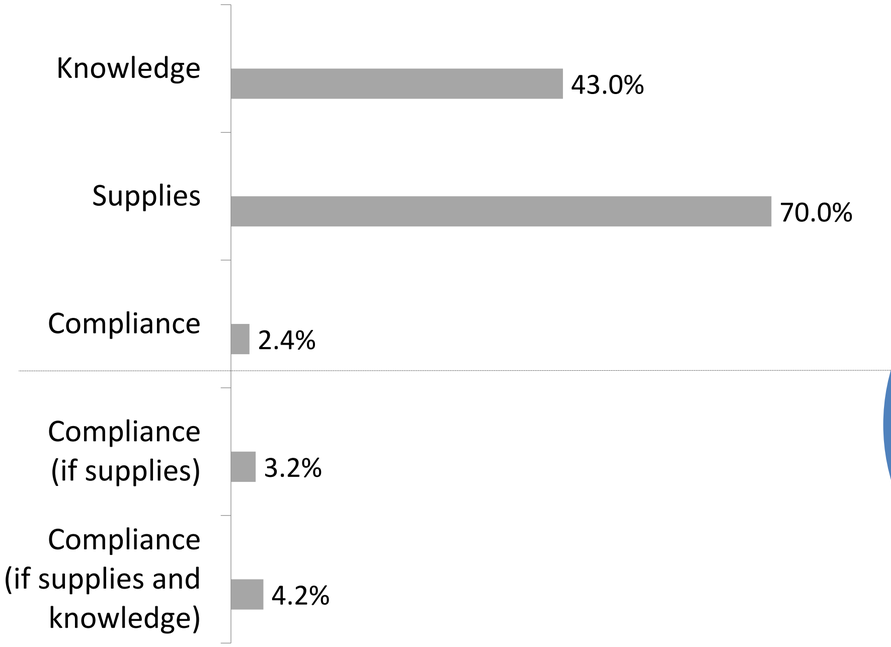
Significant know-do gaps across most domains

Knowledge or access to the needed supplies was always higher than compliance—sometimes notably so

Weak association between compliance and most characteristics of healthcare workers and facilities

Facility level (specialization, ownership type), healthcare worker level (age, education, gender), or IPC emphasis (availability of supplies, availability of Kenyan IPC manual, training on IPC in the last year)

Knowledge, Availability of Supplies and Compliance with Hand Hygiene Practice, Kenya*



WHAT DID WE FIND? 2/2

POLICY IMPLICATIONS

Real **progress in some domain**: compliance was **100% for the actions "using new needles and syringes** for injections and blood sampling" in our sample,

Weak association between compliance and healthcare worker knowledge and facility's characteristics supports the widely discussed concept that **patient safety is driven more by behavioral norms and biases than by technical knowledge, training, or the availability of supplies**

How to engender similar behavior change in other domains—particularly hand hygiene—remains the single biggest **challenge** for patient safety today

*Notes: * Estimates are based on data from facilities in 3 counties--Kakamega, Kilifi and Meru--and for which health-care workers' compliance, knowledge, and supplies were all non-missing (88 814 indications of the 106 464 indications).*

CAVEATS

- **Cannot currently link these compliance indicators to health outcomes**
- **Centered on clinical interaction, it leaves out equally important issues such as waste management** (11.1% of facilities had a standard operating procedure for waste management and 26.1% had an on-site incinerator or contract with a company for incineration).
- **Healthcare workers may change their behavior when they are being observed (the Hawthorne Effect).** We found no evidence of Hawthorne Effect

TAKEAWAYS

- **The observational tool was effective for assessing compliance with IPC practices across multiple domains in primary health care in Kenya**
  - 5-minute patient-provider interactions
  - 99% of patients and 100% of HCWs approached consented to being observed
- **High variance but overall low compliance**
- **Improvements will require a broader focus on behavioral change**

CAVEATS & TAKEAWAYS

Thank you!