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

**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

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

4. COLLECTED DATA IN ALL TYPES OF FACILITIES

WHAT DID WE DO?

HCW Practice + Knowledge + Availability of Supplies

Indications
Safety Actions
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)

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

**Hand hygiene**
- 0.023

**Protective gloves**
- 0.410

**Injections and blood samples**
- 0.871

**Reusable equipment**
- 0.147

**Waste segregation of needles and syringes**
- 0.819

**Waste segregation, excluding needles and...**
- 0.054

**All domains**
- 0.318

**WHAT DID WE FIND?**

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**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%)

**Significant variation across domains**

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

Procedures (Percentage of patients)

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Notes: The compliance is the proportion 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 transmitted from one surface 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)

**WHAT DID WE FIND?**

- **Knowledge** of hand hygiene was 43.0%
- **Supplies** were available 70.0% of the time.
- **Compliance** overall was 2.4%.
- **Compliance (if supplies)** was 3.2%.
- **Compliance (if supplies and knowledge)** was 4.2%.

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.

**POLICY IMPLICATIONS**

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

Thank you!