

**Title:** Availability of basic infection control items and personal protection equipment in 7948 health facilities in eight low- and middle-income countries: Evidence from national health system surveys

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**Abstract: Background** Hundreds of millions of people become infected globally every year while seeking care in health facilities that lack basic needs like infection control measures and personal protective equipment (PPE). We aimed to evaluate the availability of infection control items and PPE in eight low- and middle-income countries and identify disparities in the availability of those items.

**Methods** In this study, we combined publicly available nationally representative cross-sectional health system surveys (Service Provision Assessments by the Demographic and Health Survey Programme) conducted in eight countries between 2013 and 2018: Afghanistan, Bangladesh, the Democratic Republic of the Congo, Haiti, Malawi, Nepal, Senegal, and Tanzania. The availability of infection control items was evaluated using a list of six items (a waste receptacle, a sharps container, disinfectant, single-use disposable or auto-disposable syringes, soap and running water, or an alcohol-based hand rub, and guidelines for standard precautions). PPE includes four items: gloves, medical masks, gowns, and eye protection. We considered these items available in a facility if they were observed in general outpatient areas or any service-specific area (i.e. delivery room).

**Results** We analysed data from 7948 health facilities (694 hospitals and 7254 health centres/clinics). Overall, among the infection control items and PPE, most surveyed facilities had high availability of single-use disposable or auto-disposable syringes (91.40%) and latex gloves (92.56%). Of infection control measures, guidelines for infection control were the least available during the survey, with the lowest (6.15%) in Nepal and the highest (68.18%) in Malawi. Of the PPE items, eye protection was the least available during the survey, with the lowest (5.4% in Senegal) and the highest (28.17%) in Haiti. Only 1567 (19.71%) facilities looked to have all the basic infection control materials, and 1023 (12.87%) of the analysed facilities possessed all of the PPE. Within the same country, the availability of items varied more between hospitals and health centres/clinics than between them.

**Conclusions** All eight of our study countries experience shortages of the most fundamental standard precaution items to avert infection. Steps must be taken in each of these countries to reduce inadequacies and disparities and enhance efficiency in the conversion of health-system inputs into the facility's availability of standard precaution items for infection control – to curb the risk of infectious disease transmission

**Keywords:** Infection control, Personal protective equipment (PPE), Health facilities Low- and middle-income countries, Availability Standard precaution, Health system survey Disparities

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