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Establishing a National Healthcare Associated Infection Surveillance System in Cameroon: Promising Practices and Challenges from Pilot Health Facilities

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Abstract

Healthcare-associated infections (HCAI) are the most common preventable adverse events during patient care delivery worldwide, accounting for prolonged hospitalization and death. HCAI surveillance is essential to strengthen infection prevention and control (IPC) practices and improve patient safety. Cameroon does not have a national HCAI surveillance system. We describe some promising practices and challenges in the process of establishing a national HCAI surveillance system in Cameroon. This was a four-phase approach, including an assessment of health facilities' HCAI surveillance capacity, drafting and implementation of a surveillance protocol in pilot facilities for one year, and performance evaluation. A group of experts met and developed the national protocol and adapted HCAI case definitions from the US Centers for Disease Control and Prevention (CDC) National Nosocomial Infection Surveillance (NNIS). Prioritized HCAIs were catheter-associated urinary tract infections (CAUTI), central line-associated bloodstream infections (CLABSI), ventilator-associated pneumonia (VAP) and surgical site infections (SSI). 627 HCAI cases were suspected with 9(1.4%) confirmed. The most common pathogens were Pseudomonas aeruginosa and Escherichia coli. Some 2(15.4%) facilities detected and responded to colonization of surfaces by pathogens thereby strengthening their IPC programs. Some facilities strengthened their laboratory capacity to confirm HCAI cases. The lack of dedicated funding for patients' laboratory analysis and the absence of a legal framework were some challenges identified. The establishment of an HCAI surveillance system in Cameroon showed some promising practices. The use of a protocol with clinical case definitions was useful and seems to be an option in situations of limited laboratory capacity.

Keywords*: Challenge, Healthcare-Associated Infections, Promising Practices, Surveillance.*

Introduction

Healthcare-associated infections (HCAIs) constitute one of the most common preventable adverse events during the delivery of care to patients worldwide, affecting millions of patients and leading to prolonged hospitalization with an increase in financial

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burden to health systems [1,2]. These infections occur at least 48 hours following a patient's hospitalization and were neither present nor incubating at the time of admission of the patient in a health facility [3]. They also include infections acquired by patients in a health facility but appearing after discharge, and occupational infections among staff [4,5]. Frequently occurring HCAIs include catheter-associated urinary tract infections (CAUTI), central line-associated bloodstream infections (CLABSI), ventilator-associated pneumonia (VAP) and surgical site infections (SSI)[6,7]. These four account for over 80% of all HCAI infections [8]. Even though HCAI affect patients in all settings, patients in developing countries are however more affected compared to those in developed countries [9,10]. According to the World Health Organization (WHO), of every 100 hospitalized patients at a given time, seven in developed and ten in developing countries will acquire at least one HCAI [6,11]. The burden of HCAI is underestimated in developing countries because of the lack of adequate infection prevention and control (IPC) programs as well as HCAI surveillance systems [1,2,10].

The surveillance of HCAI constitutes one of the eight core components of an IPC program as recommended by WHO [12] and is useful for estimating the magnitude of HCAI, monitoring infection rates and risk factors, and equally for evaluating and improving IPC practices in healthcare facilities [13]. Although surveillance is effective in reducing the incidence of HCAI, building a national HCAI surveillance system is however a challenge in most countries especially in LMICs [3]. This is because of the high amount of resources needed, and also because of the specialized and complex characteristics of HCAI surveillance systems which require expertise [14,15]. The problem of understaffing in hospitals in developing countries further compounds the situation, resulting in suboptimal IPC practices. Before establishing a national HCAI surveillance system, there is the need to define the objectives and goals, prioritize infections to monitor, standardize the surveillance methodology, define calculation of rates, data quality evaluation, frequency of reporting, flow of data and standardize case definitions compatible with available diagnostic methods [14,16].

For surveillance data to accurately be used to describe and compare rates and trends of HCAI in different health facilities, there is a need to standardize case definitions for HCAI. The most widely used HCAI case definitions are those developed by the US Centers for Disease Control and Prevention (CDC) National Nosocomial Infection Surveillance (NNIS)/National Healthcare Safety Network (NHSN) system [16,17]. NNIS was the first HCAI surveillance network in the world started by the US CDC in 1986 [13]. These definitions contain laboratory and clinical criteria for infections at major and specific sites. Infections at most of the major sites can be determined by clinical criteria alone, although laboratory results, especially microbial cultures, can provide additional evidence of the presence of an infection [16].

There is no national HCAI surveillance system in Cameroon, even though some health facilities are making efforts to monitor some HCAIs [18]. A recent assessment of IPC practices in some health facilities in Cameroon showed that HCAI surveillance was not taken into consideration in most IPC programs in the health facilities and therefore was the weakest of the eight IPC core components. We describe some promising practices and challenges from pilot health facilities in the process of establishing a national HCAI surveillance system in Cameroon, with a focus on phases 2 and 3.

Materials and Methods

The establishment of a national HCAI surveillance system followed a four-phase approach that started with a cross-sectional

study to assess IPC programs in health facilities, the development and piloting of a HCAI national protocol in 13 health facilities for a period of one year and a periodic monitoring of the surveillance system in the pilot health facilities. Below is a description of the four phases.

Phases 1: Baseline Assessment of HCAI Surveillance Capacity in Health Facilities

A cross-sectional descriptive study in 65 health facilities was carried out in January 2021 to assess the core components of IPC programs with a focus on HCAI surveillance using the WHO Infection Prevention and Control Assessment Framework (IPCAF) tool. The IPCAF questionnaire was administered to heads of health facilities, general supervisors, IPC focal persons and committee members. The surveillance section of the IPCAF tool evaluates the 4 domains of HCAI surveillance including organization of surveillance; priorities for surveillance – defined according to the scope of care; surveillance methods used; and information analysis and dissemination-including data use, linkages and governance [12].

Phase 2: Development of a HCAI National Surveillance Protocol

A group of experts made up of epidemiologists, infectious disease specialists, microbiologists, and IPC experts from the MOPH, the university and partner organizations such as WHO and the US Agency for International Development (USAID), gathered in July 2022 and drafted a national protocol for the surveillance of HCAIs. The experts developed the surveillance objectives and strategy, determined the priority HCAIs to monitor, adapted case definitions and developed the data collection tools.

Phase 3: Implementation of the National Surveillance Protocol

The national surveillance protocol was then piloted and monitored in thirteen health facilities from August 2022 to July 2023. The thirteen health facilities included facilities from the first, second, third and fourth categories from four of the country's ten regions. The purpose of this pilot phase was to assess the feasibility of implementing the surveillance, and document challenges to finetune the protocol before scaling up to other health facilities nationwide. After developing the surveillance protocol and before piloting the surveillance strategy, IPC focal persons and members of the IPC committees in the health facilities were briefed on the protocol and the data collection tools.

Phase 4: Evaluation of the HCAI Surveillance System

An evaluation of some surveillance attributes and key performance indicators of the HCAI surveillance system in the pilot sites will be conducted to finetune the HCAI national surveillance protocol and tools before scaling up the surveillance to other health facilities nationwide.

Results

Results of Phase 2 HCAI Surveillance: Development of National Surveillance Protocol

A national protocol for the surveillance of HCAI was developed in September 2022. Case definitions for all four priority HCAIs were adapted from the US Centers for Disease Control and Prevention (CDC) National Nosocomial Infection Surveillance (NNIS) as shown in Table 1.

Table 1. Case Definitions of Priority HCAIs in Cameroon

Type of HCAI	Suspected case	Probable case	Confirmed case
Surgical Site Infections (SSI)	Any patient who has undergone surgery and presenting: 1) a surgical site infection that occurs within 30 days of a superficial incision (skin or subcutaneous tissue and is characterized by purulent discharge and/or presence of symptoms/ signs such as pain or tenderness, localized swelling- redness- warmth. 2) a surgical site infection occurring within 90 days of deep surgery (fascial and muscular layers) if no implant is in place and characterized by (a) purulent discharge from the deep incision but not from the organ/ space component of the surgical site (b) presence of symptoms/ signs such as fever (>38ºC), localized pain or tenderness, an abscess or other sign of infection discovered on reoperation, histopathological or radiological examination. 3) a surgical site infection that occurs within 12 months of deep implant surgery (fascial and muscular layers) and characterized by (a) purulent discharge from the deep incision but not from the organ/ space component of the surgical site (b) presence of symptoms/ signs such as fever (>38ºC), localized pain or tenderness, an abscess or other sign of infection discovered on reoperation, histopathological or radiological examination.		Any suspected case confirmed in the laboratory after sample collection
Catheter-associated urinary tract infections (CAUTI)	1) Any patient presenting, 2 days or more after insertion of a urinary device (catheter), without any other recognized infectious cause, one or more of the following signs and symptoms: Fever (>38.5ºC), suprapubic tenderness; urinary urgency; Costovertebral angle pain or tenderness; urinary disorder (pollakiuria, burning sensation when urinating, dysuria) hypothermia (≤36ºC); pyuria: apnea; bradycardia; lethargy; vomiting; Hypotension. 2) Any patient presenting, 2 days or more after removal of a urinary device	1) Any suspected case of having stayed in a health facility or having received home care; having received care in an environment that has not benefited from an ecological study with identification of germs. 2) Any suspected case with a positive urinary strip (leucocytes; Nitrite)	Any probable case in which a germ with a resistant antibiogram profile is identified (blood culture, culture of catheter tips, peniflow)

	(suprapubic catheter), without any other recognized infectious cause, one or more of the following symptoms: Fever (>38.5°C); suprapubic tenderness; urinary urgency; Costovertebral angle pain/ tenderness; urinary disorder (pollakiuria, burning sensation when urinating, dysuria…) hypothermia (≤36°C); pyuria: apnea; bradycardia; lethargy; vomiting; suprapubic pain, Hypotension		
Central line-associated bloodstream infections (CLABSI)	1) Any patient presenting within 48 to 72 hours after placement, signs around the catheter, lymphangitis or purulent discharge at the site of insertion of the catheter, with or without an increase of the general signs of acute inflammation after placement of the catheter without any other point of infection and without any probable cause of infections. 2) Any patient presenting within 48 to 72 hours after ablation, signs around the catheter placement site, lymphangitis, or purulent discharge at the catheter insertion site with or without increase in general signs of acute inflammation after catheter insertion without other point of infection and without probable non-infectious cause		Any suspected case for which a germ has been identified by swabbing of in situ samples or culture of the catheter tip or blood culture
Ventilator-associated pneumonia (VAP)	Any patient presenting at least two of the following signs 48 hours or more after admission or within 90 days after discharge from a health facility: • Purulent sputum or increased respiratory secretions. • Coughing or wheezing • Dyspnea or tachypnea or fluttering of the nasal wings or intercostal drawing. • Crackles or bronchial rales on auscultation • Oxygen desaturation <94% Associated with at least one of the following signs: • Fever >38.5°C • Leukopenia (<4000 cells/mm^3) • In elderly people (> 70 years): alteration of consciousness		Any suspected case with a germ identified in the laboratory via culture (blood, fluid aspirated, pleural fluid or swabbing of the catheter)

	(confusion, coma) • In infants (< 1 year): instability of temperature or heart rate (<100 or > 170 bpm/min) And in whom two chest x-rays taken at least 48 hours apart with the first normal x-ray and the second presenting either an anomaly (presence of infiltrate, cavitary image, effusion, or abscess), or a worsening of the lesions seen during the first x-ray.		

The data collection tools (case notification and investigation forms) were developed taking into consideration the clinical and laboratory characteristics in the case definitions. The forms were designed to capture sociodemographic information, signs and symptoms of the infection, laboratory information and other relevant information such as initial actions taken. The data reporting system was also described in the protocol.

Results of Phase 3 HCAI Surveillance: Implementation of HCAI in 13 Pilot Health Facilities

The figure below shows the number and type of suspected cases of HCAIs identified in the 13 pilot health facilities from August 2022 to July 2023. A total of 627 cases of HCAI were suspected by the 13 health facilities. Of these, 27.9% were SSI, 26.3% were CAUTI, 31.4% were CLABSI and 14.4% were VAP. Nkongsamba Regional Hospital (NReH) alone suspected 306 (48.8%) of HCAIs from all thirteen health facilities. Surgical site infections (SSI) were reported in most 9(69.2%) of the health facilities.

Table 2 below shows confirmed cases of HCAI from some of the health facilities that had laboratory capacity among the thirteen pilot health facilities. A total of nine HCAIs were confirmed in three of the thirteen health facilities. Three of the nine pathogens isolated were *Pseudomonas aeruginosa* as shown in table 2 below.

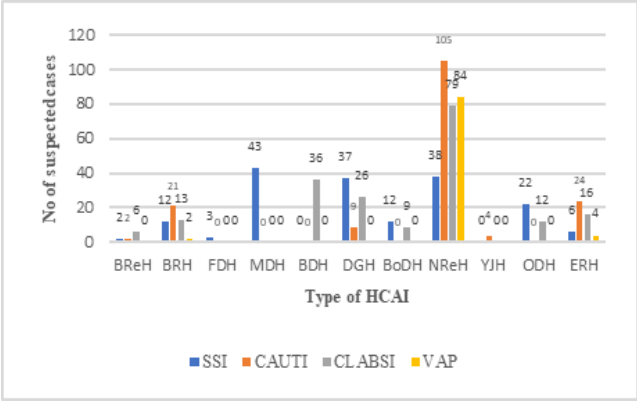

Figure 1. Notification of 627 Suspected Cases of HCAI in 13 Health Facilities

Table 2. Confirmed Cases of HCAI is Some Health Facilities

	No of pathogens	**SSI**	**CAUTI**	**CLABSI**	**VAP**
BReH	3	*Pseudomonas alcalifaciens* *Pseudomonas*		*Klebsiella oxytoca*	

		aeruginosa			
BRH	2	*Pseudomonas aeruginosa*		*-Escherichia coli*	
DGH	4	*Escherichia coli*	*Acinetobacter sp Pseudomonas aeruginosa*		*Burkholderia cepacia*

BReH: Bafoussam reference hospital, BRH: Bafoussam regional hospital, DGH: Douala general hospital

Promising Practices from Pilot Health Facilities Implementing HCAI Surveillance

a) Through the monitoring of suspected or clinical cases of HCAI, the health facilities were able to strengthen their IPC practices and some detected and responded to situations of colonization of surfaces by pathogens

Among the 13 pilot health facilities implementing HCAI surveillance, not all have adequate microbiology laboratory capacity to confirm cases of HCAIs. Some of the health facilities were able to detect and respond to some public health events of concern such as the colonization of hospital surfaces and patient environment by probably pathogens responsible for HCAIs, just by monitoring suspected cases of HCAIs. In one of the health facilities, for instance, the head of the pediatric ward noticed within one month that three children diagnosed with malaria in the pediatric ward had persistent fever a few days after hospitalization even after completing treatment for malaria. This situation unexpectedly increased the length of stay of the children in the hospital. The hospital management decided to disinfect the patient environment including the beds and strengthened hand hygiene practices by monitoring compliance. Though no laboratory analysis was done, measures were taken to mitigate the situation. A similar situation also happened at the neonatal ward of a second health facility. This time around, the neonatal ward was closed, and samples were collected from the patient as well as swaps from the patient environment for laboratory analysis. The neonatal ward was disinfected, and IPC measures were strengthened to curb the phenomenon.

b) Some health facilities have strengthened their laboratory capacity by creating a microbiology unit to confirm cases of HCAIs

Two of the health facilities that initially did not have a microbiology department at the start of the HCAI surveillance have now created these units to identify the pathogens and confirm cases of HCAI. These health facilities are now able to do culture and antibiotic sensitivity testing to identify the pathogen and describe the resistant profile. The heads/ management of these health facilities expressed their desire to identify the pathogens as well as the resistant profile.

c) The designation of HCAI surveillance referrals and focal points within the IPC committees to support HCAI surveillance

In some of the health facilities focal points were designated within the IPC committees to support HCAI surveillance. Heads of units or wards were also designated as referrals. The focal points work in collaboration with the referrals to monitor cases of HCAI in their units or wards. Whenever there is a suspected case of HCAI in any of the units the referrals will call the attention of the focal person who will fill out the notification form and inform the IPC committee. The IPC committee will thereafter investigate the case and fill out the investigation form. This will be followed by actions to strengthen IPC practices as well as sensitize the healthcare workers, patients, and caregivers on the importance of complying to

IPC standard precautions such as the practice of hand hygiene and waste management.

Table 3 below shows some of the key actions taken by the pilot health facilities to strengthen the prevention and control of HCAI when they started collecting data on HCAI.

Table 3. Promising Practices in Health Facilities

Region	Health facility	Key action taken
West	Bafoussam reference hospital centre	• Monitor the indiscriminate prescription of antibiotics for prophylaxis after surgical procedures. • Periodically analyze laboratory data on antimicrobial sensitivity testing and sensitize clinicians to improve antimicrobial stewardship. • Designated HCAI surveillance focal points at the level of services • Creation of a digital platform for daily notification of HAIs by service focal points • The introduction of venous line and urinary catheterization kits for all services
	Bafoussam regional hospital	• Periodically sensitize clinicians on the appropriate filling of patient records to improve active case fining of HCAI
	Foumbot district hospital	• Develop microbiology laboratory capacity to support the confirmation of cases of HCAI • Systematically sensitize healthcare workers on hand hygiene
	Mbouda district hospital	• Develop microbiology laboratory capacity to support confirmation of cases of HCAI • Strengthened hand hygiene using the multimodal strategy
	Bangangte district hospital	• Systematically sensitize healthcare workers on case definitions of HCAIs
Littoral	Douala general hospital	• Periodically carry out hand hygiene audits to improve compliance of health workers with hand hygiene practices. • Periodically monitor the colonization of surfaces by resistant germs in some specific services such as neonatology, intensive care units and reanimation. • Production of alcohol-based hand rub solutions locally to improve availability

		and avoid stock outs.
	Bonassama district hospital	• Reviewed consultation and hospitalization registers • Sensitized clinicians to systematically fill the registers especially signs and symptoms of infections. • Improved archiving of patient records and registers
	Edea regional hospital annex	• Improved sensitization of healthcare workers on the practice of hand hygiene
	Nkongsamba regional hospital	• Developed standard operating procedures on the insertion and removal of catheters (urinary and central line) • Systematically monitor the time of insertion and removal of catheters
South	Ebolowa regional hospital	• Improved the monitoring of healthcare workers' compliance to the practice of hand hygiene to reduce the number of suspected cases of HCAI
	Sangmelima reference hospital	• Designated a HCAI surveillance focal point to do active case finding of HCAI from hospitalization registers in the different services
Center	Yaounde Jamot hospital	• Actively search and investigate suspected cases of HCAI • Designated HCAI surveillance focal point
	Obala district hospital	• Improved sensitization of healthcare workers on compliance to hand hygiene practice with a focus in some specialized wards such as surgery

Challenges

The following challenges occurred during the implementation of the HCAI surveillance system as follows:

a) Absence of a legal framework to guide HCAI surveillance.

One of the challenges encountered during the implemention of HCAI surveillance was the absence of a legal framework to guide and protect health facilities notifying cases of HCAIs. Most of the pilot health facilities did not feel comfortable notifying cases of HCAI as they saw this as a weakness on their part which could attract unnecessary blame and a judicial procedure from patients and their families. Other health facilities were not comfortable declaring cases of HCAIs because for fear of attracting disciplinary actions from the hierarchy. A legal framework is therefore necessary to mandate health facilities to freely notify cases of HCAIs without fear of any repercussions from the hierarchy and from patients and their families.

b) Who should cover the cost of laboratory analysis to confirm a case of HCAI?

Another challenge that arose in the process of implementing HCAI surveillance in the pilot

health facilities was the issue of who should pay the bills for the laboratory analysis to confirm a case of HCAI. Even though Cameroon is currently establishing a national health insurance scheme, it doesn't yet cover such cost. In developing countries, healthcare is most financed from out of pocket, despite the relatively low income earned by the population compared to developed countries. Some patients find it difficult to pay consultation fees talk less of purchasing their medications. In some communities, clinicians limit themselves to clinical diagnosis in the management of patients rather than completing this with laboratory analysis for evidence-based care. Some health therefore complained that patients refused to pay for culture and antibiogram analysis when requested to confirm a case of HCAI.

Discussion

This report describes promising practices and challenges in the establishment of a national HCAI surveillance system in Cameroon. The purpose of establishing a national HCAI surveillance system in Cameroon is to determine the burden of HCAIs and put in place appropriate control measures. Specifically, it is to describe the epidemiological profile of pathogens responsible for HCAIs, detect epidemics of HCAIs, identify factors associated with the occurrence of HCAIs and assess and strengthen IPC interventions in health facilities. The drafting of a national protocol aimed to prioritize the type of HCAIs to monitor, adapt and standardize the case definitions for the priority HCAIs as well as data collection tools and harmonize the surveillance approach so that data from the different health facilities could be comparable. The protocol aligns with the recommendations of the International Society for Infectious Diseases (ISID) that encourages a multidisciplinary institution-wide and multimodal approach to organize surveillance of HCAIs, focusing on the four priority types: CAUTI, CLABSI, SSI and VAP [19]. As a first step in the implementation of HCAI surveillance, it was important to pilot it in some health facilities to finetune the tools before scaling up to other health facilities nationwide. After one year of piloting the protocol in thirteen health facilities we noted some promising practices that depict the usefulness of the surveillance system, despite experiencing some challenges.

Having an adequate microbiology laboratory infrastructure is an important prerequisite for surveillance of HCAIs [20]. However, one of the objectives of the surveillance system was to evaluate and strengthen IPC interventions. However, considering that most of the health facilities do not have an adequate microbiology laboratory infrastructure to confirm cases of HCAIs, the experts decided to adapt another set of definitions for suspected cases of HCAIs from the US-CDC NNIS case definitions, limited to clinical signs and symptoms of HCAIs without laboratory confirmation. This enabled the health facilities deficient in laboratory capacity to monitor suspected cases of HCAIs and by so doing were able to detect potential outbreaks of HCAIs and colonization of patient environment in the health facilities. This was useful for the health facilities to promptly respond to the events by strengthening their IPC protocols and practices and mitigate the consequences of the events. The HCAI surveillance was therefore useful to strengthen IPC programs in the health facilities, thereby meeting one of the set objectives, a situation which corroborates with other studies [21]. The surveillance of HCAIs also encouraged health facilities to use the multimodal strategy to strengthen compliance of health workers to the practice of hand hygiene. There is ample evidence that healthcare workers' hands are the most common vehicle for the transmission of healthcare-associated germs from patient to patient and within the healthcare environment [22]. Hand hygiene is the leading recommended measure

for preventing the spread of HCAIs, though healthcare worker compliance with optimal practices remains low in most settings, especially in developing countries [23–25].

The surveillance protocol was piloted in two categories of health facilities - those with adequate microbiology laboratory capacity and those lacking such facilities. Health facilities had the liberty to include all four priority HCAI surveillance or start with any of the four depending on the type of medical interventions or procedures in their health facilities. Those with adequate laboratory infrastructure were able to confirm cases of HCAIs and identify the pathogens responsible. All of the pathogens isolated were gram-negative bacilli, a situation which is consistent with findings from a multinational study that showed that gram-negative bacilli represented the most common nosocomial isolates [1]. Among the gram-negative bacteria isolated, *Pseudomonas aeruginosa* was the most common. Other pathogens isolated included *Escherichia coli* and *Acinetobacter species*, *Klebsiella oxytoca* and *Burkholderia cepacian.* These pathogens fall among the group of the eight most common pathogens accounting for about 80% of all pathogens responsible for HCAIs in most parts of the world [26,27].

One of the promising practices during this pilot phase of implementing HCAI surveillance was that the management of some health facilities that initially did not have adequate microbiology laboratory capacity to confirm cases of HCAIs, mobilized funds internally to strengthen their laboratory capacity to support surveillance of HCAIs. One of the challenges however is the question of who should cover the cost of the laboratory exams, whether the health facility or the patient. Cameroon is currently in the process of implementing a national healthcare insurance scheme. However, it is still in the initial phase and is yet to cover medical services such as laboratory analysis for the confirmation of HCAIs. The greater part of the Cameroonian population neither has medical nor health insurance. Consequently, people get medical services mainly via out-of-pocket payment. In some developing countries such as Japan, health insurance covers a variety of medical services through the length of stay of hospitalization of patients including laboratory analysis and antibiotic cost [28].

Another challenge that impacted the notification of cases of HCAIs is the absence of a legal framework to mandate health facilities to monitor and notify cases of HCAIs and improve patient safety. Healthcare providers have a legal duty to care for their patients. They also owe their patients a duty to act in the best interest of their patients. Therefore, healthcare facilities must provide a safe environment to protect patients from harm during the delivery of care. They have a duty not only to establish necessary systems and protocols to promote patient safety but more importantly to comply with these protocols. However, this is sometimes challenging in some developing countries like Cameroon with a limited number of healthcare workers. A study showed a positive correlation between the patient-nurse ratio and the incidence of HCAIs such as SSI [29]. Because of the persistent asymmetry of information between healthcare providers and patients [30], healthcare providers sometimes pay little attention to complying with standard IPC precautions thereby affecting patient safety. Healthcare providers tend to dominate discussions in consultations, although patient participation is associated with positive outcomes [31]. Sometimes, healthcare providers fail to disclose information to patients in a situation where the patient has been harmed or exposed to risk of harm. Recently in some parts of the world, lawsuits have stemmed from alleged lapses in IPC practices due to negligence [32]. A patient who can establish suffering harm because a healthcare provider fails to meet the required standard of care may bring a negligence claim against the provider or even the health facility. Internet health

information is increasingly improving patients' knowledge of their health [33]. Several new legal requirements mandate disclosure of errors [32]. In some parts of the world such as the United Kingdom, mandatory reporting of methicillin-resistant *Staphylococcus aureus* (MRSA) bacteraemias for National Health Service (NHS) hospitals was introduced in 2001 after considerable media and public interest [34]. Therefore, as Cameroon continues the process of establishing a national HCAI, it will be important to develop a legal framework before scaling up the surveillance system to other health facilities nationwide.

Conclusion

The establishment of a national HCAI surveillance system with a focus on clinical identification in a resource-limited country such as Cameroon has shown some promising practices from participating health facilities during the pilot phase. The use of an HCAI surveillance protocol with clinical case definitions was useful and seems to be an option in situations of limited laboratory capacity. The lack of an IPC legal framework to ensure notification and accountability from health facilities was however a challenge.

Conflict of Interest

We declare that we have no conflict of interest.

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