



# Status of patient safety in selected Ghanaian hospitals: a national cross-sectional study

Mary Eyram Ashinyo <sup>1,2</sup>, Kingsley E Amegah,<sup>3</sup> Pierre Claver Kariyo,<sup>4</sup> Angela Ackon,<sup>5</sup> Sofonias Asrat,<sup>5</sup> Stephen Dajaan Dubik <sup>6</sup>

**To cite:** Ashinyo ME, Amegah KE, Kariyo PC, *et al.* Status of patient safety in selected Ghanaian hospitals: a national cross-sectional study. *BMJ Open Quality* 2022;**11**:e001938. doi:10.1136/bmjopen-2022-001938

Received 7 April 2022  
Accepted 5 October 2022



© Author(s) (or their employer(s)) 2022. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ.

<sup>1</sup>Department of Quality Assurance, Ghana Health Service, Accra, Ghana

<sup>2</sup>Department of Maternal and Child Health, University of North Carolina at Chapel Hill Gillings School of Global Public Health, Chapel Hill, North Carolina, USA

<sup>3</sup>Department of Data Science and Economic Policy, University of Cape Coast, School of Economics, Cape Coast, Western, Ghana

<sup>4</sup>World Health Organization West Africa, Ouagadougou, Burkina Faso

<sup>5</sup>World Health Organization Country Office, Accra, Ghana

<sup>6</sup>School of Allied Health Sciences, University for Development Studies, Tamale, Ghana

## Correspondence to

Dr Mary Eyram Ashinyo;  
keyram1@yahoo.co.uk

## ABSTRACT

**Background** Safety is one of the dimensions of healthcare quality and is core to achieving universal health coverage and healthcare delivery worldwide. In Ghana, the status of patient safety in the last 7 years has remained unknown. Therefore, this study aims to assess the patient safety status in selected hospitals in Ghana.

**Methods** Using the WHO Patient Safety Long Form, a mixed methodology was used to assess the patient safety status in 27 hospitals in Ghana. Data were analysed using descriptive statistics and axial codes for thematic analysis.

**Results** The average national patient safety score was high (85%). However, there were variations in the performance of the hospitals across the WHO patient safety action areas. Knowledge and learning in patient safety (97%) was the highest-rated patient safety action area. Patient safety surveillance, patient safety funding, patient safety partnerships and national patient safety policy had mean scores lower than the national average score (85%). Less than half (42%) of the hospitals had a dedicated budget for patient safety activities. The means of continuous education for health professionals include clinical sessions, and in-service training, while the system of clinical audits in the hospitals were maternal mortality, perinatal mortality, stillbirth and general mortality audits. The hospitals use posters, leaflets, public address systems and health education sessions to inform patients about their rights. Patient safety issues are reported through suggestion boxes, designated desks and the use of contacts of core management staff.

**Conclusion** The current patient safety status in the hospitals was generally good, with the highest score in the knowledge and learning in the patient safety domain. Patient safety surveillance was identified as the weakest action area. The findings of this study will form the scientific basis for initiating the development of a national patient safety policy in Ghana. This is crucial for ensuring resilient and sustainable health systems that guarantee safer care to all patients in Ghana.

## BACKGROUND

Safety is one of the dimensions of healthcare quality and is core to achieving universal health coverage and optimal healthcare delivery worldwide.<sup>1–3</sup> Globally, there are an estimated 421 million annual hospitalisations. These 421 million admissions per year result in 43 million harm to patients in the healthcare

## WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Safety is one of the dimensions of healthcare quality and is core to achieving universal health coverage and healthcare delivery worldwide. In Ghana, the status of patient safety in the last 7 years has remained unknown.

## WHAT THIS STUDY ADDS

⇒ The current patient safety status in Ghanaian hospitals was generally good, as reflected by the hospitals' highest scores in the knowledge and learning in the patient safety domain. Patient safety surveillance was the weakest action area identified. In addition, there were variations in the performance of the hospitals across the WHO patient safety action areas.

## HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ The patient safety situation presents an opportunity for Ghana to finalise and implement its 2015 draft national patient safety policy to sustain and improve the gains made to ensure a robust patient safety status in Ghanaian healthcare facilities. We also recommend similar patient safety assessments in non-hospitals. This is crucial for ensuring resilient and sustainable health systems that guarantee safer care to patients at all levels of care.

settings.<sup>4</sup> Preventable adverse events during hospital admission harm nearly one in every ten patients in industrialised countries.<sup>5</sup> Recent estimates also show that unsafe care is responsible for 134million adverse events in low-income and middle-income countries (LMICS), resulting in 2.6million mortalities.<sup>6</sup> Indeed, LMICs bear the heaviest burden of morbidity and mortality from adverse events in healthcare settings.<sup>7</sup> In addition to the above consequences, harm to patients exerts a considerable burden on global economies.<sup>7</sup> For instance, medical errors were estimated to cost the USA economy an amount of 1 trillion dollars in 2008. Furthermore, in Organisation for Economic Co-operation and

Development countries, 15% of hospital expenses can be attributed to treating adverse health events.<sup>7</sup>

However, a recent estimate showed that up to 80% of harm due to unsafe care is avoidable.<sup>7</sup> Medication errors, catheter-related urinary tract infections, falls in hospitals, venous thromboembolism, unsafe surgical care, poor injection practices and diagnostic errors are the primary causes of patient safety failures in healthcare facilities.<sup>3 4 8 9</sup> Therefore, the causes of adverse health-care events in hospitals are multifaceted and require coordinated efforts to eliminate this avoidable harm to patients. Evidence from scholars suggests that patient safety concerns can be minimised by engaging patients and their families, making available information on types and causes of medical errors, ensuring staff are empowered, and using digital technologies, among others.<sup>2 3</sup>

Ghana has made several efforts in healthcare quality and patient safety over the years. As the country plans to accelerate the implementation of the WHO's decade of patient safety initiative towards attaining universal health coverage by 2030 and beyond, performance measurements and progress in patient safety have become more critical, particularly in informing patient safety policy in Ghana. The Ghana Health Service and Ministry of Health drafted a patient safety policy in 2015,<sup>10</sup> following an assessment of patient safety status in four regions of Ghana.<sup>11</sup> The intended objectives of the draft patient safety policy were, among others, to provide guidance and directions for the implementation of patient safety initiatives, ensure a safe working environment for both clients and healthcare providers, offer mechanisms for monitoring the progress of patient safety initiatives and serve as a tool for advocacy and resource mobilisation for patient safety policy implementation in Ghana. Since the draft of the patient safety policy in Ghana, the status of patient safety in the last 7 years has remained unknown. This research was conducted to determine the patient safety status in selected hospitals in Ghana to inform the finalisation of the draft national patient safety policy.

## METHODS AND MATERIALS

### Study design and area

We used a mixed method to assess the patient safety status in 27 hospitals in nine regions of Ghana. The hospitals were nine regional hospitals and 18 district/municipal hospitals. The data was collected between 8 November 2021 and 27 November 2021.

### Data collection techniques and tools

The data were collected through interviews of key informants in the various hospitals by public health professionals from the Ghana Health Service. Key informants included hospital managers and frontline service providers. The data collection tool was a structured questionnaire consisting of closed and open-ended questions. The data were collected using the WHO Patient Safety Situational Analysis Long Form (PSSA).<sup>12</sup> The WHO PSSA consists of

12 action areas that measure different aspects of patient safety issues in healthcare settings. The PSSA was developed by African Partnerships for Patient Safety (APPS), and it is crucial in creating a safer healthcare environment for patients. The Long-Form version of the PSSA is designed to capture both quantitative and qualitative data. The action areas of the APPS were patient safety and health services/system development (PSHSSD) (10 items), national patient safety policy, knowledge and learning in patient safety (KLPS) (10 items), patient safety awareness raising (PSAR) (10 items), healthcare-associated infections (52 items), health worker protection (HWP) (10 items), healthcare waste management (HCWM) (10 items), safe surgical care (SSC) (10 items), medication safety (MS) (10 items), patient safety partnerships (PSP) (8 items), patient safety funding (PSF) (10 items) and patient safety surveillance and research (PSSR) (10 items).

### Sampling technique and sample size

The country was zoned into Northern, Southern and Middle belts. We purposively selected three regions from the northern belt, three from the southern belt and another three regions from the middle belt. That is, regions with a regional hospital were selected to participate in the survey. Two other districts/municipals with district/municipal hospitals were randomly selected in each region through a simple ballot to participate in the assessment. Therefore, in each region, one regional hospital and two other district/municipal hospitals were included in the study. Hence, the total number of hospitals that participated in the assessment was 27. The respondents from the hospitals were purposively selected to participate in the study.

### Data analysis

The data analysis was done using STATA V.16.0 statistical software. The data were entered into an excel template and exported to STATA for further analysis. The data were analysed using descriptive statistics such as means for continuous variables, SD and frequencies (%) for categorical variables. The data were presented using tables. We adopted a scoring approach to depict the national patient safety status and patient safety status in the various hospitals. Responses that favoured patient safety were scored one, while responses that did not favour patient safety were scored zero. Mean scores were generated to represent the patient safety status in each hospital.

The qualitative data were analysed using the axial coding approach.<sup>13</sup> This method provides a template where the study subjects' responses are entered and summarised into short codes. Similar short codes are further converged into axial codes from which themes are generated.

### Patient and public involvement

The study did not include any patient-level data. Hence, the study did not involve patients nor the public in the

conduct, design, reporting or dissemination plans of this research work.

## RESULTS

### Background information of the sampled hospitals

Ridge hospital had the largest bed capacity of 470, followed by the Eastern regional hospital, bed capacity of 462. The hospitals with the lowest bed capacity were Dormaa East District hospital (45) and Tafo Government hospital (58). Annual admission was highest in Wa west

hospital (27 852) and lowest in Takoradi hospital (3174). The highest number of hospital employees was observed in Ridge hospital (1644) and the lowest observed in Wa west hospital (234) (table 1).

### National-level performance in the 12-patient safety action areas

The national patient safety score was 85%. In descending order, the best-performed action area among the hospitals was KLPS with a score of 97%, followed by PSHSSD

**Table 1** Background information of selected healthcare facilities

No.	Hospital name	Type of hosp	Bed Capacity	Annual Admission	Pop. of Catch. Area/Km <sup>2</sup>	No OF surgeries in a year	No of hosp employees
1	Achimota	District/municipal	88	–	296 742		270
2	Adidome	District/municipal	108	3344	21 583	1148	329
3	Atuah	District/municipal	107	5453	112 464	627	308
4	Bongo	District/municipal	128	4293	107 856	730	301
5	Bono	Regional	300	11 348	154 880	928	1086
6	Dormaa East	District/municipal	45	3708	64 291	2321	243
7	Nadowli	District/municipal	120	7479	76 194	466	309
8	Eastern	Regional	462	21 396	153 370	528	1291
9	Effah-Nkwata	Regional	337	–	991 000	5201	851
10	Ho Municipal	District/municipal	319	5709	96 213	–	615
11	Kumasi South	Regional	132	6660	282 609	1937	710
12	Kwesimintsim	District/municipal	82	5047	61 089	2903	495
13	Northern	Regional	141	12 247	280 619	790	586
14	Nsawam	District/municipal	147	8420	110 677	1551	693
15	Ridge	Regional	470	20 366	284 124	311	1644
16	Savelugu	District/municipal	141	10 203	120 367	6656	640
17	Suntreso	District/municipal	141	8879	342 419	377	608
18	Sunyani	District/municipal	96	5883	158 442	868	535
19	Tafo	District	58	5358	145 824	5500	592
20	Takoradi	District/municipal	102	3174	30 172	692	418
21	Upper East	Regional	220	15 000	130 890	695	630
22	Upper West	Regional	226	5791	134 739	5322	595
23	Volta	Regional	178	9089	114 472	1080	571
24	WAR	District/municipal	169	10 450	133 609	1294	324
25	Wa West	District/Municipal	97	27 852	98 703	592	234
26	Weija-Gbawe	District/municipal	91	5421	192 023	424	390
27	Yendi	District/municipal	180	13 583	161 966	1081	434

–, data unavailable; Achimota, Achimota Municipal Hospital; Adidome, Adidome District Hospital; Atuah, Atuah Government Hospital; Bongo, Bongo District Hospital; BMS, Biomedical Scientists; Bono, Bono Regional Hospital; Dormaa, Dormaa East District Hospital; Upper East, Upper East Regional Hospital; Eastern, Eastern Regional Hospital; Effah-Nkanwata, Effah-Nkanwata Regional Hospital; Hosp, Hospital; Kwesimintsim, Kwesimintsim Municipal Hospital; Ho Municipal, Ho Municipal Hospital; Nadowli, Nadowli District Hospital; Northern, Northern Regional Hospital; Nsawam, Nsawam Government Hospital; Pop, Population; Ridge, Greater Accra Regional Hospital; Savelugu, Savelugu Municipal Hospital; Suntreso, Suntreso Government Hospital; Kumasi South, Kumasi South Regional Hospital; Sunyani, Sunyani Municipal Hospital; Tafo, Tafo Government Hospital; Takoradi, Takoradi Municipal Hospital; Volta, Volta Regional Hospital; WAR, WAR Memorial Hospital; Wa West, Wa West Municipal Hospital; Weija-Gbawe, Weija-Gbawe Municipal Hospital; Upper West, Upper East Regional Hospital; Yendi, Yendi Municipal Hospital.

(95%), SSC (93%), MS (90%), patient safety awareness-raising (87%) and HCWM (86%). Other action areas were HWP (80%), healthcare-associated infections (79%), PSP (78%), PSF (78%) and patient safety surveillance (51%) (table 2).

### National policy on patient safety

Except for Savelugu and Yendi municipal hospitals, guidelines related to patient safety for hospital policy formulation were common in 93% of the hospitals. The majority (96%) of the hospitals reported having mechanisms in place to discuss coordination of service delivery with other health facilities. The overall average national score (SD) on national patient safety policy domain was 6.2 ( $\pm 1.2$ ) out of a maximum score of 8, translating to a score of 78%.

### Mechanisms for coordination of service delivery

#### Use of referral system and social media platforms such as WhatsApp groups of staff

The respondents in the hospitals indicated that they use the Ghana Health Service and Ministry of Health's existing referral systems to coordinate service delivery with other healthcare facilities. That is, lower-level healthcare facilities refer patients to a higher level of the health system. Social media platforms such as staff WhatsApp groups were also identified as one of the means for coordinating service delivery in the hospitals. Some of the respondents narrated as follows;

The hospital uses referral system to coordinate service delivery with other healthcare facilities.

The hospital uses WhatsApp platform to coordinate service delivery with other healthcare facilities.

### Knowledge and learning in patient safety

An overwhelming majority (96%) of the hospitals reported having mechanisms for continuous medical education for doctors, except for Adidome district hospital. Similarly, aside from Yendi municipal hospital, the rest (96%) of the hospitals reported having means for continuous education for nurses. All hospitals had a hospital training plan, a system for clinical audit, and a system for recording adverse events. All the hospitals used specific protocols for patient care, and checklists for healthcare procedures were available in all hospitals. Approximately 94% of the hospitals had a multidisciplinary review of events leading to in-patient mortality. The overall national score (SD) for the knowledge and learning in the patient safety domain was 9.7 ( $\pm 0.5$ ), translating to 97% (table 2). The hospitals' clinical audit systems include maternal mortality, general mortality, stillbirth and perinatal mortality audits. Systems for recording adverse drug events (ADE) are registers or incident books, and the use of standardised ADE forms.

### Means of continuous medical education for doctors and nurses

#### In-service training, clinical sessions and sponsorship for workshops

The respondents for the hospitals indicated that they use clinical sessions and in-service training as a means of continuous medical education for healthcare professionals. They also intimated that healthcare professionals are sometimes sponsored to attend workshops outside their hospitals. Some of the respondents narrated as follows:

In-service training and clinical sessions are used as a means of continued medical education for doctors.

In-service training and clinical sessions are used as a means of continued education for nurses.

There are clinical sessions once every week to educate nurses on current happening in nursing procedures.

The doctors are sponsored to attend continuous professional development workshops, and in-service training is also organised in the hospital.

### Medication safety

In all, 85% of the hospitals had key policy documents on MS, 93% had a functioning drug and therapeutic committee, 96% had a focal person responsible for MS, all the hospitals had an efficient drug procurement process and medicine formulary was available in 74% of the hospitals. All the hospitals had mechanisms in place to educate patients on MS. Overall, the average MS score (SD) was 9.0 ( $\pm 0.9$ ), equating to 90% (table 2).

Most of the sampled hospitals had medicine formulary based on the National Health Insurance Scheme medicine list and national list of essential medicine. The system for reporting adverse drug reaction (ADR) and medication errors are the use of ADR forms and the Food and Drug Authority MS app.

### Mechanisms for education on MS

#### Use of clinical sessions, prescribers' meetings and staff durbars

For education on MS, the focal persons indicated that their hospitals use clinical sessions, prescribers' meetings, mortality audit meetings and staff durbars to educate healthcare professionals.

Education on medication safety is done through clinical sessions.

Staff are educated on medication safety during clinical meetings and patient-based education.

We sometimes use prescriber's meetings, mortality meetings, staff durbars, and health education sessions to educate health professionals about medication safety.

### Patient safety surveillance and research

The overall national average score (SD) for PSSR was 4.6 ( $\pm 2.4$ ) out of a maximum score of 9 (table 2). Only 26% of the hospitals had research strategies of their own. The



**Table 2** The patient safety assessment scores of the hospitals on the patient safety action areas

Hospitals	Patient safety action areas											
	NPSP	KLPS	MS	PSSR	HCWM	HAIs	PSAR	SSC	PSHSSD	HWP	PSP	PSF
Min-Max	3.0–8.0	8.0–10.0	7.0–10.0	1.0–9.0	6.0–14.0	25.0–49.0	3.0–10.0	0.0–3.0	7.0–10.0	7.0–13.0	2.0–8.0	4.0–9.0
Achimota	6.0	10.0	9.0	5.0	13.0	42.0	10.0	3.0	9.0	11.0	8.0	9.0
Adidome	6.0	9.0	7.0	2.0	12.0	37.0	10.0	2.0	10.0	10.0	6.0	7.0
Atuah	5.0	10.0	9.0	9.0	14.0	31.0	10.0	3.0	8.0	11.0	7.0	6.0
Bongo	8.0	10.0	9.0	8.0	12.0	29.0	9.0	3.0	7.0	12.0	4.0	6.0
Bono	6.0	10.0	7.0	5.0	13.0	48.0	10.0	3.0	10.0	12.0	7.0	5.0
Dormaa East	6.0	10.0	10.0	5.0	11.0	39.0	9.0	3.0	9.0	12.0	6.0	7.0
Nadowli	7.0	9.0	10.0	7.0	14.0	35.0	9.0	0.0	10.0	8.0	8.0	7.0
Eastern	7.0	10.0	8.0	8.0	13.0	48.0	9.0	3.0	10.0	11.0	8.0	9.0
Effah-Nkwata	7.0	10.0	10.0	2.0	14.0	45.0	10.0	3.0	10.0	11.0	4.0	6.0
Ho Municipal	7.0	10.0	10.0	2.0	13.0	41.0	9.0	3.0	10.0	11.0	8.0	8.0
Kumasi South	6.0	10.0	10.0	3.0	13.0	45.0	10.0	3.0	10.0	13.0	7.0	8.0
Kwesimintsim	5.0	10.0	9.0	3.0	13.0	46.0	10.0	3.0	10.0	11.0	6.0	8.0
Northern	7.0	10.0	8.0	4.0	6.0	25.0	8.0	3.0	9.0	10.0	4.0	6.0
Nsawam	5.0	10.0	10.0	1.0	13.0	43.0	10.0	3.0	10.0	11.0	8.0	8.0
Ridge	8.0	10.0	10.0	8.0	14.0	49.0	10.0	3.0	10.0	11.0	7.0	8.0
Savelugu	5.0	10.0	8.0	3.0	8.0	28.0	3.0	3.0	8.0	9.0	2.0	6.0
Suntreso	7.0	10.0	9.0	6.0	12.0	38.0	9.0	3.0	10.0	9.0	7.0	5.0
Sunyani	7.0	10.0	10.0	1.0	13.0	36.0	10.0	3.0	8.0	10.0	6.0	9.0
Tafo	8.0	10.0	8.0	2.0	13.0	41.0	10.0	3.0	9.0	11.0	6.0	7.0
Takoradi	7.0	10.0	9.0	5.0	11.0	44.0	7.0	3.0	10.0	8.0	5.0	8.0
Upper East	6.0	10.0	9.0	6.0	9.0	35.0	9.0	3.0	10.0	10.0	3.0	7.0
Upper West	3.0	9.0	10.0	5.0	12.0	38.0	5.0	3.0	9.0	7.0	8.0	8.0
Volta	7.0	10.0	9.0	7.0	14.0	46.0	10.0	3.0	10.0	11.0	8.0	6.0
WAR	5.0	10.0	9.0	4.0	8.0	35.0	8.0	3.0	10.0	10.0	4.0	6.0
Wa West	7.0	9.0	8.0	8.0	14.0	33.0	8.0	2.0	10.0	10.0	8.0	8.0
Weija-Gbawe	4.0	9.0	8.0	8.0	13.0	44.0	7.0	3.0	10.0	10.0	7.0	8.0
Yendi	6.0	8.0	10.0	4.0	10.0	25.0	7.0	3.0	10.0	10.0	5.0	4.0
Total (mean±SD)	6.2±1.2	9.7±0.5	9.0±0.9	4.6±2.4	12±2.1	38.7±7.0	8.7±1.7	2.8±0.6	9.5±0.6	10.4±1.3	6.2±1.8	7.0±1.3
Total National Score on patient Safety Score; mean±SD, min-max												84.6% (95% CI; 77.6%, 89.9%)
HCAs, healthcare-associated infections; HCWM, healthcare waste management; HWP, health worker protection; KLPS, knowledge and learning in patient safety; MS, medication safety; NPSP, national patient safety policy; PSAR, patient safety awareness-raising; PSF, patient safety funding; PSHSSD, patient safety and health services and systems development; PSP, patient safety partnerships; PSSR, patient safety surveillance and research; SSC, safe surgical care.												

hospitals have ever conducted research on measuring problems associated with patient safety (48%), causes of patient safety problems (44%), solutions for patient safety problems (33%) and translating patient safety solutions into practice (19%).

### Healthcare waste management

In the HCWM domain, 96% of the hospitals had policies on waste management, 85% had high-level hospital policies on HCWM and 89% had protocols for waste management. There were adequate supplies or materials to collect all types of wastes generated at all points in 66.7% of the hospitals. Protocols were in place for final waste disposal for plastics (96%), domestic waste (96%), food waste (93%), sharp waste (89%) and infectious waste (82%). Only 59% of the hospitals provided instruction on the disposal of hospital waste at home. The overall national average score (SD) on HCWM domain was 12 ( $\pm 2.1$ ), translating to 86% (table 2).

### Patient safety awareness raising

Regarding PSAR domain, all the hospitals reported having the patients' rights charter. About 74% of the hospitals indicated they had ever participated in community-focused activities geared towards raising awareness of patient safety. All the hospitals had mechanisms such as posters and leaflets to inform patients about their rights; 89% had mechanisms to sensitise hospital staff on patient safety issues. There were mechanisms among 89% of the hospitals for patients to report patient safety issues. Mechanisms to share ideas and concerns related to patient safety among patients and health professionals were present in 74% of the hospitals. The overall average (SD) national score for PSAR was 8.7 ( $\pm 1.7$ ), translating to 87%. (table 2).

### Mechanisms for informing patients of their rights

#### Use of posters and leaflets

The respondents indicated that they use posters and leaflets to inform patients about their rights. These posters are displayed in care areas such as wards and outpatient departments. The narration of some of the respondents include:

The patients are informed of their rights through leaflets and posters.

There are posters and leaflets of patient charter displayed in the wards of the hospitals to inform patients about their rights.

#### Use of public address system and health education sessions

The respondents also added that they use public address system and health education sessions to inform patients about their rights. They narrated as follows:

Patients are informed of their rights through posters and announcements through public address system in the hospital.

Patients are informed of their rights through posters and health education sessions.

### Mechanisms for sensitising staff on patient safety issues

#### Use of quality assurance focal persons, clinical sessions and ward meetings

The respondents indicated that their hospitals use quality assurance focal persons to sensitise staff about patient safety issues. Some hospitals also use clinical sessions and ward meetings to educate the staff about patient safety issues. They narrated as follows:

Every unit in the hospital has a quality assurance focal person who is in charge of sensitising members on patient safety issues.

Hospital staff are sensitised on patient safety issues during staff durbars, ward meetings and performance reviews.

Hospital staff are sensitised on patient safety issues during ward meetings.

### Mechanisms for patients to report patient safety issues

#### Use of suggestion boxes and complaint desks

Suggestion boxes and complaint desks were identified as one of the key mechanisms for patients to report patient safety issues in the hospitals. The infection prevention and control (IPC) focal persons narrated as follows:

Suggestion boxes and information boxes are in place for reporting of patient safety issues.

There is a designated desk for reporting of patient safety issues by patients.

Complaints desks are available for patients to report patients' safety issues for redress.

#### Use of contacts of core management members

It also emerged that some hospitals display contact numbers of core management members for patients to call and report patient safety issues when the need arises. One of the respondents narrated as follows;

Core management contact numbers are displayed on the hospital notice board for patients to call and report patient safety issues when the need arises.

### Safe surgical care

About 96% of the hospitals had mechanisms in place for recording deaths following a surgical procedure, 93% had mechanisms to record complications resulting from surgeries and 93% of the hospitals indicated they were aware of the WHO Safe Surgical Checklists. The overall mean (SD) national score on SSC was 2.8 ( $\pm 0.6$ ) out of a maximum score of 3 (table 2).

### Patient safety and health services and systems development

The majority (81.5%) of the hospitals had a long-term strategic plan. Achimota, Bongo, Savelugu, Tafo and Upper West regional hospitals had no long-term strategic plan. All hospitals had annual hospital plans, organisational

charts and reliable procurement processes for obtaining necessary healthcare supplies and materials. Most (89%) hospitals currently have programmes to promote quality improvement except for Bongo, Savelugu and Sunyani municipal hospitals. The overall mean (SD) national score in the PSHSSD domain was 9.5 ( $\pm 0.6$ ), translating to 95% (table 2). Quality improvement programmes in the hospitals were clinical sessions, client satisfaction surveys and the 5S (Sort, Set, Shine, Standardized, Sustain)-KAIZEN approach to quality improvement.

### Health worker protection

All the hospitals had policies on healthcare worker protection, and 78% had high-level hospital policy documents on healthcare worker protection. Personal protective equipment such as masks, aprons, gowns and clean gloves was available in all hospitals. All the hospitals had systems to register and follow-up accidents and injuries such as needle or sharp injuries. Most (96%) hospitals had protocols for postexposure prophylaxis for health workers, 44% of the hospitals had vaccinated all staff/trainees against hepatitis B virus, and only 15% of the hospitals had systems in place to track excessive employee work hours. The overall national average (SD) score in this action area was 10.4 ( $\pm 1.3$ ), depicting 80% (table 2).

Key challenges in using personal protection equipment were inadequate IPC logistics and health workers' dislike of goggles use. Mechanisms for emergency treatment for health workers include using emergency kit boxes in patient care areas, and free treatment for health workers in case of an emergency.

### Patient safety partnerships

The national average (SD) score for the PSPs domain was 6.2 ( $\pm 1.8$ ) out of a maximum score of 8. Only 70% of the hospitals engaged patients and community members in priority settings, policy development, health service delivery planning and patient safety improvement. More than half (52%) of the hospitals had committees to plan and develop partnership among patients, family members, health professionals and policy makers. Most (78%) of the hospitals held regular meetings with the relevant local community and civil society players to interface and exchange concerns. Approximately 93% of the hospitals had community outreach programmes in place (table 2).

Suggestion boxes, client satisfaction surveys, client complaint desks and quality assurance surveys are used to obtain feedback on patient safety issues. Outreach programmes in the selected hospitals are radio talks, TB client's follow-up, child welfare clinic, antenatal/postnatal care, sexually transmitted infections (STIs) screening, cervical and prostate cancer screening, immunisations, home visits and health education in churches/mosques.

### Patient safety funding

The national average (SD) score in the PSF domain was 7.0 ( $\pm 1.3$ ) (table 2). Only 41% of the hospitals had all

funding from the hospital coming from the government, 96% had a clear financial management mechanism, 56% of the hospitals met their annual planned expenditure in the previous year, and less than half (42%) had a dedicated budget allocated for patient safety activities. Less than half (44%) of the hospitals were involved in a public-private partnership.

## DISCUSSION

Since the draft of the national patient safety policy in 2015, the status of patient safety in Ghanaian hospitals has not been investigated. Therefore, this survey was conducted to determine the status of patient safety in selected Ghanaian hospitals. The overall patient safety status was rated at 85%. This suggests an improved patient safety situation in the last 7 years. The 2015 assessment of the patient safety status in Ghana rated the overall patient safety score at 66%,<sup>11</sup> which is lower than the average national score (85%) in this study. The discrepancies in the patient safety situation in the 2015 survey and the current study may be due to differences in the levels of the facilities that were sampled. The study by Otchi *et al* included teaching hospitals, while our study was limited to regional and district/municipal hospitals. However, this improvement in patient safety was anticipated because the Ghana Health Service, Ministry of Health and partners have made several efforts to ensure a robust patient safety system in Ghana, including the development and launch of the 2016 National Healthcare Quality Strategy in Ghana (2017–2021).<sup>14</sup>

The hospitals performed better in the action area of KLPS, where all the hospitals had a training plan, a system for clinical audit, and a system for recording adverse events. This finding is not new; a similar assessment in Ghana by Otchi *et al* rated KLPS as the highest performing action area.<sup>11</sup> The performance of the hospitals in the knowledge and learning in the patient safety domain may be an indication of a robust system of training and continuous education in the selected hospitals. Intended patient safety programmes by the Ghana Health Service and Ministry of Health should build the capacities of the hospitals to sustain and improve the gains made in the knowledge and learning in the patient safety action area. Most of the hospitals sampled had systems in place for service delivery coordination, mainly done using the existing referral systems. Referring patients from primary care to higher levels of care is an integral part of the healthcare system in Ghana, and the national referral policy, which has been in place since 2012, makes it official.<sup>15</sup>

As best practice, the social media platforms of the Ghana Health Service/Ministry of Health staff were also used to coordinate service delivery as a problem-solving initiative to provide safer care. Indeed, the role of a cross-messaging platform in strengthening referral systems has been emphasised by scholars in Ghana<sup>16</sup> and China.<sup>17</sup> However, there are risks associated with using social media

platforms.<sup>18</sup> These risks include breach of patient privacy, damage to professional image and ultimately leading to legal and licensing issues.<sup>18</sup>

The average scores of the hospitals on the various patient safety action areas revealed variations in the performance of the hospitals across the 12 action areas. The reason for this is unclear, but patient safety is affected by several factors.<sup>19 20</sup> These variations were also identified in a similar assessment in Ghana<sup>11</sup> and Liberia.<sup>21</sup> The healthcare facilities consisted of regional, municipal and district hospitals; this may be the possible explanation for the variations in performance across the various action areas. This warrants urgent actions to ensure uniformity in performance across the 12 action areas. Most of the hospitals surveyed did not have any long-term plans to guide their operations into the future. This aligns with a previous assessment in Iran.<sup>22</sup> This finding suggests that the implementation of strategic plans in the hospitals is chaotic with inadequate budgetary allocation. Strategic plan implementation is affected by several factors, such as senior managers' awareness and participation in the strategic planning process, creating and maintaining team participation in the strategic planning process, and organisational structure effects on the strategic planning process.<sup>23</sup>

Key quality improvement programmes in the hospitals were clinical sessions, client satisfaction surveys and the 5S (sort, set, shine, standardise and sustain) KAIZEN approach. These programmes are not new in hospitals, and they play a crucial role in promoting patient safety. For instance, multidisciplinary clinical meetings were crucial for improving internal quality standards and workflow elsewhere.<sup>24</sup> Client satisfaction survey has been widely used as a quality improvement tool in hospitals, and it is crucial for ensuring the safety of patients.<sup>25 26</sup> Indeed, patient satisfaction surveys have been widely used to measure the quality of health services provided in healthcare facilities.<sup>25 26</sup> However, feedback on client satisfaction surveys has not been widely used for developing patient safety and quality improvement initiatives.<sup>26</sup> Also, the 5S approach is applicable in all locations,<sup>27</sup> and its role in reducing patient waiting time has been established by scholars in Tanzania.<sup>28</sup>

The hospitals' performance on knowledge and learning in the patient safety domain was high. This is comparable to a previous assessment in Ghana.<sup>11</sup> Most of the hospitals had mechanisms for continuous education for healthcare professionals. These mechanisms include in-service training, clinical sessions and continuous professional development workshops. Continuous education for healthcare professionals is crucial in sustaining quality of care,<sup>29</sup> and this is mostly done through in-service training.<sup>30</sup> Continuous professional development is a lifelong learning process that facilitates the acquisition of new knowledge and skills to enable competent medical practice.<sup>31</sup> The hospitals had varied clinical audit systems, including maternal mortality, general mortality, stillbirth and perinatal mortality audits. These audit systems are

crucial in identifying the prevalent causes of hospital deaths.<sup>32</sup> In fact, clinical audit is used as a tool for quality improvement, and it is central to healthcare and patient safety.<sup>33 34</sup>

The hospitals were also rated high on patient safety awareness-raising. Patient rights charter was exhibited in the form of posters and leaflets in the patient care areas of each hospital. This is not new; posters are regularly used in healthcare settings to provide information to clients.<sup>35</sup> Even though the hospitals claim to often display posters and leaflets about the patient charter, a previous survey in Ghana found that patients do not know the existence or the contents of the patient charter.<sup>36</sup> The availability of the patient charter in hospitals is vital in promoting the operationalisation of the patient charter.<sup>36</sup> Most hospitals had mechanisms to sensitise hospital staff on patient safety issues. Patient safety concerns are primarily human and system errors.<sup>37</sup> Therefore, sensitising staff about patient safety issues is crucial in reducing patient harm in healthcare settings. The hospitals also used public address systems to inform patients about patient safety issues. Indeed, the role of health information technology in improving patient safety and quality of care has long been emphasised by scholars.<sup>38</sup> Public address systems may be the means for communicating patient safety issues to the illiterate population in healthcare settings.

The hospitals also scored high in MS, where most had policy documents on MS. Guidelines on MS are crucial in preventing medication errors. For instance, a previous study in Ethiopia found a high rate of medication errors related to the unavailability of medication administration guidelines.<sup>39</sup> Most (93%) of the hospitals had drugs and therapeutic committees. This varies from a previous study in Jordan, where only 45% of the hospitals surveyed had medicine and therapeutic committees.<sup>40</sup> Drug and therapeutic committees have a crucial role in general prescription policies.<sup>40</sup> Similar to a previously published report,<sup>41</sup> only a few of the hospitals assessed had a dedicated budget for patient safety activities. The good financial standing of a hospital is related to an improved patient-reported experience of care.<sup>42</sup> On the contrary, higher odds of having patient safety issues are related to a decline in finances over time.<sup>43</sup> PSSR was the lowest-performing action area. This aligns with a similar assessment done in Ghana by Otchi *et al.*<sup>11</sup> The PSSR domain presents an opportunity for the Ghana Health Service, the Ministry of Health and development partners to work together to improve the hospitals' capacities to do surveillance and research-related activities.

### Limitations and strengths of the study

The study participants were purposively selected. This could have introduced some kind of bias as it is inherent in non-probability sampling techniques. Due to variations in health systems across the globe, a comparison of our study to other studies elsewhere should be done cautiously. Notwithstanding, the study's strength is the collection of both qualitative and quantitative data through interviews



and observation. In addition, the hospitals were selected across Ghana's coastal, middle and northern belts. This makes our findings nationally representative.

## CONCLUSION

The survey has provided valuable insights into the current patient safety status in Ghanaian hospitals. The overall national patient safety score was rated high (85%). This means that patient safety systems in the healthcare facilities were generally good, as reflected by their high performance in knowledge and learning in the patient safety domain. Despite this high score, there were variations in the performance of the hospitals across the various action areas, with most of the hospitals performing well in KLPS, PSHSSD and patient safety awareness-raising. Patient safety surveillance, PSF, PSP and MS are key areas that were poorly implemented by the hospitals. The results of the current study will help policy makers and healthcare professionals to better understand the current patient safety status in Ghanaian hospitals. The findings of this study will also form the scientific basis for the purpose of developing a national patient safety policy in Ghana. This is crucial for ensuring resilient and sustainable health systems that guarantee safer care to all patients in Ghana.

## Implications for public health policy in Ghana

1. The Ghana Health Service and partners should institute measures to harmonise mechanisms for continuous patient safety education for healthcare workers in Ghana.
2. There is also an urgent need to standardise mechanisms for informing and engaging patients and families about patient safety issues.
3. Mechanisms for sensitising staff on the importance of patient safety should be harmonised across all hospitals in Ghana.
4. There is a need for awareness creation and standardisation of tools for patient safety in Ghanaian healthcare facilities.
5. More efforts to engage patients and community members in priority setting, policy development, health service delivery planning and patient safety improvement are critical, particularly in client complaints management.
6. The Ghana Health Service should compel facilities to develop annual patient safety, and healthcare quality plans to receive funding from internally generated funds.
7. The hospitals should be empowered to routinely undertake operational research in the area of problems associated with patient safety, causes of patient safety problems, generating solutions to patient safety problems and translating patient safety solutions into practice.
8. We also recommend similar patient safety assessments in non-hospital healthcare facilities at the lower levels

of care to strengthen patient safety in Ghana's primary healthcare efforts.

**Twitter** Mary Eyram Ashinyo @mary\_eyram

**Acknowledgements** The authors would like to acknowledge the hospital managers for their role in the data collection process. We thank the WHO country office for the support provided for the assessment.

**Contributors** Concept, designing and methodology: MEA, AA, SA and SDD; Data collection, management, analysis and interpretation: KEA and SDD; Tool development and Validation: MEA, AA, PCK and SA; Administrative approvals and funding acquisition: MEA and AA; Manuscript draft, revision, finalisation and approval: SDD, KEA, MEA, AA, PCK and SA. MEA will be responsible for the overall content as the guarantor.

**Funding** The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

**Competing interests** None declared.

**Patient and public involvement** Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

**Patient consent for publication** Not applicable.

**Provenance and peer review** Not commissioned; externally peer reviewed.

**Data availability statement** Data are available on reasonable request.

**Open access** This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited, appropriate credit is given, any changes made indicated, and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>.

## ORCID iDs

Mary Eyram Ashinyo <http://orcid.org/0000-0002-8493-9378>

Stephen Dajaan Dubik <http://orcid.org/0000-0001-9833-2676>

## REFERENCES

1. WHO. World patient safety day; 2021.
2. WHO. Global patient safety action plan 2021–2030: towards eliminating avoidable harm e health care, 2021. Available: <https://www.who.int/publications/i/item/9789240032705>
3. WHO. Patient safety: global action on patient safety, 2019. Available: [https://apps.who.int/iris/bitstream/handle/10665/327526/B144\\_29-en.pdf?sequence=1&isAllowed=y](https://apps.who.int/iris/bitstream/handle/10665/327526/B144_29-en.pdf?sequence=1&isAllowed=y)
4. Jha AK, Larizgoitia I, Audera-Lopez C, et al. The global burden of unsafe medical care: Analytic modelling of observational studies. *BMJ Qual Saf* 2013;22:809–15.
5. de Vries EN, Ramrattan MA, Smorenburg SM, et al. The incidence and nature of in-hospital adverse events: a systematic review. *Qual Saf Health Care* 2008;17:216–23.
6. National Academies of Sciences Engineering and Medicine. *Crossing the global quality chasm: improving health care worldwide*. The National Academies Press, 2018.
7. Slawomirski L, Aaraaen A, Klazinga N. The economics of patient safety - Strengthening a value-based approach to reducing patient harm at national level: Organisation for Economic Co-operation and Development OECD Health Working Papers; 2017.
8. IMS. Advancing the responsible use IMS Inst. Healthc. Informatics; 2012.
9. Singh H, Meyer AND, Thomas EJ. The frequency of diagnostic errors in outpatient care: estimations from three large observational studies involving us adult populations. *BMJ Qual Saf* 2014;23:727–31.
10. GHS/MOH. Policy and strategy for patient safety in the health sector 2015.
11. Otchi EH, Bannerman C, Lartey S, et al. Patient safety situational analysis in Ghana. *J Patient Saf Risk Manag* 2018;23:257–63.
12. WHO. Patient safety situational analysis (long form), 2012. Available: [https://www.who.int/patientsafety/implementation/apps/resources/APPS\\_Improvement\\_Situational\\_Analysis\\_LF\\_2012\\_04\\_EN.pdf](https://www.who.int/patientsafety/implementation/apps/resources/APPS_Improvement_Situational_Analysis_LF_2012_04_EN.pdf)
13. Kendall J. Axial coding and the grounded theory controversy. *West J Nurs Res* 1999;21:743–57.
14. MOH. Ghana national helathcare quality strategy (2017–2021); 2016.
15. MoH. Ministry of health referral policy guideline. policy of referring patients; 2012: 1–26.

- 16 Owen M, Bryce F, Tulenko S, *et al.* Use of a cross-platform messaging technology to strengthen the obstetric referral system in the greater Accra region, Ghana: findings from a pilot programme. *The Lancet Global Health* 2019;7:S39.
- 17 Zhang W, Deng Z, Evans R, *et al.* Social media landscape of the tertiary referral hospitals in China: observational descriptive study. *J Med Internet Res* 2018;20:e249–14.
- 18 Ventola CL. Social media and health care professionals: benefits, risks, and best practices. *P T* 2014;39:491–500.
- 19 Tuffrey-Wijne I, Giatras N, Goulding L, *et al.* Identifying the factors affecting the implementation of strategies to promote a safer environment for patients with learning disabilities in NHS hospitals: a mixed-methods study. *Heal Serv Deliv Res* 2013;1:1–224.
- 20 Ayisa A, Getahun Y, Yesuf N. Patient safety culture and associated factors among health-care providers in the University of gondar comprehensive specialized Hospital, Northwest Ethiopia. *Drug Healthc Patient Saf* 2021;13:141–50.
- 21 WHO. Situational assessment report: quality improvement and patient safety –Tellewyan Memorial hospital and Lofa County health system, 2017. Available: <https://apps.who.int/iris/bitstream/handle/10665/253523/9789241511872-eng.pdf>
- 22 Sadeghifar J, Tofighi S, Roshani M, *et al.* An assessment of implementation and evaluation phases of strategic plans in Iranian hospitals. *SAGE Open Med* 2017;5:205031211773622.
- 23 Bahadori M, Teymourzadeh E, Tajik H, *et al.* Factors affecting strategic plan implementation using interpretive structural modeling (ISM). *Int J Health Care Qual Assur* 2018;31:406–14.
- 24 Kane B, Luz S, O'Briain DS, *et al.* Multidisciplinary team meetings and their impact on workflow in radiology and pathology departments. *BMC Med* 2007;5:1–10.
- 25 Sughra U, Siddiqui M, Noorani S, *et al.* Patient satisfaction: a tool towards quality improvement. *pak J Ophthalmol* 2021;37:198–202.
- 26 Al-Abri R, Al-Balushi A. Patient satisfaction survey as a tool towards quality improvement. *Oman Med J* 2014;29:3–7.
- 27 Kanamori S, Shibamura A, Jimba M. Applicability of the 5S management method for quality improvement in health-care facilities: a review. *Trop Med Health* 2016;44:1–8.
- 28 Ishijima H, Eliakimu E, Mshana JMH. The '5S' approach to improve a working environment can reduce waiting time: Findings from hospitals in Northern Tanzania. *Tqm J* 2016;28:664–80.
- 29 Institute of Medicine. Redesigning continuing education in the health professions Committee on planning a continuing health professional education Institute; 2010.
- 30 Nicol E, Turawa E, Bonsu G. Pre- and in-service training of health care workers on immunization data management in LMICs: a scoping review. *Hum Resour Health* 2019;17:1–14.
- 31 Peck C, McCall M, McLaren B, *et al.* Continuing medical education and continuing professional development: international comparisons. *BMJ* 2000;320:432–5.
- 32 Hari Kumar KVS, Ajai Chandra NS. Mortality audit of medical patients at armed forces hospitals. *Med J Armed Forces India* 2017;73:299–303.
- 33 Esposito P, Dal Canton A. Clinical audit, a valuable tool to improve quality of care: general methodology and applications in nephrology. *World J Nephrol* 2014;3:249.
- 34 Alyacoubi S, Böttcher B, Albarqouni L, *et al.* Clinical audit as a quality improvement tool in the Gaza strip: an audit of audits. *Lancet* 2021;398 Suppl 1:S13.
- 35 Ilic D, Rowe N. What is the evidence that poster presentations are effective in promoting knowledge transfer? A state of the art review. *Health Info Libr J* 2013;30:4–12.
- 36 Yarney L, Buabeng T, Baidoo D, *et al.* Operationalization of the Ghanaian patients' charter in a peri-urban public hospital: Voices of healthcare workers and patients. *Int J Health Policy Manag* 2016;5:525–33.
- 37 Pelzang R, Hutchinson AM. Patient safety issues and concerns in Bhutan's healthcare system: a qualitative exploratory descriptive study. *BMJ Open* 2018;8:e022788.
- 38 Alotaibi YK, Federico F. The impact of health information technology on patient safety. *Saudi Med J* 2017;38:1173–80.
- 39 Wondmienneh A, Alemu W, Tadele N, *et al.* Medication administration errors and contributing factors among nurses : a cross sectional study in tertiary hospitals, Addis. *BMC Nurs* 2020:1–9.
- 40 Alefan Q, Alshareef S, Al-Shatnawi S. Drug and therapeutics committees in Jordanian hospitals: a nation-wide survey of organization, activities, and drug selection procedures. *Pharm Pract* 2019;17:1590–6.
- 41 WHO. Partnerships for safer health service delivery :Evaluation of WHO African Partnerships for Patient Safety 2009-2014; 2015.
- 42 Akinleye DD, McNutt L-A, Lazariu V, *et al.* Correlation between hospital finances and quality and safety of patient care. *PLoS One* 2019;14:1–19.
- 43 Encinosa WE, Bernard DM. Hospital finances and patient safety outcomes. *Inquiry* 2005;42:60–72.