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Leveraging local health system resources to address quality healthcare gaps in sub-Saharan African: lessons from the *SafeCare* quality improvement programme in Ghana

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Abstract

Introduction In low- and-middle-income-countries (LMICs) like Ghana, universal access to quality healthcare remains a mirage and this undermines achievement of sustainable development goal (SDG) 3. The *SafeCare* Quality Improvement (QI) programme is an initiative of PharmAccess Foundation, a Netherlands-based non-governmental organisation (NGO). In 2009 *SafeCare* QI programme was launched in Ghana to help address gaps in healthcare quality standards, leveraging existing local resources. Over 600 private and public healthcare facilities are currently enrolled in the programme and is being adopted for nation-wide rollout by government of Ghana and implementing partners.

Objective This paper explored views and experiences of frontline health staff and policy makers on the *SafeCare* quality improvement programme in Ghana and how local resources were leveraged in its implementation.

Methodology Design/setting: The evaluation was conducted in 53 private and public healthcare facilities from seven administrative regions of Ghana across the coastal, middle, and northern geopolitical belts. The regions are Ashanti ($n=12$), Bono East ($n=8$), Bono ($n=3$), Greater Accra ($n=12$), Oti ($n=4$), Savannah ($n=8$) and Western ($n=9$).

Sampling: Quota and purposive sampling techniques were used to sample the healthcare facilities in accordance with the study eligibility criteria. Total of 45 focus group discussions (FGDs) and 47 individual in-depth interviews (IDIs) were conducted among frontline staff and policy makers from government and private local partner institutions.

Analysis: Group and individual interviews were audio recorded, transcribed verbatim and thematic content analysis done using *Nvivo* (version 12.0) software.

Findings Overall, participants perceived the relevance and benefits of the *SafeCare* programme to be "*very satisfactory*" while the programme impact, rollout process and success were perceived to be "*satisfactory*". Quality healthcare standards were perceived to have improved in beneficiary health facilities due to participation in the *SafeCare* programme. Patient satisfaction, service utilisation and revenue generation in healthcare facilities were also attributed to the *SafeCare* programme. Proposals were made for harmonisation of existing QI assessment tools to mitigate duplications. Agreed data sharing protocols and interoperability with existing national database were

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also recommended to promote sustainability. Finally, low staff motivation, high workload, lack of financial and material resources were cited as potential impediments to full compliance with the *SafeCare* QI standards by healthcare facilities enrolled in the programme.

Conclusions *SafeCare* QI programme has contributed to QI and adherence to patient safety standards in Ghana. Sustainability is however dependent on continuous government commitment as the programme gets adopted as a national QI programme. Overlaps in content of QI assessment tools ought to be addressed to promote efficiency without compromising quality standards. The *SafeCare* programme demonstrates that health systems in LMICs have the potential to attain acceptable quality healthcare standards when they take advantage of existing local resources, including private-public partnership (PPP) and peer-learning opportunities.

Keywords *SafeCare*, Healthcare quality, Patient safety, Quality improvement, Ghana, Sub-Saharan Africa, Views, Perspectives, Policy makers, Frontline staff, Healthcare facilities, PharmAccess foundation

Background

Globally, significant progress has been made in respect of population health outcomes. People are healthier, wealthier and live longer today than 30 years ago [1]. Global average life expectancy at birth has increased from approximately 67 years in 2000 to 73 years in 2019 [1].

Nonetheless, the gap between developed and developing countries remains unacceptably wide with some countries retrogressing in health indicators over time. Almost 95% of all maternal deaths still occur in low-and-lower middle-income countries (LMICs) largely due to limited access to good quality healthcare [1]. Sub-Saharan Africa (SSA) countries alone account for the highest proportion of maternal deaths (70%), followed by Southern Asia (16%) [1]. Likewise, Africa remains the most severely affected by HIV in the world, with nearly 1 in every 25 adults (3.2%) living with HIV as of 2022 [1].

In terms of health financing, it is estimated that the global health expenditure in 2021 was approximately US$ 9.8 trillion representing about 10% of global gross domestic product (GDP), albeit the spending distribution is highly skewed in favour of developed countries [2]. Low-income countries (LICs) only accounted for 0.24% of global health expenditure, despite hosting 8% of the world's population [2].

Consequently, many health systems in LMICs continue to struggle with the challenges of access to good quality healthcare [2] coupled with high levels of inefficiencies in these health systems [3]. Investment in context-relevant quality improvement (QI) interventions is therefore key to promoting LMICs efforts towards meeting the health needs of their citizens.

Ghana is one of the SSA countries making progress in major health outcome indicators. For instance, the country successfully attained 70% HIV viral load testing coverage in 2023 (even though still below the WHO target of 95%), and reduced malaria parasite prevalence from 20.6% to 8.6% in 2023 [3]. Similarly, average life expectancy at birth improved from 59.2 years in 2000 to 66.1 years in 2021 compared to the African average of 63.6 [4].

Notwithstanding these achievements, Ghana is still confronted with significant health challenges including limited access to quality healthcare, and like many SSA countries, Ghana is not likely to achieve United Nations (UN) Sustainable Development Goal (SDG) 3 targets before the close of 2030 [4].

Similarly, universal health coverage remains a challenge. As of 2021, approximately 46% of people in Ghana were not covered under the National Health Insurance Scheme (NHIS) [5]. This is despite substantial investments made in the health sector.

The current health system challenges in countries like Ghana have been attributed partly to un-sustained commitment to context relevant quality improvement interventions [6]. Over the years, literature evidence has shown that quality healthcare improvement interventions that actively involved relevant stakeholders in bottom-up fashion yielded better outcomes in health systems with limited resources as with the *SafeCare* programme in Ghana [7, 8].

The *SafeCare* programme originated with the combined knowledge, expertise, and experience of three organizations: PharmAccess Foundation (Netherlands based NGO), Council for Health Service Accreditation of Southern Africa (COHSASA), and Joint Commission International (JCI) [7]. The programme comprises the internationally accredited patient safety and quality healthcare standards purposefully designed to evaluate compliance among healthcare facilities in resource-restricted countries and a stepwise digital innovation supported improvement pathway that propels the facilities from poor to better quality healthcare delivery [7]. *SafeCare* QI ten standards are made up of 13 service elements with ten quality assessment areas on (1) Accident and Emergency Care, (2) HIV & TB & Malaria, (3) Infection Prevention, (4) Life & Fire Safety,

(5) Mother & Child, (6) Customer Care, (7) Business Performance, (8) Staff & Training, (9) Stock Management and (10) Clinical Management [7].

Under the *SafeCare* programme, a health facility is awarded a certificate of improvement ranging from Level 1 (very modest quality) to Level 5 (high quality), depending on the facility's performance against the *SafeCare* standards [7]. As a facility improves its performance against the *SafeCare* standards, it progresses to the next certificate of improvement. This step-by-step approach provides a transparent, positive, and motivational rating system that recogniszes each stage of the improvement journey with the continuous technical support of the *SafeCare* QI team until the next assessment visit [7]. The *SafeCare* programme has been rolled out in over 5,400 healthcare facilities as of 2024 across 19 African countries including Ghana as part of efforts towards enhancing universal access to quality healthcare services [9]. *SafeCare* is tailored to the unique country context leveraging existing health system resources and local solutions thus, making the programme a promising QI intervention for LMICs with limited health resources.

Over the years the *SafeCare* programme has achieved successes in Africa [10–12] including Ghana [7, 8, 13–17] and currently has a coverage of over six hundred (600) active private and public healthcare facilities in Ghana since its implementation in 2009. Details of the *SafeCare* assessment criteria are reported on *SafeCare* Official Website [9] and previous related publications [16, 17].

Since rollout of the *SafeCare* programme in Ghana, there has been no independent qualitative evaluation to ascertain its successes and challenges. This paper reports outcomes of independent evaluation of the programme that explored experiences of frontline health staff and policy makers to inform policy dialogues on scalability and sustainability. The evaluation was conducted in 53 private and public health facilities enrolled in the SafeCare QI programme, local implementing partners and policy makers at the district, regional and national levels.

Methodology

Design

This evaluation research employed qualitative and quantitative data collection techniques. The current paper reports findings of the qualitative arm of the study. Individual in-depth interviews (IDIs) were conducted among key policy makers and health managers at the national, regional and health facility levels. Focus group discussions (FGDs) were held with frontline clinical and administrative staff in the participating healthcare facilities. This qualitative paper is reported in line with the consolidated criteria for reporting qualitative research (COREQ).

Setting and population

The study was conducted in seven (7) out of the sixteen (16) administrative regions of Ghana across the different categories of *SafeCare* health providers and regulatory bodies. The seven regions are Greater Accra (GAR), Ashanti (ASR), Bono East (BER), Bono (BOR), Oti (OTR), Savannah (SVR) and Western (WR). The seven (7) regions were purposively selected to cover the *SafeCare* network of providers and satisfy the rural-urban and geopolitical landscape in Ghana.

According to available administrative data, in the seven (7) sampled regions, there were 254 *SafeCare* network of providers at the time of conducting the study. In terms of facility ownership, the health providers were drawn from faith-based institutions (Christian Health Association of Ghana (CHAG)) (n=319); PharmAccess Ghana (PAG) health facilities (n=56); Africa Health Holdings (AHH) (n=19); 10 Marie Stopes International Ghana (MSIG) (n=10) and Medical Credit Fund (MCF) (n=2). Health facilities owned by Ghana Health Service (GHS) were forty (40) in number. Representatives of local implementing partner institutions at the national and regional levels were also interviewed.

Sample size and sampling procedure

Based on quota sampling procedure, sample sizes were determined to reflect the population of different categories of *SafeCare* providers in the selected regions; thus: GAR (n=12); ASR (n=12); BER (n=8); SVR (n=8); OTR (n=4); BOR (n=3), and WR (n=9).Since the theoretical basis for the qualitative study design was "information power", an intuitive sample size of 56 health providers from the seven administrative regions was determined [18]. This sample size represents 22% of the total population of 254 eligible *SafeCare* health facilities in the seven regions. In qualitative research, sample size determination based on "information" power is focused on "depth" other than "width" of privileged information from key informants [18]. Thus, the researchers did not have to rely on information saturation to inform the final sample size.

Subsequently, sampling across the categories of *SafeCare* network of health providers was arrived at according to percentage share as follows: CHAG = 29 (52%), Private-for-profit facilities (i.e. PAG, MCF, MSIG, AHH) = 19 (34%), and government health facilities (i.e. GHS = 8 (14%) (See Fig. 1). After accounting for eligibility and non-responses, this approach yielded qualitative data from 45 FGDs (involving 284 frontline staff), and 42 IDIs with health facility heads, and five national and regional directors of health.

Data collection procedure and instruments

One FGD was earmarked for each eligible health facility (total target of 56 FGDs). Each FGD size was between 4

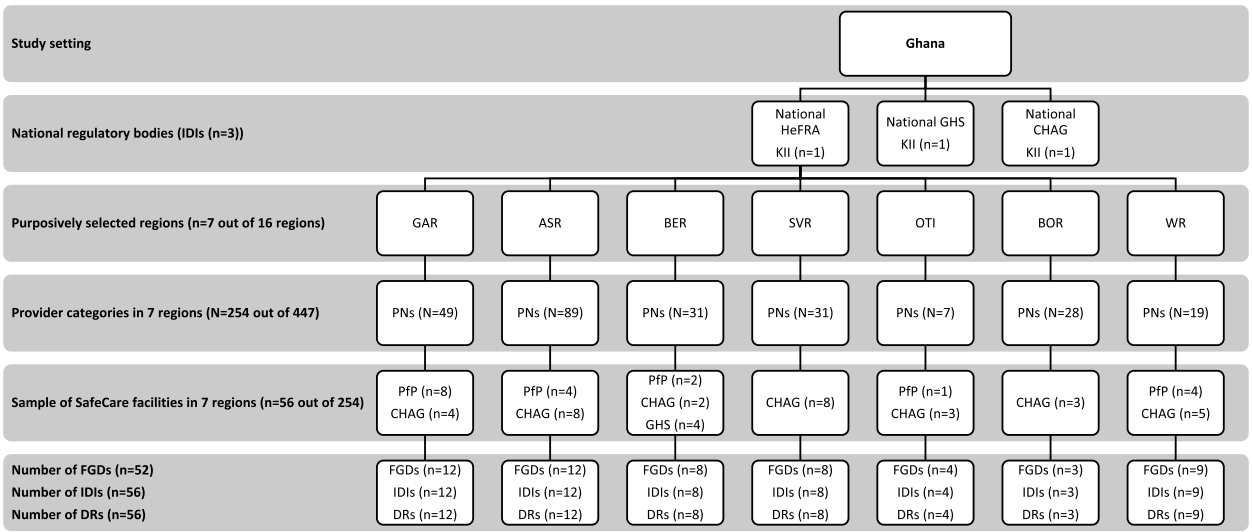

Fig. 1 Study design and sampling procedure. Source: Designed by authors (2023); Legend: N (population size of health facilities); n (sample size of health facilities); IDIs (Individual-in-depth Interviews); PfP ((Private for Profit), these include the following: Africa Health Holdings (AHH); PharmAccess Group (PAG) facilities include (Marie Stopes International Ghana (MSIG), Medical Credit Fund (MCF) and Marie Stopes International Ghana (MSIG)); Christian Health Association of Ghana (CHAG); Ghana Health Service (GHS); Health Facilities Regulatory Agency (HeFRA); GAR (Greater Accra region); ASR (Ashanti Region); BER (Bono East region); SVR (Savannah region); OTI (Oti region); BOR (Bono region); WR (Western region); PNs (Provider Networks); FGDs (Focus group discussions); IDIs (Individual In-depth Interviews); DRs (Desk Reviews)

– 8 participants and heterogenous in composition. Heterogeneity of the focus groups means the groups comprised of different cadres of health professionals (nurses, medical officers, allied and administrative staff). The groups were also a mix of gender, age and work experience to allow experience and knowledge sharing on the *SafeCare* programme. Since the topic for discussion was not sensitive, heterogenous FGDs were deemed appropriate.

Additionally, one IDI was earmarked for the health facility head/manager (total target of 56 IDIs), and another for each implementing partner institution at the national level (total target of 6 IDIs). All interviews at the health facility level were conducted face-to-face, while interviews with national level implementing partner institutions were conducted virtually. Data collection instruments were FGD and IDI guides. Sections of the IDI and FGD guides were *SafeCare* operations, processes, capacity development, experiences, and best value prepositions for quality improvement (QI) (see Supplementary File 1).

Recruitment of participants

Recruitment and interview of participants started on 28th November 2023 and ended on 5th January 2024. Written informed consent was obtained from all participants prior to their recruitment for participation in the study.

Inclusion and exclusion criteria

First, only health facilities captured in the *SafeCare* database were eligible to participate in the study. Moreover, health staff should have had at least six (6) months' work experience in the pertinent health facility. A health facility should have been enrolled in the *SafeCare* programme for not less than 12 months on the day of visit. Likewise, only clinical and non-clinical staff like health managers/administrators were interviewed. Finally, participants who voluntarily consented to participate were included. Where a health facility or staff did not meet these criteria, they were excluded.

Individual and group interviews strategy

The qualitative interviews were conducted in a bottom-up manner starting with IDIs and FGDs with health facility heads and frontline staff. Next, regional and national level key informant interviews were conducted with representatives of regulatory bodies and local implementing programme partners (i.e. Health Facilities Regulatory Agency (HeFRA), Ghana Health Service (GHS), Christian Health Association of Ghana (CHAG) and Care Point Group Ghana (CPGG)). This approach allowed the researchers to validate views of frontline staff at the health facilities with policy makers and health managers at the national and regional levels.

Data analysis and management

All interviews were audio recorded and transcribed verbatim. Next, content analysis was done based on grounded theory where themes emerged from the transcripts were content analysed using *Nvivo* software (version 12.0). Two qualitative experts did the coding concurrently to mitigate coding bias.

Data quality assurance

Six (6) research assistants with a minimum of Masters' degree qualification and at least three years' work experience in qualitative data collection were recruited and trained for two days including piloting on the field. The piloting was done to address ambiguities in questions and typographical errors. Timing for interviews and FGDs was monitored to ensure the interviews were not too long to avoid interviewee and interviewer fatigue. Interviews at the health provider level were conducted in-person and audio-recorded with prior consent of the study participants. Two research assistants handled a FGD at a time, one being the moderator and other a note taker. FGDs lasted approximately 60 min per session. Facility level IDIs were conducted in-person and lasted approximately 45 min per interview.

Credibility and internal validity of findings

Two trained research assistants double-checked the interview transcriptions against the audios to verify accuracy and ensure credibility of the findings. The independent validators did content analysis to identify and resolve (through a third validator) contradictory findings. Likewise, the researchers triangulated FGDs and IDIs transcripts for possible divergence and convergence of patterns.

Auditability and confirmability

Background personal information of the participants (e.g. gender, work history, age and other characteristics) were recorded to enhance auditability (through follow-ups) of the interview responses. Coding was also done to minimise potential bias and ensure anonymity of responses.

Fittingness and transferability

Generalizability of the study findings is challenged since the study was conducted in 53 out of over 600 (9%) *SafeCare* health facilities in seven out of the 16 administrative regions of Ghana. Chances are that the feedback is peculiar to experiences in these pertinent healthcare providers which might not necessarily be a true reflection of all staff and health facilities in the country. Nonetheless, the process remains representative of the target population encompassing a cross section of northern, middle and southern geopolitical landscape of Ghana.

Results

Background characteristics

Out of the six earmarked interviews at the national regulatory institutions, five were successfully conducted, with four being males and one female; years of work experience ranged from three to eight years in their current portfolios.

Interviewees were a chief executive officer, two regional directors, one deputy executive director, and a regional quality manager. These sampled key informants were selected from national and regional levels of health management in Ghana's health care system. In terms of professional qualifications, the five key informants comprised of medical officers ($n=3$), a nurse (1) and a laboratory personnel (1). They were interviewed from Greater Accra ($n=3$), Bono east ($n=1$) and Savannah ($n=1$) regions (see Table 1).

At the health facility level, 92 interviews were successfully conducted (45 FGDs and 47 IDIs). Ashanti region recorded the highest number of FGDs ($n=10$) and IDIs ($n=12$) followed by Greater Accra (FGDs $n=9$, IDIs, $n=9$) and Savannah (FGDs $n=9$, IDIs $n=9$) regions (see Table 1). Total number of staff who participated in the FGDs were 284 with an average of six participants per focus group; 43% of the FGD participants were aged between 25–31 years; little over 50% were females while clinical staff constituted 60%.

In terms of years of work experience, most staff (90%) said they worked for six years or more; 59% had at least a first-degree qualification (see Fig. 2). The FGDs lasted from a low of 30 min to a high of 105 min. The IDIs with facility heads/managers in the 47 facilities lasted between 20 min and 60 min. Average age of the facility heads was 32.5 years; males constituted 70% and the remaining were females (see Fig. 2).

Perspectives on *SafeCare* QI programme in Ghana

Implementation

Interviews with key informants at the national and regional levels revealed the *SafeCare* QI programme played an important role in building Ghana's health system towards quality care improvement. Participants indicated the programme implementation is participatory and involves local partner institutions. Other respondents intimated the programme adopted a comprehensive approach to quality healthcare assessment. These views are summarised in a quote by a director of health services as follows:

> *"...if you look at it there's been many disjointed programmes but this one [SafeCare QI programme] is like one stop shop... it captures all the areas for the health system blocks...and if you care to know we are*

Table 1 Distribution of interviews by region and type of interview

	Levels of engagement	Regional distributions							
	Frontline staff in HFs	**ASR**	**BER**	**BOR**	**GAR**	**OTR**	**SVR**	**WR**	**TOTAL**
1	FGDs	10	7	3	9	2	9	5	**45**
2	IDIs	12	6	3	9	2	9	6	**47**
	Total	**22**	**13**	**6**	**18**	**4**	**18**	**11**	**92**
	Policy makers/managers								
1	HeFRA (IDI)	0	0	0	1	0	0	0	1
2	CHAG (IDI)	0	0	0	1	0	0	0	1
3	CPGG (IDI)	0	0	0	1	0	0	0	1
4	GHS (IDI	0	1	0	0	0	1	0	2
	Total	**0**	**1**	**0**	**3**	**0**	**1**	**0**	**5**

Source: Compiled by authors (2024)

Legend: ASR Ashanti Region, *BER* Bono East Region, *BOR* Bono Region, *GAR* Greater Accra Region, *OTR* Oti Region, *SVR* Savannah Region, *WR* Western Region, *HeFRA* Health Facilities Association of Ghana, *CHAG* Christian Health Association of Ghana, *CPGG* Care Point Group Ghana, *GHS* Ghana Health Service, *IDI* Individual In-depth Interviews, *FGD* Focus Group Discussion *HFs* Health Facilities

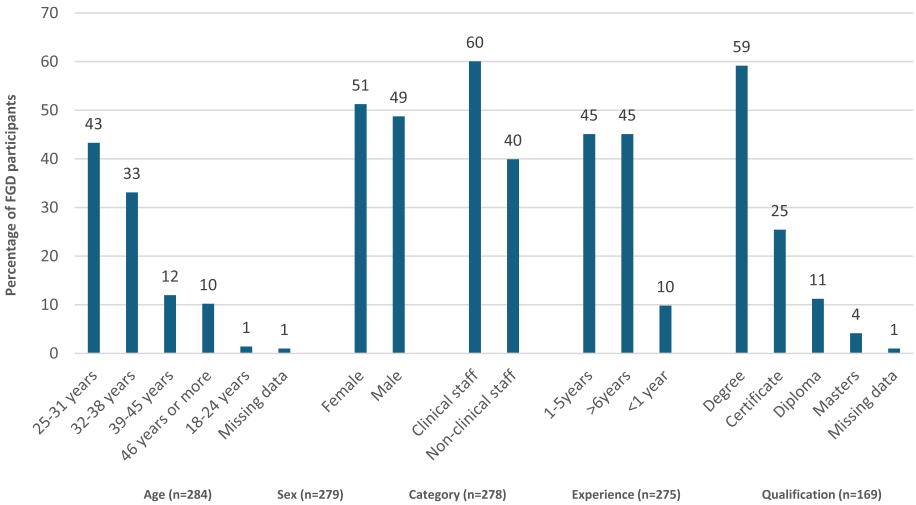

Fig. 2 Characteristics of FGD participants. Legend: Source: Field data (2023); FGD (Focus Group Discussion)

proud that we are working with SafeCare because it is improving quality of care" [IP_KII_2].

It was reported that the traditional peer review system often led by the Ghana Health Service (GHS) is mostly "staged" and once the peer review is over, facilities revert to the status *quo*. However, the *SafeCare* QI programme is designed to inculcate QI practices into the day-to-day activities of healthcare facilities and does not make room for "staging".

The responses further show that the capacity building interventions by the *SafeCare* QI programme have been beneficial to health facilities to meet international quality healthcare standards in a transparent manner, as stated by a health manager in predominantly rural region:

"...we are trained in international QI standards for quality improvement...thanks to the SafeCare [QI programme]" [KII_HF_SVR].

On the assessor training approach, it was found that managers agreed the approach helped to improve and streamline the already existing peer review mechanisms in place at the Ghana Health Service (GHS) level. It was also found that *SafeCare* QI programme conducts training of trainers (ToTs) that equip staff within the health system to undertake *SafeCare* assessments as assessors. This bottom-up strategy was seen as important towards promoting ownership and sustainability of the programme as shown in the quotes below:

"…the capacity building is holistic. It even starts from the bottom to the top and then when there's still a problem… yeah, they're not hesitant to go back to the bottom, teach the people what they need to do to, you know, [to] better understand what is expected of them" [IP_KII_3].

A regional director of health services was quoted as follows:

"…And if you're asking me is this [SafeCare programme] is sustainable? Yes, … because if we have seen the importance of this [SafeCare Programme] as a driving force and how as a service [Ghana Health Service], we can rally behind [it]" [BER_KII_1].

Additionally, the capacity building interventions were found to be a hybrid of remote (virtual) and in-person training sessions. The *SafeCare* programme was also perceived to have contributed to institutionalising QI in health facilities through reporting on QI performance in clinical meetings, appointment of QI coaches, and inclusion of QI performance indicators for staff appraisals and promotion.

Furthermore, participants' views on the SafeCare programme were that it engaged local partners to appreciate the quality improvement process through a shared platform called Quality Analytics Platform (QAP). According to the participants, the QAP platform allows regional focal persons to remotely monitor facilities performance on quality indicators within the region. A manager at the regional level was quoted as follows:

"there's quality analytics platform, before now, it was the quality platform for stakeholders that we, the focal persons were taken through and so we could also remotely sit at our office and also look at how the facilities are faring on implementation of their quality improvement plan. So on a daily basis, you are able to track the performance of all these facilities and then the staff, then you can offer advice, tailored advice on what is supposed to be done going forward. So support in terms of capacity building… it is enormous and it comes in person or remote" [IP_KII_4].

It was also found that the remote QI monitoring approach for health facilities through the Quality Programme for Providers (QPP) promoted early adoption and ownership of the process by health managers because it was self-directed. Similarly, the open "Call Centre" approach was described as an effective remote real time support system offered for the health facilities by the *SafeCare programme*.

Again, in terms of the programme implementation, it was reported that direct involvement of the regional health directorates took the form of monitoring, supervision, and coaching of the health facilities. However, with respect to the certification process for facilities after assessment, the feedback was that the process is solely within the remit of *SafeCare* implementers and that regional health directorates played a limited role in certification of health facilities. This feedback was confirmed by some frontline health staff during the FGDs and IDIs.

A manager from the private sector at the national level is quoted as follows:

"…[SafeCare] engaging managers, engaging the hospital managers and letting us know…So in terms of how we the region we are involved … in terms of how the districts are involved, I'll say the best has been done" [IP_KII_1].

The contribution of state implementing partners to the *SafeCare* QI programme was found to revolve around provision of leadership, monitoring, training, and advocacy for buy-in by the various health facilities. Other support given are yearly reporting of the *SafeCare* QI programme to the Ministry of Health (MoH) and the parliament of Ghana. Additional avenues for contributing to the *SafeCare* programme by state regulatory institutions are through stakeholder workshops/conferences and progress report meetings on the programme.

Impact

Technical assistance and capacity building

It found from the interviews that Government of Ghana (GoG) recognises the contribution of *SafeCare* QI programme to Ghana's healthcare system citing its financial contribution to the health sector besides the technical and capacity building assistance. Specific reference was made to reporting on *SafeCare* contribution to healthcare financing in the 2024 GoG budget statement.

Study participants also cited technical support by the programme through *SafeCare* Library which gave health facilities free access to clinical standard operating protocols (SOPs). Other technical assistance areas include training for assessors to undertake QI activities and digital innovation for quality care assessment. Highlights of major achievements attained because of this technical assistance include transformation of smaller health facilities into bigger health service outlets. Quote by a national health manager was captured as follows:

"…let me start by saying that the 20 facilities we have enrolled onto the programme during the first assessment, we had 15 at level 1…during the end-

line assessment we had the 15 that were at level 1 decreased to 10. That is an improvement… the percentage of facilities that have improved their quality score is now 80%." [IP_KII_4].

Another health manager at the national level indicated as follows:

"… you see [facility A, name withheld] [is] part of it [SafeCare programme]. It was notorious for all the bad things but with the SafeCare, the recent Ghana Health Excellency Award, the whole country [facility A, name withheld] got about two or three awards and they are part of this, and you can see that the management is working…" [IP_KII_1].

Quality care standards through healthy competition among facilities

On the perceived impact of the *SafeCare* QI programme, the responses highlighted contributions towards enhanced efficiency, accountability and revenue in the enrolled health facilities. For instance, a regional director of health services expressed satisfaction with the progress made in health facilities which was attributed to the programme. Even though the respondents admitted there is no yet scientific data to support this assumption, the improvements could be due to the healthy competition created among health facilities in meeting quality care standards. The sentiment from a national regulatory institution is captured in the quote below:

"…the programme has generated some inherent competition among facilities…everybody wants to be mentioned that you are SafeCare level 4 or Level 3 or things like that…so you see everywhere you go through our visit you find people saying we are at this level now we are at this level…" [IP_KII_2].

Another facility head from a predominantly rural region was quoted as follows:

"The first assessment, we were Level 3. Then now, they have given us the quality improvement plan. Then we worked on the plan, and we came up to level 4, but level 4 also is a high grade level close to level 5. So as for me, I see this quality improvement plan of SafeCare is a pathway for the hospital to pursue…" [BR_FH_KII_1].

Another FGD participant (clinical staff) was quoted as saying:

"…in terms of medication…there was a time they [SafeCare] came and assessed some of these near expiry drugs… we were not aware…so we [now] do continuous assessment of those drugs…" [SV_FGD_1].

Patient satisfaction

Responses from the interviews showed that the *SafeCare* programme helped improve patient satisfaction through client-centred healthcare activities including disability-friendly services, reduced waiting time, enhanced safety precautions (fire safety) and client communication/feedback mechanisms which were *hitherto* not prioritised. See the quote below from the head of an urban health facility:

"It [patient satisfaction] has improved because even locally we did this client satisfactory survey, and we could see that they were happy … and now the waiting time has reduced and it's all because of the SafeCare …" [ASR_FH_KII_1].

Quote from an FGD participant (non-clinical staff) stated as follows:

"…yes we did one [patient satisfaction survey] … we are trying to do another one [patient satisfaction] … patient waiting time especially at the Lab and general OPD records…it has really improved…the other part is the communication with our clients…the privacy…according to them [patients] we are doing well…" [SV_FGD_5].

Administrative standards and service utilization

Frontline staff interviewed indicated that their facilities now have better job descriptions, appraisal systems, and staff promotion procedures after enrolling in the *SafeCare* programme. The programme is also perceived to have contributed significantly to accountability in administrative processes, including auditing. The culture of accountability was highlighted as an area of improvement attributed to *SafeCare* as stated in the quote below by a midwife in a rural health facility during an FGD:

"…yes, I will say it has impacted at lot because for example the pathograph was a challenge but through SafeCare we were able to be guided and know how to handle it…" [SV_FGD_6].

Likewise, staff expressed views that service utilisation increased due to the improved standard quality improvement practices such as record keeping, use of directional signs and stock/supplies management. These transformations were cited as reasons for the enhanced client experience and service utilisation. Even though staff did not present empirical data to support their claims, the opinions ran though the FGDs and IDIs. Another reason assigned for the increase in the clients' attendance is improved staff-client communication, as stated in the quote below by a midwife in a rural health facility:

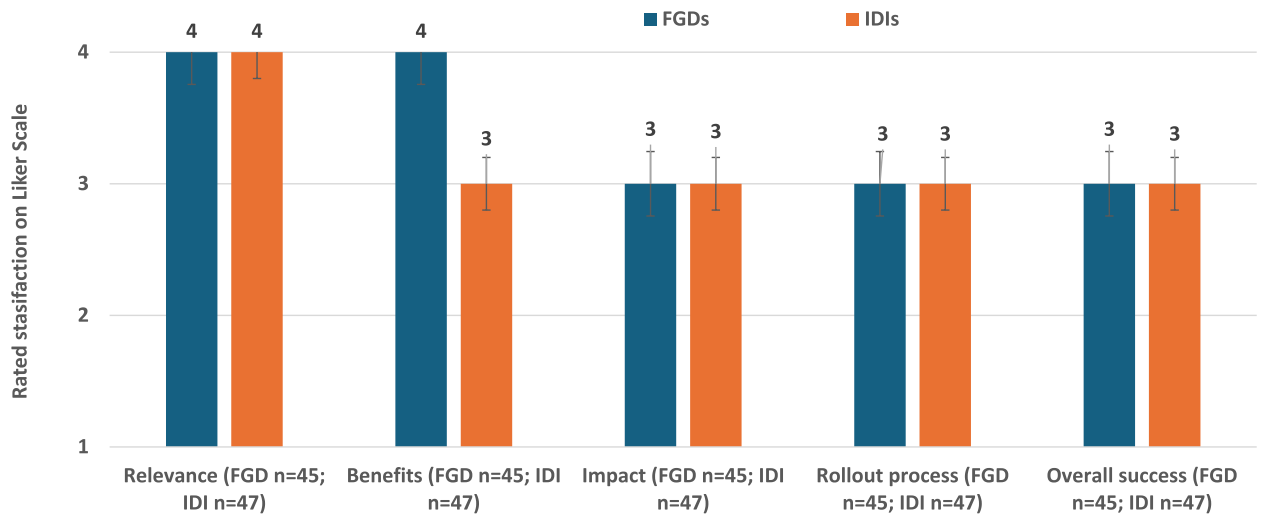

Fig. 3 Ratings on *SafeCare* by FGD & IDI participants. Legend: Source: Field Data (2023); FGD (Focus Group Discussion); IDI (Individual In-depth Interview)

"...communication through the SafeCare... I have realized that through the SafeCare we have improved and that one is making clients come to our place [health facility] ... besides that we have realized that through the SafeCare our family planning has improved..." [SV_FGD_6].

A health manager from a national regulatory institution is quoted as saying:

"...we have not done any formal assessment or research to see the level of efficiency but some of the things are obvious. We are not collecting any data before and after to see what the changes are... overall, the facilities have seen significant improvement. There are some other places that you see attendance has gone up and if attendance goes up, it means that people appreciate your services, and they give you repeat business. Those are the things that we can say for sure... if you ask me it [SafeCare programme] has [also] helped improve on revenue generation in some facilities...." [IP_KII_2].

Staff competence and motivation

Staff at the health facilities indicated that the *SafeCare* QI programme helped to improve on their competencies through the structured trainings on quality care improvement as reported in the quote below:

"...I have realised that there is improvement in [my] competency when I came first...I realised that...before the SafeCare training...I have not had any training...when I see a problem I say this is for management...it is not supposed to be my work... but after going through the training [SafeCare training] I have realised that now when I see a problem, I will go to management..." [SV_FGD_4].

A similar quote by health facility manager in a private health facility stated as follows:

"I can 100% say the level of motivation [of staff] has increased because now at the end of every year, every branch is looking forward to the better performing branch by safety standards...when we finish our SafeCare assessment, whoever is the best performing branch gets a reward so you get a plague and then you get the money from the CEO also..." [IP_KII_3].

At the end of the FGDs and IDIs in the 53 facilities, participants were asked to rate their satisfaction with the *SafeCare* programme on a four-point Likert Scale (from 1 = very dissatisfactory to 4 = very satisfactory), in terms of *Relevance, Benefits, Impact and Overall Success*. As shown in Fig. 3, *Relevance* was rated as "very satisfactory" by FGD participants and health facility heads. FGD participants rated the programme *Benefits* as "very satisfactory", the facility heads settled for "satisfactory". Other areas rated "satisfactory" were *Impact* and *rollout process*. *Overall, Success* of the programme was rated as "satisfactory" by the FGD and IDI participants.

Challenges

At the policy level the challenges expressed concerning the *SafeCare* programme were data sharing and accessibility, potential duplications in QI tools content, and cost of financing *SafeCare* QI assessments. Other challenges expressed by interviewees were assessors' potential role

conflict, high attrition of trained QI staff, need for *SafeCare* QI digital platform upgrade and limited engagement of regional health management teams in *SafeCare* QI assessments.

High staff attrition rate

Responses suggested concerns with high staff attrition rate in health facilities which challenges the ability of implementing partners at the lower level to execute the programme as planned. The quote below highlights the challenge shared by a director from a national regulatory institution:

> *"... you spend money, you spend resources, you spend time to train people just when you think these people will have a grasp of what I want... then you go to a branch and out of like, 15 people who were there 10 people have [left]... so now you have a new set of people that you have to start all over. So, it's like the cycle never ends with us" [IP_KII_3].*

Limited access to data

In terms of the limitation associated with access to data under the *SafeCare* QI programme, a regional quality assurance focal person shared concerns with the inability of sub-national level implementers of the programme to access the requisite data to inform policy decisions, especially at the regional level. This concern is quoted below:

> *"...for SafeCare data [we] do not really have the privilege of having access to the raw data, everything sits with SafeCare so we're not able to have any insights into that particular data. No analysis can be done" [IP_KII_4].*

Limited involvement of regional and district health directorates

Another challenge identified by health managers was the limited involvement of regional and district level health management teams in the *SafeCare* QI programme implementation. Responses generally suggest the programme is implemented directly in health facilities without recourse to these health management teams which have oversight responsibility on the health facilities. This perception was found to potentially bread apathy and compromise quality monitoring and supervision of these facilities in respect of the SafeCare QI programme. A health manager at the regional level intimated in the quote below:

> *"So, one key feature about their [SafeCare] programme is that they have little implementation done through the DHA [District Health Administration] and RHA [Regional Health Administration]. So we can say that 80 to 90% of their implementation is direct to the facilities..." [IP_KII_4].*

Poor health infrastructure including internet

At the frontline health staff level, challenges that run through the FGDs and IDIs were inadequate health infrastructure coupled with high staff workload; cconcerns with *SafeCare* QI assessments outcomes (i.e. accreditation scores and levels); limited access to reliable internet services; financial constraints to implement QI recommendations; low staff motivation, and low compliance with QI standards. The quote below by a health facility manager highlights these concerns:

> *"...the only challenge is ... network challenges and so they [staff] would have to close ... go home before they can upload all activities that they have done on the quality platform for providers and also making calls and sending emails. They [staff] will have to perhaps walk more than 100 meters away from the facility before they can carry out activities on their platform or communicate with you on activities relating to SafeCare" [IP_KII_4].*

Concerns with SafeCare QI assessment outcomes

Interviewees expressed concerns with the *SafeCare* QI assessment outcomes intimating some health facilities were not satisfied with their assessment scores by the programme. Even though we did not independently verify these claims, the concern recurred at the regional and health facility interviews among frontline health staff. A regional quality assurance focal person is quoted sharing experience on the assessment outcomes and accreditation level as follows:

> *"...between 2022 and 2023, August, in those respective years when ... baseline assessment was done we had several facilities that complained about the scores they had and their certification, the level that were given to them. ...if you take [facility B, name withheld] they were given a Level 1. They complained that it was not befitting of their efforts... and then [another] facility [facility C, name withheld] also complained that they had gotten level 2, but they also felt that they could have gotten better scores and better level" [SV_KII_1].*

Cost of SafeCare QI standards compliance

It also emerged that some health staff expressed concerns on plans for health facilities to self-finance the *SafeCare* QI assessments in future. The responses suggest this plan may in future be a burden on some health facilities, especially relatively small health facilities with

limited financial capacity. This concern was captured in the quote below by a private health facility head:

"...in the next phase of the programme facilities are supposed to pay for the programme [SafeCare]. It is supposed to keep the assessment going to keep the programme running... that can be a little challenging" [IP_KII_2].

Likewise, health facility head from a primary health facility in a peri-urban community stated follows:

"...one of the major challenges is the cost of implementation of the programme [SafeCare] of work or the plan. So that has been the issue. With increased financial burdens on facilities, sometimes it is a bit challenging to implement...But ... I think that all in all, SafeCare has been a blessing to us..." [WR__FH_KII_5].

Low staff motivation levels

Another challenge that recurred in the interviews was low staff motivation, which has the potential to reduce staff commitment to QI plans. The responses suggest staff can better implement the *SafeCare* QI plan when they feel motivated either intrinsically or extrinsically. A frontline staff (midwife) from a rural primary healthcare facility was quoted as follows:

"I think the challenge is with getting motivated, dedicated staff to want to sustain activities. I think that is the biggest challenge. And quality comes with dedication. At least it has always a big challenge" [SV_FH_KII_7].

Recommendations

Participants made suggestions to enhance implementation of the *SafeCare* programme. Recommendations centered around ownership of the programme by state institutions like the Ghana Health Service (GHS) while at the same time preserving its independence in the assessment process and making a case for performance-based financing (PBF) under Ghana's National Health Insurance Scheme (NHIS) based on lessons from *SafeCare* programme. Long-term integration of the *SafeCare* QI programme into the health system through harmonisation of assessment tools was recommended to curtail duplication of efforts. Additionally, it was recommended there should be a data sharing plan between *SafeCare* and its local implementing partners through common platforms like the District Health Information Management System II (DHIMS II).

Harmonisation of QI assessment tools

Interviewed participants recommended SafeCare assessments tool harmonized with existing NHIS credentialing and HeFRA accreditation tools, as mentioned in the quote below by a regional director of health services:

"...where possible we should look at harmonisation of the various assessments by HeFRA, NHIA and SafeCare ... if possible, they should adopt the SafeCare because it has all the standards so that NHIA and HeFRA will not have to duplicate some of the assessments... we need to look at joint advocacy for the system to pick it and integrate it into the entire health system [IP_KII_2].

A recommendation was also made for *SafeCare* QI assessment scores to be used as the basis for health facilities reimbursement under the NHIS, as shown in the quote below:

"...As I mentioned, if insurance can pay based on the SafeCare rating that can be fantastic..." [IP_KII_2].

Some of the state implementing agencies said the *SafeCare* programme could set an agenda for harmonisation of quality care assessments and accreditation in Ghana through advocacy, partnerships and showcase of the impact of the *SafeCare* accreditation process. Further suggestions for the programme bordered on the need to scale up and rollout to other health facilities (especially government-owned) since the current coverage is relatively low.

Active involvement of regional health teams in capacity building trainings

A suggestion for participation of more regional health management teams in the *SafeCare* assessment training workshops was expressed in the quote below by a manager in a regulatory institution:

"...when assessment is being done at least they [SafeCare] should incorporate regional teams into the assessment teams. Then we can also understand what is going on" [IP_KII_4].

Increase frequency of QI training sessions

A facility head from a rural health facility suggested as follows:

"...if PharmAccess [SafeCare] is able to at least frequently organize training sections for facilities especially our quality improvement teams probably twice or three times in a year so that they can also come to impact in the facilities I think that will be

a great idea, so these are the few recommendations that I have" [BR_FH_KII_2].

Another suggestion from an FGD participant was captured in the quote below:

"I'll tell them [SafeCare] that at least twice in a month, they should always organize training for the staff or at least once in every 3 months … A refresher training on the usage of the platform [SafeCare]… yes, I think there've been an upgrade on the platform so a refresher training will be welcomed" [GAR_FGD_3].

See Supplementary File 2 for intersections in the themes from FGDs and IDIs on the *SafeCare* QI programme.

Discussion

SafeCare programme has served the specific needs of Ghana's health system using local resources, corroborating similar programme evaluation findings [13–17, 19]. The evaluation findings point to an approach that engages local health sector stakeholders from the bottom (lowest level of healthcare) up to the national level. This revelation supports earlier literature prepositions that comprehensive bottom-up stakeholder engagement promotes health interventions ownership and sustainability in LMICs [20, 21].

In Ghana, the *SafeCare* QI programme has gained substantial government attention and recognition resulting in improved quality care standards [22, 23]. Besides Ghana, the programme has recorded successes in countries like Kenya [11, 12, 24, 25], Tanzania [10, 26], and Nigeria [19, 27, 28].

This empirical evidence elucidates the huge potentials in public–private-partnership (PPP) for quality healthcare improvement, especially in fragile health systems challenged with limited resources. Views from the study participants revealed that the *SafeCare* QI programme leveraged local resources and context relevant solutions to address quality care gaps. This approach makes the *SafeCare* programme a more promising PPP model for LMICs than traditional development assistance approach that turn to have limited sustainable engagements with in-country health system stakeholders [29, 30].

Suchman et al. [11] amplified the benefits of PPP to health systems in LMICs particularly in Africa where government resources alone are not sufficient to address existing health system challenges. This call is particularly imperative as the role of the private sector in health in Ghana continues to increase constituting almost 50% of health care providers in the country [31].

PPP interventions like *SafeCare* programme therefore presents opportunities for QI systems integration in terms of accreditation tools, processes, and data to promote resilience and data driven QI interventions. Available literature from earlier publications have shown the *SafeCare* QI programme is comprehensive in content, meets international accreditation standards [19, 25, 28] and offers opportunities for adaption of these standards by resource limited countries based on context-specific needs.

The typical PPP approach of *SafeCare* relies on collaboration with government and private sector institutions throughout the value chain of assessment, QI planning, implementation and monitoring/technical support [9]. Furthermore, *SafeCare* programme by design collaborates with public and private institutions in the design and execution of technical assistance for QI including training, health technology solutions [19], and business model for quality care under its Medical Credit Fund (MCF) programme [9, 32, 33].

Even though the *SafeCare* programme was generally perceived to be participatory and actively engaged all relevant stakeholders, some responses highlighted challenges associated with its implementation. First is communication gap between the *SafeCare* programme implementers and health directorates at the regions and districts. Health directorates at these levels were perceived to play passive roles in the actual accreditation process for health facilities under their direct supervision. There is therefore the need to improve decentralisation of the programme especially with respect to the accreditation and certification value chain. This gap could be attributed to the fact that many developing governance systems in Africa still have challenges with effective decentralisation which in turn affect rollout of health interventions as reported by Sakyi et al. [34] Couttolenc [35], Agyepong [36] and Agyepong et al. [37] on ineffective decentralisation and the associated effect on health systems.

The *SafeCare* programme was also lauded for its important role in building staff capacity to champion QI from the national down to the health facility level, corroborating earlier evaluation outcomes on the programme [10, 12, 24, 25, 27, 28, 38, 39].

However, the responses alluded to concerns with sustainability of the programme. Some interviewed participants indicated their facilities must invest significant amount of money towards *SafeCare* assessments which turn to burden smaller private health facilities. Dada et al. [27] and Johnson et al. [19] found similar concerns on the *SafeCare* programme implementation in Africa. Specific cost figures were however not given to support the actual amount of financial commitment per health facility. The

research team did not also independently access cost figures in relation to the *SafeCare* programme because it is out of the evaluation scope. Study participants therefore called for tailored QI programmes (with minimal financial commitment) to suit less endowed healthcare facilities.

Opoku et al. [40] referenced the challenge of sustainability of health interventions in LMICs especially when hinged on funding arrangements that are not guaranteed in the long term. Consequently, QI experts have argued that QI interventions should leverage existing resources to help sustain them [41]. Thus, an opportunity for review of the *SafeCare* programme should reflect on sustainable financing mechanisms for health facilities. Additionally, *SafeCare* training modules could reflect on the content, cadre of trainees, subject area, and number of participants per session to help achieve greater impact and sustainability since this was another area of concern raised by interviewees. More importantly, state institutions like the Ministry of Health (MoH) and GHS would have to do more budgetary allocation towards QI to complement existing efforts of the *SafeCare* programme in-country.

Furthermore, business of health care requires sustained investment in quality care standards to enhance client trust and willingness to utilise healthcare [32, 33]. Thus, quality care improvement has the potential to enhance clients' experience and satisfaction with healthcare services which can also translate into better revenue for health facilities.

Even though this evaluation did not independently substantiate staff claims on this correlation, literature [13, 17] appear to support these views in the case of Ghana. The business model of QI is a subject of debate where performance-based financing (PBF) is being advocated as a financing model for health systems to promote competition towards quality improvement [42–45]. In Ghana PBF remains a subject of debate under the country's national health insurance scheme [46–48].

Ghana is yet to implement PBF even though it is being implemented in countries like Malawi [43, 49, 50], Benin [42], Rwanda [51], DR Congo [42] and Zambia [44]. It would therefore be useful for Ghana to consider piloting PBF in selected health facilities based on lessons learned from these countries which benefited from *SafeCare* technical assistance programme.

Another observation from the *SafeCare* QI programme is the non-monetary incentive system to drive health facilities towards improving quality care. The interviews revealed that staff felt motivated by recognition for excellence in QI through non-monetary incentives like national awards ceremonies where best performing facilities and staff are given citation plaque of honour. This observation supports literature evidence that motivational packages for staff must not always come in the form of monetary compensations because the latter does not always translate into optimum staff performance [13, 17, 37, 52, 53]. It is therefore imperative that the human resource directorates of public and private health providers prioritise non-monetary staff motivation interventions which have proven to be more effective and sustainable in the long term [37].

Furthermore, frontline staff interviewed cited challenges with the *SafeCare* programme implementation ranging from low staff motivation, high workload, limited medical logistics and inadequate health infrastructure. These concerns resonate with experiences of staff in many health facilities in resource constrained settings in Africa which impede progress towards quality care improvement [13, 17].

Moreover, the interview responses revealed that the *SafeCare* QI programme contributed to healthy competition among health facilities. This observation is grounded in literature where quality improvement interventions have been found to induce healthy competition among health facilities in Ghana [54] and elsewhere [55]. It is, however, important to hint that the peer comparisons must be made among comparators cognisant of the differences in levels of care, location, resource endowment and other forms of unequal opportunities that might influence QI performance. This approach will promote equity towards QI in health facilities.

It also came to light from the interviews that the *SafeCare* programme prepares health facilities for statutory credentialing and accreditation by National Health Insurance Authority (NHIA) and Health Facilities Regulatory Agency (HeFRA) respectively. The staff reiterated that due to the comprehensive nature of the *SafeCare* programme, they usually address most of their quality care gaps ahead of these statutory assessments. Although there is currently no empirical literature to validate this claim, the similarities in these assessment tools could sensitise these health facilities and influence assessment outcomes.

Finally, opinions were varied on the impact of *SafeCare* interventions on staff competencies and performance as reported in similar previous literature [13, 17, 37, 52]. It has often been described that workload on staff has the potential to compromise quality of care rendered to patients [17, 56]. For instance, staff who are burned out or stressed are more likely to compromise patient safety through medication errors and exhibit other forms of unprofessional acts like unfriendly attitude towards clients [17]. Thus, task shifting, leveraging technology, and

targeted novelle staff motivation packages can mitigate this challenge [57].

Conclusion

SafeCare QI programme has contributed to quality improvement in health facilities which is leveraged by beneficiary health facilities to prepare for statutory accreditation and credentialing assessments using available local resources. However, sustainability of the programme is dependent on continuous support, commitment and investment in human and material resources towards optimum quality care improvement.

Secondly, *SafeCare* QI assessment tools are detailed and comprehensive but display overlaps with other QI tools used in-country. A policy direction for adoption and harmonisation of these overlapping tools is therefore required.

Thirdly, there is evidence of better stewardship for the *SafeCare* QI programme relative to existing national QI efforts like annual peer reviews which were described by interviewed participants as often "staged" and "cosmetic" and not serving their purposes. It is, however, important to caveat that, commitment to *SafeCare* QI programme varies in favour of private and urban facilities. Public and rural-based facilities continue to demonstrate more quality care gaps relative to their peers. This observation raises legitimate questions on relevance/applicability of the *SafeCare* tools across the different spectra of facilities in terms of ownership (private and public) and location (rural and urban). Policy dialogue on tailored assessment standards could help explore opportunities towards deepening the *SafeCare* QI programme impact across diverse settings and levels of healthcare providers. SafeCare QI programme should not be a "one size fit all" intervention for quality care improvement in health facilities but be context-sensitive without compromising international quality care standards.

Finally, there seem to be no clear ownership and weaning-off strategy of the *SafeCare* QI programme to government agencies to fully integrate it into the health system, albeit enthusiasm and acceptance for the programme is high. A national policy agenda for upscaling and eventual nationwide adoption of the *SafeCare* QI programme will be an important step towards consolidating gains of the programme. In line with this call, countries must continue to prioritise universal access to quality care as a panacea for attaining the SDG 3 targets.

Limitations

The researchers acknowledge some limitations associated with the study for which reason the results should be interpreted with caution.

First, the study was not conducted nation-wide to cover all *SafeCare* enrolled healthcare facilities in the country which limits generalisability of the findings to the entire health system in Ghana. Drawing national level conclusions is therefore cautioned. Nonetheless, the number of *SafeCare* facilities in Ghana constitute a significant representative sample of health facilities in the country in terms of ownership and geographic coverage for which reason these findings remain relevant towards informing policy and practice in the country.

Secondly, perspectives on the *SafeCare* programme were mainly self-reported which has the potential of introducing personal biases and might not necessarily reflect the true state of the *SafeCare* programme on the ground. Triangulating the verbal account of respondents with secondary however helps control these biases.

Additionally, the composition of the sampled health facilities was largely faith-based and private-for-profit. Representation of government-owned health facilities was relatively few. Thus, the findings reported in this study might not fully be a true reflection of quality care situation in the government-owned health facilities even though the findings remain relevant to these state-owned health providers which operate under similar conditions with the non-state institutions.

Finally, since the interviews were not independently verified, and the responses could have been occasioned by recall, social desirability and confirmability bias. Likewise, the purposive sampling approach could have induced selection bias which limits generalisability of the findings. Nonetheless, validity and robustness of the research findings are assured in view of the methodological rigor including piloting of data collections tools and strict adherence to a data collection protocol.

Policy recommendations

Based on the research findings and acknowledged limitations, the following recommendations are preferred:

- Review of *SafeCare* QI assessment process to accommodate practical realities of health facilities in terms of their category, level of care, and financial capacity to avoid a situation where *SafeCare* is not conceived as a "one-size-fit-all" quality improvement intervention.
- Regional and district health administrations should be engaged more to increase their goodwill and support for health facilities they superintend over. This will deepen trust, acceptance and sustainability of the programme.
- Multi-stakeholder dialogues should be organised or intensified on *SafeCare* for better consensus on training content, duration, composition of assessors and

accreditation/certification procedure. Some providers appeared to be unclear with the process.

- Clear protocol needs to be developed towards data sharing, accessibility and interoperability with existing DHIMS II to guide partners on data rights and limitations.
- Future research should be conducted on the business value for investment in the *SafeCare* QI programme particularly for smaller health facilities. This will promote long-term commitment to quality care improvement.
- Government should demonstrate more commitment to quality healthcare improvement through investment in human and material resources for the health sector leveraging on public–private-partnership (PPP) opportunities like the *SafeCare* QI programme as it is being adopted for nation-wide rollout towards quality healthcare improvement.

Abbreviations

AHH	Africa Health Holdings
ASR	Ashanti Region
BER	Bono East Region
CHAG	Christian Health Association of Ghana
COREQ	Consolidated Criteria for Reporting Qualitative research
ERC	Ethics Review Committee
FGDs	Focus Group Discussions
GAR	Greater Accra Region
GHS	Ghana Health Service
HeFRA	Health Facilities Regulatory Agency
IOM	Institute of Medicine
IRB	Institutional Review Board
IDIs	Individual In-depth Interviews
LMICs	Low-and Middle-income Countries
MCF	Medical Credit Fund
MoH	Ministry of Health
MSIG	Marie Stopes International Ghana
NHIA	National Health Insurance Authority
OTR	Oti Region
PAG	PharmAccess Ghana
PfP	Private for Profit
PSP	Patient Safety Programme
QI	Quality Improvement
SDGs	Sustainable Development Goals
SVR	Savannah Region
UN	United Nations
WHO	Word Health Organization
WR	Western Region

Supplementary Information

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Supplementary Material 1.

Supplementary Material 2.

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Authors' contributions

RKA, EA, MAA, GS, BBA, AG, TFRW: Study conception, design; RKA, EA: data collection; RKA, EA: data analysis; RKA, EA: drafting of manuscript; RKA, EA, MAA, GS, BBA, AG, TFRW: final review. All authors approved the manuscript and consented to its publication. All authors approved the manuscript and consented to its publication.

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Data availability

The datasets generated and/or analysed during the current study are available upon reasonable request.

Declarations

Ethics approval and consent to participate

Ethical clearance was obtained from the Ghana Health Service (GHS) Ethics Review Committee ERC, clearance number: GHS-ERC:007/10/23) and the Christian Health Association of Ghana (CHAG) Institutional Review Board (IRB, clearance number: CHAG-IRB 02062023) before commencement of data collection. All standard ethical procedures were followed throughout the research.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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