

Closing the Gap Between Public Health and Clinical Care: A Health Systems Analysis of Ghana's Institutional Public Health Unit Model

Isaac Tabiri Henneh

isaac.henneh@ucc.edu.gh

University of Cape Coast <https://orcid.org/0000-0002-6830-0283>

Thomas Hinneh

University of Kentucky <https://orcid.org/0000-0002-4417-506X>

Patriot Ofori-Aning

Stockport NHS Foundation Trust

Bright Anyimah Oduro

University of Huddersfield

Hosea Boakye

University of Massachusetts Boston

Dennis Miezah

University of Massachusetts Boston

Danaa Alhasan

Ghana Health Service

Ernest Osei Owusu

Ghana Health Service

Florence Obeng

Ghana Health Service

Joel Duah Afi

Ghana Health Service

Folasade Ojo-Benys

Ghana Health Service

Stephen Mensah Arhin

University of Cape Coast

Samuel Ofosu

Ghana Health Service

Jacob Amponsah Abebrese

Ghana Health Service

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Abstract

The persistent separation of hospital-based clinical care from public health functions constrains health system performance across low- and middle-income countries; a challenge worsened by the rising double burden of communicable and non-communicable diseases. In response, the Ghana Health Service introduced institutional Public Health Units (PHUs) through a national policy directive, embedding disease surveillance, prevention, health promotion, and occupational health within hospital governance structures. This review examines the design, documented implementation, and system requirements of the PHU model. We conducted a narrative review drawing on three complementary evidence streams: national policy documents and implementation guidelines; peer-reviewed literature on clinical–public-health integration in sub-Saharan Africa, synthesized thematically; and a further conducted a documentary mapping of hospitals with facility-specific evidence of a PHU or equivalent public health department. We analysed findings against the World Health Organization Health Systems Building Blocks framework. Our narrative review showed that integration in sub-Saharan Africa has been predominantly disease-specific, externally financed, and structurally parallel to routine services, with reported gains frequently undermined by workforce shortages, fragmented governance, weak health information systems, and absent dedicated financing. Against this pattern, Ghana's PHU model is unique by its institutional anchoring within existing hospital governance and established health cadres rather than parallel programming. To understand how widely the model has been implemented, our review of publicly available information identified 40 hospitals across Ghana with a named PHU or equivalent public health department. Sustainable integration will require clarified accountability across system levels, dedicated financing for non-revenue-generating public health functions, competency-based workforce development, stronger facility-level data use, and reliable operational resources. The PHU model offers a replicable, institutionally grounded pathway for low- and middle-income countries seeking to embed public health within routine clinical settings.

Key Messages

- Across sub-Saharan Africa, integration of clinical care and public health has concentrated in disease-specific, externally funded programmes that run parallel to routine health system functions, limiting the durability of reported gains.
- The institutional Public Health Unit model takes a different route, embedding public health functions within existing hospital governance structures and established health cadres under a national policy directive.
- The documented presence of PHUs or equivalent departments across public and faith-based hospitals demonstrates adoption of the model by some health facilities in Ghana, although national implementation remains incompletely documented.
- Realizing the overall intent of the model will require clear accountability between hospitals and district health authorities, dedicated financing for non-revenue-generating public health functions, competency-based workforce development, and routine use of facility data for local decision-making.

Introduction

Hospitals in Ghana, as in much of sub-Saharan Africa, were built as curative institutions. Public health functions including disease prevention, surveillance, health promotion grew up alongside them but apart from them, coordinated through district structures and community programmes rather than within hospital walls (Agyepong, 1999; Merali et al., 2020) . For decades this division of labour was tenable. It is becoming less so. The rising burden of non-communicable diseases (NCDs), including hypertension, diabetes, and cancers, now co-occur with persistent infectious diseases and injuries from road traffic accidents, placing considerable strain on an already overburdened health system (Addo et al., 2018; Boakye et al., 2023; Konkor & Kuire, 2023; Konlan et al., 2020) . Health facilities are increasingly overwhelmed not only by patient volume but by the clinical complexity of managing coexisting acute and chronic conditions (Hinne, Mensah, Boakye, et al., 2024; Hinneh, Mensah, Ogungbe, et al., 2024) . The disease profile has outgrown the institutional architecture built to manage it.

That isolation carries a cost that is no longer theoretical. Although the parallel arrangement sustained community-level surveillance, it left hospitals detached from public health practice and constrained their capacity to respond to conditions of public health importance. For instance, the first cases of tuberculosis, measles, COVID-19, and Marburg virus disease are often detected within health facilities, placing hospitals at the frontline of disease detection and response (Denkyira et al., 2022; Kenu et al., 2020) . The places where outbreaks announce themselves have been the places least equipped, institutionally, to answer.

The Ghana Health Service (GHS) has long recognized the disconnect. Community health nurses, disease control officers, and health promotion personnel have been posted to primary health care facilities to carry out public health activities in the spirit of primary health care, yet their responsibilities were never truly woven into hospital-based clinical care. To close that gap, the GHS introduced the institutional Public Health Unit (PHU) as a policy directive for strengthening public health functions at the facility level (Catholic Health

Services Trust, 2017; Ghana Health Service, 2020) . The PHU model is, in effect, a structural repair: a mechanism to consolidate these functions, tighten coordination between clinical and public health services, and reposition hospitals as integrated hubs for comprehensive service (Hafiz et al., 2024; Kabatereine et al., 2010) . The logic is compelling. But a policy's significance as an intervention rest on the structural, governance, and financing conditions that will decide whether it achieves its intent. Across sub-Saharan Africa, integration policies have repeatedly faltered where the institutional architecture to deliver them was absent (Matthew et al., 2026) . Nor does the international literature offer an empirically validated, context-specific model of public health integration for LMIC hospital settings. Harrison and Jordan (2022) built an SSA-contextualised chronic-care model for primary care to address access, stigma and confidentiality, patient–provider partnerships, task-shifting, and clinical mentoring(Harrison & Jordan, 2022) . However, it remains conceptual and untested in hospitals; beyond it, the evidence is dominated by disease-specific pilots and programme-level evaluations (Hlatshwako et al., 2026) . Ghana's PHU initiative therefore deserves close analytical attention, both as a national policy experiment and as a possible institutional template for comparable settings.

This review offers a policy and systems analysis of the PHU initiative with four objectives; (i) to characterize the design and intended functions of the PHU model from national policy documents; (ii) to map documented PHU implementation across Ghanaian hospitals; (iii) to synthesize regional evidence on the integration of clinical care and public health in sub-Saharan Africa; and (iv) to assess the PHU model against the WHO Health Systems Building Blocks framework and draw transferable lessons for LMICs.

Methods

Review design and rationale

This paper combines a narrative review with policy analysis. A systematic review design was judged neither feasible nor desirable for the questions at hand. The inquiry spans heterogeneous evidence including national policy documents, implementation guidelines, peer-reviewed studies of diverse designs, and grey documentary sources on facility-level implementation. The analytical aim is interpretive and policy-analytic which is to identify recurring system-level patterns and to assess a policy model's design against the health system requirements it would need, rather than to estimate pooled effects.

Evidence sources and search strategy

The analysis drew on three complementary evidence streams. First, national policy documents, implementation guidelines, and related institutional materials were reviewed to characterize the policy intent, governance structure, workforce composition, and functional responsibilities of the institutional PHU model. The *GHS Guidelines for Public Health Units in Hospitals* (Ghana Health Service, 2020) served as the principal policy document, supplemented by related institutional communications (Catholic Health Services Trust, 2017) .

Second, a narrative synthesis of peer-reviewed literature was undertaken to situate the PHU initiative within the broader evidence on integration of clinical care and public health functions in sub-Saharan Africa. The synthesis focused on literature addressing integrated service delivery, communicable and non-communicable disease integration, disease surveillance, health workforce and task shifting, governance, financing, health information systems, and health-system strengthening. Relevant studies were identified through structured searches of major public health databases, supplemented by citation tracking of key reviews. Evidence was synthesized thematically and mapped to the six WHO Health Systems Building Blocks(Manyazewal, 2017) . The synthesis aimed to identify recurring system-level patterns relevant to the design and implementation of institutional public health integration. Studies providing substantive evidence on integration approaches, implementation determinants, health-system constraints, or enabling conditions are summarized in **Table 1**. Ghana-specific evidence was considered alongside the broader regional literature to distinguish contextual challenges from patterns observed across sub-Saharan Africa.

Third, to characterize the real-world footprint of the PHU policy beyond its stated intent, we conducted a documentary mapping of hospitals with facility-specific evidence of a PHU or equivalent public health department. Publicly available sources were examined, including hospital websites, peer-reviewed publications, government reports, and institutional repositories. A facility was included where a source provided facility-specific evidence of a named Public Health Unit or a clearly equivalent public health department (e.g., a formally designated department carrying out the surveillance, prevention, and health promotion functions specified in the GHS guidelines). Facility ownership was classified as public/state-linked or CHAG/faith-based/non-state. Geographic coordinates are approximate, and the resulting map (**Figure 2**) should not be interpreted as a complete national registry; absence of documentary evidence does not imply absence of a PHU (**Appendix S1**).

Table 1. Evidence Synthesis: Integration of Clinical Care and Public Health in Africa

Author, Year	Country/ Region	Study Design	Integration Domain	Key Findings	Gaps Identified	WHO Building Block
Hlatshwako et al., 2026	Africa	Scoping review	CD-NCD integration	Improved BP control; training and data systems facilitate integration	Staff/medicine shortages; external dependence	Service Delivery
Suwanbamrung et al., 2026	SSA	Systematic review	HIV-NCD integrated care	High HIV retention; NCD outcomes inconsistent	Drug, workforce, and data gaps	Medical Products & Technologies
Harrison & Jordan, 2022	SSA	Framework synthesis	Chronic disease integration	Integrated HIV–diabetes primary care is feasible; authors constructed a new SSA-contextualised chronic-care model adding five themes (access, stigma/confidentiality, patient–provider partnerships, task-shifting, clinical mentoring).	New model untested in practice; requires contextual adaptation	Health Workforce
Chireshe et al., 2024	SSA	Scoping review	HIV-NCD care	Improved retention, screening, and staff capacity	Increased workload; limited long-term evidence	Health Workforce
Mremi et al., 2021	SSA	Systematic review	Disease surveillance	IDSR data completeness, timeliness, quality, analysis and use inadequate; non-facility data sources poorly integrated; authors call for multi-sectoral, multi-indicator platforms.	Weak facility-district feedback; limited digital infrastructure	Health Information Systems
Kambalame et al., 2026	Africa (sub-Saharan)	Systematic review	IDSR implementation	Resources and implementation capacity drive performance	Persistent facility capacity and workforce gaps	Cross-cutting (Leadership & Governance; Financing; Health Workforce)
Malebana et al., 2025	LMICs, with focus on South Africa and SSA	Systematic review	Disease surveillance	Underreporting and inconsistent case definitions persist	Fragmented digital surveillance	Health Information Systems
Kassa & Grace, 2026	Low-resource countries	Systematic review	NCD-PHC integration	Task shifting, policy, and community engagement facilitate integration	Structural barriers require system-wide action	Cross-cutting (Health Workforce; Leadership & Governance; Financing; Medical Products; Health Information Systems)
Zezai et al., 2024	LMICs	Scoping review	Multimorbidity/NCD care	Fragmented services and workforce gaps impede integration	Weak policy and political commitment	Leadership & Governance

Baynes et al., 2022	SSA	Synthesis article (journal supplement introduction)	Evidence-to-practice integration	Learning health systems strengthen evidence use	Limited translation and scale-up	Health Information Systems
Matthew et al., 2026	Five LMICs	Review	Public health-PHC integration	Integration improves coordination; requires system-wide support	Weak financing and governance	Health Financing
Konkor & Kuire, 2023	Ghana	Cross-sectional	Double burden of disease	Neighbourhood-level analysis confirms a double burden of disease – infectious diseases remain the most common conditions amid rising NCDs.	Authors argue for an integrated framework for studying and managing infectious and chronic conditions	Service Delivery
Heerdegen et al., 2020	Ghana (Eastern Region; six districts)	Qualitative	District health management	Vertical structures undermine coordination	Weak organizational capacity and financing	Leadership & Governance
Adzei FA et al., 2024 †	Ghana (district hospital, southern Ghana)	Mixed-methods facility case study (observation, interviews, open-ended questionnaires)	Health promotion–clinical care integration	Health promotion was underdeveloped within hospital clinical and public-health workflows; structural constraints, inadequate logistics, increased workload and limited human-resource capacity impeded incorporation.	No institutionalized health-promotion function within hospital governance	Service Delivery
Kushitor MK et al., 2024 †	Ghana (2 district hospitals, 1 regional hospital)	Exploratory qualitative (12 providers, 26 clients)	Facility-based NCD prevention (Wellness Clinics)	All three Wellness Clinics operated as outpatient-department sub-units providing NCD diagnosis, counselling and treatment (~300 clients/week); only one offered community prevention.	Standard operating guidance, logistics and insurance constraints; resourcing in deprived regions	Service Delivery
Salifu RS & Hlongwana KW, 2021a †	Ghana (Northern Region; three facilities)	Qualitative exploratory (23 interviews)	TB–diabetes collaborative care	Frontline workers prioritise TB/HIV over TB–diabetes comorbidity; low awareness of the collaborative framework, high workload, multiple roles, inadequate training and space shortages.	Poor working conditions; coping mechanisms under resource constraints	Leadership & Governance
Salifu RS & Hlongwana KW, 2021b †	Ghana (national to facility level)	Qualitative (collaboration mechanisms)	TB–diabetes collaborative care	TB and diabetes programmes collaborate weakly across national, regional and facility levels; donor imbalance favouring communicable diseases, poor NTP–NCDPC collaboration, and low TB–DM case detection.	Weak inter-programme collaboration; stagnant NCD support	Leadership & Governance
Ansa GA et al., 2012 †	Ghana	Quantitative service evaluation	TB/HIV service integration	TB treatment success rose from 50% to 69% across three	Model-dependent effects; design	Service Delivery

				integration models (gains at all sites; defaults and transfers-out fell); mortality remained high (18%).	limitations preclude causal attribution	
Adokiya MN et al., 2015 †	Ghana (Upper East; 9 public, private, mission facilities)	Qualitative (18 key informants)	Disease surveillance (IDSR)	Core IDSR functions (case detection, reporting) exist at the periphery but analysis, feedback and response are weak; support functions (training, supervision, resources) are inadequate.	Facility–district feedback loop broken; supervision largely absent; surveillance a low institutional priority	Health Information Systems
Adachi M et al., 2022 †	Ghana	Programme description	Surveillance and laboratory system strengthening	Reliable sample transport to referral laboratories was the binding constraint on public health emergency surveillance; a dedicated laboratory support project strengthened detection capacity.	Dependence on externally supported project architecture	Medical Products & Technologies
Nonterah EA et al., 2024 †	Ghana (Kassena-Nankana, faith-based centres)	Implementation study (screening and referral cascade)	NCD screening and linkage to care	Faith-based centres feasibly expanded hypertension and diabetes screening with referral into the formal system; cascade losses occurred after referral.	Linkage-to-care attrition; sustainability outside project support	Service Delivery
Chinbuah MA et al., 2020 †	Ghana (4 regions; district facilities)	Programme evaluation (MEBCI; 3,688 health workers trained)	Newborn care quality improvement	Bundled facility-based training (Helping Babies Breathe, Essential Care for Every Baby, infection prevention) scaled newborn-care capacity across district facilities via trainer-of-trainers.	Long-term skill retention and supervision unmeasured	Health Workforce
Spencer SA et al., 2023 †	Sub-Saharan Africa	Systematic review and meta-analysis (61 studies)	Hospital care for chronic conditions	High prevalence of individual chronic diseases among hospital inpatients (HIV 36%, hypertension 24%, diabetes 12%); multimorbidity poorly described.	Prospective multimorbidity research needed to inform integrated interventions	Service Delivery
Callaghan M et al., 2010 †	Africa	Systematic review	Task shifting (HIV treatment and care)	Delegating physician tasks to lower cadres safely expanded ART coverage where training and supervision were provided.	Quality and safety concerns without regulation and support systems	Health Workforce

† Studies identified through supplementary structured searches (PubMed/MEDLINE, 17 July 2026; see Appendix S1).

Abbreviations: ART, antiretroviral therapy; ECEB, Essential Care for Every Baby; HBB, Helping Babies Breathe; HIV, human immunodeficiency virus; HW, health worker; IDSR, Integrated Disease Surveillance and Response; IP, infection prevention; MEBCI, Making Every Baby Count Initiative; NCD, noncommunicable disease; SSA, sub-Saharan Africa; TB, tuberculosis.

Analytical framework and synthesis

The WHO Health Systems Building Blocks framework (World Health Organization, 2007) houses six interrelated components: leadership and governance, health financing, health workforce, service delivery, health information systems, and access to essential medical products and technologies. We adopted this framework because it provides a systematic foundation for examining how the PHU model interacts with the institutional conditions that are critical sustainable integration requires (Manyazewal, 2017) . We applied it in two stages; first, to organize the thematic synthesis of regional evidence; second, to assess how far the model design addresses historically fragmented clinical and public health functions, to identify implementation gaps within each domain, and to specify the system conditions sustained integration would require.

Results

The PHU model: policy design and intended functions

The GHS *Guidelines for Public Health Units in Hospitals* (2020) is the authoritative policy directive of the PHU model. The guidelines establish the PHU as a formally constituted unit *within* the hospital, placed under the direct supervision of the Medical Superintendent or Medical Director:

"The Public Health Unit shall be located within the Hospital and under the direct supervision of the Medical Superintendent/Medical Director" (Ghana Health Service 2020).

This placement is consequential. Rather than creating a parallel structure reporting to district or regional public health authorities, the policy anchors public health functions inside the hospital's existing governance architecture, with defined leadership responsibility, reporting arrangements, and institutional authority. The guidelines assign the PHU a defined functional portfolio: disease surveillance and outbreak response; integration of clinical and public health care; disease prevention and health promotion; occupational health and safety; and data-driven decision-making at the facility level. On workforce, the model draws on cadres historically present within Ghana's health facilities, including medical officers, public health nurses, disease control officers, community health nurses, nutrition officers, health promotion officers, and environmental health officers, formalizing and activating existing roles within a coherent institutional structure rather than recruiting a new cadre. On financing, the guidelines stipulate that;

"[The activities of the PHU shall be incorporated into the plans and budget of the hospital]" (Ghana Health Service 2020).

This establishes no separate budget line. In design, therefore, the PHU is an institutional reform that works through existing governance, existing personnel, and existing hospital budgets, an approach whose low marginal cost is its principal attraction and, as the assessment below argues, the source of its principal vulnerabilities.

Documentary Evidence of PHU Implementation in Ghana

The documentary mapping identified 40 hospitals across Ghana with facility-specific evidence of a named PHU or equivalent public health department (**Figure 2**). We observed 23 public-sector hospitals, including six teaching hospitals, and 17 Christian Health Association of Ghana (CHAG) facilities, which suggest that the directive has been widely accepted across facilities in terms of ownership (*mission-based sector that delivers a substantial share of inpatient care in Ghana*). However, this needs to be interpreted with caution.

Documentary evidence of a unit's existence reveals little about the depth, functionality, or resourcing of implementation. We mapped these facilities across Ghana to show their geographic distribution and provide evidence that the policy has moved beyond formal adoption to documented establishment of PHUs at some health facilities. However, the available evidence does not show how these units function in practice, which requires primary implementation research.

Regional evidence of integration in scope

Across sub-Saharan Africa, the integration of clinical care and public health varies considerably, ranging from systems where the two operate separately to those with some level of coordination or structural integration. Available evidence suggests that most health systems in the region remain largely separate or only partially integrated. The dominant integration model observed is the co-management of communicable and non-communicable diseases at the facility level (Chireshe et al., 2024; Hlatshwako et al., 2026; Kwarisiima et al., 2019; Suwanbamrung et al., 2026) , with evidence of short-term benefits including improved patient retention, enhanced NCD detection, and staff capacity development (Chireshe et al., 2024; Suwanbamrung et al., 2026) . In Uganda, integrated HIV and chronic disease clinics demonstrated improved blood pressure control and lower per-patient costs of care (Kwarisiima et al., 2019) . In

Tanzania and Ethiopia, national guidelines and targeted health worker training emerged as important facilitators of integrated delivery (Hlatshwako et al., 2026) .

These gains have, however, been consistently hampered by system constraints. In some instances, integration efforts have frequently increased clinical workload without commensurate staffing, which affects quality of care and patient outcomes (Chireshe et al., 2024; Harrison & Jordan, 2022) . Retention in diabetes and hypertension care within integrated facilities ranges from 70% to 78%, with minimal improvement in cardiovascular risk outcomes (Kwarisiima et al., 2019; Suwanbamrung et al., 2026) . Disease surveillance integration has followed a similarly incomplete trajectory (Kambalame et al., 2026; Malebana et al., 2025; Mremi et al., 2021) . Across all integration domains, workforce shortages, fragmented governance, inadequate infrastructure, and limited access to essential medicines remain the dominant barriers (Kassa & Grace, 2026; Zezai et al., 2024) , while task shifting, as demonstrated in Botswana's HIV-hypertension integration experience, national policy frameworks, and facility-level leadership remain the most reliable facilitators (Hlatshwako et al., 2026; Kassa & Grace, 2026; Suwanbamrung et al., 2026) .

Three structural features from our review are particularly salient for assessing Ghana's model. First, health financing as a discrete driver of integration has received very minimal attention in the in the region which shows a structural gap in both the literature and implementation (Matthew et al., 2026) . Second, at the governance level, hierarchical organizational structures and vertically driven programme agendas have been shown to undermine the authority and motivation of health managers to coordinate across service areas (Heerdegen et al., 2020; Ndlovu & Mbandlwa, 2026) , while disease-specific programmes in Ghana continue to collaborate weakly across national, regional, and facility levels, with donor resourcing skewed toward communicable diseases. However, there is documented poor coordination between the National TB Programme and the NCD Control Programme (Salifu & Hlongwana, 2021b) . Third, and most consequentially, the pattern that emerges is one of integration that is predominantly disease-specific, externally funded, and structurally parallel to rather than embedded within routine health system functions (Harrison & Jordan, 2022; Hlatshwako et al., 2026) . Where programmes have demonstrated success, sustainability beyond funding cycles has been limited, with gains rarely institutionalized within national health systems (Baynes et al., 2022; Ndlovu & Mbandlwa, 2026) . Few reports describe institutionally embedded models that formally integrate public health functions within routine hospital governance structures (Chireshe et al., 2024; Harrison & Jordan, 2022) . South Africa's experience is instructive: despite comprehensive NCD strategic plans introduced in 2013 and revised in 2022, targets were not achieved because of resource constraints, fragmented implementation across provincial levels, inadequate surveillance, and the absence of governance structures capable of enforcing coordination between primary care and public health (Matthew et al., 2026) . The policy existed; the system architecture to deliver it did not (**Table 1**).

Assessment of the PHU model against the WHO Health Systems Building Blocks

We examine each of the six building blocks in turn, considering how they are reflected in the PHU model, the gaps identified through our synthesis, and the system conditions needed to address them (**Figure 1**).

Leadership and governance

The PHU's organizational design of the PHU model satisfies the foundational governance requirement of clearly designated leadership responsibility, specified reporting and coordination arrangements, and defined institutional authority. The guidelines locate accountability unambiguously with the hospital's Medical Superintendent or Medical Director. A consequential gap remains, however, in defining how hospital-based PHUs relate to Metropolitan, Municipal, and District Health Directorates, which have traditionally coordinated public health activities within their jurisdictions. Without delineated roles, reporting lines, decision-making authority, and coordination mechanisms between these structures, implementation risks producing overlapping responsibilities and fragmented accountability. This is not a hypothetical concern in Ghana, where overlapping mandates and unclear lines of authority across health-system levels have been shown to impede coordination and constrain the capacity of managers to organize service delivery (Agyepong, 1999) . Evidence from the district health system in Ghana is instructive. Hierarchical structures and vertically driven programme agendas consistently undermined health the authority of managers to coordinate across service areas, with individual training alone producing limited improvement absent systemic organizational change (Heerdegen et al., 2020) .

Health financing

The PHU has no dedicated budget line, which raises concerns for both the funding of its activities and the long-term sustainability of the model. The WHO framework positions financing as the mechanism that raises revenue, pools resources, and purchases services to protect against financial risk. The activities of the PHU are predominantly non-revenue-generating: health promotion, disease prevention, surveillance, and occupational health services are delivered without reimbursement from the National Health Insurance Authority (Ghana Health Service, 2020) . As Matthew et al. (2026) demonstrated across five LMIC case studies, the absence of dedicated financing mechanisms to support integration is a systemic barrier that policy intent alone cannot overcome. In contrast to clinical services reimbursed through the NHIA, PHU functions generate public health value but limited direct revenue for hospitals, and existing evidence suggests that integration without dedicated budget allocation is structurally vulnerable (Matthew et al., 2026) . This challenge is compounded by delays in NHIA claims processing and the exclusion of many preventive and public health activities from the reimbursable benefits package. Recent investments in public health and primary health care, including the Free Primary Health Care initiative, provide a potential financing window; targeted allocation of these resources to PHU operations could strengthen sustainability and better align financing with prevention-oriented health system goals in Ghana.

Health workforce

The multidisciplinary composition of the PHU is among its most distinctive and potentially consequential design features. Core membership draws on cadres historically present within health facilities in Ghana, and the PHU formalizes and activates these existing roles within a coherent institutional structure, addressing the longstanding gap between the physical presence of public health personnel within facilities and their meaningful integration into hospital-based service delivery. Proposed expansions to this core team include the formalization of community partners, building on the already established community-based surveillance volunteer model, and the inclusion of research officers to support data curation, operational research, and evidence-informed decision-making. These additions are well supported by the regional evidence, which consistently identifies workforce composition and task shifting among the most reliable facilitators of integration (Hlatshwako et al., 2026; Kassa & Grace, 2026) . The workforce risk, however, mirrors the regional pattern where integration expands scope without expanding establishment, workload intensifies, and quality suffers (Chireshe et al., 2024; Harrison & Jordan, 2022) . Whether staffing represents genuine redeployment with protected time or merely additional duties layered onto existing roles will substantially determine its viability. Ghanaian frontline experience with TB–diabetes collaboration is sobering in this respect. Health workers in the north reported low awareness of the collaborative framework, continued to prioritise TB/HIV over TB–diabetes comorbidity, and absorbed the additional work amid high workload, multiple concurrent roles, and inadequate training (Salifu & Hlongwana, 2021a) .

Service delivery

Bringing core public health functions into the hospital setting is the clearest mechanism by which the policy strengthens service delivery. Establishing facility-level responsibility for disease surveillance and outbreak response, clinical and public health integration, disease prevention and health promotion, occupational health and safety, and data-driven decision-making aligns directly with the WHO service delivery building block. This addresses an important gap in disease control: many surveillance and response functions have traditionally been coordinated at district level, yet conditions of public health importance are frequently first encountered in hospitals, as the COVID-19 pandemic demonstrated for early warning recognition at the point of first presentation (Liu et al., 2023) . Similarly, institutionalizing screening, health education, and community engagement within hospitals extends prevention beyond district- and community-based activities. The remaining challenge is boundary management: these facility-based functions must be integrated with existing district services so that PHUs complement rather than duplicate established public health structures (Ghana Health Service, 2020) .

Experience with facility-based prevention in Ghana also highlights the importance of operational capacity. Wellness Clinics established as outpatient department sub-units in three hospitals screened approximately 300 clients each week, but only one extended its activities into community-based prevention. Key barriers included limited standard operating guidance, logistical challenges, and gaps in insurance coverage rather than their location within the hospital structure (Kushitor et al., 2024) . Health promotion, meanwhile, remains underdeveloped within hospital clinical workflows in southern Ghana, impeded by structural constraints, inadequate logistics, and workload pressure (Adzei et al., 2024) . The clinical case for facility-anchored public health is nonetheless strong: among sub-Saharan African hospital inpatients, HIV (36%), hypertension (24%), and diabetes (12%) are highly prevalent, though multimorbidity itself remains poorly described, (Spencer et al., 2023) and Ghanaian TB/HIV service integration raised TB treatment success from 50% to 69% across three models even as mortality remained at 18% (Ansa et al., 2012) . The lesson for PHUs is that institutional placement creates the opportunities, however, resourcing, guidance, and accountability determine whether it is realised.

Health information systems

A central expectation of the PHU is to consolidate information from across the hospital, identify conditions of public health importance, and use emerging patterns to guide action, closely reflecting the emphasis of health information systems in generating, analyzing, and using timely information for decision-making. The guideline makes this expectation explicit:

"Information generated should be used to improve service delivery and public health" (Ghana Health Service 2020).

PHUs are expected to collate and analyse their activities, report through established GHS systems, and undertake operational research to inform service improvement. The challenge is to ensure these responsibilities move beyond routine upward reporting toward active use of data within hospitals. Evidence from Ghana shows that although routine reporting through district health information management systems-2(DHIMS2) is widespread, its use for local planning and decision-making remains limited. Experience with IDSR implementation in the Upper East is instructive. Here the core surveillance functions existed at the periphery and mobile-phone reporting eased submission, but facilities lacked technical guidelines, laboratory capacity, supervision, and regular feedback, and surveillance remained a low institutional priority (Adokiya et al., 2015) . Strengthening analytical capacity within PHUs could therefore help transform routinely collected data into actionable evidence for planning, early identification of public health concerns, and service improvement.

Medical products and technologies

The PHU can only discharge its prevention, surveillance, and occupational health functions if the basic tools for doing so are reliably available. Blood pressure monitors, glucometers and test strips, rapid diagnostic tests, personal protective equipment, and health-promotion materials provide the clear link to the WHO medical products and technologies building block. Yet the guidelines devote far greater attention to what PHUs should do than to how essential resources will be routinely financed, procured, and replenished. One opportunity is to align PHU activities with the Free Primary Health Care initiative in Ghana, which is strengthening the capacity of frontline health workers through training and basic screening and home-visit kits to support prevention, health promotion, and early detection. Given the functional overlap, PHU staff could be incorporated into relevant training and resource-support arrangements, creating alignment between the two initiatives and improving sustainability rather than developing a parallel supply and training system.

Discussion

Interpretation: institutional anchoring as the distinguishing feature

The central finding of this review is that the PHU model implemented in Ghana offers a distinct approach to integrating public health functions within hospital-based clinical care compared with approaches commonly described across the region. While many integration efforts across sub-Saharan Africa have been disease-specific, externally financed, or implemented alongside routine services, the PHU model is embedded within existing hospital systems through established governance structures, health personnel, and budgets under a national policy directive.

This distinction matters because the regional evidence consistently locates the failure of integration not in clinical technique but in institutional architecture. Programmes succeed technically and then decay when funding cycles end precisely because they were never embedded in the governance and financing structures that persist after projects close (Baynes et al., 2022; Ndlovu & Mbandlwa, 2026) . The PHU model's wager is that legitimacy conferred by national policy, combined with near-zero marginal institutional cost, offers a more durable route to integration than the construction of parallel delivery machinery.

That wager should not be mistaken for a guarantee. Institutional theory has long warned that formal adoption of a reform and its substantive implementation are distinct phenomena: policies can be ceremonially adopted while frontline practice continues largely unchanged, particularly where new mandates arrive without commensurate resources or authority (Meyer, J. W., & Rowan, 1977) . The building-blocks assessment identifies precisely the conditions under which such decoupling would occur for PHUs. First, ambiguous accountability between hospitals and district directorates, no dedicated financing for non-revenue-generating functions, workload absorption without establishment growth, and data responsibilities without analytical capacity. South Africa's unmet NCD targets despite comprehensive strategic plans illustrate the general principle that policy existence is not system architecture (Matthew et al., 2026) . The policy directive establishing PHUs provides institutional legitimacy, an important foundation that many similar programmes across the region have struggled to achieve. Whether it clears the second, operational resourcing, will determine whether the model integrates public health into hospitals or merely renames its fragmentation.

Contribution to international debates

This review contributes an LMIC institutional case to an integration literature dominated by disease-specific pilots and high-income delivery-system experiments. It responds directly to calls for context-fit models of integration developed through structured synthesis of what works, for whom, and under what system conditions. Harrison and Jordan's (2022) adaptation of the Chronic Care Model to the sub-Saharan African context incorporates access, stigma and confidentiality, patient-provider partnerships, task-shifting, and clinical mentoring. The PHU model complements this work by demonstrating how integration can be embedded within hospitals at the institutional level. The documentary mapping adds an empirical dimension that is often missing from policy analyses of integration by showing where PHUs are documented across health facilities nationally and explicitly grading the certainty of the available evidence. For the growing scholarship on de-verticalization and the sustainability of donor-initiated programmes, the PHU experience offers a natural policy experiment in whether nationally owned, governance-embedded integration outlasts project-based alternatives, a hypothesis that now requires longitudinal implementation research to test.

Strengths and limitations

The review's strengths lie in its triangulation of policy documents, regional evidence, and original documentary mapping, and in its systematic application of the WHO building blocks as an analytical scaffold rather than a descriptive checklist. Its limitations are those stated in the Methods and two further caveats. First, the assessment focuses on policy design and documented implementation and therefore cannot determine whether the PHU model improves health outcomes, which have not yet been evaluated. Second, several cited sources are dated 2026, reflecting a fast-moving recent literature whose findings have had limited time for corroboration. These limitations should be considered when interpreting the findings. This paper documents how the PHU model is designed to integrate public health functions within hospital systems, maps its documented presence across health facilities in Ghana, and identifies key conditions for implementation, but does not assess its effectiveness or impact.

Implications for policy and practice in LMICs

The PHU model implemented in Ghana may be relevant to other LMICs facing similar epidemiological and health-system challenges. The double burden of disease, fragmented service delivery, weak facility-level surveillance, and the unsustainability of externally driven integration programmes characterize health systems across sub-Saharan Africa and beyond. Available documentary evidence suggests PHUs have already been established in numerous health facilities across Ghana. Rather than introducing a parallel programme, the model activates existing cadres, formalizes existing community linkages, and embeds public health functions within the standing governance architecture of the hospital, offering a replicable and low-cost pathway for LMICs seeking to convert disease-specific integration gains into durable, system-level practice without dependence on external financing cycles. Drawing on the evidence reviewed and the Ghana experience, we propose the following considerations for LMICs seeking to integrate public health into clinical practice:

- **Anchor integration in national policy.** Integration efforts that are externally driven and programme-specific have consistently failed to outlast their funding cycles. The PHU initiative in Ghana demonstrates how a national policy directive can provide the institutional legitimacy and governance framework needed to support sustained implementation.
- **Define coordination across system levels from the outset.** Facility-based public health functions should be introduced with explicit relationships between hospital teams and district or subnational health authorities, covering roles, reporting lines, information sharing, and joint planning. Without this clarity, integration risks creating another layer of fragmentation rather than resolving it. (Heerdegen et al., 2020)
- **Finance non-revenue-generating functions explicitly**

Public health activities within hospitals produce population health value but little facility revenue. Dedicated budget lines or earmarked allocations, rather than absorption into general hospital budgets, are necessary to protect these functions from curative-care crowding-out (Matthew et al., 2026) .

- **Make routine data use a facility responsibility.** Facility-based public health units can serve as a practical mechanism for consolidating routine clinical and public health information and using it for surveillance, planning, service improvement, and local decision-making, rather than limiting data functions to upward reporting (Adokiya et al., 2015) .

- **Strengthen all health-system building blocks alongside service integration.** Expanding public health functions within hospitals requires more than defining new services. Governance, workforce capacity, financing, information systems, and access to essential equipment and technologies must be developed alongside service delivery if integration is to become routine and sustainable, a conclusion echoed by region-wide evidence that IDSR performance turns on resources and implementation capacity spanning governance, financing, and workforce rather than any single domain (Kambalame et al., 2026) .

Conclusion

The institutional Public Health Unit model implemented in Ghana provides a practical approach to addressing the longstanding separation between public health and clinical care. Its distinguishing feature is not the public health functions themselves, as surveillance, prevention, and health promotion are well-established activities, but how these functions are integrated into hospital systems through existing governance structures and health personnel, with support from a national policy directive. Documentary evidence indicates the model has achieved a substantial facility-level footprint across the country. Whether that footprint deepens into functional integration will depend on governance clarity, sustainable financing, workforce capacity, data use, and operational support. For other LMICs, Ghana's experience provides a replicable blueprint for embedding public health within clinical settings, advancing progress toward universal health coverage, and building health systems resilient enough to serve their populations without dependence on external support.

Declarations

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All analysis, interpretation, and conclusions were developed and verified by the authors, who take full responsibility for the content of this manuscript.

Data Availability Statement

This review did not generate new primary data. The documentary mapping was based on publicly available sources, as described in the Methods. Facility-level data extracted for the mapping are available from the corresponding author upon reasonable request.

Author Contribution Statement

Conception and design of the work: Thomas Hinneh and Isaac Henneh led the conception and design of the manuscript. All co-authors contributed to refining the scope, analytical approach, and framing of the paper.

Evidence reviews and interpretation: Thomas Hinneh, Patriot Ofori-Anning led the review and synthesis of the policy documents and relevant literature. Co-authors contributed contextual, policy, clinical, and health-systems perspectives to the interpretation of the evidence.

Drafting the article: Thomas Hinneh prepared the initial draft of the manuscript. Co-authors contributed to the development and refinement of specific sections.

Critical revision of the article: All authors critically reviewed the manuscript for important intellectual content and contributed revisions based on their respective areas of expertise and experience within the health system.

Final approval of the version to be submitted: All authors reviewed and approved the final version of the manuscript and agree to be accountable for their contributions to the work.

Reflexivity Statement

The author team comprises 13 researchers and health professionals with experience spanning clinical practice, public health, health service management, and academic research. The first author has more than seven years of frontline and managerial experience within the Ghana Health Service and subsequently trained in public health and health systems research. This professional experience informed the conceptualization of the paper and its focus on strengthening the interface between clinical care and public health practice in Ghana. Several co-authors bring practical experience from different levels of the Ghanaian health system, while others contribute academic and research perspectives relevant to health policy and systems strengthening.

The first author led the conceptualization and development of the manuscript, with contributions to writing from other members of the team and critical review by all authors. Differences in professional roles, institutional positions, and levels of research experience were acknowledged throughout the development of the paper. These complementary perspectives helped ensure that the analysis was grounded in the realities of Ghana's health system while being critically examined through a broader health policy and systems lens.

Ethical Approval: Ethical approval for this research was not required.

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Figures

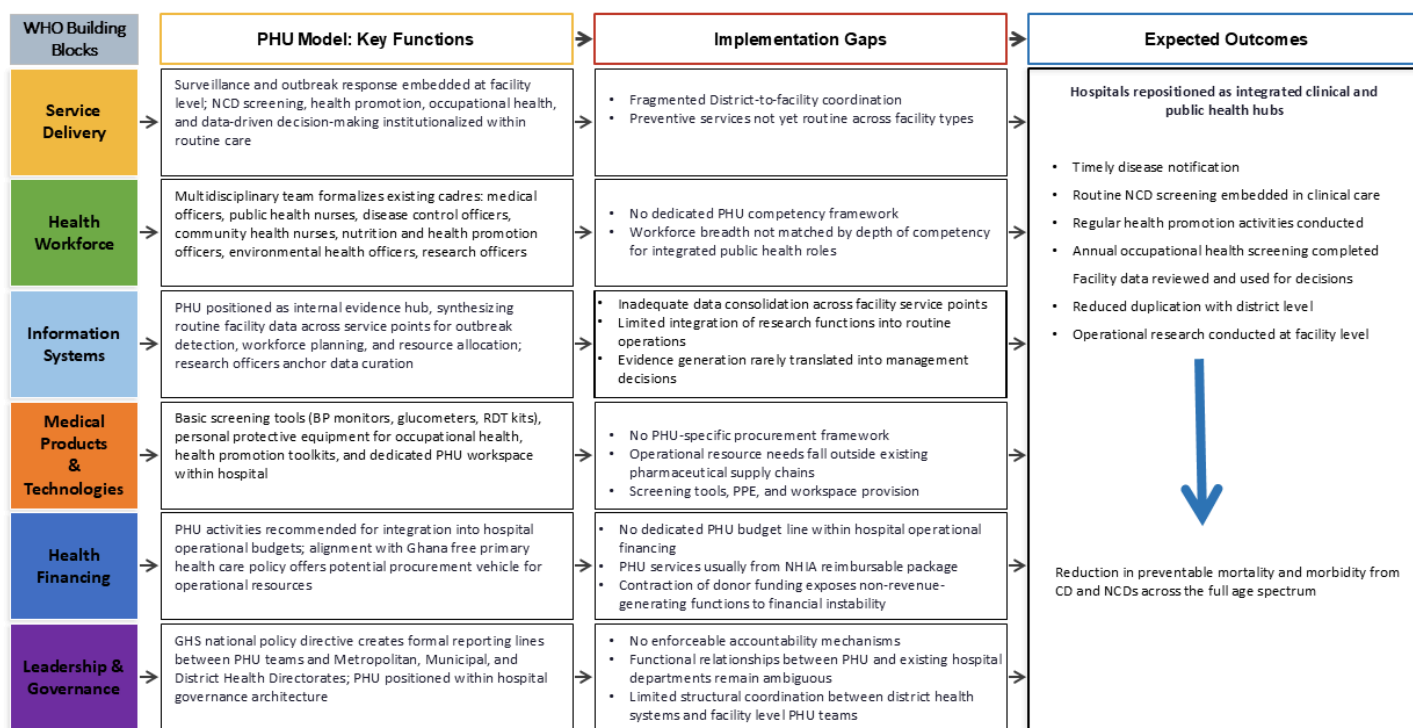


Figure 1

WHO Health Systems Building Blocks framework adapted to the Ghana institutional Public Health Unit (PHU) model: key functions, implementation gaps, and expected outcomes. *Adapted from WHO (2007).*

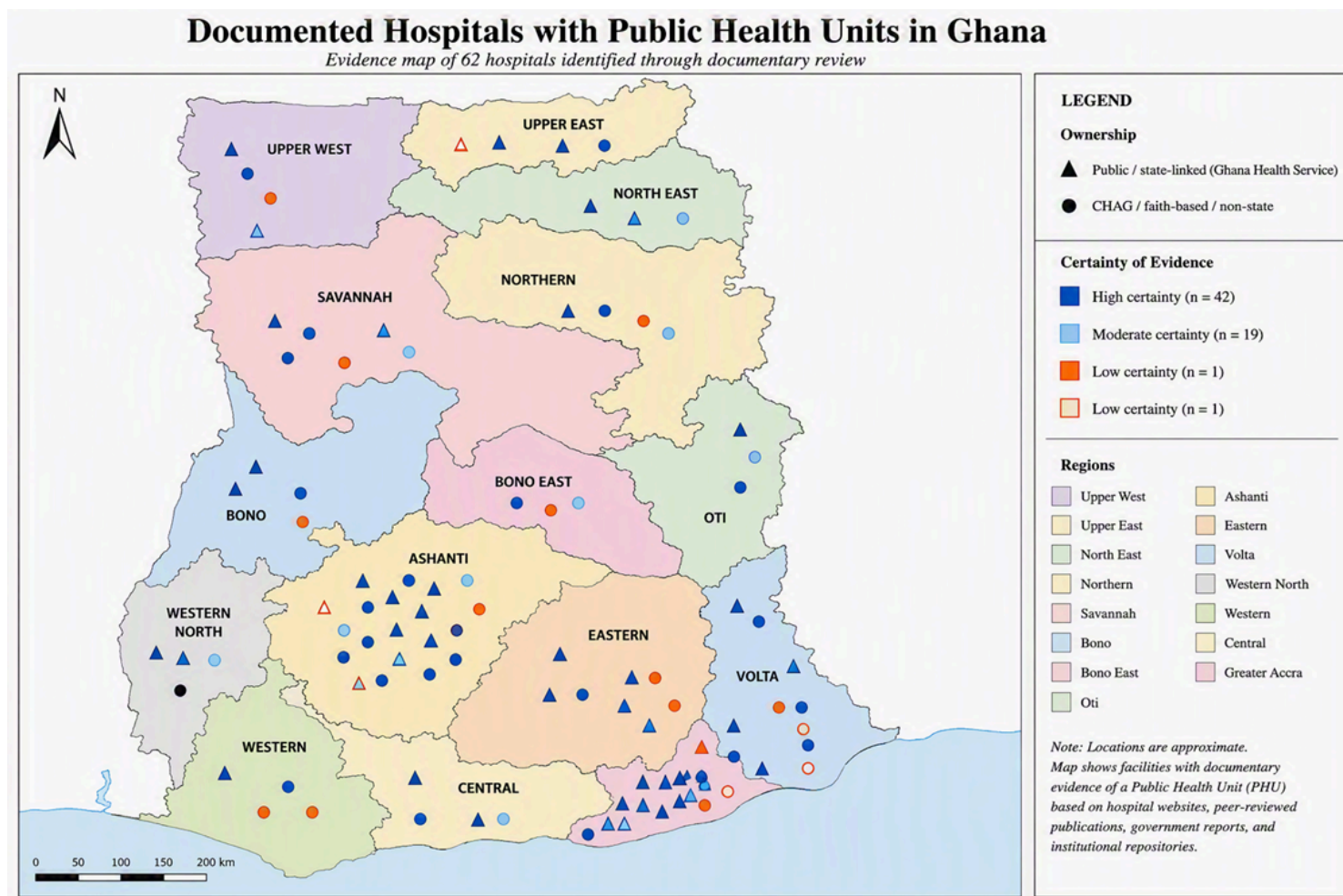


Figure 2

Documentary evidence of PHU implementation in Ghana.

Hospitals (n = 40) for which publicly available, facility-specific evidence identified a Public Health Unit or equivalent public health department. Symbols distinguish public-sector from CHAG/faith-based facilities. Locations are approximate; the map should not be interpreted as a complete national registry of PHUs.

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [AppendixS1HPPFINAL.docx](#)