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Integrating Community-Based Health Insurance with Private Drug Retailers in Tanzania: Opportunities, Challenges, and Implementation Pathways

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ABSTRACT

Partnerships between public health insurance schemes and private-sector actors are increasingly recognized as essential for improving healthcare access in low- and middle-income countries. Persistent weaknesses in public pharmaceutical supply systems frequently result in medicine shortages, which erode public confidence in health insurance programs and discourage enrolment. In Tanzania, these challenges prompted reforms to the Community Health Fund (CHF) alongside the introduction of the Jazia Prime Vendor System to strengthen medicine procurement for public facilities. Despite these efforts, many rural and informally employed populations continue to obtain medicines primarily from Accredited Drug Dispensing Outlets (ADDOs). This study investigates whether and how ADDOs could be incorporated into the improved Community Health Fund (iCHF), focusing on anticipated benefits, potential risks, and feasible implementation options. An exploratory qualitative approach was adopted, combining semi-structured interviews, group discussions, and analysis of policy and program documents to capture perspectives from a range of stakeholders. Findings indicate broad stakeholder support for integrating ADDOs into the iCHF, largely driven by ongoing medicine shortages at public health facilities and the resulting strain on both patients and healthcare workers. While the Jazia Prime Vendor System was perceived to have alleviated some supply constraints, it was not considered a comprehensive solution. Participants emphasized that contracting ADDOs could enhance medicine availability at the community level and potentially strengthen uptake of the iCHF. However, several barriers were identified, including price structures at ADDOs that exceed current iCHF reimbursement levels and limited technical capacity to support digital claims processing and information exchange. To mitigate these challenges, respondents proposed a phased implementation, beginning with a small number of eligible ADDOs and drawing on contracting models already used by the National Health Insurance Fund (NHIF). Ongoing health financing reforms in Tanzania, particularly the transition toward a unified national health insurance system, create a timely opportunity to formally engage ADDOs within the iCHF framework. Building on existing NHIF–ADDO arrangements and lessons from the Jazia Prime Vendor System may support a more inclusive and resilient approach to medicines access. The study contributes to broader discussions on leveraging public–private collaboration to strengthen health insurance schemes in resource-constrained settings.

Keywords: Micro health insurance, Accredited drug dispensing outlets, Community health fund, National health insurance fund, Retail drug outlets

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Introduction

Following the global momentum generated by the Millennium Development Goals, numerous low- and middle-income countries have adopted micro health insurance (MHI) initiatives as a mechanism to expand financial protection in health care [1]. These schemes primarily aim to serve individuals employed in the informal sector who are typically excluded from formal insurance arrangements. Across Sub-Saharan Africa [2], MHI programs have similarly been implemented to enhance social health protection and to mitigate the financial burden associated with out-of-pocket health expenditures among populations that are largely informally employed and constitute the majority of the workforce.

In Tanzania, a voluntary Community Health Fund (CHF) was launched in 2001 to provide coverage for informal sector workers, operating alongside the National Health Insurance Fund (NHIF), which was introduced as a mandatory scheme for civil servants in the same year [3-5]. Consistent with experiences in other MHI programs, CHF enrolment levels have remained persistently low, rarely surpassing 10% of the target population [6, 7]. Multiple factors have been associated with this limited uptake, including insufficient involvement of intended beneficiaries during scheme design, low levels of trust among key stakeholders, weak administrative capacity, narrow benefit packages, suboptimal service quality, and, most notably, recurring shortages of medicines in public health facilities [8-12].

In pursuit of universal health coverage under the Sustainable Development Goals and as part of the Health Sector Strategic Plan IV, the Tanzanian government undertook a comprehensive review of the original CHF model. This process aimed to transform the CHF into a scalable national insurance mechanism tailored to the informal sector. Support for this reform was provided through the Swiss–Tanzanian Cooperation (2020), which redesigned and piloted the scheme in Dodoma, followed by Shinyanga and Morogoro regions, within the Health Promotion and System Strengthening (HPSS) project implemented between 2010 and 2023.Footnote1 These efforts resulted in the introduction of the improved Community Health Fund (CHF Iliyoboreshwa), which began nationwide implementation in 2018.

The redesigned iCHF introduced several structural and operational changes, including the separation of purchasing and service provision roles, community-based enrolment and premium payment via mobile phones, expanded benefit entitlements, access to all public health facilities through a referral system, blended provider payment mechanisms combining capitation and performance-based elements, and the deployment of an electronic Insurance Management Information System [12, 13].

Alongside insurance reform, the HPSS project supported initiatives aimed at addressing persistent medicine supply challenges within public health facilities, particularly those related to inefficiencies in the Medical Stores Department. One such initiative was the Jazia Prime Vendor System (Jazia PVS), developed and piloted by the Dodoma regional and local government authorities using a public–private partnership model [14]. The Jazia PVS allows public health facilities to procure medicines and medical supplies that are unavailable through the central supply system from a designated private vendor at the regional level, using standardized procurement procedures and strengthened accountability mechanisms [15]. Following successful implementation in Dodoma starting in 2014 and subsequent expansion to Shinyanga and Morogoro from 2016, the system was adopted nationwide in 2018 [14].

Against this backdrop, the present study examines the potential interface between the iCHF and another long-standing public–private initiative aimed at improving access to medicines in Tanzania: Accredited Drug Dispensing Outlets (ADDOs), locally known as Duka la Dawa Muhimu. Introduced in 2003, the ADDO program was designed to enhance the availability of affordable, quality-assured medicines and pharmaceutical services in rural and underserved areas where registered pharmacies are scarce or absent [16, 17]. Accreditation standards developed by the Ministry of Health and Social Welfare and the Tanzania Food and Drug Authority formed the basis of the program, alongside structured training for outlet owners and dispensers, revisions to the essential medicines list, and defined registration criteria [17]. After initial piloting, nationwide implementation commenced in 2006.

To date, approximately 20, 000 dispensers have been trained under the ADDO program, and the number of accredited outlets—currently estimated at 14, 045—now exceeds the combined total of public and private health facilities in the country, which stands at around 8, 000 across all levels of care [18-20]. Existing evidence highlights the critical role of ADDOs in expanding access to medicines and serving as an initial point of care in both rural and urban contexts [17, 18]. ADDOs are authorized to dispense over-the-counter medicines as well as a restricted range of prescription drugs, including commonly used antibiotics [20]. In addition, they have been integrated into various public health initiatives, such as disease detection and referral activities and the delivery of integrated management of childhood illness interventions [17]. Oversight of the ADDO program is provided by the Pharmacy Council of Tanzania, with dispenser training embedded within zonal training institutions nationwide.

The inclusion of private-sector providers within health insurance arrangements is increasingly viewed as a strategy to complement public-sector capacity and improve access to health services [20-23]. In Tanzania, private pharmacies were incorporated into the NHIF as early as 2000 [24], partly to address access challenges faced by rural beneficiaries, particularly teachers, who account for approximately 60% of civil servants and are often

stationed in areas without pharmacy services [20]. In contrast, the iCHF remains largely confined to public-sector service delivery. As Tanzania progresses toward universal health coverage and plans to consolidate the iCHF, NHIF, and other smaller schemes into a Single National Health Insurance framework [25], there is a timely opportunity to examine the feasibility of extending iCHF coverage to include ADDOs. Accordingly, this study explores stakeholder perspectives on the opportunities, risks, and practical approaches associated with integrating ADDOs into the iCHF.

Materials and Methods

An exploratory qualitative research design was adopted, using multiple data collection techniques, including semi-structured in-depth interviews, focus group discussions, and a review of relevant documents. Interviews were conducted with stakeholders involved in the improved Community Health Fund (iCHF) across various levels of policy formulation and program implementation, as well as representatives from private pharmacies and other key actors **(Table 1)**.

The study drew conceptually on grounded theory approaches [26]. Data analysis and interpretation were carried out concurrently with data collection, allowing emerging themes and insights from the field to inform iterative refinement of the interview guides throughout the research process.

Table 1. Participants included in the study

Administrative level	Participant category	Number of participants	Data collection approach
District / Council level	District health management officials	19	In-depth interview (IDI)
	Public health facility staff	4	In-depth interview (IDI)
	Improved Community Health Fund (iCHF) personnel	4	In-depth interview (IDI)
National level	Ministry of Health (MoHCDGEC) representatives	1	In-depth interview (IDI)
	National Health Insurance Fund (NHIF) representatives	1	In-depth interview (IDI)
	Pharmacy Council officials	1	In-depth interview (IDI)
Ward / Village level	Local government authorities	14	In-depth interview (IDI)
	Health Facility Governing Committee members	32	Focus group discussion (FGD)
	iCHF registration and enrolment officers	37	In-depth interview (IDI) and focus group discussion (FGD)
	Currently active iCHF beneficiaries	3	In-depth interview (IDI)
	Accredited Drug Dispensing Outlet (ADDO) owners/dispensers	26	In-depth interview (IDI)
	Former or inactive iCHF beneficiaries	3	In-depth interview (IDI)
Total		**145**	

Study area

The research was conducted in selected villages within the Morogoro region, located in south-western Tanzania. Administratively, data collection took place across three predominantly rural districts—Kilombero, Ulanga, and Malinyi—as well as in Ifakara Town Council. Morogoro was among the three regions where the Swiss–Tanzanian Cooperation piloted the improved Community Health Fund (iCHF), and the Accredited Drug Dispensing Outlet (ADDO) program has been operational in the region for over a decade. To capture perspectives beyond the study sites and to obtain a broader understanding of the feasibility of integrating ADDOs into the iCHF, additional interviews were conducted with key informants based in Dodoma and Dar es Salaam (Tanzania) as well as in Basel (Switzerland). This study formed part of a larger, independently funded research initiative entitled Participation in Social Health Protection [27], which was supported by the Swiss National Science Foundation (SNSF) between 2017 and 2021.

Research team and reflexivity

Although members of the research team had prior familiarity with the Swiss–Tanzanian Cooperation and, in particular, with the Swiss Tropical and Public Health Institute responsible for implementing the HPSS project, the present qualitative inquiry emerged from preliminary findings generated through the independent SNSF-funded research. Earlier fieldwork conducted in collaboration with the local non-governmental organization KV-HELP in villages across the Morogoro region (BO, IM, MR) revealed that ADDOs are widely used and that community members expressed interest in stronger coordination between ADDOs and the iCHF. These initial observations prompted the research team to collaboratively develop this focused sub-study to systematically assess the advantages and limitations of such an arrangement.

Data collection for this sub-study was coordinated by two researchers (AD and VS), who recruited and trained four research assistants experienced in qualitative methods. All assistants were proficient in Kiswahili, the primary language spoken in the study areas, and none had any role in implementing the iCHF. Following the completion of two pilot interviews by each assistant, the research team reviewed the interview process and refined the data collection instruments accordingly. With support from local authorities and a KV-HELP team member (IM), participants were then identified and approached. The research team explained the study objectives, obtained informed consent, and conducted the interviews. All individuals invited to participate agreed to take part.

Study design and sampling

This study was guided by a constructivist epistemological framework [28], which emphasizes that knowledge is shaped through individuals' lived experiences and interpretations. Drawing on this perspective, the study sought to understand perceived opportunities and challenges associated with linking ADDOs to the iCHF by engaging a wide range of stakeholders and eliciting their reflections on personal and professional experiences. A systematic non-probability sampling strategy was employed. Rather than aiming for statistical representativeness, this purposive approach enabled the identification of relevant actor groups across multiple administrative levels—national, regional, district, ward, and village—each holding distinct roles and interests related to the study topic **(Table 1)**. Sampling continued in accordance with the principle of data saturation [29], whereby recruitment ceased once additional interviews no longer yielded new insights.

Data collection procedures

Empirical data were generated during a three-month period from October to December 2019. The study relied primarily on qualitative techniques, namely individual interviews and group-based discussions. Data collection tools consisted of semi-structured guides designed around a cascading questioning strategy, beginning with broad, open-ended questions and followed by targeted probes to deepen, clarify, or stimulate discussion when necessary. Individual interviews were conducted either in participants' homes or at their places of work, whereas group discussions were organized in district or village administrative settings. Each interview involved one participant and one member of the research team, while focus group discussions were facilitated by two researchers and included between ten and twelve participants. Interviews generally lasted up to one hour, while group discussions extended to approximately one and a half hours. All sessions were digitally recorded, and researchers simultaneously documented key observations in written notes. Audio files were transcribed verbatim, after which selected excerpts were translated into English. In parallel, the two authors examined district-level documentation, with a particular focus on patterns of iCHF enrolment between 2016 and 2019.

Data management and analysis

The initial transcription of recorded materials was undertaken by trained research assistants involved in the fieldwork, and the resulting transcripts were subsequently reviewed for accuracy by members of the core research team (AD, VS, and IM). Translation from Kiswahili into English was carried out by professional translators, followed by verification by two authors (AD and VS). To initiate the analytical process, several team members (AD, VS, and BO) immersed themselves in the translated data through repeated reading. A subset of ten transcripts was independently coded by three individuals (AD and two research assistants) to allow identification of both predefined and emergent concepts. Coding was supported by NVivo qualitative data analysis software (Version 12+). The initial code lists were then compared and refined through team discussions involving AD, VS, and BO, leading to agreement on a consolidated coding framework. This framework was subsequently applied to the remaining transcripts by two research assistants and two team members (AD and BO). Codes were later clustered into higher-order thematic categories, and the final thematic structure was reviewed and approved by the full

author group (AD, VS, IM, AK, and BO). Analytical rigor was strengthened through triangulation across data sources and methods, and interpretation was finalized through collective deliberation among all co-authors.

Results and Discussion

As detailed in **Table 1**, the participant pool encompassed stakeholders operating at national, district, ward, and village levels. The presentation of results is organized around four core thematic domains: first, issues related to medicine availability and the justification for connecting the iCHF with ADDOs; second, perceived advantages of such a linkage from the perspective of key stakeholders; third, anticipated risks and constraints associated with integration; and finally, proposed approaches for operationalizing a linkage between ADDOs and the iCHF.

Medicine availability at health facilities and the need to connect the iCHF with ADDOs

Across all stakeholder categories, respondents recognized that access to medicines in public health facilities has improved in recent years. Participants at the council level largely attributed this progress to the introduction of the Jazia Prime Vendor System, which enables facilities to procure medicines from designated private suppliers. Nevertheless, they emphasized that medicine shortages remain a persistent problem, driven by multiple structural and operational constraints. One district-level respondent described the situation as follows:

"There has definitely been progress compared to the past, but patients are still affected by shortages. In our facilities, the patient load is very high. You may request medicines from the Medical Stores Department and expect them to last a month, yet they can be used up within two weeks. When you place a new order, delivery is not immediate—it can take two or even three weeks. During that waiting period, patients come and leave without medicines, and complaints are unavoidable." (District health official, Kilombero)

When asked about the role of prime vendors in addressing these gaps, another district official explained that procedural barriers continue to delay access to alternative suppliers:

"Prime vendors are meant to step in when facilities run out of stock, but the process itself causes delays. Before a facility can buy from a prime vendor, the Medical Stores Department must issue a formal notification confirming that the item is unavailable. Sometimes this confirmation does not come in time, which means we cannot proceed to the prime vendor unless the situation is extremely urgent." (District health official, Ulanga)

Health facility staff highlighted that medicine shortages are closely linked to the characteristics of the populations they serve. They noted that health centres primarily attend to children under five, pregnant women, and older adults—groups that are exempt from paying for healthcare services. At one facility in the town council, a staff member reported handling nearly 24 deliveries per day, including caesarean sections. These exempted services consume large quantities of medicines without generating corresponding revenue for the facility:

"There is no financial return from these services. If exempted patients were contributing through iCHF, the facility would receive some funds to restock medicines. Instead, we use most of our supplies on exempted patients because they fall sick more often, and as a result, we frequently run out of medicines." (Health facility staff, Ifakara Town Council)

Stakeholders at the ward and village levels—particularly members of Health Facility Governing Committees responsible for overseeing local health services—shifted the discussion toward patients' experiences. They described situations in which iCHF members receive consultations and prescriptions but are unable to obtain medicines due to stock shortages at the dispensing point:

"People enrol in the improved CHF believing they will not need to buy medicines elsewhere. But when they arrive at the pharmacy window, they are told the medicine is unavailable. The dispenser simply writes 'OS' for out of stock. This 'OS' has become so common that it risks undermining the entire iCHF initiative." (Health Facility Governing Committee member, Kilombero)

Health workers further noted that misunderstandings about insurance entitlements contribute to dissatisfaction among iCHF members. Many beneficiaries assume that iCHF coverage guarantees access to all medicines and services at any public facility. In practice, providers must adhere to national treatment guidelines that define which services and medicines can be delivered at each level of care. Staff from the iCHF echoed this concern, explaining that facilities are reimbursed only for prescriptions that comply with these guidelines, a requirement intended to safeguard quality of care.

iCHF enrolment officers also acknowledged improvements in medicine availability but observed that continued shortages discourage enrolment and renewal. They frequently encountered remarks such as, "What is the benefit

of joining iCHF if we still have to buy medicines with our own money?" Another commonly expressed view was, "Even if the consultation is expensive, it means nothing if the medicines are not available."

Across all study districts, community members emphasized the importance of linking the iCHF with ADDOs as a way to address these challenges. Medicine shortages at public facilities were frequently cited by non-active iCHF members as a key reason for failing to renew their coverage. Many respondents expressed a preference for ADDOs due to their physical proximity and the ease of interaction with dispensers. Integrating ADDOs into the iCHF was therefore widely viewed as a critical strategy—not only to complement public facility services but also to enhance the attractiveness and effectiveness of the iCHF by ensuring more reliable access to medicines for its members.

Perceived benefits of integrating ADDOs into the iCHF

A senior informant from the Pharmacy Council, representing national-level oversight of the ADDO program, viewed the potential integration of ADDOs into the iCHF as both logical and promising. From this perspective, the linkage was seen as a natural extension of existing roles played by ADDOs within the health system:

"The opportunity here is significant. ADDO dispensers have received extensive training in managing common illnesses, and over time ADDOs have supported various public health initiatives aimed at expanding access to medicines and care. Since many ADDOs are already contracted under the NHIF, extending a similar arrangement to the iCHF should be feasible." (Pharmacy Council, Dodoma)

At the district level, respondents similarly emphasized the advantages of such a linkage and demonstrated awareness of existing collaborations between ADDOs and the NHIF. District iCHF coordinators, medical officers, and frontline health workers expressed the view that contracting ADDOs could ease pressure on public facilities by improving medicine availability, reducing complaints from communities, and potentially increasing enrolment in the iCHF. From their perspective, involving ADDOs would reinforce ongoing government efforts to improve pharmaceutical access.

This view was reinforced by an example provided by an iCHF coordinator from the town council. The coordinator described how selected private health facilities had already been contracted to serve iCHF members through initiatives led by council health teams. Two private facilities had reportedly provided services to iCHF beneficiaries for nearly one year, while a faith-based referral hospital had been participating for almost three years:

"If we were able to bring private facilities on board—including a faith-based hospital serving the wider Morogoro region—then working with ADDOs should also be possible. We faced challenges with private providers initially, but many of those issues could have been resolved earlier if contractual responsibilities had been clearly understood. Overall, there is strong potential here; the key question is how best to structure the arrangement." (iCHF staff, Ifakara Town Council)

At the ADDO level, perspectives varied between outlet owners and dispensers. Owners primarily focused on the commercial implications, viewing the linkage as an opportunity to expand their customer base and increase revenue. Dispensers, by contrast, highlighted professional recognition, emphasizing that formal integration into the iCHF could enhance the status of ADDOs as legitimate healthcare providers and strengthen community trust. iCHF enrolment officers described the proposed linkage from two angles. First, they saw it as a mechanism to attract new members by addressing concerns around medicine availability. Second, they viewed increased enrolment as financially beneficial, as enrolment officers receive a commission equivalent to 10% of each premium collected.

Both active and inactive iCHF members believed that connecting ADDOs to the scheme would improve their ability to obtain medicines, particularly during periods when public facilities experience stock shortages. Inactive members suggested that offering access to ADDOs could motivate more people to enrol or renew their membership. They further noted that younger, healthier, and time-constrained individuals often prefer ADDOs to avoid long queues at public facilities dominated by mothers and young children. ADDOs were also described as "modern" (ya kisasa), featuring appealing premises and services delivered by locally based entrepreneurs.

Perceived challenges and risks of integrating ADDOs into the iCHF

Despite widespread recognition of potential benefits, participants also identified several challenges that could complicate the integration of ADDOs into the iCHF. At the national level, some stakeholders cautioned that introducing ADDOs during the ongoing national rollout of the iCHF could place additional strain on an already evolving management structure. Closely related to this concern was the substantial investment made by both the

government and the HPSS project in strengthening the Jazia Prime Vendor System. Participants emphasized the importance of allowing sufficient time to assess the effectiveness of the PVS before introducing another parallel public–private mechanism. Similar concerns were echoed by district health officials.

Another frequently cited concern related to price discrepancies between medicines supplied through public facilities under the iCHF and those sold at ADDOs operating on a commercial basis. National- and district-level respondents noted that ADDOs typically charge higher prices—particularly for branded medicines—than public facilities:

"Under the iCHF, a Fragil tablet may cost around 20 shillings, while the same product sells for about 50 shillings at an ADDO. Expecting ADDOs to sell at the lower price would leave them without any profit." (District health official, Malinyi)

ADDO dispensers supported this argument by citing examples such as amoxicillin, which is dispensed at a lower cost in public facilities than in ADDOs. They argued that, without price adjustments, serving iCHF members could result in financial losses. As potential solutions, dispensers suggested government subsidies or permission for ADDOs to procure medicines through the same supply channels used by public facilities. District health officials echoed this recommendation:

"Supporting ADDOs to access medicines through selected prime vendors—where prices are more affordable—could enable them to provide services to iCHF members without incurring losses." (iCHF staff, Ulanga)

Drawing on experiences with private health facilities already contracted under the iCHF, district coordinators identified digital capacity as another critical challenge. The iCHF relies on an electronic Insurance Management Information System (IMIS) to manage enrolment, verify active membership, process claims, and handle provider payments. While private facilities had received training on how to verify iCHF members using the system, limited familiarity with the technology led to inconsistent use. In some cases, services were provided without proper verification, resulting in treatment of inactive members and subsequent disputes between facilities and district iCHF offices. Adequate proficiency in using the IMIS was therefore seen as essential for any future collaboration with ADDOs.

Finally, stakeholders raised concerns about the restricted list of medicines authorized for sale at ADDOs. District pharmacists noted that the list had not been revised since 2015, limiting the range of conditions that ADDOs can legally treat. Given changing disease patterns and emerging drug resistance, participants argued that regular updates to the medicine list by the Pharmacy Council are necessary. Comparisons were drawn with NHIF-contracted pharmacies, which are permitted to stock a wider array of medicines. The narrow ADDO formulary was thus viewed as a limitation that could undermine efforts to improve medicine access for iCHF members.

Various perspectives emerged on the appropriate approaches for integrating Accredited Drug Dispensing Outlets (ADDOs) with the improved Community Health Fund (iCHF). Participants highlighted two primary models: (1) a district-led approach and (2) a village-led approach.

Most participants at the district level, along with some national-level stakeholders—particularly from the Pharmacy Council (PC)—favored starting the integration through iCHF district offices. In this model, iCHF officials would first propose the idea to the PC, which oversees all ADDOs nationwide. After obtaining PC approval, the iCHF official would present the integration plan to the District Executive Director, who would refer it to the District Medical Officer (DMO). The DMO would then relay the proposal back to the iCHF office and the district pharmacist. Subsequently, the iCHF coordinator and district pharmacist would engage ADDO owners to negotiate service guidelines under iCHF, agree on reimbursement mechanisms, and formalize contracts for iCHF service delivery at ADDOs.

An alternative district-led option involved leveraging biannual district advisory committee meetings, chaired by the Regional Administrative Secretary's office. From these meetings, the proposal could be escalated to the Regional Commissioner and ultimately to the President's Office for Regional Administration and Local Government (PO-RALG) for nationwide rollout.

In contrast, some district participants advocated for a bottom-up approach beginning at the village level. The concept would initially be discussed in village committee meetings, then advanced to ward-level forums, followed by council discussions, and finally submitted to the district commissioner for approval and potential district-wide implementation. This process would culminate in contractual agreements between participating ADDOs and local iCHF offices.

ADDO owners and dispensers endorsed both approaches and stressed their own critical role as key stakeholders. They noted that in certain districts, ADDO owners have established associations that hold regular meetings.

Gaining endorsement from these associations would significantly boost the initiative's chances of success. For instance, associations could monitor iCHF coordinators to ensure timely reimbursements for services provided to iCHF members. However, participants observed that such associations are stronger and more active in urban councils, while those in rural areas tend to be less organized and influential.

Further discussions at national and council levels recommended initiating the integration as a pilot with a select group of well-resourced ADDOs—those with substantial capital, a wide stock of medicines, and high daily patient volumes. These outlets would be better positioned to accept iCHF-fixed medicine prices and sustain service delivery despite potential delays in reimbursements.

"Piloting is essential; I recommend starting with ADDOs that possess significant financial resources, as this would help maintain uninterrupted service to iCHF beneficiaries even if reimbursements from iCHF are delayed." (District CHF coordinator, Ifakara town council)

Several ADDO dispensers suggested designating one ADDO per ward for iCHF integration to expand medicine access. ADDO owners supported this, pointing out that ADDOs operate longer hours than public health facilities, allowing patients with prescriptions to obtain medicines at convenient times.

Regarding reimbursement mechanisms, district participants—especially coordinators—proposed adopting the existing model used between the National Health Insurance Fund (NHIF) and ADDOs. ADDOs would submit monthly claims detailing services provided, which iCHF offices would verify before processing payments directly to the owners' bank accounts. A major concern raised was the need for prompt reimbursements to sustain ADDO participation.

"Initial challenges may arise, but the key is ensuring that ADDO dispensers receive timely payments—even small amounts—so owners can maintain smooth operations and continue serving clients without interruption." (District health official, Malinyi)

Additionally, some iCHF district officials highlighted the value of digital technology to connect ADDO records with the iCHF system, which would enhance transparency, enable monitoring of dispensed medicines, and streamline reimbursement.

Participants outlined anticipated roles for stakeholders to support effective integration:

- iCHF district coordinators would verify that medicines dispensed to iCHF members match prescriptions.
- District pharmacists would ensure ADDOs maintain recommended medicine stocks and comply with facility and treatment standards.
- ADDO owners and dispensers would fulfill contractual obligations and deliver services as agreed.
- iCHF supervisors would liaise with ADDO dispensers to identify and address operational challenges, while also engaging iCHF beneficiaries to resolve issues encountered at outlets through community awareness efforts.

All participants stressed that successful integration requires active involvement of a broad range of authorities and groups, including iCHF offices (district and national), district and regional pharmacists, the Tanzania Food and Drugs Authority, the Pharmacy Council, district medical officers, ADDO owners and their associations, legal experts, and ward/village authorities. These entities were seen as collectively responsible for driving the initiative forward.

This study assessed whether integrating Accredited Drug Dispensing Outlets (ADDOs) into the improved Community Health Fund (iCHF) could address persistent challenges related to medicine access and financial protection for insured populations. Although policy discussions on engaging private providers within the Community Health Fund date back to the early 2000s [30-32], practical implementation has remained limited. Public pressure to formalize this integration has intensified, reflecting a widely shared perception that primary public facilities largely issue prescriptions while ADDOs function as the main source of medicine dispensing.

Stakeholders acknowledged that the Jazia Prime Vendor System (PVS) has contributed to measurable improvements in medicine availability at public health facilities. Evidence from earlier studies confirms substantial gains in tracer medicine availability between 2014 and 2018 in pilot regions such as Dodoma [14, 15]. Despite these improvements, participants across all stakeholder groups reported that medicine shortages continue to affect routine service delivery. These perceptions are supported by a 2019 facility audit showing that only a small fraction of primary health facilities maintained uninterrupted stocks of essential medicines throughout the year [33].

Beyond supply constraints, dissatisfaction among communities may also be influenced by limited clarity regarding the scope of iCHF benefits. Health workers noted that communication messages suggesting access to "all medical

services" may unintentionally raise expectations beyond what the scheme can realistically provide. Without adequate explanation of referral pathways and benefit limitations, beneficiaries may perceive stock-outs as failures of the insurance scheme rather than structural limitations within the health system.

The potential advantages of integrating ADDOs into the iCHF were widely recognized. Regulatory authorities emphasized that ADDOs represent an established, geographically widespread network staffed by trained dispensers, many of whom already serve NHIF clients. Historical experience shows that ADDOs were incorporated into the NHIF as early as 2000 in response to medicine shortages at public facilities, allowing private outlets to complement public service delivery nationwide [20].

Health system managers and frontline providers anticipated that collaboration with ADDOs would reduce complaints from communities, improve working conditions, and enhance enrolment in the iCHF. Interviews highlighted the importance of individual leadership and institutional commitment in driving such reforms. For instance, some district-level coordinators had already initiated partnerships with private facilities to expand service availability. ADDO operators, enrolment officers, and iCHF beneficiaries—both active and inactive—similarly emphasized that access to medicines through ADDOs could increase trust in the scheme and encourage wider participation. Enrolment officers also noted potential income benefits linked to higher enrolment rates.

Despite strong support for integration, several constraints were identified. National stakeholders cautioned that significant investments have recently been made to establish and scale the Jazia PVS, a process that posed notable logistical and workforce challenges [14]. Introducing ADDOs into the iCHF would therefore require additional coordination and resources, although lessons from existing public–private arrangements could help mitigate these challenges.

Differences in financing and pricing mechanisms were identified as a major obstacle. The iCHF operates under a capitation model, whereas ADDOs rely on market-based pricing and profit margins. Similar tensions have been documented in NHIF–ADDO collaborations, where reimbursement rates were perceived as insufficient by retail outlet owners [20]. These challenges are compounded by the limited range of medicines that ADDOs are legally permitted to dispense. District pharmacists reported that the approved medicine list has not been updated since 2015, resulting in misalignment with current treatment guidelines and limiting the extent to which ADDOs can compensate for stock-outs at public facilities [12, 20, 34].

Limited digital capacity was also raised as a concern. The iCHF relies on the Insurance Management Information System (IMIS) to manage beneficiary verification and service claims [35]. While ADDOs could technically be integrated into this system, inadequate training and oversight may undermine effective implementation. Previous experiences showed that some private providers failed to consistently use digital verification tools, leading to disputes and contractual breaches. Additionally, the expansion of digital systems raises broader concerns regarding data privacy and protection, particularly when personal health information is used for administrative and financial purposes [36].

Other risks not directly emphasized by participants include fraudulent practices and medicine safety issues. Previous studies have shown that health workers may intentionally misreport stock-outs or refer patients to affiliated retail outlets, while dispensing errors may occur in both public and private settings [20].

Participants generally agreed that district- and council-level implementation offers the most practical entry point for linking the iCHF with ADDOs. Experiences from NHIF partnerships and iCHF contracts with private facilities highlight the importance of formal service agreements. Such contracts typically define benefit entitlements, service delivery standards, and reimbursement arrangements, and often incorporate national treatment guidelines to ensure consistency and accountability [20, 37].

Overall, stakeholders viewed ADDOs as a critical resource for improving medicine access, particularly in rural and underserved areas where most iCHF members reside [17, 38]. By leveraging the existing ADDO network, the iCHF could enhance its credibility, improve medicine availability, and expand enrolment [20].

Most respondents recommended that district iCHF offices lead the integration process by establishing accreditation criteria for interested ADDOs, consulting the Pharmacy Council, and forming district-level accreditation committees. Pilot projects involving a limited number of ADDOs were proposed as a means of generating evidence and refining implementation strategies before wider rollout.

Challenges related to medicine pricing could be addressed by adapting reimbursement mechanisms used in NHIF–retail outlet partnerships, including market-based price assessments to ensure financial sustainability for ADDOs [20]. This would require coordinated leadership across district authorities, the Pharmacy Council, and the Tanzania Medicines and Medical Devices Authority (TMDA). Regular updates to the list of medicines authorized

for ADDOs—currently lacking a clear implementation timeline—would further strengthen their contribution to insurance-based service delivery [20].

Finally, the Tanzania Digital Health Strategy 2019–2024 [39] provides a supportive policy framework for integrating digital solutions into health financing and service delivery. Effective linkage between the iCHF and ADDOs would depend on the strategic use of IMIS to improve information sharing, monitor medicine availability, and support rational prescribing practices [20].

Conclusion

Persistent medicine shortages continue to undermine enrolment and trust in the iCHF, despite improvements achieved through the Jazia PVS. As Tanzania advances toward a Single National Health Insurance Fund, integrating ADDOs into the iCHF presents a timely opportunity to expand access to medicines through an already well-established private retail network. District health management teams, particularly iCHF coordinators, are well positioned to initiate pilot partnerships with selected ADDOs, drawing on lessons from the Jazia PVS and NHIF collaborations. Beyond the Tanzanian context, these findings underscore the broader relevance of structured public–private partnerships for strengthening health insurance schemes in low- and middle-income countries.

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