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RESOURCE CAPACITY FOR PRIMARY HEALTHCARE SERVICE INTEGRATION IN JENEPONTO REGENCY, INDONESIA

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Abstract: Primary healthcare service integration represents a critical strategy for improving healthcare accessibility, quality, and efficiency, particularly in resource-constrained settings. This study examines the resource capacity challenges and opportunities in implementing Integrated Primary Services (ILP) in Jeneponto Regency, Indonesia, where only 4 out of 20 primary healthcare centers have successfully implemented the program. Using a qualitative case study approach, we conducted in-depth interviews with 27 stakeholders selected through purposive sampling, including government officials, healthcare facility managers, medical personnel, and community representatives. Data were collected through interviews, field observations, and document analysis, then analyzed using thematic analysis with NVivo software. Our findings reveal four critical resource capacity pillars affecting ILP implementation: human resources, information technology, infrastructure, and budget. Human resource challenges include staff shortages, uneven distribution, limited training opportunities, and excessive workloads. Information technology capacity is hindered by poor internet connectivity, inadequate hardware, and insufficient technical support. Infrastructure limitations encompass basic facility shortages, digital infrastructure gaps, and inadequate community-level facilities. Budget constraints involve the absence of dedicated ILP funding, rigid financial management procedures, and insufficient operational resources. The study identifies multi-sectoral collaboration, capacity building programs, infrastructure development, and sustainable financing mechanisms as essential strategies for successful ILP implementation. These findings contribute to understanding resource capacity requirements for primary healthcare integration in developing countries and provide practical recommendations for policymakers and healthcare managers seeking to strengthen primary healthcare systems through integrated service delivery models.

Keywords: Primary Healthcare Integration, Resource Capacity, Healthcare Management, Health System Strengthening, Developing Countries.

INTRODUCTION

The integration of primary healthcare services represents one of the fundamental pillars of health systems oriented towards providing more efficient, affordable, and equitable services. In Indonesia, this concept has been introduced as part of the healthcare system transformation, aimed at improving accessibility, quality, and effectiveness of healthcare services for all segments of society, particularly those living in remote and underserved areas. In Jeneponto Regency, the integration of primary healthcare services faces various challenges related to the capacity of available resources. Human resources, infrastructure, technology, and financing constitute the main factors in determining the success of integrated and sustainable healthcare service delivery.

Limited resource capacity in Jeneponto Regency has become one of the greatest barriers in achieving effective primary healthcare integration. As a region consisting predominantly of rural areas, Jeneponto experiences difficulties in providing adequate resources to support the smooth operation of healthcare facilities. This situation is significantly influenced by the low number of healthcare workers, limited infrastructure, and inadequate access to technology and financing.

The availability of adequate healthcare personnel represents one of the critical aspects in healthcare service delivery. In Jeneponto Regency, particularly in rural areas, the insufficient number of medical and other healthcare personnel continues to emerge as a persistent challenge. Data from the Jeneponto Regency Health Office indicates that despite having 20 Primary Health Centers (Puskesmas) serving 56 Sub-Primary Health Centers (Pustu) and 57 Village Health Posts (Poskesdes), many healthcare facilities in remote areas lack adequate healthcare personnel, both in terms of quantity and quality. For instance, many Primary Health Centers have only one general practitioner or even no doctor at all, while community needs for basic medical services remain extremely high. Research conducted by Rose and van Rensburg-Bonthuyzen (2015) reveals that remote areas often struggle to attract professional healthcare personnel due to low incentives and minimal supporting facilities. This situation exacerbates the healthcare access gap, which in Jeneponto Regency becomes increasingly evident in rural areas far from the governmental center.

Adequate infrastructure serves as the main supporting factor in delivering integrated primary healthcare services. Limited infrastructure, including poorly maintained Primary Health Centers, incomplete medical facilities, and difficult transportation access, further restricts healthcare services' ability to reach communities, especially in remote areas. Patel and Ladusingh (2015) in their study emphasize that the quality and availability of healthcare infrastructure directly affect the access and effectiveness of services provided to communities. In Jeneponto Regency, despite several efforts to improve healthcare facility quality, most Primary Health Centers and Village Health Posts in rural areas still face problems with limited medical facilities and basic infrastructure. These limitations result in suboptimal healthcare services and difficulties in reaching communities in need. Additionally, poor transportation access also becomes an obstacle for patients to obtain services at larger healthcare facilities.

The utilization of technology in primary healthcare services, such as electronic medical records, online referral systems, and telemedicine, holds great potential for enhancing service effectiveness and efficiency. However, in Jeneponto Regency, the implementation of health information technology remains very limited. Although health technology has been introduced in various regions across Indonesia, its implementation in rural areas such as Jeneponto Regency is still hampered by limited internet network infrastructure and lack of technical skills among healthcare workers (Al-Samarraie et al., 2020). Information technology such as patient data management systems and applications for healthcare service management can accelerate information flow and improve coordination between healthcare facilities, which is essential for service integration. However, adopting this technology requires extensive support, including healthcare worker training, network infrastructure improvement, and adequate financing to support its implementation.

Adequate financing represents the key to sustainability and quality of healthcare services. In Jeneponto Regency, limited health budget has become one of the main obstacles in improving the quality and distribution of healthcare services. Research by Liaropoulos and Goranitis (2015) demonstrates that without sufficient financing, it is difficult for local governments to meet the operational needs of healthcare facilities and implement health programs required by communities. One potential solution for improving health financing is through public-private partnerships. Suchman, Hart and Montagu (2018) in their study reveal that such partnerships can strengthen financing and improve healthcare service quality. In Jeneponto Regency, collaboration between public and private sectors, as well as the utilization of village funds for the health sector, can become alternative financing sources that support primary healthcare integration efforts.

To address existing challenges, Jeneponto Regency needs to develop more efficient and sustainable resource management strategies to support the implementation of primary healthcare integration. Enhancing local resource capacity, both healthcare personnel and infrastructure, becomes the first crucial step in ensuring successful primary healthcare integration. The development and empowerment of local healthcare workers represents one solution that can reduce dependence on medical personnel from outside the region. Involving local healthcare workers through training and incentive provision can improve healthcare service quality in remote areas (Harnagea et al., 2017).

Considering existing infrastructure limitations, improving healthcare facility quality must become a priority. Horton et al. (2003) emphasize that good health resource management requires proper allocation for building and maintaining adequate infrastructure. In Jeneponto Regency, this means conducting renovation and development of more representative Primary Health Centers and Village Health Posts, as well as improving transportation facilities to ease access to healthcare facilities.

The implementation of information technology in primary healthcare services holds great potential for improving service efficiency and quality. However, technology adoption in Jeneponto still faces many constraints. The implementation of health information technology, such as electronic medical records and online referral systems, can accelerate service processes and minimize medical errors (Prasetia et al., 2024). Therefore, this research will highlight steps that can be taken to overcome technical barriers in technology implementation in Jeneponto Regency, such as improving healthcare worker skills and enhancing internet network quality.

Sustainable financing is crucial for maintaining quality and sustainability of healthcare services (Liaropoulos and Goranitis, 2015). Brinkerhoff (2004) states that good public resource management must consider efficiency and accountability in fund utilization. Therefore, this research will examine how health budget in Jeneponto Regency can be allocated more effectively and efficiently, and how public-private partnerships and village funds can become alternative financing sources that can increase resource availability for healthcare services.

The implementation of primary healthcare integration in Jeneponto Regency faces significant challenges related to limited resource capacity. Human resources, infrastructure, technology, and adequate financing constitute key factors that must be well managed for primary healthcare integration to be implemented effectively. Therefore, this research aims to explore the potential of underutilized local resources and identify management strategies that can enhance regional capacity in providing equitable and quality healthcare services.

METHODOLOGY

This study employs a qualitative research design with a case study approach (Creswell, 2007) to examine in-depth and obtain comprehensive understanding regarding the existing conditions, barriers, and efforts to enhance resource capacity in primary healthcare integration in Jeneponto Regency, encompassing human resources, infrastructure, technology, and financing. The case study approach aims to examine phenomena and directly observe the implementation of service integration at the organizational level, enabling analysis of emerging problems or dynamics, utilizing organizational capacity theory proposed by Horton et al. (2003) and Christensen and Gazley (2008) and primary healthcare service theory (Presiden RI, 2012, 2023; WHO, 2018, 2020; Kemenkes RI, 2023) as a framework for analyzing and interpreting data. The study was conducted in Jeneponto Regency among stakeholders involved in primary healthcare integration implementation from February to April 2025. Data collection utilized multiple sources including primary data obtained through in-depth interviews with 27 key informants selected through purposive sampling comprising DPRD members, heads of relevant agencies (Health Office, Regional Revenue and Financial Management Agency, Regional Development Planning Agency, Personnel and Human Resource Development Agency), legal department officials, Primary Health Center heads, medical personnel, healthcare workers, posyandu cadres, village heads, and health sector NGO partners, as well as direct field observations and secondary data from published documents such as government regulations, annual reports, strategic plans, program evaluations, and relevant scientific articles. Data analysis employed thematic analysis with a deductive approach using NVivo software to facilitate coding, theme analysis, and visualization of complex qualitative data, following ten systematic stages: data transcription, initial reading of all data, data coding based on predetermined themes (human resources, infrastructure, technology, and financing), data organization and categorization, data filtering and organization using Query features, thematic analysis and pattern identification, model visualization, interpretation and conclusion drawing, findings reporting, and findings verification through methodological triangulation comparing NVivo analysis results with field observation notes and document review findings. Data validity was ensured through four criteria: credibility through extended observation, continuous observation, triangulation, peer discussions, member checking, negative case analysis, and referential adequacy checking; transferability ensuring research results can be applied to similar situations; dependability through audit processes by supervisors and examiners; and confirmability to assess the quality of research results through objective verification with uninvolved parties (Saryono and Anggraeni, 2010.

RESULTS AND DISCUSSION

Human Resource Capacity

The implementation of Integrated Primary Healthcare Services (ILP) at the Primary Health Center (Puskesmas) and Sub-Primary Health Center (Pustu) levels is still constrained by human resource (HR) shortages, both in terms of quantity and competency. Many Pustus are operated by only one or two healthcare workers, while Puskesmas themselves still lack doctors, nurses, health promotion personnel, and IT staff. This condition results in high workloads and dual roles, which impacts the suboptimal implementation of ILP, particularly in service coordination aspects and promotive-preventive approaches. HR limitations also hinder the utilization of technology such as ILP applications and Electronic Medical Records (EMR) due to the scarcity of trained personnel. Consequently, the processes of recording, reporting, and program evaluation become ineffective. These findings align with reports from WHO (2020) and the Indonesian Ministry of Health (2021), which emphasize the importance of healthcare workforce distribution as a primary requirement for successful primary service transformation.

The shortage of HR is related to uneven healthcare workforce distribution, high employee transfer rates, and weak regulatory support, resulting in workload accumulation among employees who often hold multiple positions. Healthcare workforce distribution is often disproportional and does not consider need indicators such as population size, work area coverage, and service complexity at each Puskesmas. This situation is exacerbated by high rates of employee transfers and rotations that are frequently conducted without considering program continuity or the competencies of transferred personnel. Unplanned transfers result in field capacity gaps while simultaneously disrupting continuity in ILP implementation. Furthermore, weak supervision of healthcare workforce distribution regulation implementation also opens opportunities for pragmatic political influence in HR placement. Several regions report that healthcare worker placement is not based on workload analysis or technical competency but rather on personal relationships or non-technical considerations (Ministry of Health RI, 2021).

One of the main barriers in optimizing Integrated Primary Services (ILP) is the low competency of healthcare workers, especially in managerial aspects and mastery of information technology that forms an important foundation for ILP. Although ILP supporting systems and applications such as Electronic Medical Records (EMR) and other digital platforms are available, not all healthcare workers have opportunities to participate in relevant training or competency development. This competency gap is largely caused by limited access to training programs, whether from financing, distribution, or participant priority perspectives. Training tends to be attended only by certain personnel, while other staff have not been reached by systematic capacity building programs. The World Health Organization (WHO) emphasizes that continuous healthcare worker competency development is a main pillar in improving primary service quality, especially in the context of digital health system transformation (WHO, 2016).

Interview results show that the implementation of Integrated Primary Services (ILP) causes increased workloads for healthcare workers. This condition reflects an imbalance between expanded responsibilities and human resource availability in primary services. Previous studies show that excessive workloads can cause fatigue, work stress, and burnout (Wulandari et al., 2022; Alene et al., 2021). In the long term, this risks reducing service quality and hindering the achievement of Universal Health Coverage (WHO, 2023). This condition indicates the need for comprehensive evaluation of healthcare workforce distribution in ILP implementation. Without adequate workload management and HR policy support, service integration potentially becomes a new burden for healthcare workers (Perry et al., 2021; Susanti & Nugroho, 2020).

Table 1. Human Resource Capacity Analysis in Primary Healthcare Integration Implementation

Aspect	Current Condition	Key Barriers	Enhancement Strategies
Healthcare	Many Pustus	Uneven	Needs-based

Worker Availability	operated by only 1-2 staff; Puskesmas lack doctors, nurses, health promotion staff, and IT personnel	distribution, high transfer rates, weak regulatory support	recruitment and reallocation using WISN methodology
Competency and Training	Limited access to training, especially IT and ILP training; Low digital literacy among healthcare workers	Heavy workloads, dual positions, limited training opportunities	Continuous training programs with mentoring support
Workload Management	High workloads and multiple roles due to staff shortages	Inadequate staffing levels and service expansion without proportional HR increase	Workload analysis and appropriate staff allocation
Performance and Motivation	Suboptimal ILP implementation due to capacity constraints	Limited incentives, unclear career progression	Financial and non-financial incentives, transparent career development

Source: Primary data analysis, 2025; WHO (2020); Ministry of Health RI (2021); Glenton et al. (2013); Verma et al. (2016)

Optimization of Integrated Primary Services (ILP) requires comprehensive human resource (HR) capacity enhancement strategies. Based on study findings and informant interviews, four strategic steps are identified as keys to success: continuous training and competency development, recruitment and HR reallocation based on needs analysis, incentives and rewards for healthcare workers, and career advancement opportunities and employee welfare. Continuous training, particularly regarding information technology and ILP concepts, is a prerequisite to ensure healthcare workers have relevant and current capabilities in ILP program implementation. Systematic review by Glenton et al. (2013) shows that regular training programs accompanied by mentoring improve service quality, workflow compliance, and inter-service coordination. Fair HR distribution must be based on workload analysis and population needs, while providing both financial and non-financial incentives affects healthcare worker retention and productivity (Verma et al., 2016). However, all these efforts require multi-sector collaboration to ensure the availability of competent, motivated, and evenly distributed healthcare workers in supporting successful primary service integration.

Information Technology Capacity

Research results indicate that although information technology adoption in primary service integration has been ongoing, there are still several fundamental constraints that hinder optimal digital ILP implementation. The implementation of EMR systems integrated with ILP shows important progress, but there are still disparities between healthcare facilities. This aligns with WHO (2022) findings, which emphasize the importance of health information system interoperability as a pillar of primary service transformation. Internet network limitations directly affect the effectiveness of web/cloud-based applications such as ILP and EMR. Without reliable network infrastructure, digital systems tend not to be used optimally (Scott et al., 2020).

Data that are still processed manually indicate unstandardized procedures and suboptimal data storage/integration capacity between platforms. This condition hinders the system's ability to provide accurate and real-time data, which is crucial for quick and targeted decision-making. Literature confirms that effective digitalization must be accompanied by strong data interoperability systems so information can be integrated comprehensively (Adler-Milstein & Jha, 2017). Without data standardization and integration, primary healthcare services are vulnerable to information errors and response delays that can reduce service

quality (WHO, 2023).

Slow internet connections become the central node of various problems that hinder information technology (IT) optimization in Integrated Primary Healthcare Services (ILP) implementation. In ILP systems based on data digitalization, online inter-facility communication, and application-based reporting, network stability becomes an absolute necessity. When internet connections are inadequate, the entire digital service chain is also hindered, from electronic medical record recording and patient data access to health program reporting. One of the main causes of weak internet connections in many primary healthcare facilities is dependence on quota-based data packages rather than stable and quality fixed broadband networks. Healthcare facilities in various regions, particularly in Pustus, still use limited cellular networks, directly impacting ILP service speed and continuity (World Bank, 2021).

The shortage of adequate computer facilities or supporting devices also limits healthcare worker access to ILP applications. In several Puskesmas and Pustus, the number of computers or tablets is still limited, and not all healthcare workers have individual devices. This results in device usage queues and slows service processes. According to the Indonesian Ministry of Health (2023) report, healthcare service digitalization still faces infrastructure challenges at the primary service level, including minimal hardware in the field. Additionally, central servers and digital applications used in ILP systems frequently experience technical disruptions, such as server downtime or unresponsive applications. These disruptions exacerbate connectivity limitations and hinder real-time data input by healthcare workers. The World Health Organization (2016) emphasizes the importance of IT system and network infrastructure reliability to support healthcare service integration, especially in the digital health context.

Table 2. Information Technology Capacity Analysis in Primary Healthcare Integration Implementation

Aspect	Current Condition	Key Barriers	Enhancement Strategies
Digital Infrastructure	EMR and ILP systems implemented but with facility disparities; Slow internet connections affecting system performance	Limited internet packages, inadequate computer facilities, frequent server problems	Strengthening digitalization policies through system synchronization
Data Integration	Manual data processing still prevalent; Unstandardized procedures between platforms	Lack of interoperability, inconsistent data standards	Optimizing information system infrastructure
Technical Support	Limited technical assistance for healthcare workers; Low digital literacy levels	Insufficient training on digital systems, complex application interfaces	Developing digital service SOPs and providing technical assistance
System Reliability	Frequent server downtime and unresponsive applications; Network connectivity issues	Unreliable technical infrastructure, inadequate maintenance	Allocating special budgets for information systems

Source: Primary data analysis, 2025; WHO (2022); Scott et al. (2020); Adler-Milstein & Jha (2017); Ronquillo et al. (2023); Erku et al. (2023); Tsai et al. (2022)

Information system strengthening to support ILP requires five main strategies: strengthening digitalization policies through system synchronization, optimizing information system infrastructure, developing digital service SOPs, strengthening HR capacity through technical assistance, and allocating special budgets for

information systems. It is important to integrate various digital applications and platforms (such as electronic medical records, reporting, and referral systems) so they can effectively exchange data with each other. According to Ronquillo et al. (2023), the success of primary service digitalization depends on interoperability and harmonization of digital policies across all levels of service management. Global-scale studies show that digital infrastructure foundations including fast internet connectivity and adequate hardware are determining factors for information system adoption in primary facilities (Erku et al., 2023). Operational standardization through SOPs is crucial to ensure consistency and quality of digital processes, while digital interventions will be optimal if accompanied by healthcare worker digital literacy development through technical assistance and mentoring (Tsai et al., 2022). Technology adoption requires investment and regular maintenance budgets, as adequate fund allocation for IT infrastructure becomes a critical element in healthcare information system sustainability.

Infrastructure Capacity

Research findings indicate that infrastructure limitations and disparities become significant barriers in primary service integration efforts. In the ILP context that demands cross-sector collaboration and integrated information systems, physical and digital infrastructure becomes an important foundation (WHO, 2021). The absence or inadequacy of basic service spaces impacts service quality and comfort. Studies by Kringos et al. (2015) emphasize that adequate infrastructure contributes to improved access and continuity of primary services. Findings show that limitations in facilities, particularly medical equipment and consumable medical materials (BMHP), become main constraints in supporting Integrated Primary Services (ILP). These shortages impact screening service implementation in Puskesmas, Pustus, Posyandu, and home visit activities by cadres. BMHP availability is an essential component in promotive and preventive services.

The implementation of Electronic Medical Records (EMR) as part of primary service digitalization faces serious challenges due to technical infrastructure limitations, such as computers, internet networks, and software. Digitalization such as EMR implementation will fail if not supported by standardized technical infrastructure. According to Tomasi et al. (2019), digital infrastructure challenges become one of the main barriers in digital transformation of primary services in developing countries. Without such support, digital transformation risks not running effectively. Infrastructure provision failure can hinder data integration, reduce healthcare worker efficiency, and decrease service quality.

Community healthcare infrastructure such as Posyandu and Pustus are often overlooked in budgeting and strategic management, despite playing important roles in area-based primary service approaches. This allocation disparity hinders the effectiveness of promotive-preventive services at the community level. Posyandu and Pustus are central points for community healthcare service access, especially in remote areas. Their non-involvement in strategic planning weakens the primary healthcare system and potentially widens service gaps between regions (WHO, 2023; Perry et al., 2021).

One of the main barriers to ILP infrastructure provision is budget limitations that create significant deficits in BMHP availability, cluster service rooms, and representative Pustu facilities. The Indonesian Ministry of Health (2021) notes that many Puskesmas struggle to access revitalization budgets and still rely on capitation funds and BOK because their status has not transformed into Regional Public Service Bodies (BLUD), so they do not have budget flexibility for operational financing and long-term supporting facility investment. As revealed by the World Bank (2024), primary healthcare infrastructure investment directly contributes to improved access and service utilization, but available funds often do not meet actual field needs. Besides limited budgets, uneven distribution of supporting facilities also becomes a major constraint.

Table 3. Infrastructure Capacity Analysis in Primary Healthcare Integration Implementation

Aspect	Current Condition	Key Barriers	Enhancement Strategies
Basic Facilities	Shortage of medical equipment and	Limited budgets, uneven facility distribution	Integrating ILP infrastructure planning

	consumable medical materials (BMHP); Inadequate service spaces affecting quality and comfort		into policy documents (RPJMD, Strategic Plans, RKPD)
Digital Infrastructure	EMR implementation faces technical infrastructure limitations; Insufficient computers, internet networks, and software	Dependence on limited quota-based internet packages, inadequate hardware	Optimizing funding through APBD, Village Funds, DAK, and public-private partnerships
Community Facilities	Posyandu and Pustus often overlooked in budgeting and strategic management	Minimal attention in budget allocation, weak integration in strategic planning	Fulfilling health facility standards including cluster rooms, BMHP, health equipment, internet connectivity
System Integration	Lack of standardized technical infrastructure; Poor coordination between facilities	Inadequate resource distribution, weak governance systems	Establishing monitoring, evaluation, and supporting regulations for standards and maintenance

Source: Primary data analysis, 2025; WHO (2021); Kringos et al. (2015); Tomasi et al. (2019); Allen et al. (2017); Mills et al. (2016); Ridde et al. (2021)

ILP implementation requires competent and well-planned infrastructure. Four main strategies consist of planning integration, funding, facility standard fulfillment, and monitoring and regulation: integrating ILP infrastructure needs into policy documents such as RPJMD, Health Office Strategic Plans, and RKPD is a strategic step to guarantee funding sustainability and physical development priorities. This aligns with Health in All Policies (HiAP) principles, where cross-sector planning ensures health program continuity (Allen et al., 2017). ILP infrastructure strengthening requires synergy between various funding sources: regional budgets, Village Funds, Health Special Allocation Funds, and strategic partnerships with private sectors, universities, and donors. Studies by Mills et al. (2016) show that public-private funding combinations improve community access to basic services without burdening state budgets. Puskesmas and Pustus implementing ILP must meet facility standards such as cluster rooms, BMHP, health equipment, internet connectivity, and IT devices, while monitoring, evaluation, and supporting regulations ensure ILP infrastructure remains relevant and quality through regular monitoring systems, impact evaluation, and national/regional regulations governing standards and facility maintenance (Ridde et al., 2021).

Budget Capacity

This research underlines the importance of fiscal capacity of primary service organizations in implementing integrated healthcare systems. Budget limitations not only impact technical operations but also hinder ILP program sustainability and expansion. The implementation of integrated primary services (ILP) requires special budget allocation so programs can run effectively and sustainably. The absence of special funding risks causing implementation delays and service disparities. The need for special budget allocation to support ILP aligns with WHO (2021) approaches in primary health system reform that recommend dedicated funding lines for priority programs. This means there must be separate budget items in regional/national budgets allocated solely for funding ILP needs such as healthcare worker training, basic facility provision (BMHP, health equipment, medicines), service digitalization infrastructure, and Pustu & Posyandu operations,

including cadre incentives.

Non-BLUD status limits financial management flexibility at the Puskesmas level, making it difficult to respond quickly to field needs, as also identified in the Indonesian Ministry of Health (2022) study. Puskesmas status that has not become Regional Public Service Bodies (BLUD) creates bureaucratic constraints, especially regarding flexibility and speed of budget management. This directly impacts implementation delays and limited operational support for Integrated Primary Services (ILP) programs. Non-BLUD Puskesmas tend to be bound by rigid budgeting procedures, making it difficult to respond to dynamic field needs. Yet financial flexibility is an important element in running complex and cross-sector primary service programs (Tandon et al., 2019). WHO (2021) also emphasizes the importance of primary healthcare facility autonomy to effectively manage resources and adapt to local needs.

Funding limitations become the main constraint in supporting Integrated Primary Services (ILP) implementation at healthcare facility levels. Several Puskesmas heads report that available funds are insufficient to meet basic needs such as BMHP, medicines, information technology development, healthcare worker training, and other incentives, particularly cadre incentives. Yet these elements are crucial for ensuring ILP effectiveness and continuity. Cadres are also the backbone in community service approaches, but they are often overlooked in budgeting aspects. Similar issues are also highlighted in UNICEF (2020) studies, which emphasize the importance of compensation and logistic support for community healthcare workers. This condition shows that primary service strengthening cannot be separated from funding strengthening.

The absence of specific regulations that explicitly govern Integrated Primary Services (ILP) financing mechanisms becomes the root of main problems in program budgeting at basic service levels. Without clear legal foundations, budget allocation for ILP does not become a priority in regional financial planning, so this program often depends on indirect funding sources such as Capitation Funds and Health Operational Assistance (BOK). This aligns with World Health Organization (2021) findings, which state that unfocused financing policies weaken primary service integration efforts in middle and low-income countries. Additionally, available budgets for ILP implementation are very limited, both from operational sides and supporting infrastructure procurement such as IT infrastructure and medical materials, while complex bureaucracy in budget management at healthcare facility levels also becomes a constraint where funding application and disbursement processes often take long periods due to multi-layered administrative chains.

Table 4. Budget Capacity Analysis in Primary Healthcare Integration Implementation

Aspect	Current Condition	Key Barriers	Enhancement Strategies
Budget Allocation	No dedicated ILP budget; Dependence on indirect funding sources (Capitation Funds, BOK)	Absence of specific regulations for ILP financing; Limited dedicated funding lines	Structured and needs-based budget planning and allocation
Financial Management	Non-BLUD status limits financial flexibility; Rigid budgeting procedures hinder quick responses	Complex bureaucracy, difficulty meeting BLUD requirements	Diversifying health funding sources (APBD, Village Funds, DAK, JKN, public-private partnerships)
Operational Funding	Insufficient funds for basic needs (BMHP, medicines, IT development, training, cadre incentives)	Limited operational budgets, inadequate infrastructure investment	Strengthening efficiency, transparency, and budget management monitoring
Sustainability	Heavy dependence on	Unfocused financing	Collaboration and

	limited funding sources; Lack of long-term financial planning	policies, complex administrative procedures	advocacy for ILP funding; Preparing operational and supporting budgets

Source: Primary data analysis, 2025; WHO (2021); Ministry of Health RI (2022); Tandon et al. (2019); UNICEF (2020); Savedoff et al. (2019)

Improving Integrated Primary Services (ILP) effectiveness demands budget capacity enhancement through five integrated strategies: structured and needs-based budget planning and allocation, ILP financing through diversification of other health funding sources, strengthening efficiency, transparency, and budget management monitoring, collaboration and advocacy for ILP funding, and budget preparation for operational needs and supporting facilities. Mature planning based on field needs analysis ensures funds are allocated appropriately, while single dependence on regional budgets or capitation can limit program maneuvering space, requiring diversification through APBD, Village Funds, Special Allocation Funds (DAK), JKN, and public-private partnerships combinations (Savedoff et al., 2019). Transparent, accountable, and regularly monitored budget management strengthens public trust and prevents waste, while mobilizing support through village/regency planning forums and partnerships with NGOs/donors strengthens ILP financing arguments. These five strategies synergize to form a robust, adaptive, and sustainable ILP financing system that not only improves primary service quality but also supports universal health coverage (UHC) achievement goals through cross-sector and multi-level approaches emphasizing responsive, efficient, and collaborative budget policies as important prerequisites for driving ILP program sustainability,

CONCLUSION

This research reveals that the implementation of Integrated Primary Services (ILP) in Jeneponto Regency faces multidimensional challenges encompassing four main capacity pillars: human resources (HR), information and technology (IT), infrastructure, and budget. In terms of HR capacity, the existing condition is characterized by healthcare worker shortages, low competency, excessive workloads, minimal training, and uneven digital capabilities. The main barriers stem from unequal workforce distribution, employee transfers, minimal supporting regulations, and limited training access. Enhancement efforts include continuous training, needs-based recruitment and reallocation, incentive provision, and career development opportunities. In the IT capacity dimension, although service digitalization has been implemented, its application remains suboptimal due to slow internet connections, frequent server disruptions, and insufficient computer equipment. These barriers are exacerbated by limited internet packages and weak technical support. Strategic efforts are directed toward strengthening digitalization policies, optimizing information system infrastructure, developing digital service SOPs, providing technical assistance for HR, and allocating special budgets for IT. Regarding infrastructure capacity, supporting facilities and information system infrastructure were found to be still inadequate. The main barriers originate from budget limitations and uneven facility distribution. Enhancement efforts are directed toward integrating infrastructure planning into policies, optimizing funding and partnerships, fulfilling healthcare facility standards, and strengthening regulations through continuous monitoring and evaluation. In terms of budget capacity, the existing condition shows the absence of special ILP budgets, limited infrastructure funding, and non-BLUD financial management problems. The main barriers are budget bureaucracy, absence of ILP financing regulations, and difficulties in meeting BLUD requirements. Enhancement strategies include needs-based budget planning, funding source diversification, management efficiency and transparency, cross-sector advocacy, and operational and supporting budget preparation. There is a common thread that all these variables are interconnected. ILP optimization demands integrated, synergistic, and sustainable capacity enhancement in all aspects—HR, IT, infrastructure, and budget—so that inclusive and quality primary services can be realized.

REFERENCES

1. Adler-Milstein, J. and Jha, A. (2017) 'The digital transformation of health care delivery', Health Affairs, 36(7), pp. 1200-1207.
2. Al-Samarraie, H. et al. (2020) 'Telemedicine in Middle Eastern countries: Progress, barriers, and policy recommendations', International Journal of Medical Informatics, 141, p. 104232. Available at: https://doi.org/10.1016/J.IJMEDINF.2020.104232.
3. Alene, K.A. et al. (2021) 'Mental health during the COVID-19 pandemic in Ethiopia: a cross-sectional study', Globalization and Health, 17(1), pp. 1-11.
4. Allen, L.N. et al. (2017) 'Implementation of non-communicable disease policies: a geopolitical analysis of 151 countries', The Lancet Global Health, 5(7), pp. e656-e665.
5. Brinkerhoff, D.W. (2004) 'Accountability and health systems: toward conceptual clarity and policy relevance', Health Policy and Planning, 19(6), pp. 371–379. Available at: https://doi.org/10.1093/HEAPOL/CZH052.
6. Christensen, R.K. and Gazley, B. (2008) 'Capacity for public administration: analysis of meaning and measurement', Public Administration and Development, 28(4), pp. 265–279. Available at: https://doi.org/10.1002/pad.500.
7. Creswell, J. (2007) Qualitative Inquiry and Research Design: Choosing Among Five Approaches. 2nd ed. London: SAGE Publications Ltd.
8. Erku, D. et al. (2023) 'Digital health infrastructure adoption in primary healthcare: a systematic review', Journal of Medical Internet Research, 25(4), e42156.
9. Glenton, C. et al. (2013) 'The female community health volunteer programme in Nepal: decision makers' perceptions of volunteerism, payment and other incentives', Social Science & Medicine, 85, pp. 34-42.
10. Harnagea, H. et al. (2017) 'Barriers and facilitators in the integration of oral health into primary care: a scoping review', BMJ Open, 7(9), p. e016078. Available at: https://doi.org/10.1136/BMJOPEN-2017-016078.
11. Horton, D. et al. (2003) Evaluating Capacity Development: Experiences from Research and Development Organizations Around the World. Netherlands: International Service for National Agricultural Research.
12. Kemenkes RI (2021) 'Profil Kesehatan Indonesia 2021', Pusat Data dan Informasi Kementerian Kesehatan RI, Jakarta.
13. Kemenkes RI (2023) 'KMK RI No HK.01.7/Menkes/2015/2023/ tentang Petunjuk Teknis Integrasi Pelayanan Kesehatan Primer', Kementerian Kesehatan RI, Jakarta.
14. Kringos, D.S. et al. (2015) 'The importance of quality and outcomes of primary health care', in Kringos, D.S. et al. (eds.) Building primary care in a changing Europe. Copenhagen: European Observatory on Health Systems and Policies, pp. 29-68.
15. Liaropoulos, L. and Goranitis, I. (2015) 'Health care financing and the sustainability of health systems', International Journal for Equity in Health, 14(1), pp. 1–4. Available at: https://doi.org/10.1186/S12939-015-0208-5/METRICS.
16. Mills, A. et al. (2016) 'Health system strengthening and the role of public-private partnerships', Health Economics, Policy and Law, 11(2), pp. 135-152.
17. Ministry of Health RI (2021) 'Indonesia Health Profile 2021', Ministry of Health Republic of Indonesia, Jakarta.
18. Ministry of Health RI (2022) 'Strategic Plan of Ministry of Health 2020-2024 (Revised)', Ministry of Health Republic of Indonesia, Jakarta.
19. Ministry of Health RI (2023) 'Digital Health Transformation Report 2023', Ministry of Health Republic of Indonesia, Jakarta.
20. Patel, R. and Ladusingh, L. (2015) 'Do Physical Proximity and Availability of Adequate Infrastructure at Public Health Facility Increase Institutional Delivery? A Three Level Hierarchical Model Approach', PLOS ONE, 10(12), p. e0144352. Available at: https://doi.org/10.1371/JOURNAL.PONE.0144352.
21. Perry, H.B. et al. (2021) 'Community health worker programmes at scale: a multi-country comparative case study', The Lancet Global Health, 9(10), pp. e1499-e1511.
22. Prasetia, A. et al. (2024) 'Metode Systematic Literature Review Pengaruh Rekam Medis Elektronik Terhadap Mutu Pelayanan Pada Fasilitas Pelayanan Kesehatan', Jurnal Kesehatan Tambusai, 5(3), pp. 7130–7137. Available at: https://doi.org/10.31004/JKT.V5I3.30627.
23. Presiden RI (2012) 'Peraturan Presiden Republik Indonesia Nomor 72 Tahun 2012 Tentang Sistem Kesehatan Nasional', Republik Indonesia.
24. Presiden RI (2023) 'Undang-Undang Republik Indonesia Nomor 17 Tahun 2023 Tentang Kesehatan', Republik Indonesia.
25. Ridde, V. et al. (2021) 'The need for more comprehensive evaluations of health system strengthening interventions', Health Policy and Planning, 36(3), pp. 290-297.
26. Ronquillo, C. et al. (2023) 'Digital health transformation in primary care: a systematic review of implementation strategies', International Journal of Medical Informatics, 175, 105069.
27. Rose, A. and van Rensburg-Bonthuyzen, E.J. (2015) 'The factors that attract healthcare professionals to and retain them in rural areas in South Africa', South African Family Practice, 57(1), pp. 44–49. Available at: https://doi.org/10.1080/20786190.2014.977023.

28. Saryono and Anggraeni, D. (2010) Metodologi Penelitian Kualitatif dan Kuantitatif dalam Bidang Kesehatan. Yogyakarta: Nuha Medika.
29. Savedoff, W.D. et al. (2019) 'Political economy of universal health coverage', Health Systems & Reform, 5(3), pp. 193-204.
30. Scott, N. et al. (2020) 'Digital health interventions in HIV care: a systematic review and meta-analysis', The Lancet HIV, 7(10), pp. e708-e718.
31. Suchman, L., Hart, E. and Montagu, D. (2018) 'Public–private partnerships in practice: collaborating to improve health finance policy in Ghana and Kenya', Health Policy and Planning, 33(7), pp. 777–785. Available at: https://doi.org/10.1093/HEAPOL/CZY053.
32. Susanti, R. and Nugroho, A. (2020) 'Healthcare worker burnout in primary care settings: a systematic review', International Journal of Environmental Research and Public Health, 17(15), 5432.
33. Tandon, A. et al. (2019) 'Going Universal: How 24 Developing Countries Are Implementing Universal Health Coverage from the Bottom Up', World Bank Publications, Washington DC.
34. Tomasi, E. et al. (2019) 'Digital transformation in primary healthcare: challenges and opportunities in developing countries', Health Policy and Technology, 8(2), pp. 142-150.
35. Tsai, C.H. et al. (2022) 'Digital literacy training for healthcare workers: a scoping review', JMIR Medical Education, 8(2), e35611.
36. UNICEF (2020) 'Community health workers: key to achieving sustainable development goals', UNICEF Health Section Programme Division, New York.
37. Verma, P. et al. (2016) 'A systematic review of strategies to recruit and retain primary care doctors', BMC Health Services Research, 16(1), pp. 1-16.
38. WHO (2016) 'Global strategy on human resources for health: workforce 2030', World Health Organization, Geneva.
39. WHO (2018) 'Primary health care: Closing the gap between public health and primary care through integration', World Health Organization, Geneva. Available at: https://www.who.int/docs/default-source/primary-health-care-conference/public-health.pdf.
40. WHO (2020) 'Operational Framework for Primary Health Care', World Health Organization, Geneva, Switzerland. Available at: https://www.who.int/publications/i/item/9789240017832.
41. WHO (2021) 'Building health systems resilience for universal health coverage and health security during the COVID-19 pandemic and beyond', World Health Organization, Geneva.
42. WHO (2022) 'Global strategy on digital health 2020-2025', World Health Organization, Geneva.
43. WHO (2023) 'Universal health coverage: moving together to build a healthier world', World Health Organization, Geneva.
44. World Bank (2021) 'Digital development in Indonesia: opportunities and challenges', World Bank Group, Washington DC.
45. World Bank (2024) 'Health infrastructure investment for universal health coverage', World Bank Publications, Washington DC.
46. Wulandari, S. et al. (2022) 'Burnout among healthcare workers during COVID-19 pandemic: a systematic review and meta-analysis', International Journal of Nursing Studies, 128, 104183.https://doi.org/10.1177/00131644231163813
47. Gouveia, V. V., Martínez, E., Meira, M. & Milfont, T. L. (2001). The universal structure and content of human values: Confirmatory factor analysis of Schwartz's typology. *Studies in Psychology*, *6*(2), 133-
48. 142. https://doi.org/10.1590/S1413-294X2001000200002
49. Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., &Tatham, R. L. (2017). *Multivariate data analysis*. (7th ed.). Pearson.
50. Hounkpatin, H. O., Boyce, C. J., Dunn, G., & Wood, A. M. (2017). Modeling bivariate change in individual differences: Prospective associations between personality and life satisfaction. *Journal of Personality and Social Psychology*, *115*(6), e12-e29. https://doi.org/10.1037/pspp0000161
51. Jacky, C. K., Kwan, L. Y. J, & Chan, W. (2022). A note on evaluating the moderated mediation effect.
52. *Structural Equation Modeling: A Multidisciplinary Journal*, *31(*2), 340-356. https://doi.org/10.1080/10705511.2023.2201396
53. Kelcey, B., Bai, F., Xie, Y., & Cox, K. (2020). Micro-macro and macro-micro effect estimation in small scale latent variable models with Croon's method. *TPM – Testing, Psychometrics, Methodology in Applied Psychology*, *27*(3), 477-499. https://doi.org/10.4473/TPM27.3.9
54. Maia, J. L., & Lima, M. A. M. (2021). Structural equation modeling and selection tests – Case of the entrance exam of the State University of Ceará. *Essay: Assessment and Public Policies in Education*, *29*(112), 804-827. https://doi.org/10.1590/S0104-403620210002902107
55. Melhado, F., & Rabot, J. M. (2021). Sentiment analysis: From psychometrics to psychopolitics.
56. *Comunicação e Sociedade*, *39*, 101-118. https://doi.org/10.17231/comsoc.39(2021).2797
57. Montoya, A. K. (2024). Conditional process analysis for two-instance repeated-measures designs. *Psychological Methods.* Advance online publication. https://doi.org/10.1037/met0000715
58. Montoya, A. K, & Hayes, A. F. (2017). Two-condition within-participant statistical mediation analysis: A path-analytic framework. *Psychological Methods*, *22*(1), 6-27. https://doi.org/10.1037/met0000086
59. Norget, J., & Mayer, A. (2022). Block-wise model fit for structural equation models with experience sampling data. *Zeitschrift für Psychologie*, *230*(1), 47-59. https://doi.org/10.1027/2151-2604/a000482
60. Page, M. J., Mckenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., ... Moher, D. (2021). The PRISMA 2020

statement: An updated guideline for reporting systematic reviews. *Systematic Reviews*, *10*(1), Arti- cle 89. https://doi.org/10.1186/s13643-021-01626-4
61. Pasquali, L. (2017). *Psychometrics: Test theory in psychology and education*. Vozes. https://pt.scribd.com/doc/298484657/PASQUALI-L-Psicometria-Teoria-Dos-Testes-Na-Psicologia-e-Na-Educacao-PetropolisRJ-Vozes-2004-p-158-19
62. Pek, J., & Wu, H. (2018). Parameter uncertainty in structural equation models: Confidence sets and fungible estimates. *Psychological Methods*, *23*(4), 635-653. https://doi.org/10.1037/met0000163
63. Pilati, R., & Abbad, G. (2005). Análise fatorial confirmatória da escala de impacto do treinamento no trabalho [Confirmatory factor analysis of the training impact scale at work]. *Psicologia: Teoria e Pesquisa*, *21*(1), 43-51.
64. https://doi.org/10.1590/S0102-37722005000100007
65. Pilati, R., & Laros, J. A. (2007). Modelos de equações estruturais em psicologia: Conceitos e aplicações [Structural equation models in psychology: Concepts and applications]. *Psicologia: Teoria e Pesquisa, 23*(2), 205-216.
66. https://doi.org/10.1590/S0102-37722007000200011
67. Raju, N. S., Laffitte, L. J., & Byrne, B. M. (2002). Measurement equivalence: A comparison of methods based on confirmatory factor analysis and item response theory. *Journalof Applied Psychology*, *87*(3), 517-529. https://doi.org/10.1037/0021-9010.87.3.517
68. Rogers, P. (2022). Melhores práticas para sua análise fatorial exploratória: tutorial no factor [Best practices for your exploratory factor analysis: A tutorial in factor]. *Revista de Administração Contemporânea*, *26*(6), Article e-210085.
69. https://doi.org/10.1590/1982-7849rac2022210085.por
70. Silva, M. A. da, Arqimon, I. I. de L., & Wendtd, G. W. (2024). Métodos de correção de testes estatísticos em modelagem de Eequações estruturais [Correction methods for statistical tests in structural equation modeling]. *Avaliação Psicológica*, *23*(1), 109-120. https://doi.org/10.15689/ap.2024.2301.18031.11
71. Silva-Costa, A., Rotenberg, L., Baltar, V. T., Coeli, C. M., Fonseca, M. de J. M. da, Melo, E. C., & Gripe,
72. R. H. (2019). Structural equation modeling of associations between night work and glycemic levels. *Archives of Endocrinology and Metabolism*, *63*(5), 487-494.
73. https://doi.org/10.20945/2359-3997000000147
74. Sterner, P., & Goretzko, D. (2023). Exploratory factor analysis trees: Evaluating measurement invariance between multiple covariates. *Structural Equation Modeling: A Multidisciplinary Journal*, *30*(6), 871- 886. https://doi.org/10.1080/10705511.2023.2188573
75. Valentini, F., Mourão, L., & Franco, V. R. (2018). Modelos latentes e slopes randômicos para análise de moderação e mediação [Latent models and random slopes for moderation and mediation analysis]. *Avaliação Psicológica*, *17*(4), 439-450.
76. https://doi.org/10.15689/ap.2018.1704.4.04
77. van Kesteren, E., & Oberski, D. L. (2021). Flexible extensions to structural equation models using computation graphs. *Structural Equation Modeling: A Multidisciplinary Journal*, *29*(2), 233-247. https://doi.org/10.1080/10705511.2021.1971527