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Research Article

Implementing Lifecycle-Based Clustering and Digital Integration in Indonesia's Primary Healthcare: A Policy Analysis of Family Medicine's Role in Sustainable Care

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Abstract

Transforming primary healthcare in Indonesia through integrated, lifecycle-based approaches is a strategic effort to achieve a high-value, high-quality health system. This study analyzes the role of family medicine within Indonesia's primary care model, highlighting how family doctors contribute to improved healthcare accessibility, continuity, and responsiveness. Family doctors serve as frontline providers across lifecycle clusters—including maternal and child health, productive adult care, elderly care, and infectious disease control. Their role in managing chronic illnesses, mental health, and preventive care is essential within the Indonesian context, as they deliver comprehensive services that address the biological, psychological, and social determinants of health. Digital integration through the Platform Satu Sehat and the Pemantauan Wilayah Setempat (PWS) dashboard supports real-time health monitoring, enabling family doctors to make data-driven decisions and provide proactive care. In addition, family doctors extend their impact through community engagement, leading immunization campaigns, health education, and public health initiatives. They also serve as patient advocates by coordinating multidisciplinary teams and guiding individuals through complex healthcare pathways. This Indonesia-based model demonstrates the potential of family medicine to drive sustainable, community-based primary care transformation and provides a replicable framework for other low- and middle-income countries. The findings reinforce the critical role of family doctors as a foundation for equitable access, improved quality of care, and resilient health

systems.

Keywords: Family Medicine, Primary Care, Digital Integration, Lifecycle-Based Care, Health Policy, Indonesia.

INTRODUCTION

Indonesia, as the world's largest archipelagic nation encompassing over 17,000 islands, faces inherent structural challenges in delivering equitable and continuous healthcare. The wide geographical dispersion, compounded by socio-economic disparities and the double burden of disease, necessitates a robust, adaptive, and community-anchored primary healthcare system.

One of the most contextually appropriate answers to this challenge emerged from within the Indonesian medical community itself. In the early 1980s, after attending an international conference on family medicine in the Philippines, a group of visionary physicians from the Faculty of Medicine, Universitas Indonesia initiated the Family Physician Study Group (KSDK). This initiative marked the beginning of the Indonesian Family Medicine movement, which emphasized the role of general practitioners in providing person-centered, continuous, and comprehensive care within the community context (Perhimpunan Dokter Keluarga Indonesia (PDKI), 2023).

Over the years, this movement underwent institutional maturation: KSDK evolved into Kolegium Dokter Keluarga Indonesia (KDKI) in 1990, and finally into the Perhimpunan Dokter Keluarga Indonesia (PDKI) in 2003. The role of family doctors began to be formally recognized through national policies, including Ministerial Decree No. 56/Menkes/SK/I/1996 on their inclusion in the managed care model (JPKM), and Permenkes No. 916/Menkes/Per/VIII/1997 which provided legal grounds for family medicine practice (Ministry of Health Republic of Indonesia, 1996, 1997).

Despite these advancements, integration into the national health system remained partial until a wave of policy advocacy and global collaboration catalyzed a paradigm shift. PDKI played a pivotal role by consistently advocating for the formalization of family medicine as a specialty and its centrality in primary healthcare reform. This culminated in growing involvement in national academic policy-making, curriculum development, and ultimately, close coordination with the Ministry of Health (Kemenkes).

A major turning point occurred in May 2023 during the 76th World Health

Assembly (WHA) in Geneva. At a high-level side event titled "On the Road to Transformation of Health: Integrated Primary Care Services and the Role of Family Medicine," Indonesian Minister of Health Budi Gunadi Sadikin, along with global family medicine leaders including Dr. Anna Stavdal (President of WONCA) and Dr. David Ponka (Director of the Besrour Centre), reaffirmed the critical role of family doctors in achieving sustainable and equitable health systems (WONCA et al., 2023).

This meeting was not only symbolic but also substantively influential in shaping Indonesia's domestic health reform trajectory. Later that year, the Government of Indonesia ratified Law No. 17 of 2023 on Health, enshrining the transformation of primary healthcare (Transformasi Layanan Primer) as the first of six pillars in its national health transformation agenda. This primary care transformation pillar is focused on comprehensive promotive and preventive services, expansion of screening, digital service integration, revitalization of Puskesmas and Posyandu, and improved access to quality primary care, especially at the community level (Government of Indonesia, 2023a).

Within this system, family doctors serve as the clinical cornerstone. Their roles span across life stages—from preconception care and maternal health, to chronic disease management and elderly care—operationalized through the Integrated Primary Healthcare (ILP) framework. Family doctors now lead screening initiatives for 14 major diseases, coordinate home-based care, empower health cadres, and ensure data-driven service delivery through the SATUSEHAT platform, which links clinical records across facilities in real time (Ministry of Health Republic of Indonesia, 2022c, 2022b, 2023b)

The convergence of decades-long advocacy, international support, and domestic policy reform has positioned family medicine not only as a profession but also as a national strategy. The Indonesian experience underscores how clinical disciplines, when aligned with governance and digital infrastructure, can become levers of systemic transformation. This article analyzes how lifecycle-based clustering and digital integration are being implemented in Indonesia's primary healthcare, and how family doctors are driving sustainable, person-centered care in a rapidly evolving health landscape.

METHOD

This study applied a qualitative policy analysis approach using a descriptive-

interpretative framework to explore the intersection between lifecycle-based clustering, digital integration, and the role of family medicine in Indonesia's primary healthcare reform. The analysis was grounded in a triangulation of regulatory documents, strategic frameworks, institutional histories, and international policy references.

Regulatory and Strategic Document Review

We conducted a comprehensive document review of national laws, presidential regulations, ministerial decrees, and technical guidelines issued by the Government of Indonesia. Key references included:

1. Law No. 17 of 2023 on Health, which introduced six pillars of health transformation, with primary care as the first pillar focused on prevention and promotive care.
2. Ministerial Decree No. HK.01.07/Menkes/2015/2023 as the technical guideline for Integrated Primary Health Services (ILP), establishing the lifecycle-based clustering model.
3. Ministerial Regulations No. 24/2022 and 18/2022, which govern Electronic Medical Records (EMR) and One Health Data respectively, forming the digital foundation of care continuity.
4. Presidential Regulations No. 95/2018 and 39/2019, setting the national framework for electronic-based governance (SPBE) and the One Data Indonesia movement (Government of Indonesia, 2018, 2019).

Additional instruments such as Circular Letter No. HK.02.01/Menkes/1030/2023 on EMR compliance and KMK No. 1423/2022 on metadata standards for medical records were reviewed to analyze the operationalization of digital health governance【11,12】.

Institutional and Historical Trajectory of Family Medicine

To understand the development and formal recognition of family doctors in Indonesia, historical data were collected from institutional archives and organizational sources:

1. The evolution of the Family Physician Study Group (KSDK) into the Indonesian Family Doctors Association (PDKI) was documented through official association records and online platforms.
2. Historical policies such as Ministerial Decree No. 56/Menkes/SK/I/1996 and Ministerial Regulation No. 916/Menkes/Per/VIII/1997 were reviewed for early legal

recognition of family medicine.

Global Advocacy and Multilateral Influence

International positioning was analyzed through Indonesia's engagement with WONCA and its leadership role in global family medicine forums. The pivotal WHA76 side event in May 2023, co-hosted by the Indonesian Ministry of Health and WONCA, was used as a policy milestone demonstrating global recognition of family doctors' roles in integrated care.

Descriptive Operational Case Insights

National implementation examples were drawn from publicly released materials, including:

1. The official national screening schedule stratified by lifecycle cluster, which operationalizes preventive care and aligns services with patient age and risk category (Ministry of Health Republic of Indonesia, 2023c).
2. The birthday screening program launched in 2025, an innovative model that integrates civil registration (via Dukcapil) with preventive healthcare delivery at the community level (Ministry of Health Republic of Indonesia, 2024).
3. Descriptive program data and performance indicators from Kemenkes press releases and the SATUSEHAT dashboard were included to illustrate digital transformation in real-world settings (Ministry of Health Republic of Indonesia, 2023d).

Analytical Framework

All data sources were reviewed thematically and analyzed across four domains:

1. Service clustering by lifecycle and disease burden
2. Integration of digital infrastructure in primary care
3. The role of family physicians in health system transformation
4. Policy alignment with global strategies (WONCA, WHO, WHA)

This integrated approach provided a holistic understanding of how national policies, professional advocacy, digital systems, and global frameworks intersect in shaping the current and future roles of family doctors in Indonesia.

RESULT AND DISCUSSION

Indonesia's Integrated Primary Healthcare (ILP – Integrasi Layanan Primer) initiative has resulted in tangible system-wide implementation across four key domains: lifecycle-based clustering, universal screening access, digital interoperability, and frontline family physician engagement.

Lifecycle-Based Universal Screening

Under the ILP framework, the Ministry of Health (MoH) developed a national age-stratified screening schedule, guiding service provision at various points in the human lifespan. Screening activities include anemia, congenital hypothyroidism, growth and developmental milestones, cancer (cervical, breast, colon), thalassemia, diabetes, hypertension, and mental health disorders.

In 2025, the MoH launched "Birthday Screening" (Skrining Hari Ulang Tahun)—a policy offering free, tailored health screenings on every citizen's birthday, coordinated through the civil registration system (Dukcapil) and Puskesmas (community health centers). This program enhances equity and citizen engagement in preventive care.

Age Group	Key Screenings	Platform
Pregnancy	Anemia, HIV, Hep B, Syphilis, Mental Health	Puskesmas, ANC
Infants (0–1y)	Growth, Congenital Hypothyroidism, Hearing	Posyandu
Toddlers (1–5y)	Nutrition, Autism, Oral Health	Posyandu
Children (6–11y)	Vision, Dental, Behavior Risk	School Health (UKS)
Adolescents (12–18y)	Obesity, Anemia, Diabetes, Oral Health	School, Puskesmas
Adults (19–59y)	Hypertension, Diabetes, Cancer, TB, HIV	Puskesmas, Workplaces
Elderly (60+)	Osteoporosis, Alzheimer's, Functional Status	Puskesmas, Home Visits

National Health Screening Schedule by Lifecycle

Legend: Home This table illustrates the official age-based health screening structure implemented under Indonesia's Integrated Primary Healthcare policy (ILP). It categorizes screening types based on lifecycle stages—from pregnancy to older

adults—and indicates the delivery platforms (e.g., Posyandu, schools, Puskesmas). The approach ensures age-specific, equitable, and preventive care across the population.

Cluster-Based Service Organization

Services at the primary care level—including Posyandu (integrated family health posts), Pustu (auxiliary health facilities), and Puskesmas—have been restructured to reflect five lifecycle clusters: maternal-neonatal, child, adolescent, adult, and elderly. Screening services are harmonized with JKN (National Health Insurance) financing, as regulated under Presidential Regulation No. 82 of 2023 (Government of Indonesia, 2023b).

The health workforce and cadre network are tasked with implementing integrated screening and referral systems, as outlined in the Academic Blueprint of Family Medicine Specialist Training (MORA) (Indonesian Family Doctors Association (PDKI), 2022).

Digital and Regulatory Integration

Indonesia's SATUSEHAT ("One Health") platform enables real-time, cross-institutional interoperability of Electronic Medical Records (EMR). This is operationalized via:

1. Ministerial Regulation No. 24/2022 on EMR.
2. Ministerial Decree No. 1423/2022 on metadata and standards (Ministry of Health Republic of Indonesia, 2022a).
3. Circular Letter No. 1030/2023 on EMR enforcement and sanctions (Ministry of Health Republic of Indonesia, 2023a).

Digital policy architecture is further supported by Presidential Regulation No. 95/2018 on Electronic-Based Government (SPBE), No. 39/2019 on One Data Indonesia, and Government Regulation No. 46/2014 on Health Information Systems (Government of Indonesia, 2014a).

Family Physicians in Operational Leadership

Family physicians (dokter keluarga) play a central role as care coordinators, digital facilitators, and health advocates, bridging clinical practice with public health outreach. Their responsibilities include:

1. Leading multidisciplinary primary care teams (midwives, nurses, health cadres)
2. Verifying digital identity and health records for screening and follow-up
3. Monitoring population health data via SATUSEHAT dashboards
4. Coordinating outreach for underserved groups, including mobile screening and school health initiatives.

Discussion

Health System Integration and Policy Reform

The 2023 Health Law (UU No. 17/2023) embeds Transformasi Layanan Primer (Primary Healthcare Transformation) as a legal mandate for the first time. Supported by Ministerial Decree No. 2015/2023, ILP restructures services around lifecycle clusters and calls for integration with national digital architecture.

Through coordination with local governments under Law No. 23/2014 on Regional Autonomy (Government of Indonesia, 2014b), family doctors are empowered to lead subdistrict-level screening and service integration.

The Perpres No. 82/2023 ensures sustainable financing for screening via JKN, while digital and governance policies (SPBE, One Data, Health Information Systems) provide a cohesive backbone for implementation.

Strategic Role of Family Medicine

PDKI (Indonesian Family Doctors Association), since its inception in the 1980s, has steadily advocated for formalizing the role of family physicians, culminating in their inclusion in ministerial decrees. Through partnership with WONCA, Indonesia's model was internationally recognized during WHA76, affirming family medicine as a key enabler of sustainable primary care.

The MORA Academic Draft (2022) supports integration of family medicine into national curricula, emphasizing longitudinal care, interprofessional practice, and digital literacy.

Real-World Contributions of Family Doctors

In practice, family doctor:

1. Conduct real-time risk screening and triage using SATUSEHAT EMRs
2. Supervise birthday screening operations and ensure interoperability across levels

3. Serve as trusted long-term care providers, particularly for NCDs and geriatric health
4. Facilitate public engagement by empowering health cadres and school teachers
5. Integrate school health (UKS) and Posyandu monitoring into routine workflow

These roles exemplify the holistic and adaptive nature of family medicine in Indonesia's decentralized, digital, and preventive-oriented health system. Continued investment in training, policy enforcement, and intersectoral collaboration is critical to scale these innovations across all 514 districts.

CONCLUSION

Indonesia's primary healthcare transformation—anchored in lifecycle-based service clustering, universal screening, digital interoperability, and the strategic deployment of family physicians (dokter keluarga)—demonstrates a forward-looking model for achieving equitable and sustainable health systems. Grounded in legal mandates (e.g., Health Law No. 17/2023), reinforced by digital governance frameworks, and supported by financing through the National Health Insurance (JKN), the Integrated Primary Healthcare (Integrasi Layanan Primer, ILP) program showcases how national policy can be operationalized into local-level care continuity.

Family physicians have emerged not only as clinical providers but as architects of integrated, community-based, and digitally-enabled care. Their roles—spanning prevention, coordination, education, and data stewardship—are central to the ILP implementation across Indonesia's highly decentralized and diverse geographic landscape.

This Indonesian model resonates with international best practices. In the United Kingdom, general practitioners (GPs) function as the gateway to the National Health Service (NHS), ensuring coordinated care within a publicly funded, universally accessible system. Canada operates a publicly administered insurance model (Medicare) where family physicians serve as the primary contact for patient navigation and referrals. Australia has recently enhanced its Medicare system to increase access to bulk-billed GP services and reduce out-of-pocket costs, reinforcing primary care as a national health priority. Meanwhile, Japan's universal coverage scheme maintains a strong focus on community-based clinics, where primary care providers are tasked with managing the country's aging population.

These examples from high-income nations across four continents highlight the

global convergence toward primary care–led health systems. Indonesia's approach—while tailored to its context—shares these common principles: decentralization, prevention, integration, and the central role of family doctors. With continued policy commitment, investment in digital tools, and professional capacity-building, Indonesia has the potential to become a benchmark for sustainable primary care transformation in low- and middle-income countries.

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