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Health Insurance and Equity: Analyzing the Impact of Universal Health Coverage Programs

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Abstract:

Universal Health Coverage (UHC) has emerged as a critical policy instrument aimed at improving healthcare equity, financial protection, and access to essential services. This paper examines the role of health insurance within UHC programs in reducing disparities across socioeconomic groups. By analyzing global case studies alongside experiences from low- and middle-income countries, the article highlights both achievements and persistent challenges in achieving equitable healthcare distribution. The findings suggest that while UHC programs can reduce catastrophic health expenditures and enhance service utilization, disparities remain in rural access, quality of care, and financial sustainability. Recommendations emphasize strengthening primary healthcare systems, ensuring fair financing, and adopting context-sensitive policies to promote equitable health outcomes.

Keywords: *Universal Health Coverage, Health Insurance, Equity, Financial Protection, Healthcare Access, Public Health Policy, Health Systems, Socioeconomic Disparities*

INTRODUCTION

Universal Health Coverage has become a central theme in global health discourse, endorsed by the World Health Organization (WHO) and included in the Sustainable Development Goals

(SDG 3.8). UHC programs, often underpinned by health insurance schemes, aim to provide comprehensive access to quality health services without financial hardship.

Equity remains at the heart of UHC, ensuring that vulnerable populations—including the poor, rural communities, and marginalized groups—receive care at par with wealthier groups. Health insurance programs, whether publicly funded, contributory, or mixed, play a crucial role in achieving this aim. However, challenges such as financing gaps, unequal distribution of resources, and political constraints complicate implementation.

This paper analyzes the relationship between health insurance and equity under UHC frameworks, identifies global trends, and suggests pathways for enhancing equity through improved policy measures.

Health Insurance and the Concept of Equity

Definition of Equity in Healthcare

Equity in healthcare refers to fairness in the distribution of health resources, services, and outcomes across different population groups. Unlike equality, which emphasizes providing the same resources to everyone, equity ensures that resources are allocated based on need, so that vulnerable or disadvantaged groups receive proportionate support. The World Health Organization (WHO) defines equity in health as “the absence of unfair, avoidable, or remediable differences among groups of people, whether those groups are defined socially, economically, demographically, or geographically.”

Horizontal equity: Equal treatment for individuals with equal healthcare needs (e.g., all people with diabetes having access to insulin).

Vertical equity: Unequal but fair treatment for people with different healthcare needs (e.g., higher support for low-income or severely ill groups).

Mechanisms by Which Insurance Reduces Disparities

Health insurance plays a central role in advancing equity by:

Financial Protection: By pooling risks and resources, insurance reduces catastrophic out-of-pocket expenditures, preventing poor households from falling into poverty due to healthcare costs.

Improved Access to Services: Insurance coverage expands access to preventive, curative, and rehabilitative services that would otherwise be unaffordable, particularly for marginalized groups.

Cross-subsidization: In contributory schemes, wealthier and healthier individuals subsidize care for poorer and sicker populations, ensuring redistribution within the system.

Encouraging Service Utilization: Insurance reduces financial barriers, increasing utilization of essential services such as maternal health, immunization, and chronic disease management.

The Balance Between Universalism and Targeting

A key challenge in health insurance design is finding the right balance between universal coverage and targeted support:

Universalism: Ensures everyone has access to essential healthcare, fostering solidarity and reducing social stigma. However, it requires significant government financing and administrative capacity.

Targeting: Focuses resources on the poorest or most vulnerable populations. While cost-efficient, it may exclude near-poor groups, create administrative burdens, and sometimes foster inequities if eligibility criteria are poorly defined.

Hybrid Approaches: Many countries combine universal entitlements (e.g., essential health services for all) with targeted subsidies for vulnerable populations to maximize efficiency and fairness.

Global Experiences in UHC Implementation

Thailand, Rwanda, and the UK

Thailand (Universal Coverage Scheme, UCS, launched 2001).

Coverage: UCS rapidly closed insurance gaps—uninsured fell steeply in both urban and rural areas in the early 2000s. [PMC](#)

Financial protection: Catastrophic health spending dropped from **4.1% (2002)** to **2.0% (2015)** of households—about a 50% reduction. Out-of-pocket (OOP) as a share of total health spending fell from **34.2% (2000)** to **8.7% (2019)**. Household OOP among UCS’s target group fell by **~28%**, especially for outpatient care. [PMC+2PLOS+2](#)

Access & equity: Studies consistently show improved utilization and pro-poor gains, though some inequalities persist among older and remote populations. [PMC+1](#)

Rwanda (Mutuelles de Santé / Community-Based Health Insurance, CBHI).

Coverage & access: By the 2010s, CBHI expanded to cover the vast majority of the population and increased service use. [PMC](#)

Financial protection: CBHI **reduced OOP spending and lowered catastrophic expenditure**; one evaluation estimates a decrease of **~3,600 RWF (≈US\$12) per capita** relative to baseline and a significant fall in catastrophic payments (with some benefits skewed toward better-off groups). [IMF+1](#)

Ongoing issues: Financial sustainability of community funds and equitable benefit across income groups remain challenges. [PMC](#)

United Kingdom (NHS, Beveridge model since 1948).

Financing mix: Predominantly public funding keeps household OOP relatively low by international standards. In **2024**, OOP accounted for **14.6%** of total health spending (approx. **£46 billion**); earlier estimates show OOP near **10%** in 2014. [Office for National Statistics+1](#)

Implication: A tax-funded universal system provides strong financial risk protection with minimal reliance on private insurance.

Evidence of reduced out-of-pocket expenditures (OOP)

Thailand: OOP share fell from **~34% (2000)** to **~9% (2019)**; household catastrophic spending halved (2002–2015). [PLOS+1](#)

Rwanda: CBHI lowered per-capita OOP and the incidence of catastrophic spending; service utilization increased. [IMF+1](#)

UK: Low OOP burden is sustained by public financing; OOP **~14–15%** in 2024, historically around **10%** a decade earlier. [Office for National Statistics+1](#)

Lessons learned for developing countries

Strong public financing and risk pooling are non-negotiable. Reliance on OOP undermines equity; Thailand’s sharp OOP decline followed substantial public financing of the UCS. [PMC+1](#)

Start with an explicit benefits package anchored in primary care. Thailand’s PHC-first approach drove large outpatient gains; Rwanda’s CBHI expanded basic service use. [ScienceDirect+1](#)

Use progressive subsidies and exemption policies. Poor and informal-sector households need subsidized premiums (or tax-funded entitlements) to prevent exclusion. Evidence from Rwanda shows equity can slip without careful design. [IMF](#)

Mind supply-side readiness. Insurance cards don't create equity if facilities, medicines, and staff are lacking—target rural and underserved areas. (Thailand's remaining inequalities among older/remote groups illustrate this.) [BioMed Central](#)

Sustainability matters. Community-based schemes need stable co-financing and pooling at higher levels to avoid adverse selection and budget stress. [PMC](#)

Track equity, not just coverage. Monitor catastrophic spending, unmet need, and pro-poor utilization—indicators that improved in Thailand and Rwanda when reforms were well-financed and targeted.

Challenges in Achieving Equity through UHC

Persistent Rural–Urban Divides

Even when insurance programs expand coverage, service delivery gaps between rural and urban areas remain significant.

Infrastructure disparities: Rural areas often lack well-equipped facilities, trained health workers, and reliable supply chains for medicines. Insurance coverage cannot guarantee access if services are physically unavailable.

Geographic inequities: Urban residents typically live closer to hospitals and specialists, while rural populations face longer travel times, higher indirect costs, and poorer quality of care.

In Thailand's UHC scheme, while overall access improved, older people and those in remote regions continued to experience lower utilization rates compared to urban populations. Similar challenges are observed in Sub-Saharan Africa, where distance to facilities limits the benefits of insurance.

Financial Sustainability of Insurance Pools

UHC requires robust, long-term financing to maintain equity.

Revenue generation constraints: Low- and middle-income countries (LMICs) often struggle to raise sufficient public revenue to subsidize poor populations. Heavy reliance on donor funding or external loans can jeopardize sustainability.

Risk of adverse selection: When voluntary insurance dominates, healthier individuals may opt out, leaving a disproportionate share of high-risk individuals in the pool, raising costs and destabilizing schemes.

Escalating healthcare costs: Advances in medical technology, aging populations, and rising demand put pressure on limited insurance funds. Without strong cost-control measures (price negotiations, generic drug promotion, strategic purchasing), equity may erode.

Rwanda's CBHI faced repeated deficits as premiums from poorer households were insufficient to cover high service use, requiring heavy government subsidies.

Political and Governance Challenges

Equity in UHC depends not just on technical design but also on political will and governance.

Policy continuity: Health reforms are vulnerable to political transitions; changes in government priorities can stall or reverse progress.

Corruption and inefficiency: Misallocation of funds, weak accountability, and bureaucratic inefficiencies can reduce resources available for frontline services.

Fragmentation of schemes: Multiple insurance pools (public employees, private sector, poor households) can create inequities unless harmonized. High-income groups often enjoy more generous benefits, widening disparities.

In many LMICs, elite capture of resources favors urban tertiary hospitals over rural primary care, undermining equity. In contrast, the UK's NHS demonstrates that strong political

commitment and centralized governance can sustain low OOP costs and relatively equitable service access for decades.

Impact of Health Insurance on Vulnerable Populations

Access to Maternal and Child Health Services

Improved utilization: Health insurance under UHC often increases use of antenatal care, skilled birth attendance, and immunization services. For example, in Ghana and Rwanda, insured women are more likely to deliver in health facilities compared to uninsured counterparts.

Reduced mortality and morbidity: Insurance reduces financial barriers for preventive and emergency obstetric care, contributing to lower maternal and neonatal mortality rates. Thailand's Universal Coverage Scheme (UCS) has been associated with a sharp rise in institutional deliveries and child immunization rates.

Persistent barriers: Despite insurance, rural women may still face transportation costs, limited availability of female providers, and cultural barriers. Thus, while coverage expands service use, non-financial determinants of access must also be addressed.

Financial Protection for Low-Income Households

Reduced catastrophic expenditure: Poor households are most at risk of falling into poverty from healthcare payments. Insurance shields them by pooling risks and providing subsidies. In Thailand, catastrophic health spending declined significantly among low-income groups after UCS was introduced.

Protection against informal payments: In some settings, insurance schemes help reduce reliance on out-of-pocket (OOP) payments at the point of service. Rwanda's CBHI, for instance, lowered OOP spending per capita among poor households and reduced catastrophic payments.

Challenges remain: Premiums or co-payments, if not fully subsidized, can still exclude the poorest. Additionally, when benefits packages are limited, low-income families may continue to face high indirect costs (transport, medicines not on the essential list).

Equity in Quality versus Quantity of Services

Quantity gains: Insurance increases utilization across socioeconomic groups, with disproportionate benefits for the poor in terms of service uptake (e.g., more outpatient visits, higher immunization coverage).

Quality concerns: Expanding insurance does not automatically guarantee high-quality care. Overcrowded public facilities, limited skilled staff, and inconsistent supply chains can compromise service quality. For instance, in some LMICs, insured patients access more services but continue to experience poor provider responsiveness or inadequate diagnostic capacity.

Equity paradox: Vulnerable groups may gain access but at lower quality compared to wealthier or urban populations who use better-equipped facilities. This highlights the need for insurance reforms to be paired with investments in health system strengthening, particularly in rural and underserved areas.

Policy Recommendations for Equity-Driven UHC

Strengthening Primary Healthcare Infrastructure

Foundation of equity: Primary healthcare (PHC) is the frontline for ensuring equitable access. Strong PHC systems can deliver preventive, promotive, and curative services at low cost and close to communities, reducing rural–urban divides.

Integrated service delivery: Investing in PHC facilities, health worker training, and supply chains ensures that vulnerable populations benefit from insurance coverage, rather than being left with “paper entitlements” but no services.

Community engagement: Leveraging community health workers, mobile clinics, and digital health platforms can extend coverage to remote or marginalized groups. Rwanda’s health extension workers and Ethiopia’s Health Extension Program demonstrate how PHC-oriented reforms improve equity.

Introduction to Universal Health Coverage (UHC)

Definition of UHC and its Global Significance:

Universal Health Coverage (UHC) is defined as ensuring that all individuals and communities receive the health services they need without suffering financial hardship. It encompasses a broad range of services, including preventive, promotive, curative, rehabilitative, and palliative care. UHC aims to provide access to essential health services for everyone, irrespective of their socio-economic status, geographic location, or health condition. The ultimate goal of UHC is to ensure that no one is left behind in the pursuit of achieving equitable health outcomes.

Globally, UHC has gained recognition as a critical development objective under the United Nations Sustainable Development Goals (SDGs). Specifically, SDG 3 focuses on ensuring healthy lives and promoting well-being for all at all ages, with UHC being a foundational pillar for achieving this goal. UHC is central to the concept of health equity, as it aims to reduce disparities in healthcare access and outcomes, ensuring that healthcare services are available, affordable, and equitable for all populations.

Key Principles of UHC:

The key principles that underpin Universal Health Coverage are:

Access to health services means that individuals have timely and equitable access to the necessary healthcare services without barriers such as distance, affordability, or social status. This principle ensures that healthcare services are geographically and financially accessible to all, regardless of where people live or their income level.

Quality:

Quality refers to healthcare services that are safe, effective, patient-centered, timely, and equitable. Ensuring quality healthcare under UHC is vital as it prevents poor health outcomes due to substandard care. Quality healthcare is not only about the availability of services but also the ability of the services to meet the health needs of individuals effectively. This involves well-trained healthcare professionals, adequate infrastructure, and up-to-date medical technologies.

Financial Protection:

One of the central goals of UHC is to prevent people from falling into poverty due to medical expenses. Financial protection ensures that healthcare costs do not lead to financial ruin or

prevent individuals from seeking necessary care. This can be achieved through various health financing mechanisms, such as insurance schemes, government subsidies, or pooled health funds, which help spread the financial burden of healthcare across society.

Determinants of Health and Equity Considerations

How UHC Impacts Broader Social Determinants of Health (Education, Employment, Housing, etc.):

Universal Health Coverage (UHC) does not only focus on providing healthcare services but also indirectly addresses the broader **social determinants of health (SDH)**—the conditions in which people are born, grow, live, work, and age. These determinants, including education, employment, housing, nutrition, and social environment, play a significant role in shaping health outcomes. UHC can positively impact these social determinants by improving access to essential health services and reducing health disparities across different social groups. Here's how UHC can influence these factors:

Education:

UHC can improve educational outcomes by ensuring that children, students, and adults stay healthier, reducing absenteeism due to illness and improving cognitive function. Access to maternal and child health services under UHC ensures healthier pregnancies and child development, contributing to better educational attainment in the long run.

Additionally, health education programs promoted under UHC can increase awareness of preventive measures, leading to healthier communities and reducing the overall burden on the healthcare system.

Employment:

Healthy individuals are more likely to be productive and maintain stable employment. UHC promotes workforce participation by offering essential healthcare services such as preventive care, mental health support, and occupational health services, which improve workers' overall health and reduce the number of workdays lost to illness or injury.

UHC can help individuals who would otherwise be excluded from the workforce due to illness or disability, by ensuring access to rehabilitation services, disability support, and care for chronic conditions.

Housing:

The health of individuals directly influences their living conditions. UHC can improve the general well-being of communities, which can indirectly affect the quality of housing. By addressing health issues related to housing (e.g., respiratory conditions due to poor air quality or diseases linked to inadequate sanitation), UHC helps reduce disparities between different social groups living in substandard housing conditions.

Public health interventions under UHC may also include measures to improve housing conditions for vulnerable populations, such as children, the elderly, or people with disabilities, which contribute to better overall health.

Nutrition:

UHC can ensure access to health services that address nutritional needs, such as maternal and child nutrition programs, food supplementation for vulnerable populations, and disease management services. These programs can help prevent malnutrition and related health conditions, contributing to better health outcomes, especially in developing countries.

UHC can also support health education campaigns that focus on healthy diets, nutrition awareness, and the prevention of obesity and related chronic diseases, leading to healthier individuals and communities.

Social Environment:

A strong social environment—characterized by social cohesion, trust, and community participation—is essential for promoting health equity. UHC can help strengthen this environment by improving access to care, fostering a sense of solidarity, and reducing the stigma attached to seeking health services.

UHC supports the creation of inclusive, accessible healthcare environments where people feel valued and respected, which is essential for building social capital and improving mental and physical well-being.

Impact on Health Access for Marginalized Groups

How UHC Ensures Equitable Access to Healthcare Services for Vulnerable Populations:

Universal Health Coverage (UHC) plays a crucial role in ensuring that healthcare services are available, accessible, and affordable to all, particularly for vulnerable populations. Vulnerable groups, including low-income individuals, rural populations, the elderly, women, and minorities, often face significant barriers to accessing quality healthcare. UHC works to overcome these barriers by addressing both financial and non-financial factors that prevent these groups from receiving the care they need.

Low-Income Populations:

UHC ensures that low-income individuals have access to healthcare services without the fear of catastrophic out-of-pocket expenses. By implementing subsidized or free healthcare services, UHC reduces the financial burden on these individuals, making healthcare more affordable.

UHC programs often include specific provisions to cover essential services such as vaccinations, maternal health, and chronic disease management, which disproportionately affect low-income populations. This ensures that the most vulnerable receive the necessary care without financial hardship.

In many cases, UHC is financed through progressive taxation, where wealthier individuals contribute more to the healthcare system, thus ensuring that those who can afford to pay contribute to supporting the health needs of those who cannot.

Rural Populations:

Access to healthcare in rural areas can be limited due to the geographical distance from healthcare facilities, lack of infrastructure, and a shortage of healthcare professionals. UHC addresses these challenges by establishing health programs and facilities in underserved areas, improving transportation, and incentivizing healthcare workers to practice in rural settings.

Some UHC systems integrate mobile health services or telemedicine to reach remote areas, ensuring that rural populations can access healthcare consultations, diagnostics, and even prescriptions without having to travel long distances.

Governments may also use UHC funds to expand rural health infrastructure, such as the construction of local health centers or the provision of transportation services, making healthcare more physically accessible for rural residents.

Elderly Populations:

Older adults often face higher health risks due to age-related conditions, chronic illnesses, and disabilities, which require regular healthcare services. UHC ensures that the elderly have access to essential services such as geriatric care, long-term care, rehabilitation, and palliative services.

Many UHC programs include special provisions for the elderly, such as reduced co-payments or free access to certain services like hospital stays, surgeries, and treatments for chronic diseases (e.g., diabetes, hypertension).

UHC policies often address eldercare at the community level, providing services that help elderly individuals live independently and stay connected to healthcare providers. Home care services and community health workers play a key role in ensuring access to healthcare for the elderly, particularly in remote areas.

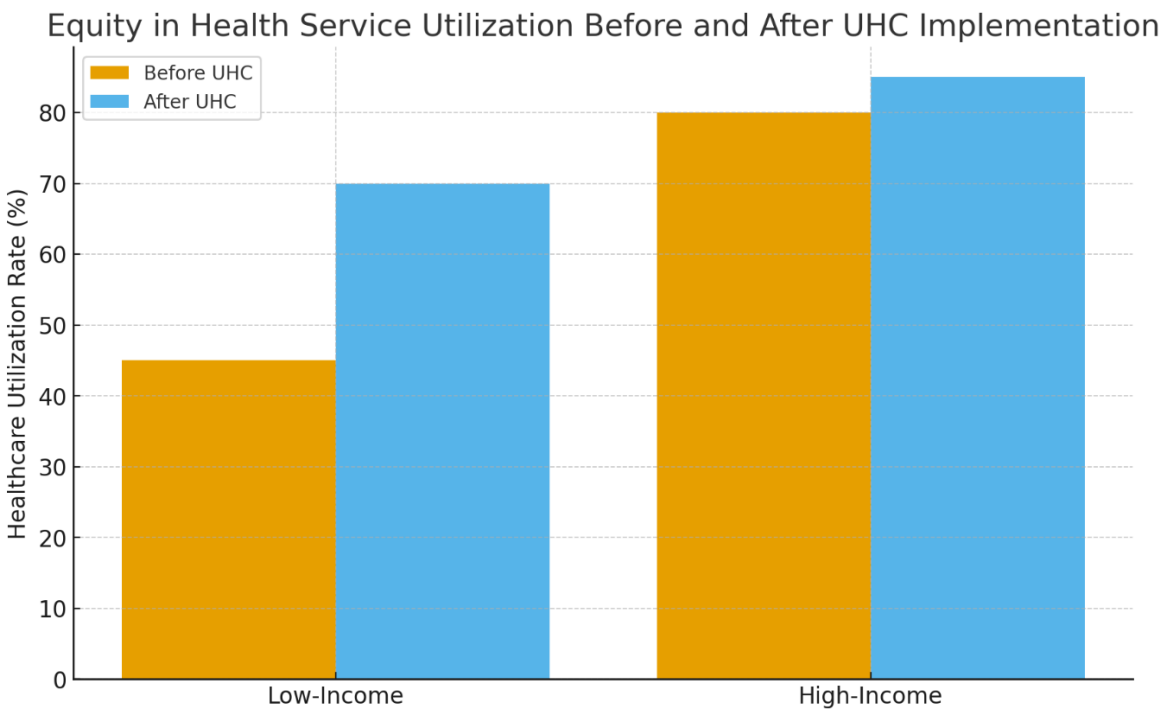
Women and Maternal Health:

Women, especially in low- and middle-income countries, face unique barriers to healthcare, including cultural, economic, and gender-related factors. UHC can help eliminate these barriers by providing comprehensive maternal and reproductive health services, including antenatal care, childbirth, and postnatal care, as well as family planning and sexual health services.

UHC programs often aim to reduce maternal and child mortality rates by ensuring access to skilled birth attendants, emergency obstetric care, and safe delivery services, addressing issues such as unsafe abortion practices and lack of post-delivery care.

Women’s health services under UHC also include preventive care, such as cancer screenings (e.g., breast and cervical cancer), mental health services, and vaccinations, which help reduce gender disparities in health outcomes.

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Summary

The expansion of health insurance under UHC programs has significantly advanced equity in healthcare delivery, reducing catastrophic spending and expanding access. However, inequalities persist due to structural barriers, financing limitations, and governance challenges. To achieve true equity, policies must focus on inclusive financing, prioritization of vulnerable populations, and robust primary healthcare systems. Long-term sustainability requires balancing universal coverage with resource allocation tailored to marginalized communities.

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