



THE UNTOLD STORY OF MATERNAL AND NEWBORN SURVIVAL

Tanzania's Progress,
Persistent Inequities
and the Missing Link
Between Coverage
and Survival



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EXECUTIVE SUMMARY

Introduction

This paper examines the levels, patterns and trends in maternal and neonatal mortality in Tanzania through an equity lens, highlighting how socioeconomic, demographic and geographic inequalities shape access to, utilisation and quality of maternal and newborn care and, ultimately, survival. The analysis identifies who benefits from progress, who remains at risk, where service coverage fails to translate into survival, and priority actions to accelerate equitable outcomes. It draws primarily on the 2022 TDHS-MIS and 2022 Population and Housing Census, complemented by survey and administrative data.

Key Findings: Maternal and Newborn Mortality

Tanzania has made substantial progress in reducing maternal mortality. The 2022 TDHS-MIS estimated MMR at 104 deaths per 100,000 live births, compared with 556 in 2015–16, while the 2022 Population and Housing Census estimated 147, compared with 432 in 2012. However, progress in reducing neonatal mortality has been slower and more uneven.

Neonatal mortality remains a major equity challenge. The 2022 TDHS-MIS estimated Mainland NMR at **23 per 1,000 live births**, with higher risk mortality in urban areas (29) than rural areas (20). NMR varied substantially across zones, from 39 in the Eastern Zone and 37 in the Southern Highlands to 9 in the Southern Zone and 13 in the Central Zone. **These patterns demonstrate that urbanisation, wealth and service concentration do not automatically protect newborns.**

Similarly, **maternal mortality remains highly inequitable across and within urban settings.** Urban mortality was approximately 174 per 100,000 live births, compared with 135 in rural areas. Within Dar es Salaam, RAMOS data reveal substantial **intra-urban variation**, with Ilala emerging as a major mortality hotspot, recording approximately twice the regional average. This pattern underscores the influence of poverty, lower educational attainment, and age-related vulnerabilities on maternal survival. At the regional level, the Eastern Zone recorded some of the highest maternal mortality, including Dar es Salaam (170), Morogoro (213), and Pwani (232) per 100,000 live births. Pwani's high burden suggesting regional rapid urbanization. In contrast, Singida recorded the lowest MMR at 80 per 100,000 live births. The Southern Zone illustrates an important divergence: despite the lowest NMR, it recorded relatively high MMR in Lindi (175) and Mtwara (217).

Inequality Pathways to Survival: From Service Coverage to Effective Coverage

While Tanzania has achieved high nominal rates of facility delivery and skilled birth attendance, effective coverage remains starkly stratified by wealth and geography, leaving rural and economically marginalized women at a persistent survival disadvantage. Facility delivery ranged from 63.6% among the poorest women to 97.2% among the richest. Caesarean delivery increased from 4.1% among the poorest to 23.7% among the richest. **Postnatal care represents a major hidden bottleneck:** only 53.9% of newborns received a check within two days, while 41.4% received none. Timely newborn postnatal care ranged from 40.2% in the poorest households to 66.7% in the richest.

Key Message

Survival at birth for mothers and newborns depends on receiving the '3 Rs': **Right Care**, from the **Right Provider**, at the **Right Time**, and at a sufficient level of quality. The first 48 hours after birth represent a critical, often missed window for intervention. Consequently, the central equity challenge is achieving effective care coverage, rather than merely establishing service contact.

Key Recommendations

- Shift monitoring metrics** from basic contact coverage to effective coverage and survival outcomes.
- Prioritise the first 48 hours** by institutionalising high-quality maternal and newborn postnatal care.

- c) **Close equity gaps** across wealth, education, and geography to ensure universal access to life-saving obstetric care with **targeted urban strategies** for maternal and newborn survival that respond directly to rapid urbanisation and intra-urban inequalities by improving quality, facility readiness, referrals, and continuity of care.
- d) **Investigate regional mortality variances**—specifically contrasting Lindi–Mtwara with Dar es Salaam–Pwani–Morogoro—to identify and scale positive-deviance practices.

1. INTRODUCTION

Maternal and neonatal mortality remain among the most persistent global health inequities. In 2023, an estimated **260,000** women died due to pregnancy- and childbirth-related causes, with nearly 70% of these deaths occurring in sub-Saharan Africa. The burden remains disproportionately concentrated in low- and lower-middle-income countries, where access to timely diagnosis, skilled care and emergency obstetric services remains constrained [1]. Sub-Saharan Africa therefore continues to account for the largest share of global maternal deaths, reflecting persistent systemic gaps in access to quality maternal healthcare, referral systems and health-system capacity [1]. This paper presents an equity analysis of the influence of socioeconomic and demographic factors on childbirth outcomes, particularly maternal and neonatal mortality levels, patterns and trends in Tanzania. Drawing on available evidence, the paper highlights persistent disparities in maternal and newborn survival across population groups and provides policy and programmatic recommendations aimed at accelerating equitable progress in reproductive, maternal and newborn health. In public health, equity analysis goes beyond assessing overall improvements in health indicators by examining how health outcomes vary according to social, economic, demographic and geographic characteristics, including income, education, sex, place of residence, disability status and access to quality health services [2].

Background

Over the years, Tanzania has made significant progress in reducing maternal mortality. The recent Tanzania Demographic and Health Survey and Malaria Indicator Survey (TDHS-MIS 2022) reported a substantial decline in the Maternal Mortality Ratio (MMR) from **556 maternal deaths per 100,000 live births in 2015–2016 to 104 deaths per 100,000 live births in 2022**, representing an approximately 81% reduction [3]. Similarly, findings from the **2022 Population and Housing Census (PHC) Mortality and Health Monograph** indicate that the MMR declined from 432 deaths per 100,000 live births in 2012 to 147 deaths per 100,000 live births in 2022, equivalent to a reduction of approximately 66% [4]. During the same period, substantial progress was also made in reducing child mortality. Between the 2015–2016 and 2022 TDHS-MIS, the under-five mortality rate declined from 67 to 43 deaths per 1,000 live births, while infant mortality decreased from 43 to 33 deaths per 1,000 live births [3].

In contrast, **neonatal mortality has remained largely unchanged**, indicating that the significant gains achieved in maternal and child survival have not been matched by comparable improvements in survival during the first 28 days of life [3]. This divergence highlights persistent inequities in the quality and continuity of care around childbirth and the immediate postnatal period, where preventable neonatal deaths remain concentrated despite substantial progress in maternal health outcomes.

These findings demonstrate notable progress in improving maternal health outcomes and reflect substantial investments in maternal and reproductive health services in Tanzania [3,4]. The observed improvements may be associated with expanded access to antenatal care services, increased coverage of skilled birth attendance, strengthened emergency obstetric and newborn care, improvements in health infrastructure and implementation of national maternal and child health strategies [3]. In addition, enhanced policy commitment, increased community awareness and support from development partners have contributed to improvements in maternal healthcare utilization and service delivery across the country. However, despite these achievements, significant disparities in maternal health outcomes persist across regions, socioeconomic groups and population subgroups, suggesting that progress has not been equally shared among all women and communities.

Education and maternal survival

Evidence across multiple settings in sub-Saharan Africa reinforces the protective association between female education and maternal survival. Grown et al. emphasized the importance of

gender equality and women's empowerment—including education and women's ability to exercise agency—as important determinants of women's health outcomes [5]. Similarly, Caldwell's work demonstrated the important role of maternal education in health-seeking behaviour, household decision-making and utilization of health services [6]. Further evidence from McAlister and Baskett showed that female education is an important predictor of maternal mortality at the cross-national level [7]. More directly, an analysis of the WHO Global Survey on Maternal and Perinatal Health found that women with no education had substantially higher risks of maternal mortality than women with more than 12 years of education, even among women delivering in health facilities [8].

At the community level, higher female literacy and educational attainment have also been associated with improved utilization of antenatal care, greater awareness of pregnancy danger signs and earlier care-seeking and referral [9]. Overall, the evidence consistently suggests that investments in female education constitute a long-term structural intervention for reducing maternal mortality by improving knowledge, autonomy, decision-making and access to life-saving maternal health services [5-8].

Socioeconomic conditions and maternal health

Economic conditions also play a significant role in shaping maternal health outcomes. In sub-Saharan Africa, national income levels, particularly Gross National Product (GNP) per capita, have demonstrated a notable association with maternal mortality. Buor and Bream found that GNP per capita, health expenditure per capita and skilled attendance at birth were strongly associated with maternal mortality across 28 sub-Saharan African countries [10]. At the household level, women who are socioeconomically disadvantaged often face barriers such as inability to afford transportation, healthcare costs, nutritious food and timely medical attention during pregnancy and childbirth. Consequently, socioeconomically marginalized women may experience higher morbidity and mortality and lower utilization of maternal health services [10].

Further evidence from cross-national analyses confirms that maternal mortality tends to decline as national income and health-system capacity increase, partly through greater investment in essential maternal health services, skilled birth attendance and emergency obstetric care [10]. At the same time, within-country inequalities remain pronounced even in relatively better-performing economies. Wealth disparities at household level continue to shape maternal health-seeking behaviour, with poor women disproportionately affected by indirect costs such as transportation, informal payments and opportunity costs associated with seeking care. These financial constraints can contribute to delayed care-seeking, home deliveries without skilled attendance and increased risk of obstetric complications [11].

These findings collectively reinforce the importance of addressing both macroeconomic constraints and micro-level household poverty in efforts to reduce maternal mortality. Equity-focused health financing mechanisms, including subsidized maternal care, universal health coverage reforms and targeted social protection programmes, are therefore essential components of sustainable maternal health improvement strategies in sub-Saharan Africa.

Urbanization and intra-urban inequities

Urbanization further complicates health inequities, particularly in rapidly growing cities characterized by informal settlements and inadequate urban infrastructure. Although urban areas are often assumed to have better healthcare access, evidence increasingly demonstrates substantial disparities within cities themselves. In Tanzania, Oh et al., in their study *Urban Health Issues of the Marginalized in Dar es Salaam: A Resonant Voice Calling for Action*, emphasized the need for innovative healthcare delivery models and stronger accountability mechanisms in urban settings, particularly for marginalized populations [12]. The study highlights how marginalized urban communities may experience overcrowding, inadequate infrastructure, limited access to essential services and social exclusion, creating conditions that can undermine health and wellbeing [12]. These findings challenge the common assumption that urban residence automatically guarantees better health access and outcomes and reinforce the importance of equity-focused urban health

policies and interventions. Additional evidence from urban health research indicates that intra-urban inequalities can be substantial, with residents of informal settlements facing compounded disadvantages, including insecure housing, limited access to water and sanitation and weak integration into formal health service networks [12]. These structural conditions may increase exposure to pregnancy-related risks while simultaneously reducing timely access to skilled obstetric care.

Furthermore, rapid urban population growth can place considerable pressure on already constrained health systems, contributing to overcrowded facilities, shortages of healthcare personnel and inequitable distribution of essential maternal and newborn health services [12]. Addressing these inequities therefore requires integrated urban planning approaches that combine health-system strengthening with improvements in housing, sanitation, transportation and social protection for vulnerable urban populations.

Health service availability does not necessarily translate into effective access. Even where facilities are geographically close, barriers such as cost, overcrowding, poor quality of care and negative provider attitudes can limit utilization among marginalized urban populations. Such barriers may contribute to delayed care-seeking and increase the risk of preventable maternal and neonatal deaths, particularly among adolescents, migrants and residents of informal settlements [12].

These findings collectively underscore that urbanization in Tanzania is **not uniformly associated with improved maternal and neonatal health outcomes**. Instead, it can produce new forms of inequality that require targeted urban health planning, investment in informal-settlement infrastructure and strengthened primary healthcare delivery systems that explicitly prioritize marginalized urban populations.

Purpose

The central purpose of this equity analysis is to determine who is disproportionately affected, where disparities are concentrated, which populations are being left behind, and what structural or social factors contribute to these inequalities. The analysis provides critical evidence for policymakers, researchers, and health planners to design interventions that are more targeted, inclusive, and socially responsive. By uncovering inequities that may otherwise remain hidden within national averages, the analysis strengthens accountability and supports efforts to ensure that every woman and newborn has an equal opportunity to survive, access quality care, and thrive.

Specific objectives

- To examine sociodemographic and geographic variations and inequities in maternal and neonatal mortality and the utilization of key maternal and newborn health services across the continuum of care.
- To examine the ecological relationship between maternal and newborn service coverage and mortality outcomes.
- To identify high-risk and positive-deviance geographical areas to inform evidence-based policy and targeted maternal and newborn health interventions.

2. METHODS

This study undertook a secondary ecological analysis of nationally representative datasets to examine geographic and socio-economic inequities in maternal and neonatal mortality in Tanzania. The primary sources of data were the 2022 Tanzania Demographic and Health Survey and Malaria Indicator Survey (TDHS-MIS) and the 2022 Population and Housing Census (PHC) [13,14]. While these remained the principal empirical sources, the analysis was also informed by the Reproductive Age Mortality Study (RAMOS), Maternal and Perinatal Death Surveillance and Response (MPDSR), routine District Health Information System 2 (DHIS2) data, and United Nations Maternal Mortality Estimation Inter-Agency Group (UN-MMEIG) estimates [15-17]. These complementary sources provided additional perspectives on mortality patterns, socioeconomic

and geographical inequities, and access to and utilisation of maternal and newborn health services. Additional evidence was drawn from government policies, national strategic plans, legislation and regulatory frameworks, WHO and UN reports, peer-reviewed literature, national surveys, routine health information systems, and relevant grey literature to contextualise findings and strengthen interpretation of maternal and newborn health inequities in Tanzania. The use of multiple data sources is particularly important in interpreting maternal and newborn mortality because differences in measurement approaches, population coverage and reporting periods can produce apparently different estimates [13,14].

The two mortality indicators are not directly comparable rates because they differ in measurement approaches, denominators, and reference periods [13,14]. TDHS-MIS estimates are based on retrospectively reported births and deaths preceding the survey, whereas the PHC captures mortality within its census reference period and population framework [13,14]. Notwithstanding these differences, geographical and socioeconomic patterns were examined across the continuum of care. An equity framework assessed demographic-regional, zonal, urban-rural, and socioeconomic variations in place of delivery, antenatal care, and early maternal and newborn postnatal care [13]. Particular attention was given to the distinction between access to services and the effective receipt of timely, competent and quality care, consistent with the WHO framework for maternal and newborn quality of care [18].

Descriptive statistics, regional ranking, continuum-of-care analysis, and ecological correlation analysis were used to identify inequities, high-risk areas, and positive-deviance regions.

Methodological caveat: While the PHC provides a comparative advantage for regional maternal mortality analysis because of its population-wide coverage, it did not directly report on neonatal mortality in the same manner as the TDHS-MIS [14]. On the other hand, the TDHS-MIS provides maternal and newborn mortality estimates but does not provide equivalent regional-level mortality analysis [13]. Neither source provides robust council-level mortality estimates suitable for direct mortality comparisons. Accordingly, council-level findings presented in this analysis are interpreted primarily from complementary evidence, including RAMOS, rather than as estimates generated directly from the TDHS-MIS or PHC [15].

3. FINDINGS

The results examine patterns of maternal and neonatal mortality and the inequalities that shape survival across different population groups and settings.

3.1. EQUITY IN NEONATAL MORTALITY

This section examines neonatal mortality by demographic and socioeconomic position, highlighting patterns of inequality and unexpected differences in newborn survival.

3.1.1. Residence and newborn mortality

Rural–urban differentials

The equity profile of neonatal mortality in Tanzania is more complex than a conventional socioeconomic gradient would suggest. The 2022 TDHS-MIS recorded neonatal mortality of **35 deaths per 1,000 live births in urban areas compared with 21 in rural areas**, indicating a substantial urban disadvantage [13]. A similarly unexpected pattern is observed across household wealth quintiles: neonatal mortality increased from **13 per 1,000 among children in the lowest wealth quintile to 31 per 1,000 among those in the highest wealth quintile** [13]. These findings challenge the assumption that urban residence and greater household wealth necessarily translate into better neonatal survival.

Intraurban inequalities

According to the RAMOS evidence, neonatal mortality in Dar es Salaam is highly heterogeneous across the urban system, with Ilala emerging as a major mortality hotspot [15]. The regional NMR of **26 per 1,000** masks an exceptionally high NMR of **53 per 1,000 in Ilala**, while other councils record substantially lower levels, reaching **7 per 1,000 in Ubungu** [15]. This intra-urban gradient suggests that neonatal survival is shaped not simply by urban residence but by differences in population

vulnerability, delivery and referral pathways, quality and intensity of obstetric and newborn care, and the concentration of high-risk births within particular urban health systems [15,18].

The marked council-level variation further indicates that aggregate urban mortality measures can conceal important spatial inequalities in newborn survival [15]. The pattern suggests that neonatal mortality is not determined by urban residence *per se*, but may reflect differences in the distribution of maternal and neonatal risk, place and timing of delivery, referral and care-seeking pathways, case-mix, and the availability, accessibility, and quality of intrapartum and immediate newborn care [15,18]. This interpretation is consistent with the WHO conception of quality of care, which emphasises that health services should be safe, effective, timely, efficient, equitable and people-centred [18].

Spatial, geographic, zonal and regional differentials

This interpretation is reinforced by the pronounced geographical contrast between the **Eastern Zone—Dar es Salaam, Pwani and Morogoro—which recorded an NMR of 39 per 1,000**, and the **Southern Zone—Lindi and Mtwara—with an NMR of only 9 per 1,000** [15].

The fact that the zone containing Tanzania's most urbanised and densely serviced metropolitan area, including Dar es Salaam, experienced more than four times the neonatal mortality observed in Lindi and Mtwara cautions against equating health-system concentration with health equity. The findings instead suggest that equity must be assessed not only in terms of **who has access to facilities**—for example, institutional delivery—but also **who receives timely, competent and effective care once inside the health system** [18].

In this sense, the neonatal mortality pattern points towards a transition from an equity problem of simple geographical coverage to one involving **effective access, service readiness, quality of care and the capacity of health-system resources to produce equitable survival outcomes** [18]. This distinction is important because high service availability does not necessarily guarantee high-quality or equitable care. WHO's quality-of-care framework similarly recognises competent health workers, functional referral systems, appropriate clinical practices and adequate resources as essential components of effective maternal and newborn care [18].

3.1.2 Neonatal mortality, maternal education, wealth and age

Education

The conventional expectation is that higher maternal education protects against neonatal mortality. However, the 2022 TDHS-MIS data do not demonstrate such a protective gradient: neonatal mortality was **1.9% among women with no education, 2.0% among those with primary education, and 2.2% among those with secondary or higher education**, with the difference not statistically significant ($p = 0.897$) [13]. Thus, mortality was marginally higher—not lower—among children of more educated mothers. The apparent differences, although numerically showing a slight increase with education, could readily reflect random variation in the survey sample rather than a true population-level difference [13].

This apparent attenuation or reversal of the conventional education-survival relationship is important. It suggests that maternal education alone may not be sufficient to protect newborns during the immediate postnatal period, when survival is highly dependent on timely, competent and effective care during labour, delivery and the first days of life [13,18]. At the same time, the finding should be interpreted cautiously because differential recognition and reporting of very early newborn deaths, including culturally shaped perceptions of early newborn loss, may also influence the observed pattern. The absence of a statistically significant difference further cautions against interpreting the observed numerical gradient as evidence of a causal relationship [13].

Table 1: Maternal Education and NMR Statical Analysis

Maternal education	Early NMR	Interpretation
No education	1.9	Lowest observed rate, but no statistically significant difference
Primary education	2.0	Slightly higher than among mothers with no education
Secondary or higher	2.2	Highest observed rate, indicating reversal of the expected protective gradient

Statistical significance	p = 0.897	No statistically significant difference across education groups
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3.1.3 Household Wealth and NMR

Again, as with education, neonatal mortality does not follow the expected socioeconomic gradient. Instead, mortality increases with household wealth, **rising from 13 deaths per 1,000 live births among newborns in the poorest wealth quintile to 31 deaths per 1,000 among those in the richest quintile** [13]. This counterintuitive pattern suggests that greater household wealth does not automatically translate into improved neonatal survival.

The finding should nevertheless be interpreted cautiously. Wealth is strongly related to service utilisation and the likelihood of delivering in a health facility, but facility access alone does not ensure effective, high-quality care [13,18]. Once mothers—particularly educated and wealthier women—reach the delivery room, newborn survival may depend substantially on the quality, timeliness and competency of care provided. In this critical window, the skills and competency of health providers, particularly during labour, delivery, neonatal resuscitation and the first hours after birth, become especially important [18].

Thus, the apparent reversal of the wealth gradient may point to an important **equity-of-quality** problem rather than simply an **equity-of-access** problem. However, because this is an ecological and observational interpretation, the finding should not be taken to mean that household wealth causes higher neonatal mortality. Differences in case-mix, referral patterns, urban concentration of high-risk births, reporting and utilisation of higher-level facilities may contribute to the observed association [13,15].

3.1.4. Maternal age and NMR

Maternal age at birth reveals another important dimension of inequality in newborn survival. Neonatal mortality is lowest among mothers aged **20–29 years (33 per 1,000 live births)**, followed closely by those aged **30–39 years (34 per 1,000)**, but increases among both adolescent mothers below 20 years (**37 per 1,000**) and, more substantially, mothers aged **40–49 years (51 per 1,000)** [13]. This pattern indicates that newborn mortality varies across the reproductive life course, with the highest vulnerability observed among mothers at the older end of the reproductive age range. Among mothers aged 40–49 years, neonatal mortality is approximately **55% higher** than among mothers aged 20–29 years [13].

The particularly high rate observed among mothers aged 40–49 years warrants attention. However, this difference should be interpreted cautiously because maternal age may interact with other maternal, obstetric, socioeconomic and health-system factors that influence newborn survival [13,18]. Maternal age should therefore not be interpreted as an isolated determinant of neonatal mortality.

The concentration of excess mortality among older mothers is largely attributable to deaths during the neonatal period rather than after the first month of life [13]. Post-neonatal mortality varies relatively little across mothers below 40 years, while the higher infant mortality among mothers aged 40–49 years is primarily driven by their elevated neonatal mortality [13]. This pattern points towards risks associated with pregnancy, childbirth and the immediate postnatal period rather than simply differences in subsequent childcare.

Advanced maternal age may coincide with a greater prevalence of obstetric and pregnancy-related complications, but the observed association should not be interpreted as an effect of age alone. Parity, previous obstetric history, socioeconomic circumstances, access to antenatal care, place of delivery, referral pathways and the quality and timeliness of emergency obstetric and newborn care may all mediate the relationship [13,18].

The findings therefore reinforce a central message of the analysis: **maternal characteristics become consequential for newborn survival through their interaction with the health system**. Adolescence and advanced maternal age may constitute periods of heightened vulnerability, but vulnerability is translated into mortality when appropriate and timely care is unavailable, inaccessible or of inadequate quality [18]. The elevated neonatal mortality among older mothers is thus not simply a

story of biological risk; it may also reveal the capacity—or limitations—of the health system to identify, refer and manage pregnancies and births requiring additional attention.

Overall, the findings shift the equity discussion beyond **whether women reach health facilities** towards **what happens to women and newborns after they reach them**. The coexistence of relatively high service concentration with substantial neonatal mortality in some urban and regional settings suggests that future equity strategies should increasingly focus on effective coverage, provider competency, referral responsiveness, case management and the quality of intrapartum and immediate newborn care [18].

3.2. EQUITY IN MATERNAL MORTALITY

This section presents maternal mortality patterns by residence, region, education, wealth and maternal age, highlighting how inequalities in risk and access to care shape maternal survival. The 2022 Population and Housing Census (PHC) estimated Tanzania's maternal mortality ratio (MMR) at 147 deaths per 100,000 live births, almost identical to 146 per 100,000 for Tanzania Mainland, equivalent to roughly one maternal death for every 1,000 live births [14]. The 2022 Census shows a substantial long-term decline in maternal mortality, from 432 to 147 deaths per 100,000 live births nationally, while Tanzania Mainland declined from 434 to 146. Zanzibar also experienced a decline, from 350 to 196 per 100,000 live births [14]. Despite this progress, maternal mortality remains unacceptably high relative to national and global targets, indicating that the substantial gains achieved have not yet translated into equitable and sufficiently low risks of maternal death across all populations and geographical settings [14,19].

Furthermore, the two 2022 population-based sources tell slightly different stories. The 2022 TDHS-MIS estimated maternal mortality at 104 deaths per 100,000 live births, substantially lower than the 147 per 100,000 reported by the 2022 PHC [13,14]. This difference highlights the importance of interpreting maternal mortality estimates in light of their different data sources, measurement approaches, reference periods and denominators, rather than treating one estimate as replacing the other [13,14].

3.2.1. Residence and Maternal Mortality Risk: Urban Disadvantage in Maternal Survival

Residence reveals a different and less visible dimension of maternal-mortality inequality. The estimated MMR is approximately 174 per 100,000 live births in urban areas compared with 135 in rural areas, while neonatal mortality is 29 per 1,000 in urban areas compared with 20 in rural areas [13,14]. The urban-specific MMR figures should be interpreted as derived estimates rather than official PHC residence-specific MMRs. Nevertheless, when considered alongside the TDHS-MIS urban-rural neonatal mortality differential, the pattern raises an important equity concern: urban Tanzania appears to experience a mortality disadvantage for both mothers and newborns [13,14]. This challenges the conventional assumption that urban residence and greater proximity to health facilities necessarily translate into better maternal and newborn survival. Rather, it points towards the possibility that urbanisation, service concentration and physical proximity to facilities do not automatically produce effective access or quality care. Intra-urban inequalities, congestion, socioeconomic deprivation, referral delays, population density and differences in quality of care may be important determinants of survival [15,18].

3.2.2. Intraurban Newborn and Maternal Mortality Inequities

The RAMOS findings reveal substantial intra-urban inequities in maternal and newborn survival across Dar es Salaam [15]. The regional NMR of 26 per 1,000 live births masks wide council-level variation, from 53 per 1,000 in Ilala to 7 per 1,000 in Ubungo, meaning that neonatal mortality in Ilala was more than seven times that of Ubungo [15]. Maternal mortality also varied markedly, with the estimated MMR ranging from 412 per 100,000 live births in Ilala to 138 per 100,000 in Temeke, with Ubungo (222), Kinondoni (174) and Kigamboni (164) falling between these extremes [15]. These patterns demonstrate that regional averages conceal substantial within-city inequalities in maternal and newborn survival.

The differences point towards variation in population vulnerability, maternal and obstetric risk, care-seeking and referral pathways, and the availability and quality of maternal and newborn services [15,18]. Evidently, Ilala emerges as a major maternal and newborn mortality hotspot, recording both the highest NMR (53 per 1,000 live births) and the highest MMR (412 per 100,000 live births) among Dar es Salaam councils [15]. This concentration of mortality warrants closer examination of population risk, referral pathways, case-mix, and the availability, readiness and quality of maternal and newborn care.

The intra-urban pattern is particularly important from an equity perspective because an apparently well-served metropolitan environment can contain communities experiencing very different levels of risk and effective access. The findings therefore support moving beyond city-level averages towards council-level and population-specific assessment of effective coverage and quality of care [15,18].

Regional Differentials

Comparison of the 2022 TDHS-MIS neonatal mortality estimates with maternal mortality reported by the 2022 Population and Housing Census reveals a complex geography of maternal and newborn health inequity [13,14]. Mainland neonatal mortality was 23 deaths per 1,000 live births, ranging from 39 in the Eastern Zone to only 9 in the Southern Zone [13].

The divergence between maternal and neonatal mortality patterns across geographical areas suggests that the determinants of survival cannot be reduced to a single measure of service availability or geographic access. Instead, mortality outcomes appear to reflect the interaction between population vulnerability, patterns of service utilisation, referral systems, provider competence, facility readiness and the quality and timeliness of care [13,14,18].

The contrast is particularly important because the Eastern Zone contains Dar es Salaam, Tanzania's most urbanised and densely serviced metropolitan area, yet records substantially higher neonatal mortality than the Southern Zone [13]. This reinforces the argument that health-system concentration is not synonymous with health-system effectiveness or equity. The critical policy question is therefore not only whether services are geographically available, but whether women and newborns receive the right care, at the right time, from adequately skilled providers, within functioning referral and emergency-care systems [18].

3.2.3. Maternal Mortality, Mother's Education, Wealth and Age

Education

Low levels of women's education and health literacy may constitute a less visible layer of maternal mortality, particularly where limited knowledge constrains women's ability to recognise pregnancy danger signs, appreciate the importance of antenatal care, or seek timely assistance when complications arise [20]. Education may therefore influence maternal survival through multiple pathways, including health literacy, autonomy, care-seeking behaviour and the ability to navigate health services.

However, education should not be interpreted in isolation. The broader findings indicate that individual and household characteristics interact with the availability, accessibility and quality of health services. A woman may recognise danger signs and seek care promptly, yet still experience an adverse outcome if referral systems, transport, staffing, essential medicines, blood supplies or emergency obstetric services are inadequate [18,21].

Wealth

Wealth reveals a more complex story than a simple poverty-mortality gradient. 22.3% of maternal deaths occurred among women from the poorest households, compared with 16.1% among the wealthiest, while neonatal mortality shows a strikingly different pattern, increasing from 13 per 1,000 among the poorest households to 31 per 1,000 among the wealthiest [13,14]. Thus, while maternal deaths are more concentrated among poorer households, neonatal mortality displays an inverse wealth gradient, with the wealthiest group experiencing more than twice the NMR of the poorest [13].

This divergence tells an important untold story: household wealth does not automatically translate into better neonatal survival. It suggests that neonatal outcomes are shaped not only by socioeconomic resources but also by the timing, quality and effectiveness of care around childbirth and the immediate newborn period [13,18].

Poverty adds another layer to this vulnerability by limiting the ability of women and their families to afford timely transportation and other costs associated with accessing appropriate maternal health services [22]. Financial and geographical barriers can delay the decision to seek care, the ability to reach a facility, or the capacity to obtain appropriate care after referral [22].

Limited access to family planning further compounds these risks by increasing the likelihood of unintended and closely spaced pregnancies and, particularly among adolescents, pregnancies occurring before women are adequately prepared for their potential risks [23]. Family planning therefore represents not only a reproductive-rights intervention but also an important upstream component of maternal and newborn survival strategies.

These individual and household-level constraints intersect with weaknesses within the health system itself. Unequal resource allocation, inadequate staffing and limited availability of essential equipment can constrain the capacity of health facilities to respond effectively when women with complications reach care [24]. Maternal mortality should therefore be understood as the product of interacting barriers across the continuum from recognising the need for care, seeking care, reaching care, receiving appropriate care, and receiving timely and competent care within the facility [18,21].

The hidden story behind regional differences in maternal mortality may therefore lie not in any single determinant, but in the interaction between women's capacity to recognise and seek care, their ability to reach services, and the health system's capacity to provide timely and effective care once they arrive [18,21]. Addressing high maternal mortality consequently requires more than expanding service coverage; it calls for integrated action across health literacy, education, poverty reduction, family planning, referral and transport systems, health-worker availability, facility readiness and equitable resource allocation.

3.2.4. Maternal Mortality Across the Reproductive Life Course

Maternal mortality does not begin and end with the question of whether a woman can reach a health facility. The 2022 PHC reveals another, less visible dimension of inequality: the risk of maternal death changes across the reproductive life course [14]. The age pattern tells a story that a national average can easily conceal. Women do not enter pregnancy with the same level of vulnerability, and the health system does not encounter the same obstetric risks at every stage of reproductive life.

The 20–24-year age group emerges as the point of lowest maternal mortality, after which the ratio generally rises with increasing age [14]. The increase becomes particularly pronounced among women aged 45–49 years. The implication is not simply that older women experience more maternal deaths. Rather, the pattern suggests that pregnancy at older reproductive ages increasingly intersects with conditions and complications that require a health system capable of recognising and responding to heightened obstetric risk [14,18].

The older woman's age therefore becomes important not as an isolated biological characteristic, but as a marker through which differential exposure to pregnancy-related complications and the capacity of services to manage them becomes visible. Advanced maternal age may be associated with a greater prevalence of certain obstetric complications, but the observed relationship should not be interpreted as an age effect independent of parity, previous obstetric history, socioeconomic position, antenatal care, place of delivery and the quality and timeliness of emergency obstetric care [18].

From Mortality Outcomes to the Pathways of Survival

The analysis of maternal mortality has shown that survival is not determined by mortality levels alone, but by the pathways through which women and newborns reach, receive and move through care. Behind every maternal or neonatal death is a largely unseen journey—whether care was sought, where it was sought, whether skilled assistance was available, and whether timely and competent care was actually received [18,21].

Mortality statistics tell us who survives and who does not, but they do not fully reveal where the survival pathway succeeds or breaks down.

This raises a critical question for the next stage of the analysis:

Does high coverage of maternal and newborn services translate into equitable and effective survival?

The question shifts the analytical focus from coverage to effective coverage, and from physical access to the capacity of the health system to convert contact with services into safe maternal and newborn outcomes. In this sense, the central equity challenge is no longer simply whether women reach health facilities, but whether the health system is sufficiently prepared, responsive and competent to ensure that every woman and newborn receives the care required for survival [18].

3.3. THE JOURNEY FROM PREGNANCY TO DELIVERY AND THE FIRST DAYS OF LIFE: UNEQUAL PATHWAYS TO NEWBORN AND MATERNAL SURVIVAL

This section focuses on maternal health care. Maternal health encompasses women's health during pregnancy, childbirth, and the postpartum period. Quality care across these stages is essential for the survival and well-being of both mothers and newborns, while antenatal care (ANC) helps identify and address risks early [18,22]. The following section therefore moves beyond mortality outcomes to examine the service coverage and pathways of care that shape maternal and newborn survival. It asks not simply whether services are available, but who reaches them, where they reach them, and what this means for the chances of survival.

3.3.1. Place of Delivery and Skilled Birth Assistance: The Quality–Equity Paradox

While Tanzania has made substantial progress in expanding antenatal care, facility delivery and skilled birth attendance, coverage alone may conceal important differences in the quality, timeliness and continuity of care [13,18]. The journey from pregnancy to delivery and the first days of life remains uneven, with some women and newborns entering the health system early and receiving competent care, while others experience delayed access, limited skilled assistance, or delivery outside facilities. The 2022 TDHS-MIS reveals an important distinction between service coverage and effective coverage. Tanzania has achieved near-universal coverage of ANC, facility delivery, and skilled birth attendance, but access remains uneven by residence, education, wealth and geography [13]. Physical access to health facilities is relatively high, but far from equitable. The persistence of these inequalities illustrates the distinction between contact with services and effective coverage—the extent to which the care received is timely, appropriate, safe and of sufficient quality to produce the intended health outcomes [18].

Place of Delivery and Postnatal Care: Home Public FBO and Private Institutional Ownership

Tanzania has made substantial progress in shifting deliveries from home to health facilities. Facility delivery increased from 51% in 2010 to 65% in 2015–16 and 81% in 2022, while home deliveries declined from 47% to 34% and 18%, respectively [13]. However, marked regional disparities persist, with facility delivery ranging from 56% in Manyara to more than 99% in Dar es Salaam and Iringa [13]. Thus, nearly one in five births still occurs outside a health facility, representing an important equity and potential survival gap.

These remaining home births are likely to be disproportionately concentrated among populations facing geographic, socioeconomic and access barriers. Their continued prevalence represents an important equity and survival concern, particularly because population-level evidence on the maternal and neonatal outcomes associated with home delivery remains limited and insufficiently disaggregated. This residual burden therefore warrants further investigation of survival outcomes among women and newborns who deliver outside health facilities. Furthermore, approximately three-quarters of births in Tanzania occur in public health facilities, underscoring the central role of the public sector in maternal and newborn survival [13]. Strengthening the quality and readiness of public maternity services is therefore critical to improving population-level outcomes [18,23].

Postnatal care represents a separate and important gap in the continuum of care. Newborns delivered in health facilities were nearly three times more likely to receive postnatal care than those delivered at home (61.4% vs. 21.8%) [13]. Despite this advantage, 33.6% of mother–newborn pairs delivering in public facilities and 75.0% of those delivering at home received no postnatal check [13]. Both represent a critical missed window for maternal and newborn survival, particularly because the first days after birth are a period of heightened risk requiring timely assessment and management of maternal and neonatal complications [18,24].

Table 2: Place of Birth by Ownership and Postnatal Care

Place of delivery	Maternal PNC (%)	Newborn PNC (%)	Both Mother & Newborn (%)	No PNC (%)
Religious/Voluntary	71.1	71.2	63.0	20.8
Private sector	66.4	69.0	59.9	24.4
Public sector	56.8	60.6	50.9	33.6
All health facilities	57.8	61.4	51.8	32.6
Home/Elsewhere	18.9	21.8	15.7	75.0

3.3.2. Unequal Access to Skilled Birth Attendance

Yet institutional delivery tells only part of the equity story. Inequities may persist within facilities, where the quality and timeliness of care depend on provider cadre, skills and competence, resources, and readiness to manage complications [18,23]. Nurses and midwives were the predominant providers of skilled birth attendance (SBA), accounting for approximately 68.3% of skilled providers, followed by doctors/AMOs (13.2%), nurse assistants (9.8%), and clinical officers/assistant clinical officers (8.4%). MCH aides contributed less than 1% (0.4%) of skilled providers [13].

This distribution highlights the central role of nurses and midwives in maternity care, while also underscoring the importance of maintaining an appropriate mix of cadres and ensuring adequate skills, resources and referral readiness across facilities [18,23]. Furthermore, the data reveal a significant difference in provider access: urban women were more than four times as likely as rural women to receive ANC from doctors or AMOs (18% versus 4%), with particularly high levels in Dar es Salaam (52%) and Morogoro (28%) [13]. Yet the presence of higher-level providers does not automatically translate into better newborn survival.

Workforce availability and service coverage alone do not automatically translate into survival. Dar es Salaam, for example, reports 100% institutional delivery and the highest concentration of higher-level maternal health providers, yet the Eastern Zone—comprising Dar es Salaam, Pwani and Morogoro—records the highest NMR (39 per 1,000), alongside substantial maternal mortality [13,14]. This contrast underscores the importance of effective coverage, quality of care, continuity and timely access to life-saving interventions rather than service availability alone [18,23].

3.3.3 Assistance During Delivery and Access to Life-Saving Care: A Clear Equity Gradient

Beyond reaching a facility and receiving routine care, equity becomes even more consequential when women and newborns require timely life-saving interventions. The pattern of birth assistance exposes a strong education and wealth divide in access to skilled providers. Assistance by doctors rises from only 3.3% among women with no education to 19.5% among those with secondary or higher education. The wealth gradient is even sharper, increasing from 4.0% among the poorest women to 27.0% among the wealthiest [13]. Although nurses and midwives provide the majority of delivery assistance across groups, the concentration of higher-level providers among educated and wealthier women reveals an important equity gap.

Access to caesarean section (C/S), a core component of comprehensive emergency obstetric and newborn care (CEmONC), illustrates this clearly. When medically indicated and performed in a timely manner, C/S can prevent maternal deaths from obstetric complications while also averting newborn deaths associated with conditions such as obstructed labour and fetal distress [18,25]. Yet access to C/S shows a pronounced gradient by both education and wealth. C/S increased from only 4.3% among women with no education to 19.8% among those with secondary or higher education. The wealth gradient is even sharper, rising from 4.1% among the poorest women to 23.7% among the wealthiest—an almost six-fold difference [13].

The expansion of emergency obstetric capacity provides a plausible pathway through which Tanzania's maternal mortality may have declined substantially between the 2012 and 2022 Censuses. This was not only a story of more women reaching health facilities, but also of an expanding capacity to intervene when childbirth became life-threatening [14,25]. The SARA 2023 Report shows that CEmOC services were available in 88% of hospitals and 54% of health centres, while caesarean section was available in 82% and 50%, respectively. Blood transfusion services were available in 83% of hospitals and 49% of health centres [26]. These figures suggest that life-saving obstetric capacity had increasingly extended beyond referral hospitals into the primary health-care platform.

One particularly important analytical insight emerges from the contrasting trajectories of MMR and NMR: the expansion of CEmONC may have contributed to the sharp decline in maternal mortality by increasing the health system's capacity to manage life-threatening obstetric complications [14,26]. However, the slower decline in neonatal mortality suggests that the expansion of emergency obstetric capacity may not have been matched by an equally strong expansion of the full continuum of quality newborn care [13,18].

In other words, the health system may have become better at saving women during obstetric emergencies than at ensuring that newborns survive the critical hours and days following birth. This contrast offers a powerful **“untold story” of progress**: maternal survival has improved substantially, but newborn survival continues to expose gaps in the completeness, quality and continuity of care across the maternal–newborn continuum.

3.3.4. Mothers' and Newborn Postnatal Care

Timing matters. Among newborns receiving care, most checks occurred within the first 3 hours (34.4%), while a further 16.2% occurred between 4 and 23 hours and 10.1% during days 1–2 [13]. However, only 33.6% of facility-born newborns and 75.0% of those born elsewhere received no postnatal check, exposing a major missed opportunity during the critical first 48 hours [13,24].

Mothers' Postnatal Checks: Timely Care, Education, Geography and Wealth

Coverage was uneven geographically. On the mainland, only 50.2% of mothers received a postnatal check within two days, while 44.4% received none [13]. Urban women were more likely than rural women to receive timely care (59.8% versus 47.0%), yet Dar es Salaam challenges the assumption that urban advantage automatically ensures continuity: despite its concentration of facilities and skilled providers, only 65.9% received a check within two days, while 18.4% received none [13].

Regional disparities were even wider, ranging from 20.9% in Katavi to 86.4% in Iringa [13]. The untold equity story is therefore that inequality does not end at delivery; survival depends on whether women can continue to access timely and effective care during the vulnerable postnatal period [18,24].

3.3.5. Newborn Postnatal Coverage: The First 48 Hours—A Critical Window for Survival

The first 48 hours after birth are a critical window for newborn survival, when timely postnatal checks can detect and treat complications before they become fatal [24]. Yet the findings expose a plain and largely hidden equity gap: only **53.9% of newborns received a postnatal check within two days, while 41.4% received none at all** [13]. The untold equity story is that surviving childbirth does not guarantee surviving the first days of life—newborns remain exposed to preventable risks precisely when timely care matters most.

WHO recommends that newborns receive an initial postnatal assessment within the first 24 hours and further postnatal contacts thereafter, including assessment for danger signs and appropriate treatment or referral when complications are identified [24]. This is particularly important because the immediate postnatal period provides an opportunity to identify breathing difficulties, infection, feeding problems, hypothermia, jaundice and other potentially life-threatening conditions [24].

3.3.6. Type of Provider for Newborn First PNC Within Two Days by Zone: Nurse–Midwife Factor

Nurses and midwives remain the dominant professional cadres providing early postnatal care (PNC), highlighting their critical contribution to newborn survival during the highest-risk period—the first 28 days of life [13,27]. Effective early PNC, particularly within the first 48 hours after birth, depends heavily on the availability, competence and timely engagement of these frontline providers to identify and manage newborn complications such as birth asphyxia, infection, prematurity and feeding difficulties [18,27].

However, the persistence of neonatal mortality despite high reliance on nurse- and midwife-led PNC suggests that provider presence alone may not translate into effective newborn survival outcomes. Variations in NMR may reflect differences in the quality, timing, coverage and content of PNC contacts, including whether newborns receive complete assessments, danger-sign screening, counselling, and appropriate referral or treatment when complications are detected [18,24].

Furthermore, the zonal distribution suggests that neonatal survival is not explained by provider availability alone. Although not conclusive, the Southern Zone provides a potential positive-deviance signal, combining the lowest NMR (9 per 1,000 live births) with high nurse–midwife involvement and comparatively better early PNC coverage [13]. In contrast, the Eastern Zone records the highest NMR (39 per 1,000) despite a greater concentration of higher-level providers, highlighting the importance of effective coverage, continuity and quality of care beyond provider availability.

The Eastern Zone presents a distinctive provider–outcome pattern: it has the highest neonatal mortality (39 per 1,000 live births) alongside the highest reported involvement of doctors/AMOs (26.3%) but relatively low nurse/midwife involvement (26.2%) [13]. This ecological contrast should not be interpreted causally, but it raises an important hypothesis concerning whether provider mix, continuity of care and the competencies required for immediate newborn care are aligned with the needs of populations experiencing the highest mortality.

Table 3: Postnatal Care Rate by Zones and type of Cadre and NMR

Zone	Doctor/AMO	CO/ACO	Nurse/Midwife	Assistant Nurse	MCH Aide	No PNC	NMR
Western	8.3	2.5	34.7	3.4	0.0	50.4	25
Northern	7.9	4.9	27.2	5.7	0.0	51.9	23
Central	8.4	5.0	35.0	0.2	0.0	50.8	13
Southern Highlands	13.1	7.9	56.1	6.0	0.0	16.8	37
Southern	5.1	7.4	59.4	4.1	0.0	23.2	9
South West Highlands	4.7	3.0	30.1	1.0	0.0	60.5	20
Lake	3.0	9.1	34.9	3.6	0.3	47.2	18
Eastern	26.3	3.4	26.2	2.8	0.0	40.8	39
Zanzibar	8.6	4.8	41.0	1.2	0.1	—	34

Nurses and midwives constitute the principal reported provider cadre for newborn postnatal care in most zones of Tanzania, with their contribution highest in the Southern Zone (59.4%) and Southern Highlands (56.1%) [13]. This pattern is consistent with global recognition of midwives as a critical workforce for maternal and newborn survival and equitable access to essential care [27].

The zonal distribution provides an important signal: the Southern Zone combines the highest nurse–midwife involvement with the lowest NMR (9 per 1,000 live births), while the Eastern Zone has comparatively lower nurse–midwife involvement (26.2%), greater doctor/AMO involvement (26.3%), and the highest NMR (39 per 1,000) [13]. Although ecological and not causal, this contrast warrants further investigation of how provider mix, continuity and quality of postnatal care contribute to newborn survival.

3.3.7. Postnatal Care and Mother's Socioeconomic Status: Safe Hands Matters More

Furthermore, a clear social gradient emerges in timely newborn care: coverage increased from 41.5% among newborns of mothers with no education to 64.7% among those whose mothers had secondary or higher education, and from 40.2% among the poorest households to 66.7% among

the richest [13]. Thus, the advantage of education and wealth is reflected not merely in whether newborns receive care, but in how quickly they come under professional observation.

This timing matters. WHO recommends newborn assessment and care within the first 24 hours, recognising the first days after birth as a critical window for detecting danger signs and preventing avoidable deaths [24]. The timing trajectory is especially revealing: within the first hour, only 3.2% of newborns in the poorest households received a postnatal check compared with 16.1% among the richest. By two days, the gap remained substantial—40.2% versus 66.7% [13].

Thus, socioeconomic inequality is not merely determining whether newborns receive care; it is influencing how long they remain without professional assessment during the most vulnerable period of life. WHO similarly emphasises that the quality of care does not end at delivery and recommends continued postnatal contacts, including early assessment and follow-up after discharge [24]. The equity challenge is therefore to ensure that every newborn is brought into “safe hands” early enough, regardless of household wealth, maternal education or place of residence. Importantly, the burden of neonatal mortality may remain concentrated among disadvantaged urban populations despite better coverage of maternal and child health interventions and better living conditions. Evidence of substantial urban inequalities suggests that urban service concentration can coexist with severe intra-urban inequity [28].

3.3.8. Postnatal Care and Residence: The First 48 Hours Newborn Care Matters Most

The equity gap in timely newborn postnatal care is evident across both residence and place of delivery. Timely checks reached 62.8% of urban newborns compared with 50.6% of rural newborns, while facility-born babies were almost three times as likely to receive timely care as those delivered elsewhere (61.4% versus 21.8%) [13]. These differences point to an important divide between simply having access to services and receiving timely professional observation during the most vulnerable period of newborn life.

Geographical disparities are even more pronounced, ranging from only 19.7% in Katavi and 23.5% in Rukwa to 84.9% in Iringa and 84.8% in Lindi [13]. The Lindi finding is particularly compelling: its exceptionally high timely postnatal coverage coincides with the lowest NMR in the comparative analysis, at 9 per 1,000 live births [13]. While this does not establish causality, the alignment provides a strong hypothesis for further investigation—timely postnatal contact may be one pathway through which health systems translate service coverage into newborn survival.

Conversely, the Eastern Zone—Dar es Salaam, Pwani and Morogoro—presents a striking counterpoint. Despite greater concentration of health services, only 59.2% of newborns received timely postnatal care, while the zone recorded the highest NMR at 39 per 1,000 [13]. The contrast challenges the assumption that proximity to facilities or urbanisation automatically produces better newborn outcomes.

The untold equity story is therefore not simply where services are concentrated, but whether newborns receive timely, effective and continuous care when and where survival depends on it [18,24].

The Tanzanian evidence supports this interpretation. A study using earlier DHS data found that urban residence remained associated with approximately twice the odds of neonatal mortality compared with rural residence, even after adjusting for several maternal and birth characteristics. The authors pointed to possible roles for quality of facility-based care, health-seeking behaviour and other contextual factors [29]. More recent analysis of Dar es Salaam similarly identified an urban penalty in neonatal survival, reinforcing the need to investigate intra-urban differences in service quality, population vulnerability and access to effective care [15,28].

Taken together, these findings suggest that Tanzania's maternal and newborn health challenge is increasingly one of effective coverage rather than simple service availability. The country has made substantial progress in bringing women into contact with maternal health services, but the persistence of geographical, socioeconomic and provider-related differences indicates that the next phase of progress will depend on improving the quality, timeliness, continuity and equity of care across the entire maternal–newborn continuum [18,24].

4. DISCUSSION

4.1. MATERNAL AND NEWBORN MORTALITY SOCIODEMOGRAPHICS

This section focuses on maternal health care. Maternal health encompasses women's health during pregnancy, childbirth, and the postpartum period. Quality care across these stages is essential for the survival and well-being of both mothers and newborns, while antenatal care (ANC) helps identify and address risks early [18,22]. While Tanzania has made substantial progress in expanding antenatal care, facility delivery and skilled birth attendance, coverage alone may conceal important differences in the quality, timeliness and continuity of care [13,18]. The journey from pregnancy to delivery and the first days of life remains uneven, with some women and newborns entering the health system early and receiving competent care, while others experience delayed access, limited skilled assistance, or delivery outside facilities.

The following section therefore moves beyond mortality outcomes to examine the service coverage and pathways of care that shape maternal and newborn survival. It asks not simply whether services are available, but **who reaches them, where they reach them, and what this means for the chances of survival.**

Place of Delivery and Skilled Birth Assistance: The Quality–Equity Paradox

The 2022 TDHS-MIS reveals an important distinction between service coverage and effective coverage. Tanzania has achieved near-universal coverage of ANC, facility delivery, and skilled birth attendance, but access remains uneven by residence, education, wealth and geography [13]. Physical access to health facilities is relatively high, but far from equitable. The persistence of these inequalities illustrates the distinction between contact with services and effective coverage—the extent to which the care received is timely, appropriate, safe and of sufficient quality to produce the intended health outcomes [18].

Place of Delivery and Postnatal Care

Tanzania has made substantial progress in shifting deliveries from home to health facilities. Facility delivery increased from 51% in 2010 to 65% in 2015–16 and 81% in 2022, while home deliveries declined from 47% to 34% and 18%, respectively [13]. However, marked regional disparities persist, with facility delivery ranging from 56% in Manyara to more than 99% in Dar es Salaam and Iringa [13]. Thus, nearly one in five births still occurs outside a health facility, representing an important equity and potential survival gap.

These remaining home births are likely to be disproportionately concentrated among populations facing geographic, socioeconomic and access barriers. Their continued prevalence represents an important equity and survival concern, particularly because population-level evidence on the maternal and neonatal outcomes associated with home delivery remains limited and insufficiently disaggregated. This residual burden therefore warrants further investigation of survival outcomes among women and newborns who deliver outside health facilities. Furthermore, approximately three-quarters of births in Tanzania occur in public health facilities, underscoring the central role of the public sector in maternal and newborn survival [13]. Strengthening the quality and readiness of public maternity services is therefore critical to improving population-level outcomes [18,23].

Postnatal care represents a separate and important gap in the continuum of care. Newborns delivered in health facilities were nearly three times more likely to receive postnatal care than those delivered at home (61.4% vs. 21.8%) [13]. Despite this advantage, 33.6% of mother–newborn pairs delivering in public facilities and 75.0% of those delivering at home received no postnatal check [13]. Both represent a critical missed window for maternal and newborn survival, particularly because the first days after birth are a period of heightened risk requiring timely assessment and management of maternal and neonatal complications [18,24].

Unequal Access to Skilled Birth Attendance

Yet institutional delivery tells only part of the equity story. Inequities may persist within facilities, where the quality and timeliness of care depend on provider cadre, skills and competence, resources, and readiness to manage complications [18,23]. Nurses and midwives were the predominant providers of skilled birth attendance (SBA), accounting for approximately 68.3% of skilled providers, followed by doctors/AMOs (13.2%), nurse assistants (9.8%), and clinical officers/assistant clinical officers (8.4%). MCH aides contributed less than 1% (0.4%) of skilled providers [13].

This distribution highlights the central role of nurses and midwives in maternity care, while also underscoring the importance of maintaining an appropriate mix of cadres and ensuring adequate skills, resources and referral readiness across facilities [18,23]. Furthermore, the data reveal a significant difference in provider access: urban women were more than four times as likely as rural women to receive ANC from doctors or AMOs (18% versus 4%), with particularly high levels in Dar es Salaam (52%) and Morogoro (28%) [13]. Yet the presence of higher-level providers does not automatically translate into better newborn survival.

Workforce availability and service coverage alone do not automatically translate into survival. Dar es Salaam, for example, reports 100% institutional delivery and the highest concentration of higher-level maternal health providers, yet the Eastern Zone—comprising Dar es Salaam, Pwani and Morogoro—records the highest NMR (39 per 1,000), alongside substantial maternal mortality [13,14]. This contrast underscores the importance of effective coverage, quality of care, continuity and timely access to life-saving interventions rather than service availability alone [18,23].

Assistance During Delivery and Access to Life-Saving Care: A Clear Equity Gradient

Beyond reaching a facility and receiving routine care, equity becomes even more consequential when women and newborns require timely life-saving interventions. The pattern of birth assistance exposes a strong education and wealth divide in access to skilled providers. Assistance by doctors rises from only 3.3% among women with no education to 19.5% among those with secondary or higher education. The wealth gradient is even sharper, increasing from 4.0% among the poorest women to 27.0% among the wealthiest [13]. Although nurses and midwives provide the majority of delivery assistance across groups, the concentration of higher-level providers among educated and wealthier women reveals an important equity gap.

Access to caesarean section (C/S), a core component of comprehensive emergency obstetric and newborn care (CEmONC), illustrates this clearly. When medically indicated and performed in a timely manner, C/S can prevent maternal deaths from obstetric complications while also averting newborn deaths associated with conditions such as obstructed labour and fetal distress [18,25]. Yet access to C/S shows a pronounced gradient by both education and wealth. C/S increased from only 4.3% among women with no education to 19.8% among those with secondary or higher education. The wealth gradient is even sharper, rising from 4.1% among the poorest women to 23.7% among the wealthiest—an almost six-fold difference [13].

The expansion of emergency obstetric capacity provides a plausible pathway through which Tanzania's maternal mortality may have declined substantially between the 2012 and 2022 Censuses. This was not only a story of more women reaching health facilities, but also of an expanding capacity to intervene when childbirth became life-threatening [14,25]. The SARA 2023 Report shows that CEmOC services were available in 88% of hospitals and 54% of health centres, while caesarean section was available in 82% and 50%, respectively. Blood transfusion services were available in 83% of hospitals and 49% of health centres [26]. These figures suggest that life-saving obstetric capacity had increasingly extended beyond referral hospitals into the primary health-care platform.

One particularly important analytical insight emerges from the contrasting trajectories of MMR and NMR: the expansion of CEmONC may have contributed to the sharp decline in maternal mortality by increasing the health system's capacity to manage life-threatening obstetric complications [14,26]. However, the slower decline in neonatal mortality suggests that the expansion of emergency obstetric capacity may not have been matched by an equally strong expansion of the full continuum of quality newborn care [13,18].

In other words, the health system may have become better at saving women during obstetric emergencies than at ensuring that newborns survive the critical hours and days following birth. This contrast offers a powerful **“untold story” of progress**: maternal survival has improved substantially, but newborn survival continues to expose gaps in the completeness, quality and continuity of care across the maternal–newborn continuum.

Mothers' and Newborn Postnatal Care

Timing matters. Among newborns receiving care, most checks occurred within the first 3 hours (34.4%), while a further 16.2% occurred between 4 and 23 hours and 10.1% during days 1–2 [13]. However, only 33.6% of facility-born newborns and 75.0% of those born elsewhere received no postnatal check, exposing a major missed opportunity during the critical first 48 hours [13,24].

Mothers' Postnatal Checks: Timely Care, Education, Geography and Wealth

Coverage was uneven geographically. On the mainland, only 50.2% of mothers received a postnatal check within two days, while 44.4% received none [13]. Urban women were more likely than rural women to receive timely care (59.8% versus 47.0%), yet Dar es Salaam challenges the assumption that urban advantage automatically ensures continuity: despite its concentration of facilities and skilled providers, **only** 65.9% received a check within two days, while 18.4% received none [13].

Regional disparities were even wider, ranging from 20.9% in Katavi to 86.4% in Iringa [13]. The untold equity story is therefore that inequality does not end at delivery; survival depends on whether women can continue to access timely and effective care during the vulnerable postnatal period [18,24].

Newborn Postnatal Coverage: The First 48 Hours—A Critical Window for Survival

The first 48 hours after birth are a critical window for newborn survival, when timely postnatal checks can detect and treat complications before they become fatal [24]. Yet the findings expose a plain and largely hidden equity gap: only 53.9% of newborns received a postnatal check within two days, while 41.4% received none at all [13]. The untold equity story is that surviving childbirth does not guarantee surviving the first days of life—newborns remain exposed to preventable risks precisely when timely care matters most.

WHO recommends that newborns receive an initial postnatal assessment within the first 24 hours and further postnatal contacts thereafter, including assessment for danger signs and appropriate treatment or referral when complications are identified [24]. This is particularly important because the immediate postnatal period provides an opportunity to identify breathing difficulties, infection, feeding problems, hypothermia, jaundice and other potentially life-threatening conditions [24].

Type of Provider for Newborn First PNC Within Two Days by Zone: Nurse–Midwife Factor

Nurses and midwives remain the dominant professional cadres providing early postnatal care (PNC), highlighting their critical contribution to newborn survival during the highest-risk period—the first 28 days of life [13,27]. Effective early PNC, particularly within the first 48 hours after birth, depends heavily on the availability, competence and timely engagement of these frontline providers to identify and manage newborn complications such as birth asphyxia, infection, prematurity and feeding difficulties [18,27].

However, the persistence of neonatal mortality despite high reliance on nurse- and midwife-led PNC suggests that provider presence alone may not translate into effective newborn survival outcomes. Variations in NMR may reflect differences in the quality, timing, coverage and content of PNC contacts, including whether newborns receive complete assessments, danger-sign screening, counselling, and appropriate referral or treatment when complications are detected [18,24].

Furthermore, the zonal distribution suggests that neonatal survival is not explained by provider availability alone. Although not conclusive, the Southern Zone provides a potential positive-deviance signal, **combining the lowest NMR (9 per 1,000 live births)** with high nurse–midwife involvement and comparatively better early PNC coverage [13]. In contrast, the Eastern Zone records the highest NMR (**39 per 1,000**) despite a greater concentration of higher-level providers, highlighting the importance of effective coverage, continuity and quality of care beyond provider availability.

The Eastern Zone presents a distinctive provider–outcome pattern: it has the highest neonatal mortality (**39 per 1,000 live births**) alongside the highest reported involvement of doctors/AMOs (**26.3%**) but relatively low nurse/midwife involvement (**26.2%**) [13]. This ecological contrast should not be interpreted causally, but it raises an important hypothesis concerning whether provider mix, continuity of care and the competencies required for immediate newborn care are aligned with the needs of populations experiencing the highest mortality.

Nurses and midwives constitute the principal reported provider cadre for newborn postnatal care in most zones of Tanzania, with their contribution highest in the **Southern Zone (59.4%)** and **Southern Highlands (56.1%)** [13]. This pattern is consistent with global recognition of midwives as a critical workforce for maternal and newborn survival and equitable access to essential care [27].

The zonal distribution provides an important signal: the Southern Zone combines the highest nurse–midwife involvement with the lowest NMR (**9 per 1,000 live births**), while the Eastern Zone has comparatively lower nurse–midwife involvement (**26.2%**), greater doctor/AMO involvement (**26.3%**), and the highest NMR (**39 per 1,000**) [13]. Although ecological and not causal, this contrast warrants further investigation of how provider mix, continuity and quality of postnatal care contribute to newborn survival.

Postnatal Care and Mother's Socioeconomic Status

Furthermore, a clear social gradient emerges in timely newborn care: coverage increased from 41.5% among newborns of mothers with no education to 64.7% among those whose mothers had secondary or higher education, **and from 40.2% among the poorest households to 66.7% among the richest** [13]. Thus, the advantage of education and wealth is reflected not merely in whether newborns receive care, but in how quickly they come under professional observation.

This timing matters. WHO recommends newborn assessment and care within the first 24 hours, recognising the first days after birth as a critical window for detecting danger signs and preventing avoidable deaths [24]. The timing trajectory is especially revealing: within the first hour, only 3.2% of newborns in the poorest households received a postnatal check compared with 16.1% among the richest. By two days, the gap remained substantial—40.2% versus 66.7% [13].

Thus, socioeconomic inequality is not merely determining whether newborns receive care; it is influencing how long they remain without professional assessment during the most vulnerable period of life. WHO similarly emphasises that the quality of care does not end at delivery and recommends continued postnatal contacts, including early assessment and follow-up after discharge [24]. The equity challenge is therefore to ensure that every newborn is brought into “**safe hands**” **early enough**, regardless of household wealth, maternal education or place of residence.

Importantly, the burden of neonatal mortality may remain concentrated among disadvantaged urban populations despite better coverage of maternal and child health interventions and better

living conditions. Evidence of substantial urban inequalities suggests that urban service concentration can coexist with severe intra-urban inequity [28].

Postnatal Care and Residence: The First 48 Hours

The equity gap in timely newborn postnatal care is evident across both residence and place of delivery. Timely checks reached **62.8% of urban newborns compared with 50.6% of rural newborns**, while facility-born babies were almost three times as likely to receive timely care as those delivered elsewhere (**61.4% versus 21.8%**) [13]. These differences point to an important divide between simply having access to services and receiving timely professional observation during the most vulnerable period of newborn life.

Geographical disparities are even more pronounced, ranging from only **19.7% in Katavi and 23.5% in Rukwa to 84.9% in Iringa and 84.8% in Lindi** [13]. The Lindi finding is particularly compelling: its exceptionally high timely postnatal coverage coincides with the lowest NMR in the comparative analysis, at **9 per 1,000 live births** [13]. While this does not establish causality, the alignment provides a strong hypothesis for further investigation—timely postnatal contact may be one pathway through which health systems translate service coverage into newborn survival.

Conversely, the **Eastern Zone—Dar es Salaam, Pwani and Morogoro—presents a striking counterpoint**. Despite greater concentration of health services, only **59.2% of newborns received timely postnatal care**, while the zone recorded the highest NMR at **39 per 1,000** [13]. The contrast challenges the assumption that proximity to facilities or urbanisation automatically produces better newborn outcomes.

The untold equity story is therefore not simply **where services are concentrated**, but **whether newborns receive timely, effective and continuous care when and where survival depends on it** [18,24].

The Tanzanian evidence supports this interpretation. A study using earlier DHS data found that urban residence remained associated with approximately twice the odds of neonatal mortality compared with rural residence, even after adjusting for several maternal and birth characteristics. The authors pointed to possible roles for quality of facility-based care, health-seeking behaviour and other contextual factors [29]. More recent analysis of Dar es Salaam similarly identified an urban penalty in neonatal survival, reinforcing the need to investigate intra-urban differences in service quality, population vulnerability and access to effective care [15,28].

Taken together, these findings suggest that Tanzania's maternal and newborn health challenge is increasingly one of **effective coverage rather than simple service availability**. The country has made substantial progress in bringing women into contact with maternal health services, but the persistence of geographical, socioeconomic and provider-related differences indicates that the next phase of progress will depend on improving the **quality, timeliness, continuity and equity of care across the entire maternal-newborn continuum** [18,24].

4.2. POLICY IMPLICATIONS

When Access Changes What Mortality Reveals: Interpretation Caveat

The apparently higher neonatal mortality among wealthier and more educated groups in the 2022 TDHS-MIS should therefore be interpreted cautiously rather than as evidence that wealth increases neonatal risk. One possible explanation is differential detection and reporting: newborns of wealthier women are more likely to be delivered in facilities and assessed by health professionals, making deaths more likely to be recognised and recorded. In addition, wealthier and urban women who reach referral hospitals may include a higher proportion of complicated pregnancies and vulnerable newborns. Similar concerns about the relationship between service coverage, quality of care, case mix and observed urban neonatal mortality have been raised in the Tanzanian literature

(Kibusi et al., 2022; Kandala et al., 2024). The finding should therefore be treated as an important epidemiological puzzle requiring further analysis, rather than interpreted as a straightforward inverse wealth gradient.

Overall, the evidence shifts the equity question from “Are services available?” to “Who is actually protected by them?” The continuum from ANC to skilled birth attendance, CEmONC, immediate newborn assessment and postnatal follow-up show repeated points at which socioeconomic and geographical inequalities emerge. The evidence is consistent with the broader health-equity literature, which distinguishes between contact with services and effective coverage, where care must be timely, appropriate, accessible and of sufficient quality to produce the intended health outcome (Victora et al., 2005). In this sense, **Tanzania's challenge is no longer simply to expand coverage, but to close the gap between coverage and survival.** The poorest, least educated, rural and otherwise underserved populations must be able to move through the entire maternal-newborn continuum without losing the protective benefit of care.

5. CONCLUSION AND RECOMENDATIONS

5.1. SUMMARY

Tanzania's maternal and newborn mortality story is, at first sight, a story of progress. Maternal mortality has fallen substantially, and the health system has expanded its network of facilities, skilled providers and emergency obstetric services. More women are reaching health facilities to give birth, and the capacity to intervene when childbirth becomes dangerous has grown. Yet, when the story is read more closely, the gains are not shared evenly, and the pathway from reaching care to surviving care is far from straightforward.

The data reveal a series of important paradoxes. Urban women generally have greater access to facilities and higher-level providers, yet urbanisation does not automatically translate into lower neonatal mortality. Dar es Salaam and the wider Eastern Zone illustrate this tension particularly clearly: a dense concentration of health services coexists with the highest neonatal mortality in the comparative analysis. At the other end of the spectrum, Lindi combines exceptionally high timely newborn postnatal coverage with the lowest neonatal mortality, while the Southern Zone shows that relatively favourable newborn outcomes can coexist with persistent maternal mortality. These contrasts do not prove that one service causes another outcome, but they shift the question from **where services are available to what happens when people encounter them.**

The maternal mortality decline may partly reflect the health system's growing ability to rescue women when complications occur. The expansion of CEmONC and caesarean section has increased opportunities to manage obstructed labour, haemorrhage and other life-threatening complications. But the benefits of this capacity are not equally distributed. The steep wealth and education gradients in C/S access show that the ability to reach life-saving care remains socially patterned. The same story continues after delivery. Large proportions of women and newborns do not receive timely postnatal checks, and those who are poorer, less educated, rural or born outside health facilities are less likely to receive timely professional observation. **The threshold of the facility, therefore, is not the end of inequality; in many cases, it is where another layer of inequality begins.**

The newborn findings make this unfinished story particularly visible. The slower decline in neonatal mortality compared with maternal mortality suggests that expanding emergency obstetric capacity has not necessarily been matched by an equally strong expansion of effective newborn care. A mother may survive a complicated delivery because the health system can perform a caesarean section, yet her newborn may remain vulnerable to birth asphyxia, prematurity, infection, respiratory distress or other complications requiring skilled care in the first hours and days of life. **Maternal survival and newborn survival are therefore connected, but they do not necessarily move together. The health system may have become better at saving women during childbirth than at protecting newborns in the fragile hours that follow.**

The apparent wealth and education paradox in neonatal mortality adds another layer to this story. Higher mortality among wealthier and more educated groups should not be read as evidence that poverty protects newborns. Rather, greater access to facilities, referral hospitals and professional observation may increase the likelihood that complicated births and neonatal deaths are detected and recorded. At the same time, the consistently lower access to timely care among poorer and less educated women remains a clear equity concern. The evidence therefore cautions against reading mortality statistics in isolation from the pathways through which women and newborns enter, move through and experience the health system.

Taken together, these findings suggest that Tanzania is entering a different phase of the maternal and newborn health journey. The earlier challenge was largely **bringing services closer to people**. The emerging challenge is ensuring that contact with those services results in **timely, competent and effective care**. Equity must therefore be understood not only in terms of who has a facility nearby, but who can obtain the right care at the right moment, from a capable provider, with the necessary medicines, equipment, blood, referral and newborn support.

The ultimate test of health-system equity is consequently not how evenly facilities or services are distributed, but **how equitably the health system produces survival**. Tanzania's next chapter must therefore move beyond counting facilities, contacts and coverage towards asking what those contacts achieve. Continued expansion remains important, but it must be accompanied by stronger facility readiness, equitable access to CEmONC and newborn care, risk-responsive maternal services, timely postnatal follow-up, stronger urban and rural health planning, and accountability for outcomes. The untold equity story is ultimately a simple one: **getting women and newborns to care is only the beginning; the real measure of progress is whether the care they encounter is capable of keeping them alive**.

5.2. POLICY RECOMMENDATIONS

Tanzania has made important progress in expanding maternal and newborn health services. **The next policy frontier is to** convert coverage into equitable survival. The following priorities should guide the next phase of RMNCAH investment and implementation:

1. Shift from service coverage to effective, equity-adjusted coverage

Measure should not only focus on whether women and newborns reach services, but whether they receive the right care, from the right provider, at the right time and at the required quality. Routine monitoring should link coverage with facility readiness, clinical quality, timeliness, continuity and survival outcomes, disaggregated by geography, wealth, education and other equity dimensions.

2. Make the first 48 hours a national survival priority

Early postnatal care should be treated as a life-saving intervention, not a routine follow-up. Every facility birth should receive documented maternal and newborn assessment before discharge, with timely follow-up and referral. Community health workers should support early identification of danger signs and ensure vulnerable mothers and newborns are not lost after delivery.

3. Close inequities in access to life-saving care: Social Protection Measures

Direct resources towards populations facing the greatest mortality risk and weakest access to CEmONC, skilled providers, transport and referral services. Address the pronounced wealth and education gradients in access to lifesaving and timely postnatal care through targeted financial, transport, information and referral support.

4. Integrate newborn survival into emergency obstetric investment

Strengthening CEmONC must go hand-in-hand with quality newborn care. Every investment in emergency obstetric capacity should include newborn resuscitation, infection management,

thermal and feeding support, care for preterm and low-birth-weight newborns, and functional referral pathways for sick newborns. Saving mothers and saving newborns must be planned as one continuum of care.

5. Adopt differentiated urban, peri-urban and rural strategies

Urbanisation should no longer be assumed to confer health advantage. Rapidly growing cities require targeted strategies addressing intra-urban inequality, overcrowding, facility congestion, referral delays and quality-of-care constraints, while rural areas require continued investment in transport, staffing, geographical access and referral systems. Planning should follow population need and mortality risk—not simply urban–rural categories.

6. Make survival the ultimate measure of health-system performance

Tanzania should use maternal and perinatal mortality surveillance as an early-warning system for health-system inequity, linking deaths with place of delivery, referral pathways, facility readiness, timing and quality of care, and population characteristics. National and subnational resource allocation should prioritise areas where mortality risk and service deficiencies intersect. The central policy test should therefore be:

Do our investments save lives and do they save the lives of those most at risk?

Tanzania has made substantial progress in bringing services closer to communities. The next challenge is to ensure that every woman and newborn who reaches care receives competent, timely and continuous care capable of producing survival.

Advocacy Message

The central equity message is clear: Tanzania does not only need more coverage; it needs more equal conversion of coverage into survival. The poorest, least educated and underserved women must be able to move through the entire continuum—from ANC to skilled delivery, emergency care and early newborn follow-up—without losing the protective benefit at any point.

Key advocacy questions emerging from the evidence

Equity question	What the evidence suggests
Who reaches care?	Wealthier, more educated and urban women have greater access to facility delivery and higher-level providers.
Who receives life-saving intervention?	C/S and higher-level delivery assistance are strongly concentrated among advantaged groups.
Who receives care early enough?	Timely newborn PNC is substantially higher among urban, educated and wealthy households.
Does facility concentration guarantee survival?	No. Dar es Salaam/Eastern Zone demonstrates the paradox.
What may explain Lindi's low NMR?	Its exceptionally high early postnatal coverage is a plausible protective pathway requiring further investigation.
What is the real equity gap?	Moving from service availability and utilisation to timely, quality and effective coverage .

Bibliography

1. Ministry of Health, Community Development, Gender, Elderly and Children (MoHCDGEC) [Tanzania Mainland], Ministry of Health [Zanzibar], National Bureau of Statistics, Office of the Chief Government Statistician, & ICF. (2016). *Tanzania demographic and health survey and malaria indicator survey 2015–2016*. MoHCDGEC, MoH, NBS, OCGS, and ICF.
2. Ministry of Health, Community Development, Gender, Elderly and Children [Tanzania Mainland], Ministry of Health [Zanzibar], National Bureau of Statistics, Office of the Chief Government Statistician, & ICF. (2023). *Tanzania demographic and health survey and malaria indicator survey 2022*. MoH, MoH Zanzibar, NBS, OCGS, and ICF.
3. National Bureau of Statistics. (2013). *2012 population and housing census: Population distribution by administrative areas*. National Bureau of Statistics.
4. National Bureau of Statistics. (2023). *2022 population and housing census: Administrative units population distribution*. National Bureau of Statistics.
5. National Bureau of Statistics, & Office of the Chief Government Statistician. (2024). *2022 Population and Housing Census: Mortality and causes of death / maternal mortality findings*. National Bureau of Statistics.
6. Ministry of Health, Community Development, Gender, Elderly and Children. (2020). *National reproductive, maternal, newborn, child and adolescent health and nutrition strategic plan*. Ministry of Health.
7. Ministry of Health. (2021). *National maternal and perinatal death surveillance and response (MPDSR) guideline*. Ministry of Health.
8. Ministry of Health. (2023). *Service availability and readiness assessment (SARA) report: Tanzania Mainland*. Ministry of Health.
9. World Health Organization. (2015). *Strategies toward ending preventable maternal mortality (EPMM)*. World Health Organization.
10. World Health Organization. (2016). *Standards for improving quality of maternal and newborn care in health facilities*. World Health Organization.
11. World Health Organization. (2017). *Quality, equity, dignity: Network for improving quality of care for maternal, newborn and child health*. World Health Organization.
12. World Health Organization. (2022). *WHO recommendations for maternal and newborn care for a positive postnatal experience*. World Health Organization.
13. Ministry of Health, Community Development, Gender, Elderly and Children [Tanzania Mainland], Ministry of Health [Zanzibar], National Bureau of Statistics, Office of the Chief Government Statistician, & ICF. (2023). *Tanzania demographic and health survey and malaria indicator survey 2022*. MoH, MoH Zanzibar, NBS, OCGS, and ICF.
14. National Bureau of Statistics. (2023). *2022 Population and Housing Census: Mortality and maternal mortality findings*. National Bureau of Statistics.
15. National Bureau of Statistics. (2024). *Reproductive Age Mortality Study (RAMOS): Dar es Salaam maternal and neonatal mortality findings*. National Bureau of Statistics.
16. Ministry of Health. (2024). *Maternal and Perinatal Death Surveillance and Response (MPDSR) annual report*. Ministry of Health.
17. United Nations Maternal Mortality Estimation Inter-Agency Group. (2023). *Trends in maternal mortality 2000 to 2020: Estimates by WHO, UNICEF, UNFPA, World Bank Group and UNDESA/Population Division*. World Health Organization.
18. World Health Organization. (2016). *Standards for improving quality of maternal and newborn care in health facilities*. World Health Organization.
19. World Health Organization, UNICEF, UNFPA, World Bank Group, & United Nations Department of Economic and Social Affairs, Population Division. (2023). *Trends in maternal mortality 2000 to 2020: Estimates by WHO, UNICEF, UNFPA, World Bank Group and UNDESA/Population Division*. World Health Organization.
20. Bintabara, D., et al. (2015). [Complete bibliographic record to be matched against the manuscript's original reference list.]
21. World Health Organization. (2022). *Maternal mortality measurement: Guidance to improve national reporting*. World Health Organization.

22. Lyaruu, V. M., et al. (2016). [Complete bibliographic record to be matched against the manuscript's original reference list.]
23. Shayo, E. H., & Msuya, S. E. (2013). [Complete bibliographic record to be matched against the manuscript's original reference list.]
24. Mboera, L. E. G., et al. (2020). [Complete bibliographic record to be matched against the manuscript's original reference list.]
25. World Health Organization. (2020). *Standards for improving the quality of maternal and newborn care in health facilities*. World Health Organization.
26. Ministry of Health. (2024). *Tanzania service availability and readiness assessment (SARA) 2023 report*. Ministry of Health.
27. World Health Organization. (2024). *The State of the world's midwifery 2024*. World Health Organization.
28. World Health Organization. (2024). *WHO recommendations on maternal and newborn care for a positive postnatal experience*. World Health Organization.
29. World Health Organization. (2024). *The State of the world's children/newborn survival and quality of care evidence*. World Health Organization.
30. World Health Organization. (2020). *Improving quality of care for maternal and newborn health: Implementation guide for national and subnational programmes*. World Health Organization.
31. Haws, R. A., Mashasi, I. M., Mrisho, M., Schellenberg, J. A., Darmstadt, G. L., & Winch, P. J. (2010). These are not the records we want: Experiences of health workers and families with the notification and investigation of stillbirths and neonatal deaths in rural Tanzania. [Exact journal bibliographic details should be verified against the original source.]
32. Mrisho, M., Schellenberg, J. A., Mushi, A. K., Obrist, B., Mshinda, H., Tanner, M., & Schellenberg, D. (2012). Neonatal deaths in rural Tanzania: A community-based study of causes and timing of death. [Exact journal bibliographic details should be verified against the original source.]
33. Masanja, H., et al. (2024). [Exact article on urban neonatal mortality/urban penalty in Dar es Salaam to be verified against the original source.]
34. Norris, M., Klabbers, G., Pembe, A. B., Hanson, C., Baker, U., Aung, K., Mmweteni, M., Mfaume, R. S., & Beňová, L. (2022). A growing disadvantage of being born in an urban area? Analysing urban–rural disparities in neonatal mortality in 21 African countries with a focus on Tanzania. *BMJ Global Health*, 7(1), e007544. <https://doi.org/10.1136/bmjgh-2021-007544>.
35. Macharia, P. M., et al. (2023). [Exact article on geospatial neonatal/perinatal mortality along the urban–rural continuum to be verified.]
36. Kagoye, O., et al. (2024). [Exact article on urban neonatal/child survival in Dar es Salaam to be verified.]
37. Mmbaga, B. T., et al. (2021). [Exact Tanzanian hospital-based neonatal mortality study to be verified.]
38. Kibusi, S. M., et al. (2015). [Exact article on geographical/subnational maternal and neonatal mortality in Tanzania to be verified.]
39. Victora, C. G., Bryce, J., Fontaine, O., & Monasch, R. (2005). Reducing deaths from diarrhoea through oral rehydration therapy. *Bulletin of the World Health Organization*, 83(4), 234–235.

Reference Calculation: Residence-Specific Maternal Mortality Ratio

The standard formula for calculating a residence-specific maternal mortality ratio (MMR) is:

The 2022 PHC data provide the following birth and death figures by residence:

$$\text{MMR} = \frac{\text{Maternal deaths}}{\text{Live births}} \times 100,000$$

Residence	Total births	Male births	Female births	Male deaths	Female deaths	Total deaths
Rural	1,027,392	616,112	411,280	170,187	136,238	306,425
Urban	451,763	265,977	185,786	84,485	69,784	154,269

The totals are internally consistent: **616,112 + 411,280 = 1,027,392** for rural births, and **265,977 + 185,786 = 451,763** for urban births. Similarly, **170,187 + 136,238 = 306,425** rural deaths, while **84,485 + 69,784 = 154,269** urban deaths.

Important: these figures provide total births and total deaths by sex, but **do not identify maternal deaths**. Therefore, a residence-specific MMR **cannot be calculated from these data alone**. The female-death figures (136,238 rural and 69,784 urban) should not be treated as maternal deaths, since they include deaths from all causes among females.

For a valid rural/urban MMR, the dataset must provide **maternal deaths by residence and live births by residence**:

This distinction is important for the equity analysis because **female mortality is not equivalent to maternal mortality**.

$$\text{Rural MMR} = \frac{\text{Rural maternal deaths}}{1,027,392} \times 100,000$$

$$\text{Urban MMR} = \frac{\text{Urban maternal deaths}}{451,763} \times 100,000$$

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