Integration across the life course

Bridging noncommunicable diseases and sexual, reproductive, maternal, newborn, child and adolescent health

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Start With Her policy brief series
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Noncommunicable diseases are responsible for more than 60% of global mortality.

NCDs are the leading cause of premature death worldwide and a major threat among women of reproductive age.

Noncommunicable diseases (NCDs) killed over 43 million people in 2021, equivalent to three-quarters of all non-pandemic-related deaths globally. About 18 million NCD deaths were among people younger than 70 years of age – more than all injuries, infections including COVID-19, and maternal and nutritional causes of death combined[1]. Of these deaths, the vast majority – 82 per cent – occured in low- and middle-income countries[2].

Overall, 73 per cent of all noncommunicable disease deaths are concentrated in these countries, where health systems are the weakest.[3] Preventing, detecting, and managing NCDs is a critical global health priority, as highlighted in Target 3.4 of the Sustainable Development Goals (SDGs).[4]

NCDS are a major threat among women of reproductive age

The strong interlinkages between NCDs and sexual, reproductive, maternal, newborn, child and adolescent health are increasingly evident. NCDs are now a major threat across all populations, and their burden among women of reproductive age is rising. The proportion of deaths among women aged 15–49 caused by NCDs increased more than 5 per cent between 2000 and 2021.[5] Given that 80 to 90 per cent of women conceive in their lifetimes[6], the intersection between pregnancy and NCDs is unavoidable.

The obstetric transition

More than 70 per cent of global maternal deaths result from direct obstetric complications such as haemorrhage and infections.[7] Care for these complications has improved through evidence-based bundles of obstetric and newborn care. However, indirect obstetric deaths – maternal deaths from pre-existing conditions or from diseases that develop during pregnancy and are exacerbated by its physiological changes – accounted for over a quarter of maternal mortality worldwide between 2009 and 2020.[8] This shift, where the relative proportion of indirect deaths grows as direct deaths decline, is known as the obstetric transition. As countries make progress in addressing direct causes of maternal mortality, the impact of NCDs and other indirect causes becomes more apparent.[9]

While the transition is most pronounced in high-income countries, it is rapidly emerging in low- and middle-income countries, where health systems are least prepared to manage it. The result is a dual burden: progress in managing common maternal complications is compounded by the rising tide of NCDs, demanding urgent integration of NCD prevention, detection and management within sexual, reproductive, maternal, newborn, child and adolescent health services.

Pregnancy and NCDs

Pregnancy can exacerbate pre-existing NCDs, heightening risks for both mother and child.[10] Gestational diabetes, the most common medical complication of pregnancy, affects approximately 1 in 6 pregnant women worldwide.[11] It increases immediate risks such as pre-eclampsia, while also predicting longer-term health issues such as type 2 diabetes and cardiovascular disease. Other common conditions in pregnancy include asthma, cardiac disorders, epilepsy, and mental health or substance use disorders.

Although NCDs are common, they can remain undiagnosed in pregnancy, and their impact may not be appreciated until complications occur, for instance, a stillbirth. This highlight a missed opportunity to deliver high-quality care and improve the health of the woman and her newborn. Sexual and reproductive health services are also critical entry points for prevention. For example, access to family planning reduces high-risk pregnancies, prevents complications, and empowers women and adolescents to exercise their right to decide if and when to have children.

Exposure to NCD risk factors during pregnancy, including tobacco use, alcohol use, unhealthy diet, physical inactivity and air pollution, in turn shaped by social determinants, heightens the risk of miscarriage, stillbirth and other complications. These risks accumulate across a woman's life course, worsening outcomes the longer they remain unmanaged.[12] For newborns, NCDs can trigger premature birth, low birth weight, congenital malformations and respiratory distress, entrenching poor health outcomes across generations.[13]

Adolescence and the early reproductive years also represent pivotal stages. Adolescent pregnancies carry heightened risks of hypertension and diabetes for both mother and child, while untreated sexually transmitted infections can lead to chronic inflammation, pelvic inflammatory disease and elevated cancer risks.[14] These intersections highlight adolescence as a crucial opportunity for integrated prevention and health promotion.

Chronic conditions

Pre-existing chronic conditions such as HIV can compound maternal and newborn complications. At the same time, pregnancy-related conditions such as gestational diabetes or maternal obesity can heighten the risk of developing NCDs in both mother and child. A mother's health before and during pregnancy profoundly shapes her child's future risk of obesity, diabetes and other chronic conditions, highlighting the importance of taking a life-course approach.

Mental health

Post-partum depression is a serious but often overlooked NCD. It affects around 13 per cent of women globally after childbirth[15], with rates as high as 20 per cent in low- and middle-income countries.[16] Integrating care during pregnancy and post-partum, including linking postnatal follow-up with newborn and child health programmes, is essential to breaking the intergenerational cycle of ill health.[17]

1 in 6

pregnant women experience gestational diabetes

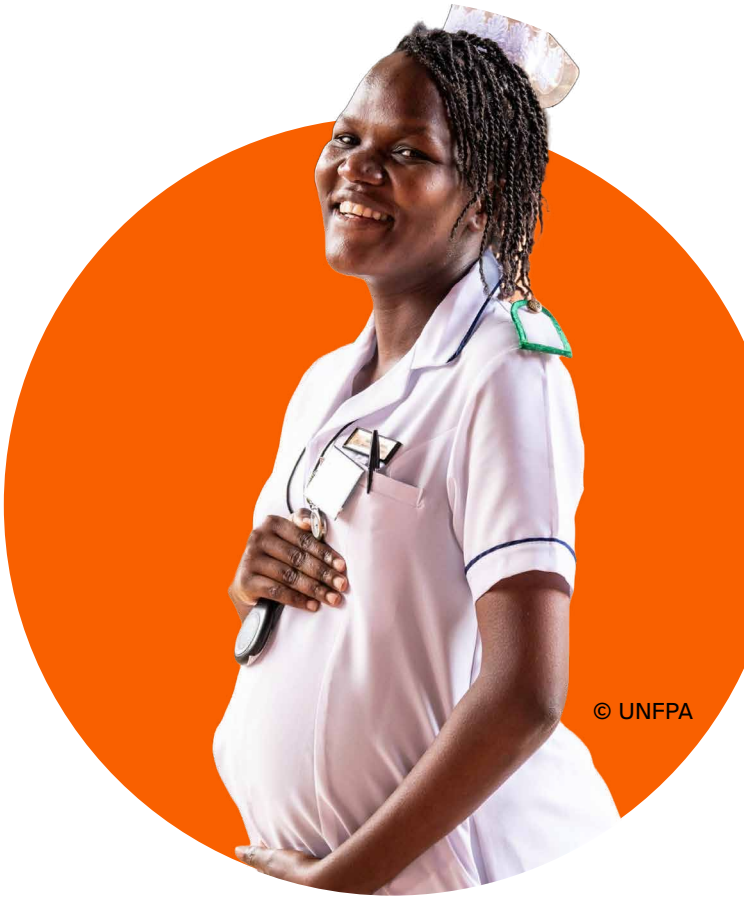

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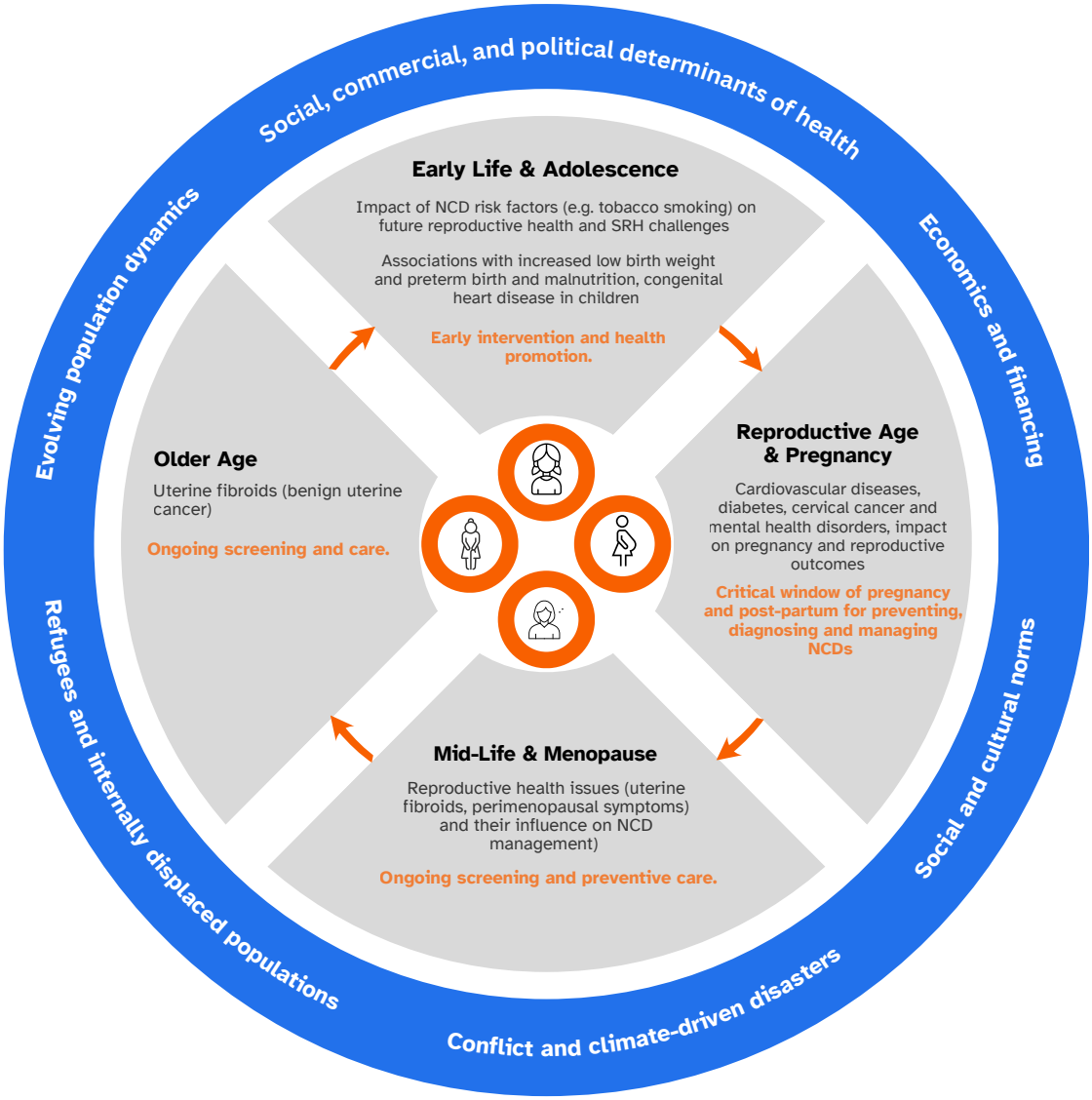
Figure 1: Interlinkages between sexual, reproductive, maternal, newborn, child and adolescent health and noncommunicable diseases



Why a life-course approach is essential for women's health

Women facing intersecting vulnerabilities - for example, those living with HIV - are at heightened risk of NCDs due to limited access to lifelong treatment, HPV (Human Papillomavirus) comorbidities and mental health challenges.

In low- and middle-income countries, where the majority of both maternal deaths and NCDs occur, women face a "double burden" of risks. This burden is particularly pronounced in humanitarian and fragile settings, conflict-affected areas and among populations affected by climate change. Climate change itself systematically undermines key health determinants and disproportionately affects the most marginalized populations, including women. For instance, high temperatures are linked to adverse pregnancy outcomes such as preterm birth and stillbirth, while air pollution is associated with increased risks of gestational hypertension and negative impacts on fetal development.[18] The interlinkages between NCDs and reproductive health compound these inequities and weigh most heavily on marginalized populations.

These disadvantages are not confined to one generation. Poor maternal nutrition and health can drive epigenetic changes, heritable alterations in gene activity that do not involve changes to the underlying DNA sequence. Such changes predispose children to chronic conditions later in life, perpetuating cycles of poor health across generations.

A life-course approach is valuable for everyone, but it is especially critical for addressing gender disparities, as women encounter distinct risks and systemic barriers that shape their health at every stage of life. These challenges - ranging from limited access to prevention and diagnosis to gaps in treatment and care - accumulate over time, reinforcing inequities. Ensuring quality care throughout the life course is therefore critical to achieving health equity, especially for women with disabilities and indigenous women, who often face the greatest barriers to accessing services and realizing their right to health.

The case for integration: smarter, stronger health systems

Integration of NCDs and maternal health services is urgently needed. An integrated, life-course approach is essential for delivering effective, sustainable and equitable outcomes. It is not only the right thing to do, but also the smart thing to do. It is a cost-effective strategy that addresses two major health priorities simultaneously, making it a smart investment at a time of shrinking global health budgets. Above all, it is a matter of equity and human rights, ensuring women have the right to safe, continuous and comprehensive care throughout their lives.

Optimizing health trajectories: By addressing root causes early and at critical life stages, the onset of NCDs can be delayed or prevented, while maternal, newborn, child and adolescent health outcomes are significantly improved.

Ensuring continuity of care: Too often, health systems operate in silos, treating NCDs as a separate issue from sexual, reproductive, maternal, newborn, child and adolescent health. Integration breaks down these barriers, creating seamless care pathways and reducing the risk that women and children fall through the cracks when transferred between services. For example, embedding cervical cancer screening (Kenya[19]) and adding glucose testing to routine blood pressure checks (United States[20]) within family planning clinics helps identify cervical cancer, undiagnosed hypertension and diabetes, making these services a critical entry point into NCD care.

Delivering value for money: In an era of fiscal constraints, integration is a smart investment for both health systems and individuals. It leverages existing infrastructure and personnel to address multiple priorities simultaneously, improving efficiency and economies of scale. Prevention and early intervention also cost far less than treating advanced disease later in life. Midwifery models of care are a proven approach. Midwives are capable of providing over 90 per cent of sexual, reproductive, maternal, newborn, child and adolescent health services. Through midwifery models of care, midwives are trained and empowered to address NCD prevention, management and referral within their scope.

Strengthening agency, resilience and rights: Integrated care empowers individuals and communities to take charge of their health through self-care and health promotion, building resilience and reducing dependency on already overstretched systems. This includes an emphasis on sexual and reproductive health and rights (SRHR), which enables individuals to make autonomous decisions, including for family planning.

Driving progress towards the Sustainable Development Goals: An integrated life-course model accelerates progress towards global goals, particularly Goal 3 for health and well-being by promoting healthy lives for all, and Goal 5 for gender equality by addressing the unique health challenges faced by women throughout their lives.

As the maternal mortality transition advances from high to low maternal deaths, and from direct to indirect causes, health systems face a dual challenge: ensuring timely, high-quality emergency obstetric and newborn care while also tackling the growing impact of NCDs. This dual burden cannot be addressed by narrow, vertical programmes. It demands a holistic life-course approach that integrates prevention and care into the continuum of sexual, reproductive, maternal, newborn, child and adolescent health.[21]

Policy recommendations

01
Invest, fund and commit to policies

Embed integration in national strategies
Update or develop policies that explicitly reflect the two-way relationship between NCDs and sexual, reproductive, maternal, newborn, child and adolescent health. At present, very few countries have strategies that bring these together under one framework.

Invest jointly, not in silos
Increase financial allocations for both sexual, reproductive, maternal, newborn, child and adolescent health and NCDs, with dedicated funding for training, integrated service models and strong referral pathways.

Tackle root causes through regulation and fiscal policy
Confront the drivers of noncommunicable diseases. Regulate harmful environmental exposures such as air pollution, chemical waste and poor waste disposal. Address health inequalities, social determinants of health and lifestyle risks, including poor nutrition, obesity, physical inactivity, tobacco use, alcohol consumption and substance abuse. At the same time, mitigate stress factors such as violence, rights violations and financial hardship through coordinated, cross-sectoral action. Complement these measures with fiscal policies that hold industries accountable, introducing targeted taxes on ultra-processed foods, sugary drinks, alcohol, tobacco and major polluters and earmark revenues for primary healthcare strengthening and integrated service delivery. Revenues should be set aside and protected to finance integrated services that link sexual, reproductive, maternal, newborn, child and adolescent health with NCD prevention and care. This strategic use of resources will contribute to closing funding gaps while promoting healthier environments.

Guarantee universal access
Ensure sexual, reproductive, maternal, newborn, child and adolescent health and NCD services are both included in national health benefit packages under universal health coverage (UHC) and primary healthcare, removing financial barriers and ensuring that care is comprehensive, continuous and equitable.

02
Train and equip the health workforce

Integrate NCDs into education and training
Review and update national pre-service curricula for healthcare workers in sexual, reproductive, maternal, newborn, child and adolescent health to explicitly include prevention, early detection, treatment and follow-up of NCDs. Reinforce this with continuous professional development to equip providers with practical skills in screening, counselling and referral pathways across pregnancy, the post-partum period, childhood and adolescence.

Strengthen systems for integrated care
Equip health facilities with the infrastructure, essential medicines, commodities and diagnostic tools required to deliver quality services. Integrate screening for hypertension, diabetes, cervical cancer, mental health, and other conditions into routine care, from antenatal visits through to postnatal follow-up, to enable early identification of risks and ensure continuity of care. Incorporate NCD indicators into maternal and newborn health monitoring frameworks, for example, by tracking hypertension, diabetes, obesity and mental health alongside maternal mortality indicators.

Promote prevention from an early age
Expand school health programmes to incorporate NCD prevention and self-care, including healthy behaviours, regular self-checks and early testing. This should be part of a broader curriculum that includes comprehensive sexuality education, which provides students with age-appropriate knowledge on sexual and reproductive health, consent and safe practices to ensure that young people are equipped to manage their health across their lifespan. Scale up targeted immunization programmes such as HPV vaccination for cervical cancer prevention to protect adolescents and instil lifelong habits of prevention, particularly in low- and middle-income countries where young people form the largest share of the population.

03

Empower women, communities, and healthcare providers

Empower people through self-care

Reduce barriers to access by scaling up self-care approaches such as home-based blood pressure and glucose monitoring, contraceptive self-administration and digital health tools. Promoting self-care enhances autonomy, particularly for women and adolescents, and ensures continuity of care beyond the walls of formal health facilities.

Strengthen awareness through education and social and behaviour change interventions

Launch interventions informed by education and by social and behaviour change for both healthcare providers and the public, highlighting the lifelong benefits of linking sexual, reproductive, maternal, newborn, child and adolescent health with NCD prevention. Healthcare providers should be trained to communicate these connections clearly, while communities should be equipped with the knowledge and tools to identify risks and adopt healthier behaviours.

04

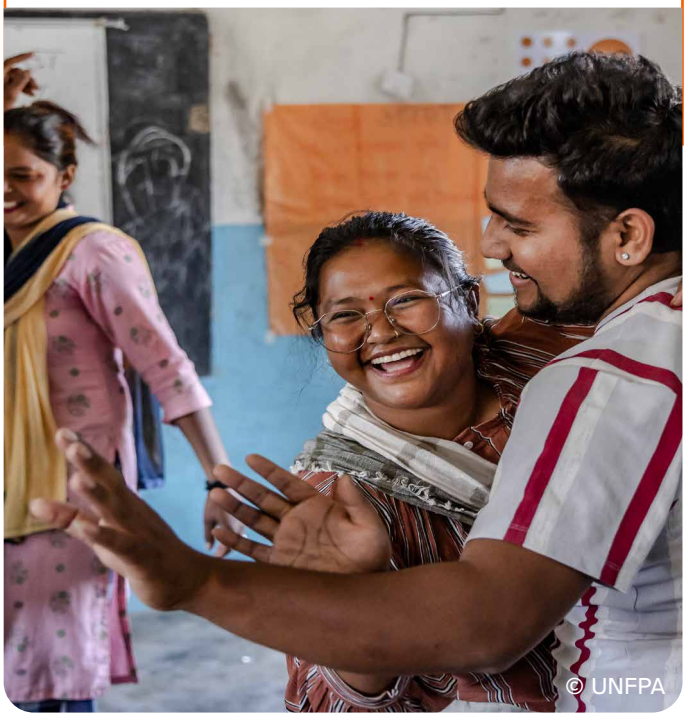
Mobilize partnerships and scale what works

Mobilize partnerships for integration

Civil society organizations, professional associations, community groups and patient support groups are critical to bridging the gap between NCDs and sexual, reproductive, maternal, newborn, child and adolescent health. Partners should integrate these linkages into their programmes, advocate jointly, and establish collaborative platforms between the two sectors. The maternal health community, in particular, can play a vital role in amplifying the shared responsibility and the co-benefits of integration.

Invest in evidence and scale what works

Government funding partners and the private sector must prioritize funding to build an evidence base on effective models of integrating NCDs with sexual, reproductive, maternal, newborn, child and adolescent health, and then scale up proven strategies. In addition to research, there is an urgent need to move from pilot projects to widespread implementation of evidence-based interventions, ensuring they reach the populations most at risk.



On 25 September 2025, Heads of State and Government will meet at the United Nations General Assembly to adopt a new Political Declaration, setting a vision for the prevention and control of NCDs and the promotion of mental health and well-being. This offers a critical moment to commit to the integration of NCD prevention and care within sexual, reproductive, maternal, newborn, child and adolescent health. This is both a rights imperative and a smart investment. Women and girls everywhere have a fundamental right to safe, continuous and comprehensive care across their lives. At the same time, this approach maximizes the return on limited resources, reduces long-term health costs and strengthens the resilience of health systems. By moving forward together, governments and partners can deliver healthier, more equitable and more prosperous futures for generations to come.

Endnotes

1 Global Health Estimates 2021: Deaths by Cause, Age, Sex, by Country and by Region, 2000-2021. Geneva, World Health Organization; 2024.

2 Global Health Estimates 2021: Deaths by Cause, Age, Sex, by Country and by Region, 2000-2021. Geneva, World Health Organization; 2024.

3 Global Health Estimates 2021: Deaths by Cause, Age, Sex, by Country and by Region, 2000-2021. Geneva, World Health Organization; 2024.

4 Goal 3, target 3.4.: By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being. See: United Nations. Sustainable Development Goals. https://www.un.org/sustainabledevelopment/health/

5 Global Health Estimates 2021: Deaths by Cause, Age, Sex, by Country and by Region, 2000-2021. Geneva, World Health Organization; 2024.

6 World Health Organization, 2024. Fact sheets. Infertility, 22 May 2024. www.who.int/news-room/fact-sheets/detail/infertility

7 Cresswell, J., Alexander, M., Chong, M., Link, H., Pejchinovska, M., Gazeley, U., et al., 2025. Global and regional causes of maternal deaths 2009–20: a WHO systematic analysis. The Lancet Global Health, Volume 13, Issue4, e626 - e63. https://pmc.ncbi.nlm.nih.gov/articles/PMC11946934/

8 Cresswell, J., Alexander, M., Chong, M., Link, H., Pejchinovska, M., Gazeley, U., et al. Global and regional causes of maternal deaths 2009–20: a WHO systematic analysis. The Lancet Global Health, Volume 13, Issue 4, e626 - e63. https://doi/10.1016/S2214-109X(24)00560-6

9 Souza, J., Tunçalp, Ö., Vogel, J., Bohren, M., Widmer, M., Oladapo, O., Say, L., Gülmezoglu, A., & Temmerman, M., 2014. Obstetric transition: The pathway towards ending preventable maternal deaths. BJOG: An International Journal of Obstetrics & Gynaecology, 121, 1-4. https://doi.org/10.1111/1471-0528.12735

10 Saravanan, P., Magee, L. et al., 2020. Gestational diabetes: opportunities for improving maternal and child health. The Lancet Diabetes & Endocrinology, Volume 8, Issue 9, 793-800. September 2020. https://doi.org/10.1016/S2213-8587(20)30161-3

11 International Diabetes Federation, 2025. https://idf.org/about-diabetes/types-of-diabetes/gestationaldiabetes/

12 Ramson, J.A., Williams, M.J., Afolabi, B.B., Colagiuri, S., Finlayson, K.W., Hemmingsen, B., Venkatesh, K.K. and Chou, D., 2024. Pregnancy, childbirth and the postpartum period: opportunities to improve lifetime outcomes for women with non-communicable diseases. The Medical Journal of Australia, Med J Aust, 221: 350-353. https://doi.org/10.5694/mja2.52452

13 Akselrod, S., Banerjee, A., Collins, T., et al., 2023. Integrating maternal, newborn, child health and non-communicable disease care in the sustainable development goal era, Frontiers in Public Health, Volume 11 – 2023, 2023. www.frontiersin.org/journals/public-health/articles/10.3389/fpubh.2023.1183712

14 Diabelková J, Rimárová K, Dorko E, Urdzík P, Houžvičková A, Argalášová Ľ. Adolescent Pregnancy Outcomes and Risk Factors, 2023. International Journal of Environmental Research and Public Health. 2023 Feb 25;20(5):4113. doi:10.3390/ijerph20054113. PMID: 36901128; PMCID: PMC10002018.

15 World Health Organization, undated. Health topics. Perinatal mental health. www.who.int/teams/mental-health-and-substanceuse/promotion-prevention/maternal-mental-health

16 Gelaye, B. et al, 2016. Epidemiology of maternal depression, risk factors, and child outcomes in low-income and middle-income countries. The Lancet Psychiatry, Volume 3, Issue 10, 973 - 982. www.thelancet.com/journals/lanpsy/article/PIIS2215-0366(16)30284-X/abstract

17 Kapur, A., & Hod, M., 2020. Maternal health and non‐communicable disease prevention: An investment case for the post COVID-19 world and need for better health economic data. 13 May 2020. International Journal of Gynaecology and Obstetrics, 150(2), 151. https://doi.org/10.1002/ijgo.13198

18 Conway F, Portela A, Filippi V, Chou D, Kovats S., 2024. Climate change, air pollution and maternal and newborn health: an overview of reviews of health outcomes. Journal of Global Health, 2024;14:04128. DOI: 10.7189 jogh.14.04128. https://jogh.org/wp-content/uploads/2024/05/jogh-14-04128.pdf

19 Eastment MC, et al., 2023. Results of a cluster randomized trial testing the Systems Analysis and Improvement Approach to increase cervical cancer screening in family planning clinics in Mombasa County, Kenya. Implementation Science, 2023;18:66. https://doi.org/10.1186/s13012-023-01322-y

20 Robbins CL, et al., 2023. Screening low-income women of reproductive age for cardiovascular disease risk factors in US family planning clinics. Journal of Women's Health, 2013;22:314-21. doi:10.1089/jwh.2012.3900. https://pubmed.ncbi.nlm.nih.gov/38012647/

21 Cresswell, J., Alexander, M., Chong, M., Link, H., Pejchinovska, M., Gazeley, U., et al. Global and regional causes of maternal deaths 2009–20: a WHO systematic analysis. The Lancet Global Health, Volume 13, Issue 4, e626 - e63. https://doi/10.1016/S2214-109X(24)00560-6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