In collaboration with the
McKinsey Health Institute

WORLD ECONOMIC FORUM

Blueprint to Close the Women's Health Gap: How to Improve Lives and Economies for All

INSIGHT REPORT

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Foreword

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Over the past year, we have been humbled and honoured to receive an outpouring of support and enthusiasm for our report, *Closing the Women's Health Gap: A $1 Trillion Opportunity to Improve Lives and Economies*. While the numbers behind it may have come as a shock – that women spend 25% more of their lives in poor health compared to men, or that the women's health gap equates to 75 million years of life lost to poor health or early death per year – the report, the result of a collaboration by the World Economic Forum, the Global Alliance for Women's Health and the McKinsey Health Institute, tapped into what many readers instinctively felt: when it comes to health, women are second-class citizens.

But today, all of us also live in an era of longer lifespans, technological innovation, rapid scientific breakthroughs, economic acumen and the ability to advocate for public policy. Global life expectancy has more than doubled over the past 200+ years, with economists estimating that about a third of economic growth in advanced economies in the past century has been tied to improvements in the health of global populations.[1,2] Healthcare investments improve the quality of life and gross domestic product growth up to three times the investment in high-income countries.[3] These returns on investment boost the business case for improving women's health and speaking up for those who are struggling the most.

This year, we offer a deeper framework to help close the women's health gap: count women, study women, include *all* women in research and efforts to improve care and invest in women and girls throughout their lifespan. We also highlight how nine conditions are driving a third of the women's health gap: the lifespan conditions of ischaemic heart disease, breast cancer, post-partum haemorrhage, cervical cancer and maternal hypertensive disorder; and the health-span conditions of premenstrual syndrome, menopause, endometriosis and migraines. Boosting data availability, care delivery, investment and treatment for the selected conditions could create nearly $400 billion in annual economic improvement by 2040.

Focusing on these selected conditions allows us to build a blueprint that, in the future, will be expanded to provide a comprehensive view of women's health and accelerate progress towards closing the women's health gap.

Progress happens only when we work towards it together and measure improvement. We invite you to join us on the next step of this journey, to improve and save the lives of women and strengthen economies and continue to demonstrate the business case for investing in women's health.

Executive summary

Nine selected conditions drive a third of the women's health gap – reducing their effects could create around $400 billion in annual global GDP by 2040.

Women live 25% more of their lives in poor health when compared to men. *Closing the Women's Health Gap: A $1 Trillion Opportunity to Improve Lives and Economies*, published by the World Economic Forum in collaboration with the McKinsey Health Institute (MHI) in 2024, found that closing the health gap between men and women could unlock 75 million disability-adjusted life years (DALYs) annually and $1 trillion in annual global GDP.[4] Closing the women's health gap would be the equivalent of adding seven healthy days per year for each woman.[5] Addressing the drivers of the gap – treatment efficacy, care delivery, data and funding – could help to extend women's healthy lives and capture the aligned and substantial economic benefits. This report takes the next step: a blueprint for closing the women's health gap and improving lives and economies around the world. (For more on how this report defines women's health, see "Terminology".)

Urgent actions needed to close the women's health gap are illuminated when examining in detail nine selected conditions that collectively account for a third of the women's health gap. The selected conditions are women-specific, affect women differently or affect women disproportionately than men. This approach, which includes analysis of 15 countries across income archetypes, creates a blueprint that could readily scale to other countries and additional conditions affecting women and their health, with the goal of providing a comprehensive view of women's health worldwide and inspiring stakeholders to act. Closing the women's health gap for these selected conditions alone could add almost 27 million disability-adjusted life years annually, equating to 2.5 additional healthy days per woman, per year, around the globe, and yield around $400 billion in annual GDP to the global economy.

Selected conditions, in order of potential estimated annual gains in DALYs and GDP if the women's health gap is closed by 2040:

Conditions that affect lifespan

- **Ischaemic heart disease** is the leading cause of death for women worldwide. Ischaemic heart disease represents potential estimated gains of 9.1 million annual DALYs and $43 billion in annual GDP in the women's health gap.[6]
- **Cervical cancer** is almost entirely preventable with vaccination yet contributes to hundreds of thousands of deaths each year, mostly in LICs and LMICs. Cervical cancer represents potential estimated gains of 2.4 million annual DALYs and $10 billion in annual GDP in the women's health gap.
- **Breast cancer** is the most common cancer diagnosed in women globally. Breast cancer represents potential estimated gains of 1.2 million annual DALYs and $8.7 billion in annual GDP in the women's health gap.
- **Maternal hypertensive disorders** are a leading cause of pregnancy complications for mothers and infants.[7] Maternal hypertensive disorders represent potential estimated gains of 0.85 million annual DALYs and $1.4 billion in annual GDP in the women's health gap.
- **Post-partum haemorrhage** is the leading cause of maternal mortality worldwide and affects more than 14 million women each year. Post-partum haemorrhage represents potential estimated gains of 0.25 million annual DALYs and nearly $200 million in annual GDP in the women's health gap.

Conditions that affect health span

- **Menopause and perimenopause**, which can last for more than a decade, are estimated to affect more than 450 million women worldwide at any given time.[8] Menopause represents potential estimated gains of 2.4 million annual DALYs and $120 billion in annual GDP in the women's health gap.

- **Premenstrual syndrome (PMS)** affects 20–40% of women of reproductive age.[9] PMS represents potential estimated gains of 2.1 million annual DALYs and $115 billion in annual GDP in the women's health gap.

- **Migraine** affects approximately 21% of women globally (0.8 billion women).[10] Migraine represents potential estimated gains of 2.7 million annual DALYs and $80 billion in annual GDP in the women's health gap.

- **Endometriosis** is an oestrogen-related condition affecting one in 10 women between the ages of 15 and 45 – at least 190 million women globally.[11] Endometriosis represents potential estimated gains of 0.25 million annual DALYs and $12 billion in annual GDP in the women's health gap.

Measuring and tracking progress is an important and meaningful first step in the journey to equitable health and healthcare for women and girls. The **Women's Health Impact Tracking (WHIT) platform** was created by the Global Alliance for Women's Health to address this need. WHIT is designed to measure the impact of health conditions that contribute to the women's health gap (in terms of disability, mortality and consequent economic effect). It also provides country-level indicators of data availability, treatment effectiveness and quality and appropriateness of care delivery. WHIT was designed by stakeholders, for stakeholders, as a practical and tactical tool to track progress over time and shine a light on opportunities to accelerate the deployment of proven solutions to close the women's health gap.

The imperative and actions stakeholders can take to close the women's health gap can be explored with the following framework:

Count women Women's health data is often not collected, not published in the public domain, or incomplete. Improving the accuracy of data collection and setting standards for sex- and gender-based data collection could help to clarify the true burden of disease, particularly for women-specific conditions.

Study women Research funding for women's health and the drivers of sex-based differences, particularly for conditions that affect the health span, is not proportional to the burden of disability attributed to these conditions. Sex-disaggregated analysis and basic science research into hormone health and female biology could help reveal how women are affected disproportionately or differently from men by many conditions. Additional research could help the understanding of conditions specific to women and illuminate disparities.

Care for women Clinical practice guidelines (CPGs) often do not reflect best-practice clinical care for women, including the understanding of sex-based differences in the presentation and treatment of conditions. Delivering sex- and gender-appropriate and evidence-based healthcare, through healthcare delivery systems designed for women and equipped to address health-related social needs (HRSN), could improve health outcomes for women.

Include *all* women Mitigating health disparities could have a greater impact on mortality for the selected conditions than any single treatment recently studied in later-stage clinical trials. Health and social systems can consider how to better acknowledge and address differences in health outcomes and promote global health equity.

Invest in women Additional funding in research, clinical education and training, care delivery and the development of innovative interventions is needed to accelerate progress. Each and every stakeholder has a role in advancing the health of women.

The impact of these actions can, and will, reach far beyond the lives of individual women. Healthier women are cornerstones of prosperous communities, vibrant workplaces and resilient economies. Better health for women throughout their lives could create at least $1 trillion in annual incremental economic growth by 2040.[12] This is distinct from the market for new products and services that can be developed to address the many unmet needs of women today, the size of which may be more than $500 billion for the selected conditions. Investors, researchers, governments, non-profits, providers, life sciences companies and communities may want to reinvigorate their consideration and commitments to women's health.

Empowering every woman and girl around the world with awareness and the information needed to take charge of her health is critical. Misinformation and decreasing awareness of women's health stalls advancement and can impair women from living healthier and more productive lives.

Progress is possible, and closing the women's health gap is achievable. Now is the time for action that will improve the lives of women and girls around the world and strengthen the global economy.

Introduction

Women experience massive health inequities and poor health outcomes worldwide – and the global economy suffers as a result.

Closing the Women's Health Gap: A $1 Trillion Opportunity to Improve Lives and Economies, published in 2024 by the World Economic Forum in collaboration with the McKinsey Health Institute, reported that the women's health gap correlates with women living in poor health for 25% more of their lives when compared to men. Closing the women's health gap could yield 75 million disability-adjusted life years (DALYs) annually – the equivalent of adding seven healthy days per year, per woman – and unlock $1 trillion in annual global GDP by 2040. Now is the time for stakeholders to address drivers of the gap and improve the lives of women, communities and economies around the world. (For more on how this report defines women's health, see "Terminology".)

This year's report provides a blueprint for developing a comprehensive, global view of women's health and illuminates opportunities to help close the gap. The report examines nine selected conditions that account for a third of the women's health gap, with analyses spanning 15 countries representing all income levels. The selected conditions depict a mix of conditions that are specific to women, affect women disproportionately or affect women differently from men. Five of the conditions limit women's lifespan, leading to early death, and four impair women's health span, often causing significant distress and resulting in women living extended years in disability.

Selected conditions, in order of annual potential estimated gains in DALYs and GDP if the women's health gap is closed by 2040, prevalence rate, incidence rate and Global Alliance for Women's Health members' expert recommendations are below. For further details on this selection process, please refer to the technical appendix.

Conditions that affect lifespan

- Ischaemic heart disease
- Cervical cancer
- Breast cancer
- Maternal hypertensive disorder
- Post-partum haemorrhage

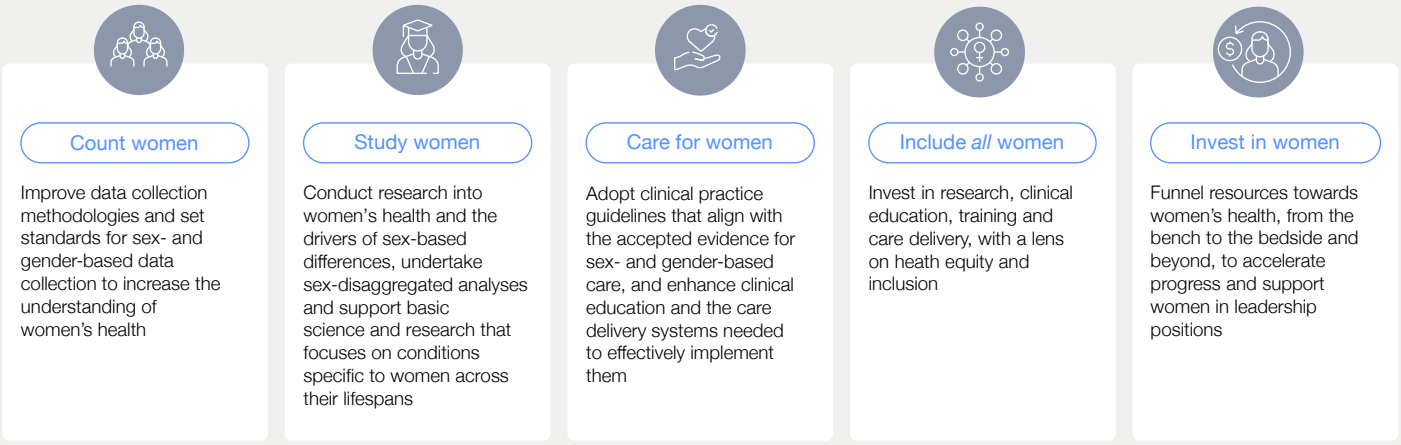
Conditions that affect health span

- Menopause
- Premenstrual syndrome (PMS)
- Migraine
- Endometriosis

Examining these conditions highlights potential opportunities for immediate progress and actions needed to close the women's health gap over time. These actions can be explored with the following framework:

1. **Count women**, by improving data collection methodologies and setting standards for sex- and gender-based data collection to increase understanding of women's health.
2. **Study women**, by conducting research into women's health and the drivers of sex-based differences, sex-disaggregating analyses and supporting basic science and clinical research that focuses on conditions specific to women across their lifespan.
3. **Care for women**, by adopting clinical practice guidelines that align with the accepted evidence for sex- and gender-based care and by enhancing clinical education and care delivery systems needed to effectively implement them.
4. **Include *all* women** in initiatives and progress, with a lens on heath equity and inclusion.
5. **Invest in women**, by funnelling resources towards women's health, from the bench to the bedside and beyond, to accelerate progress; and by supporting women in leadership positions across health and social systems.

FIGURE 1 | **Progress and actions needed to close the women's health gap**



Together, these actions could initiate a global shift to close the women's health gap. Based on recent Forum and MHI analyses and expertise from the Global Alliance for Women's Health working groups, addressing health disparities could create greater impact on mortality for conditions affecting lifespan than any single treatment studied in recent clinical trials.[13] Other actions, such as improving clinical practice guidelines and incorporating sex- and gender-based differences into clinical education and training, could help to overhaul a healthcare delivery system that was not designed for women and is underserving them.

Addressing these areas could help to extend the health of women and capture the aligned and substantial economic benefits that come with a thriving population. Closing the women's health gap for the selected conditions could contribute nearly $400 billion in annual GDP to the global economy and close the burden gap by almost 27 million DALYs each year, translating to 2.5 additional healthy days per year for each woman in the world.

These efforts can, and will, reach far beyond the lives of individual women. Investors, researchers, academics, non-profits, providers, life sciences companies and governments have reasons to improve the health of women. Healthier women are cornerstones of strong families, prosperous communities, vibrant workplaces and resilient economies. Better health for women throughout their lives could create at least $1 trillion in annual incremental economic growth by 2040.This is separate from the commercial market for new products and services that can be developed, which the Forum and MHI analysis shows could add more than $500 billion to the global economy by addressing the selected conditions alone. A substantial and strategic allocation of resources through cross-stakeholder commitments and collaboration could improve health outcomes for women globally, as would redesigning the health system to deliver equitable, high-value care. Stakeholder action throughout the women's health ecosystem could accelerate progress, reduce health disparities and close the women's health gap.

In the past year, hearing from individuals and stakeholders who have shared their path to advancing the health of women has been inspiring. For many, their personal journeys drove them to become investors, advocates, educators or business leaders pushing to better understand women's health at a global scale. For others, efforts are inspired by wanting to change outcomes for women, given that women's health affects each and every person around the world.

Initiatives that have launched in the past year include redesigning components of clinical education, investing in women-focused health start-ups, advancing biomedical research on sex-specific differences and hormone health and advocating for policy changes at local, national and international levels.

This momentum should not be halted, as the need to highlight women's health comes in an era in which competition for attention and awareness of any health topic – whether it is pushing for investment in women's health-span conditions or reiterating care standards – may be increasingly challenging. The past year has, however, demonstrated that progress is possible on a short timeline, and that champions around the world are motivated to act. Now is the time to make a difference and expand the number of champions driving the agenda across the public, private and social sectors to close the women's health gap.

Terminology

This report approaches women's health as a market segment to facilitate focused analysis and navigate the complexities of studying such a multifaceted issue. The authors acknowledge the importance of healthcare to the transgender, non-binary and gender-fluid communities and that not all people who identify as women are born biologically female. The authors have often used the term "sex and gender" to reflect inclusive language and recognize the need for future research into health issues that is inclusive of the transgender, non-binary and gender-fluid communities. They also acknowledge the profound differences for women based on factors such as race, ethnicity, socioeconomic status, disability, age and sexual orientation. Additional work and research should reflect on how to tackle these barriers alongside the broader women's health gap. In this report, the term "woman" may include those younger than age 18.

1 More than a third of the women's health gap stems from nine conditions

Conditions affecting women impinge either on lifespan or day-to-day health over time, with nine selected conditions driving more than a third of the women's health gap.

Analysis from the World Economic Forum (the Forum) and the McKinsey Health Institute (MHI) has found that more than a third of the women's health gap is created by the following nine conditions.

Selected conditions, in order of potential estimated gains in annual DALYs and GDP if the women's health gap is closed by 2040:

Conditions that affect lifespan

- Ischaemic heart disease
- Cervical cancer
- Breast cancer
- Maternal hypertensive disorder
- Post-partum haemorrhage

Conditions that affect health span

- Menopause
- Premenstrual syndrome (PMS)
- Migraine
- Endometriosis

FIGURE 2 | **Nine conditions were selected in year 1**

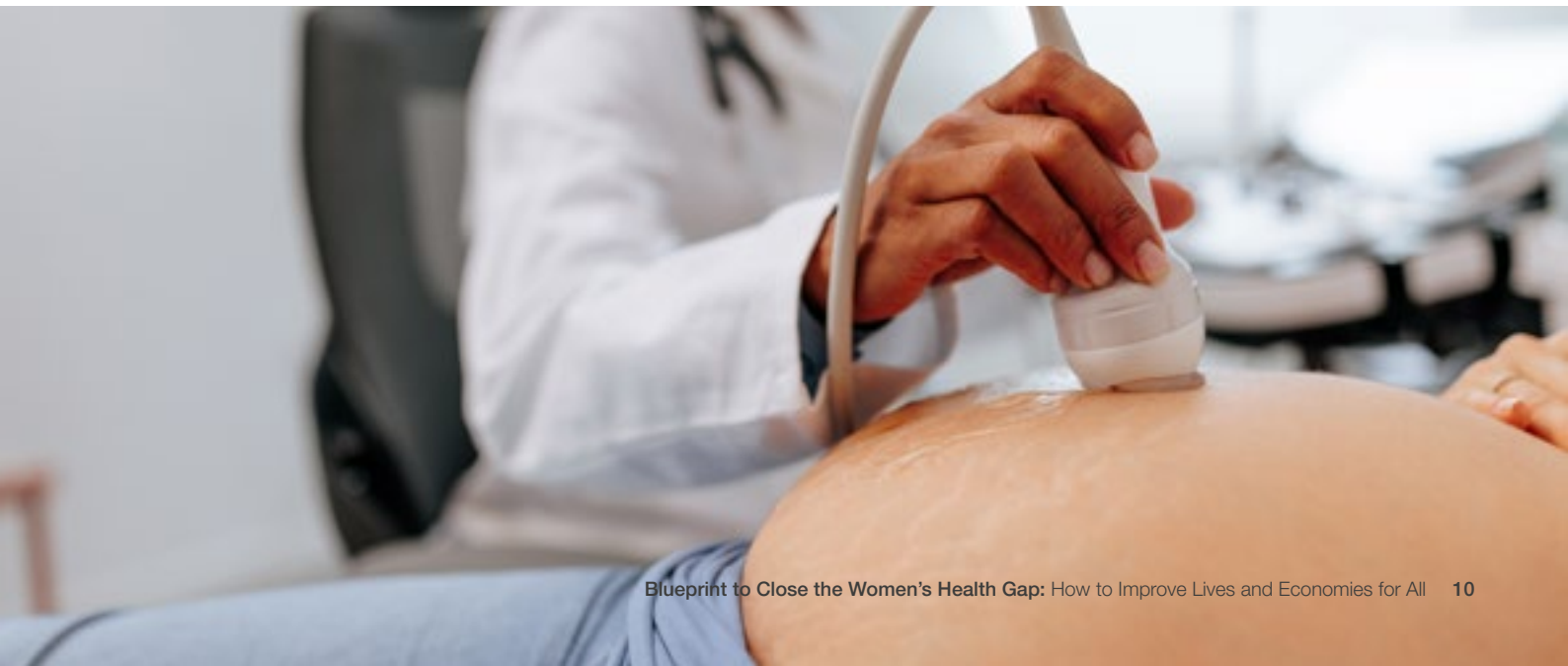
Higher ●●●● Lower

Condition	Rank[1]
Premenstrual syndrome	100
Other gynaecological conditions (menopause)	99.5
Migraine	96.6
Ischaemic heart disease	84.7
Cervical cancer	68.5
Maternal hypertensive disorders	64.3
Breast cancer	58.9
Endometriosis	49.3
Post-partum haemorrhage	42.4

Note: 1. Based on composite score of global burden (DALYs, GDP, prevalence, incidence) and LMIC burden (DALYs, GDP) and expert recommendations from Alliance members

Source: IHME, *Global Burden of Disease* (2019); DALYs (disability adjusted life years)

Six of the selected conditions are specific to women. Women are differently or disproportionately affected by the remaining three – ischaemic heart disease, migraine and breast cancer. Notably, how much any condition takes away from a woman's quality of life – or contributes to the end of her life – can vary widely, particularly when considering factors such as race, ethnicity, income level or where she lives. Stakeholders may consider a condition's impact on lifespan and health span when evaluating and prioritizing how to improve data on health burden, increase availability of effective treatments and reduce healthcare disparities.



1.1 Five conditions affect women's lifespan

Five of the selected conditions contribute to mortality for women in all regions of the world: ischaemic heart disease, cervical cancer, breast cancer, maternal hypertensive disorders and post-partum haemorrhage.

Ischaemic heart disease is the leading cause of mortality for all women, crossing all geographies and ethnicities and resulting in the deaths of more than 4 million women per year.[14] Despite a decline in overall deaths from ischaemic heart disease, women are more likely than men to die from an acute cardiovascular event.[15] In the United States alone, closing the cardiovascular disease gap between men and women could let women regain at least 1.6 million years of higher-quality life and add $28 billion to the country's economy by 2040.[16] Ischaemic heart disease represents potential estimated gains of 9.1 million annual DALYs and $43 billion in annual GDP in the women's health gap.[17]

Cervical cancer, while less common than breast cancer, leads to more than 350,000 deaths each year.[18] The prevalence and deaths from cervical cancer are disproportionately high in lower-income countries: around 85% of cervical cancer deaths occur in low- and low-middle-income countries (LICs and LMICs).[19] The highest rates of incidence and mortality are in sub-Saharan Africa, Central America and South-East Asia.[20] In the US, cervical cancer causes two deaths per 100,000 women;[21] in Tanzania, cervical cancer causes 42 deaths per 100,000 women.[22] Globally, a 2022 analysis found that two in three women aged between 30 and 49 had never been screened for cervical cancer; rates of cervical cancer screening ranged from 1% in Bangladesh to 73% in Brazil.[23] Despite the existence of a vaccine that can prevent almost all types of cervical cancer, some estimates predict that cervical cancer could rise by almost 78% between 2018 and 2030 (130,000 additional cases annually).[24] Cervical cancer represents potential estimated gains of 2.4 million annual DALYs and $10 billion in annual GDP in the women's health gap.

Breast cancer is the most common cancer diagnosed in women, leading to the deaths of 670,000 women globally every year.[25] The number of newly diagnosed breast cancers is projected to grow by over 40%, leading to around 3 million annual new diagnoses by 2040.[26] Education, early diagnosis and advanced treatments have reduced breast cancer mortality, alongside the availability of generic treatment options. A variety of efforts outside of care delivery – including grassroots advocacy – have led to monumental changes in funding and policy.[27,28] Yet major disparities remain within and between countries: five-year breast cancer survival is more than 90% for women in high-income countries (HICs); in India, five-year survival is 66%; in South Africa it is 40%.[29] In underserved populations within HICs, the five-year survival for metastatic breast cancer is 30%, highlighting a need for better differentiation of the types of breast cancer, earlier access to stage-appropriate treatment and health and social systems that enable treatment adherence.[30,31] Breast cancer represents potential estimated gains of 1.2 million annual DALYs and $8.7 billion in annual GDP in the women's health gap.

Maternal hypertensive disorders, which are variations on high blood pressure, are leading causes of pregnancy-related complications and fatalities for mothers and infants.[32] For example, pre-eclampsia – one type of maternal hypertensive disorder – accounts for 70,000 maternal deaths worldwide each year.[33] These "silent killers" may have few early symptoms and often go undiagnosed, particularly in women who lack access to adequate prenatal care.[34] In addition to putting a woman at greater risk of post-partum haemorrhage after birth, maternal hypertensive disorders are considered a risk factor for many conditions later in life such as chronic cardiovascular disease, stroke, atherosclerosis and chronic hypertension.[35,36,37,38] Maternal hypertensive disorders represent potential estimated gains of 0.85 million annual DALYs and $1.4 billion in annual GDP in the women's health gap.

Post-partum haemorrhage is the leading cause of maternal mortality globally, accounting for around 20% of all maternal deaths:[39] Annually, 14 million women worldwide have a post-partum haemorrhage, leading to around 70,000 maternal deaths each year.[40] A majority of women with post-partum haemorrhage are estimated to suffer from "near-miss" maternal mortality, leading to long-term complications,[41] including brain disorders, chronic cardiovascular disease and other disabilities such as severe anaemia. Almost all post-partum haemorrhage deaths occur in LICs and lower-middle-income countries (LMICs) and are largely preventable.[42] Experts have cited barriers in LICs and LMICs that include poverty, a lack of transport/poor road conditions, inadequate communication networks and a dearth of qualified health professionals.[43] In HICs, post-partum haemorrhage is still among the leading causes of complications in pregnancy. Post-partum haemorrhage represents potential estimated gains of 0.25 million annual DALYs and approximately $200 million in annual GDP in the women's health gap.

1.2 Four conditions affect women's health span

Menopause, PMS, migraine and endometriosis affect women's day-to-day health over time, and are under-recognized, under-researched or misunderstood relative to the disability and difficulty they can cause.

Menopause, an expected and normal transition for women in mid-life, is among the top conditions leading to profound impacts on health and quality of life for women. Perimenopause and menopause, which can last for more than a decade, are estimated to affect more than 450 million women worldwide at any one time.[44] Long-term effects of menopause and untreated symptoms lead to increased risk of chronic conditions, such as cardiovascular disease, neurological diseases (e.g. depression, dementia), osteoporosis, type 2 diabetes mellitus and other gynaecological conditions. Menopause represents potential estimated gains of 2.4 million annual DALYs and $120 billion in annual GDP in the women's health gap. Based on high unmet need for proper diagnosis and treatment, the estimated global market potential for interventions that address menopause symptoms ranges from $120 billion to $350 billion globally.

Premenstrual syndrome (PMS) has the most wide-reaching effect on women's health when considering the number of women it affects, the number of years a woman can have symptoms, how the symptoms can range in severity and how little is known or treated comparatively. Approximately 1.8 billion women menstruate each month,[45] and 20–40% of women of reproductive age experience PMS.[46] Caution is taken to not pathologize reproductive health, particularly for girls; and yet, given that societies and social systems were not designed to optimize the health of women and girls and schools and workplaces often do not adapt to the effects of menstrual cycles, the impact of PMS on education, employment and enjoyment of life can be significant. PMS symptoms are far-reaching, ranging from weight gain, abdominal pain and back pain to anxiety and mood changes, with many of these being debilitating for women.[47] This can amount to an average of 23 days of lower productivity per year.[48] Another recent analysis found that up to 31 million women and girls may have premenstrual dysphoric disorder, a more severe form of PMS.[49] For school-aged girls, PMS and menstruation can lead to lower school attendance and lower educational attainment.[50,51] PMS represents potential estimated gains of 2.1 million annual DALYs and $115 billion in annual GDP in the women's health gap.

Migraine affects around 21% of women – approximately 0.8 billion women globally.[52] While migraines affect both men and women, they are often reported to have a hormonal component, and women report longer attack duration, increased risk of headache recurrence, greater disability and longer time to recovery.[53,54] Menstrual migraine, a type of migraine occurring within two days prior to and three days post onset of menstruation, is strongly linked to PMS, causing frequent and debilitating symptoms for many women.[55] Women are 3.25 times more likely than men to experience migraines, but lack of research into understanding sex-specific differences and their clinical implications persists.[56] Migraine represents potential estimated gains of 2.7 million annual DALYs and $80 billion in GDP in the women's health gap.

Endometriosis is an oestrogen-related condition affecting one in 10 women between the ages of 15 and 45 – more than 190 million women globally, though data gaps suggest this is a gross underestimate.[57] Although textbooks have described endometriosis as a "disease of nulliparous women in their late twenties or thirties",[58] endometriosis is likely an adolescent-onset disease. While the disease generally begins when a girl starts her period, it can take decades between onset and diagnosis.[59,60] Endometriosis substantially affects all aspects of a woman's quality of life. It can cause chronic pain and infertility and is associated with higher rates of depression.[61] As a result of its wide-ranging and debilitating symptoms, many women may miss work or reduce their working hours.[62] Due to the prevalence, lack of treatments and unmet need, the Forum and MHI have estimated that the commercial market for potential endometriosis treatments ranges between $180 and $250 billion globally.[63] Endometriosis represents potential estimated gains of 0.25 million annual DALYs and $12 billion in annual GDP in the women's health gap.

Closing the women's health gap – avoiding nearly 27 million DALYs each year caused by these selected conditions and boosting the global economy – requires the drivers behind them to be understood, quantified and addressed as well as a transformation of health and social systems.

2

Quantifying the drivers: How to close the gap

The core elements of the women's health gap indicate a need for better data, more effective interventions, improved care delivery, the inclusion of all women, and increased investment.

Taking the following steps in 2025 and beyond may help to close the women's health gap:

Count women

Improving the accuracy of data collection and standards could help clarify the true burden of disease, particularly for women-specific conditions and those that affect women differently or disproportionately. Further, accurately counting maternal health conditions is essential for understanding the implications for the long-term health of all women and children.

Study women

Research that includes and emphasizes women and their unique needs could help to dispel misperceptions and unknowns about conditions that affect women specifically, differently or disproportionately. Research could help to create a better understanding of conditions specific to women and illuminate disparities. Sex-disaggregated analysis of existing and future research could help reveal how women are affected by many conditions disproportionately or differently from men. Sex-disaggregated results enable an understanding of treatment efficacy and effectiveness. Additionally, studying the second X chromosome,[64] hormonal health and hormonal cycles and the role they play in women's health outcomes is needed. Research funding and a focus on women-specific conditions that affect adolescent girls is a large gap and opportunity.

Care for women

Delivering gender-appropriate and evidence-based healthcare, through healthcare delivery systems designed for women and equipped to address health-related social needs – including resources such as food, safe housing, childcare or transport – could improve health outcomes for women. The current healthcare delivery system often perpetuates preventable disability and mortality for women worldwide. There is a need for rapid translation of known evidence-based medicine into clinical education and CPGs that reflect sex-based differences.

Include *all* women

No number of attempts to count, study, analyse or deliver better care to women will work without concentrated efforts to address racial, ethnic, geographical, socioeconomic and other disparities within countries and on a global scale. Stakeholders can consider how to acknowledge and address these differences and promote solutions that achieve health equity.

Invest in women

Additional funding – whether for clinical and translational research, public health education led by women in their communities or the development of innovative interventions – is needed to accelerate progress. Public and private investments in care delivery, education and social support services can prevent and treat disease and improve healthy longevity.

2.1 Count women

Improving data collection and standards could increase the understanding of women-specific needs.

Women's health data is often not collected, not published in the public domain or incomplete, as highlighted in a Forum and MHI analysis of clinical trial results, CPGs and global datasets. When data does exist, such as data intended to track condition prevalence, reporting across different datasets is variable. For example, the World Health Organization (WHO) estimates that around 10% of women of reproductive age are living with endometriosis, while the Global Burden of Disease estimates this figure to be 1–2%.[65,66] That variation means between 24 million and 190 million women could have endometriosis, or even more when accounting for underdiagnosis.[67] Data discrepancies lead to difficulty with estimating and describing the health of women across the selected conditions. These discrepancies are particularly evident in LICs and LMICs, where a lack of modern data infrastructures can lead to missed opportunities for data capture.[68]

Patient registries are critical elements of data collection, resource allocation and service planning. They collect data on symptoms, medication use, service usage, procedures and patient-reported outcomes. Health researchers and policy-makers can use this information to observe the course of the condition, understand variations in treatment outcomes and assess effectiveness across and within populations. The Forum and MHI analysis found that many countries lack condition-specific patient registries for the selected conditions.[69] Even when widely used and accepted registries exist, gaps persist: for example, international data collection standards are absent for many conditions.[70] Population-level tracking of breast cancer stage and breast cancer recurrence is particularly poorly and inconsistently documented within the registries.[71]

The ultimate outcome measure – death – is neither consistently nor accurately counted. No comprehensive source to track global mortality rates exists.[72] Countries often self-report into mortality databases, and data is often missing, particularly data from LICs and LMICs. Stakeholders could explore how to standardize, collect, report and update mortality data between and within countries to develop a comprehensive picture of disease burden, aid the allocation of resources and support healthcare systems to improve health outcomes.

2.1.1 Lifespan data is poor; health span data availability and quality are worse

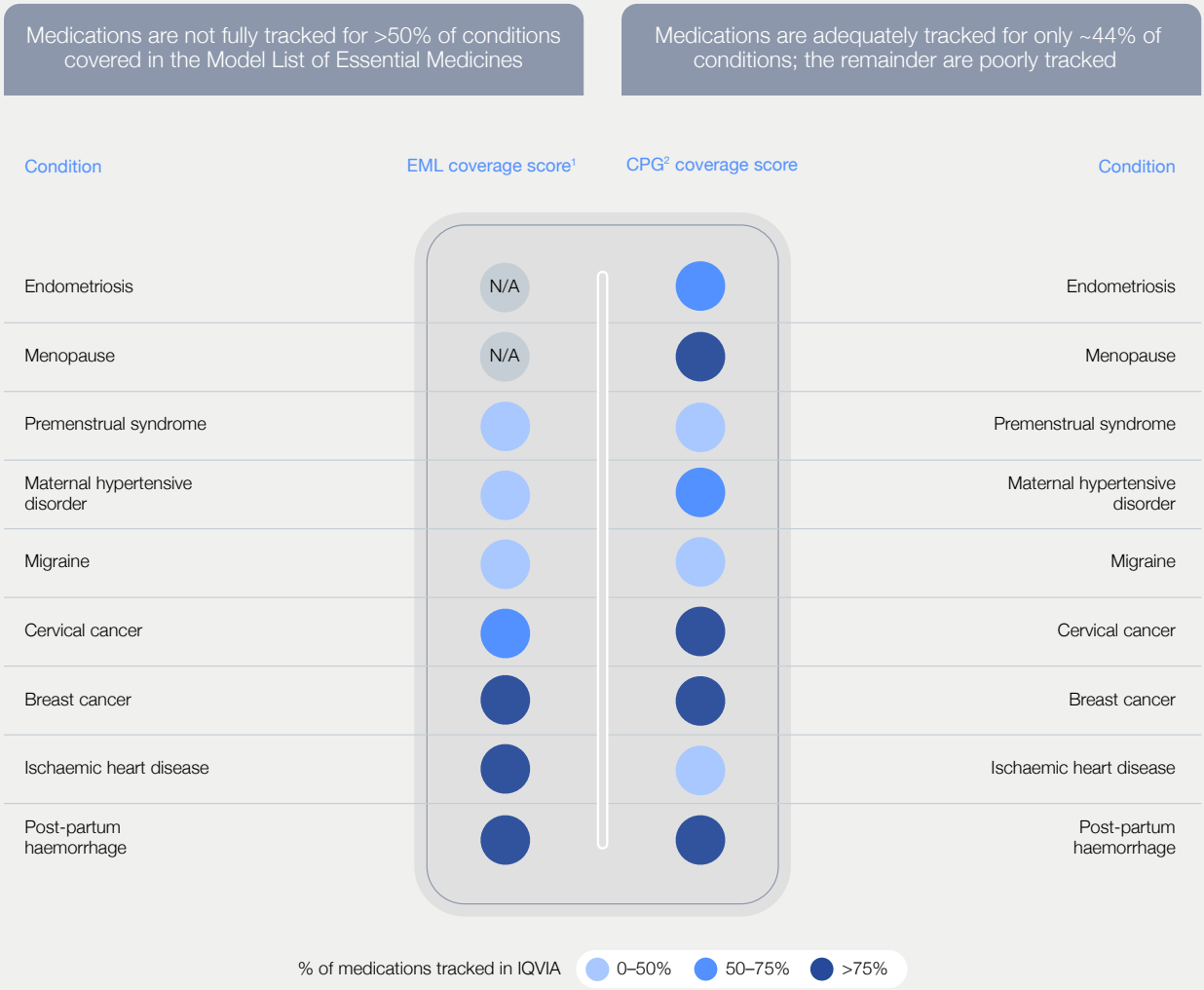
The Forum and MHI, in collaboration with the Global Alliance for Women's Health working groups, developed proxy measures to uncover the scale of the data gap. These measures assessed global medication tracking of evidence-based treatments for the selected conditions. Inaccuracies – specifically, not knowing how, why or when women are either taking medications or missing opportunities to take medications – undermine a chance to inform investment in interventions or to improve care delivery. Lack of data can often impede monitoring and surveillance of medications and the effects on women.[73]

Notably, no single database comprehensively tracks how medications are used and distributed or medication quality. This has implications for the supply chain and patient access. And while knowing if recommended medications are tracked in global pharmaceutical data is important, the sparsity of relevant and accurate data needed for the analysis is reflective of broader challenges with data collection, standardization and collaboration between stakeholders for conditions that contribute to the women's health gap.

2.1.2 Even if therapeutic products exist, knowing if they are accessible or used is impossible today

The Forum and MHI developed metrics to reveal whether medications for the selected conditions are tracked globally. Analyses were conducted to understand if and how comprehensively the medicines for the selected conditions are tracked in global pharmaceutical data.[74]

FIGURE 3 **Medication volumes are not comprehensively tracked for most selected conditions**



Note: 1. Model List Essential Medicines from the WHO: a list of medicines considered to be most effective and safe to meet the most important needs in a health system. **2.** Global clinical practice guidelines for each condition, considered best practice.

Source: The Forum and MHI analysis, based on WHO Model List of Essential Medicines, CPGs of countries, IQVIA

The WHO publishes a Model List of Essential Medicines; if a medicine is on this list, the WHO considers treating the condition and accessing the associated therapeutics as essential for a country's health system. CPGs are standardized recommendations that clinicians follow to diagnose and treat conditions. This analysis demonstrated the presence – and absence – of global pharmaceutical data across CPGs and essential medicines lists (EMLs) for the selected conditions and, subsequently, the lack of prioritization of treatments for women's health conditions.

In carrying out this analysis, the Forum and MHI used comprehensive sources of global pharmaceutical volume data, knowing that no single-source database exists to provide details for all generic medicines, over-the-counter medicines and branded therapeutics. After consulting with experts in working groups, the IQVIA database was used for this analysis to provide the most complete picture. While this database is one of the most comprehensive sources of global pharmaceutical data, quality of medications, limited coverage of generics and lack of tracking of non-pharmaceutical interventions are caveats:

1. Medication volume data is not indicative of the quality of medications, availability of medications or whether patients are able to access medications across countries.

2. Limited data coverage for generic medications likely compounds the data gap from regions in which most medications used are generic, particularly for LICs and LMICs.

3. Non-pharmaceutical interventions indicated in treatment guidelines are not tracked. Non-pharmaceutical interventions include surgical procedures, which are particularly important to note for conditions such as endometriosis (for which laparoscopy is used for diagnosis and treatment) or breast cancer (for which mastectomies may be performed) or cervical cancer (for which loop electrosurgical excision procedure [LEEP]) therapy is a common treatment. Diagnostic tools are also not covered.

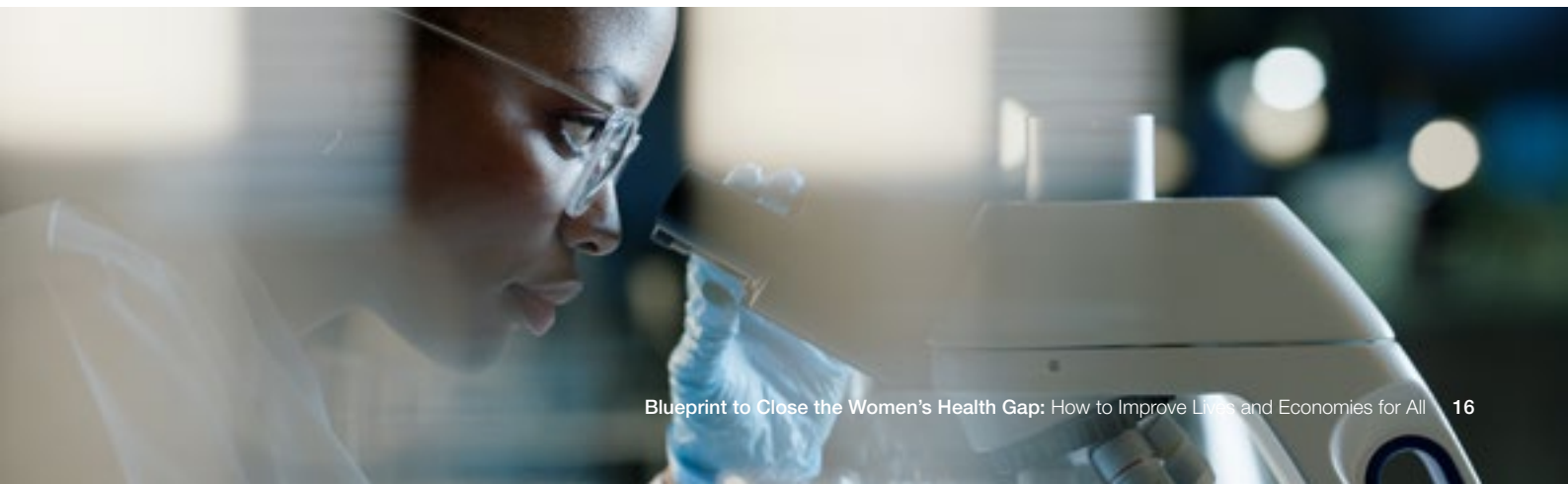
Overall, the Forum and MHI analysis found that medications recommended in CPGs are not comprehensively tracked in global pharmaceutical databases for 33% of the selected conditions – migraine, PMS and ischaemic heart disease.

The Model List of Essential Medicines includes medications for only six of the selected conditions (ischaemic heart disease, breast cancer, cervical cancer, migraine, maternal hypertensive disorders and post-partum haemorrhage). This implies that only 67% of the selected conditions are determined to have medicines that offer the greatest benefits to a population and should be available and affordable. Even for the selected conditions present in the Model List of Essential Medicines, the Forum and MHI analysis found that only one-third of the medicines included in the Model List are comprehensively tracked in global pharmaceutical data.

Women-specific conditions that affect the health span – PMS, menopause and endometriosis – lack EMLs.[75] This may reflect the lack of understanding of the burden of these conditions on women, families, communities and economies. As a result, the sense of how (and how well) women are managing pain is limited. In other words, for some of the most prevalent conditions in the world, the WHO does not recommend that countries include the treatments for these conditions as essential medicines, and tracking for the treatments that are being used (e.g. over-the-counter pain relievers) is limited.

The Forum and MHI analysis found that 83% of medications referenced in menopause CPGs are tracked in the global pharmaceutical data, including oestrogen, progesterone and other hormonal treatments.[76] While specific medications are tracked in global pharmaceutical data, limited data on compounded hormone therapies and tailored dosing of hormone therapies is collected. This potentially underestimates the treatments used and limits the understanding of the effectiveness and side effects for women using compounded and tailored therapies.

Additionally, the quality or availability of medications for women is not reflected in this analysis. Understanding whether providers and patients can obtain recommended medicines in different geographical areas – even for medications deemed "essential" – is challenging. Furthermore, the data does not reflect whether therapeutics are reimbursed by payers, either through national mandates or through individual payer formularies and coverage guidelines, highlighting additional questions regarding access.



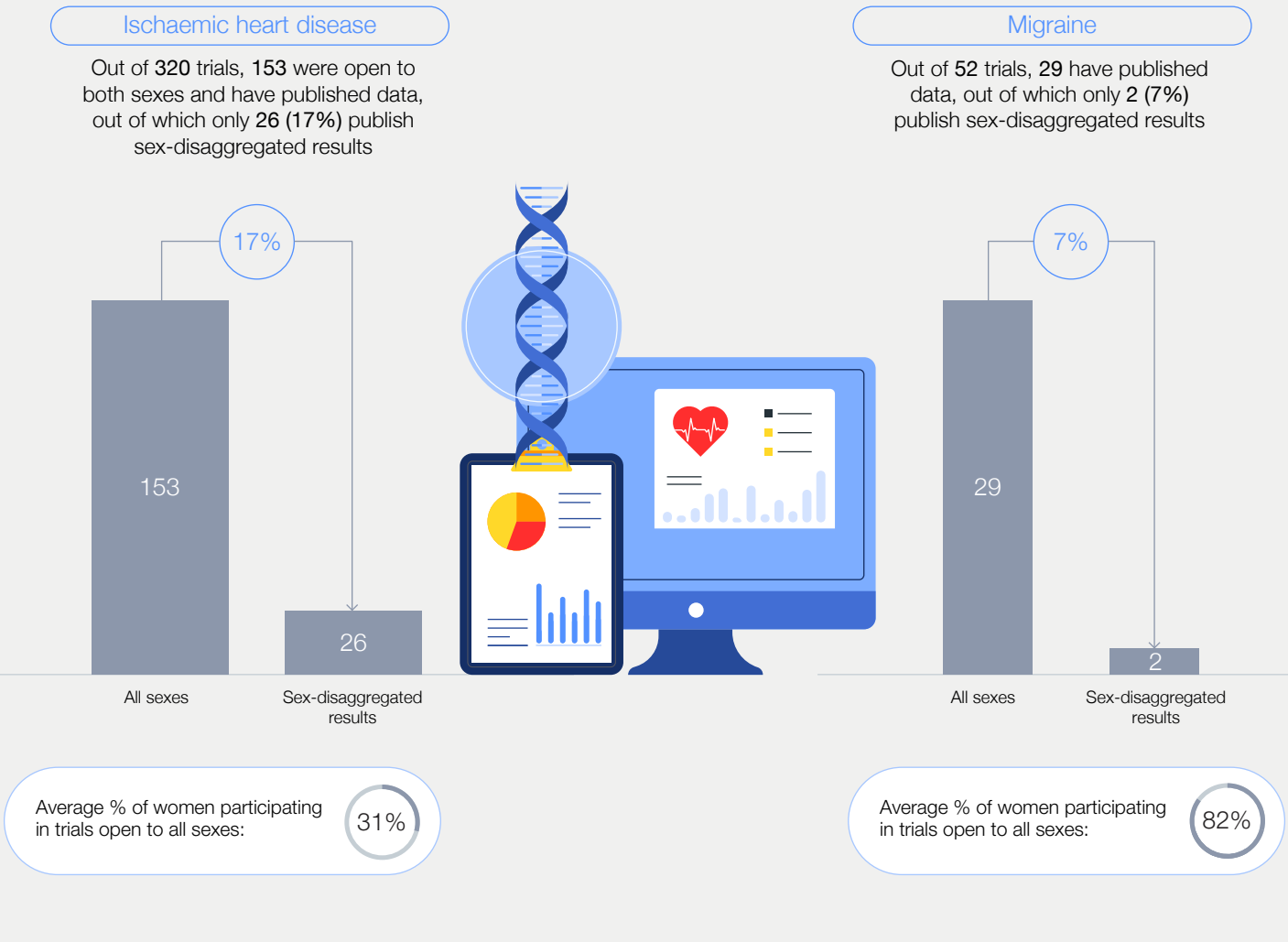
In contrast, on the upside, the Forum and MHI analysis found that all breast cancer pharmaceutical therapeutics recommended in global CPGs and the WHO's Model List of Essential Medicines are tracked in global pharmaceutical data. Notably, the comprehensive set of interventions for breast cancer (e.g. radiotherapy, chemotherapy and surgical interventions) are not comprehensively measured across datasets. The breast cancer analysis demonstrates that collecting this type of data is possible and a potentially achievable goal for other conditions.

2.1.3 Publishing sex-disaggregated data could help the understanding of sex-related differences for conditions and their treatments

Women are not small men: sex-disaggregated data and analyses allow a better understanding of why and how interventions work differently in men and women, as well as the different effects of interventions attributed to sex and sex-specific physiology. The Forum and MHI analysis found that only around 10% of clinical trials for ischaemic heart disease and migraine published sex-disaggregated data.[77] Limited understanding of how women and men may respond differently exacerbates the efficacy gap observed in most health interventions.

Proportionate participation by women in clinical trials – relative to their share of the burden – and transparent sharing of sex-disaggregated trial outcomes, side effects and therapeutic dosage could allow scientists to evaluate the efficacy of a treatment.[78,79,80] Additionally, none of the clinical trials for ischaemic heart disease and migraine accounted for hormonal fluctuations or menopause in women participants, which impedes the understanding of treatment effectiveness and how therapeutics differ throughout a woman's life and hormonal stages.

FIGURE 4 **Sex-disaggregated data for ischaemic heart disease and migraine**



2.1.4 A deeper look into heart disease and migraines

Ischaemic heart disease is the world's number one cause of death for both men and women, responsible for the deaths of 9 million people annually (in 2019, roughly 4.97 million men and 4.17 million women).[81,82]

Analysing the results of clinical trials by sex could illuminate sex-specific differences, including different responses to treatment, different side effects and potentially different cardiovascular biological factors. However, Forum and MHI analysis showed only 17% of ischaemic heart disease clinical trials completed in 2022 and open to both sexes published sex-disaggregated results.

Funding is needed, alongside regulatory reporting shifts, to publish sex-disaggregated data and analysis and encourage sex-specific research. The Forum and MHI analysis found that in the US, National Institutes of Health (NIH) funding for ischaemic heart disease increased overall between 2020 and 2022, though the share of NIH research funding for women-specific ischaemic heart disease research decreased from 26% to 21%.[83]

Migraine, which affects almost 21% of reproductive-age women, impedes productivity and quality of life for women around the world and accounts for a large portion of the women's health gap.[84] However, the Forum and MHI analysis found that only two trials out of the 52 (4%) completed in 2022 published sex-disaggregated data.[85] The Women's Health Innovation Opportunity Map,[86] among others, has highlighted a need to research sex-related differences in the presentation and evolution of migraine given the sparsity of sex-disaggregated research published.

Women who are pregnant and lactating are often excluded from clinical trials for migraine and other conditions. While testing new medications on pregnant women may not be advisable in many circumstances, a consequence of such research safety measures[87] is a lack of understanding of how pregnant women may respond to migraine treatments. For example, a knowledge gap exists on how to manage migraines that get worse with pregnancy. Additionally, those with migraine in pregnancy have a higher risk of pre-eclampsia and maternal stroke.[88] When pregnant women with migraine who developed pre-eclampsia in pregnancy were followed over time, they were discovered to have a higher risk of stroke later in life as well.[89] The lack of knowledge and limited clinical trials around sex-specific research drives the treatment efficacy gap in migraines, particularly for women, throughout their entire lifetimes, and especially during stages of hormonal fluctuations, lactation and pregnancy.

Additionally, given the low participation of men in migraine clinical trials and limited sex-disaggregated results, both men and women suffering from migraines could benefit from sex-disaggregated data that can reflect treatment efficacy, effectiveness and side effects.

2.2 Study women

Conditions affecting women could benefit from more research funding and focus.

Research on the sex-distinctive elements of the selected conditions is needed.[90] Lack of research limits knowledge about differences in outcome in diverse groups (critically, in women and girls) and impairs understanding of the selected conditions and their pathophysiology.

Analysis of research funding can be used as a proxy for understanding the research topics being funded and the research priorities of funders. Global research funding is tracked in the NIH's World RePORT database. This database covers both governmental and non-governmental funding bodies and may not include all funding from life sciences companies, private investors and local funders. Other analyses may be considered for tracking research attention and support, such as cumulative peer-reviewed publications about conditions; within this scope, global research funding was prioritized.

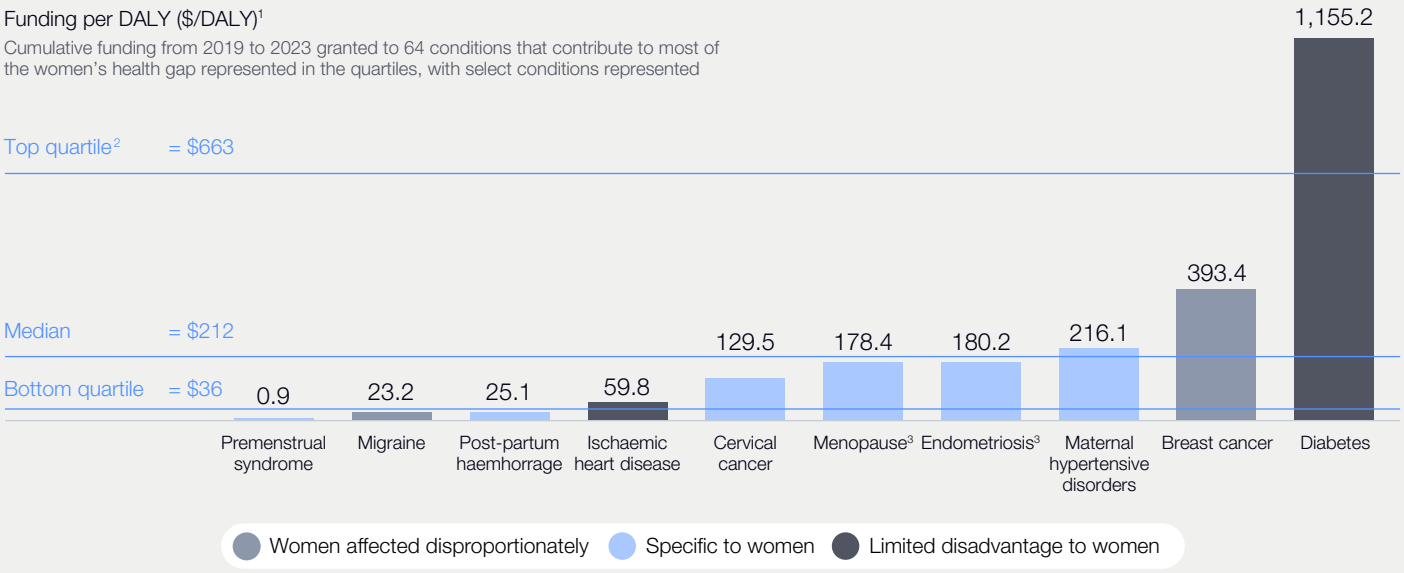
The Forum and MHI compared the value of global investment in research to the size of the global disease burden (measured in DALYs) for each of the selected conditions. The result is a metric that estimates the "dollars per DALY" of research funding allocated to the selected conditions. This metric reveals the extent to which research funding reflects the fair allocation of research resources – whether all DALYs were considered equally important. Additionally, disaggregating funding by type – such as basic science research, clinical trials, translational research and implementation science – helps to identify areas of greater investment need. For example, research on how treatment effectiveness changes within the context of a country or community, particularly in LICs and LMICs, is relatively underfunded.

2.2.1 Among the selected conditions, funding does not match disease burden

What – and who – is studied and how investments are made illuminates research priorities and health equity concerns.

Women-specific conditions are relatively underfunded. PMS, menopause, maternal haemorrhage, maternal hypertensive disorders, cervical cancer and endometriosis comprise 14% of the total women's health gap, as measured in DALYs. Collectively, the Forum and MHI analysis found that these conditions received less than 1% of cumulative research funding in 2019–2023 granted to all 64 conditions that drive most of the women's health gap.[91] Comparatively, diabetes makes up 2% of the women's health gap, and received 12.5% of the research funding granted to all 64 conditions.[92] The funding per DALY for diabetes is nearly double the funding per DALY of PMS, menopause, maternal haemorrhage, maternal hypertensive disorders, cervical cancer and endometriosis combined. While investments in diseases and conditions may not always mirror the pain and suffering those diseases and conditions cause, questioning the large gaps between funding and health burden is worthwhile.

FIGURE 5 **Funding for conditions is not proportionately allocated relative to the disease burden**



Note: 1. Funding is captured in the World RePORT database, which covers all research funding, from early-stage R&D to care delivery and implementation.
2. Quartiles based on analysis of funding for 64 conditions, which account for 86% of the Women's Health gap.
3. Burden is adjusted by McKinsey analyses to account for higher prevalence of endometriosis and menopause based on WHO estimates and population studies.

Source: The Forum and MHI analysis, based on the World RePORT database and Institute for Health Metrics and Evaluation.
Data retrieved June 2024 from World RePORT database

PMS is particularly underfunded. It accounts for 4% of the women's health gap, equating to 2.1 million DALYs, yet research funding does not match the burden caused by PMS: almost zero dollars of research funding per DALY was allocated to PMS between 2019 and 2023[93] and only 16 clinical trials for PMS were registered between June 2023 and June 2024. No funding or initiatives related to PMS were reported from 2019 to 2023 in the World RePORT database, and only a handful were related to premenstrual dysphoric disorder from 2019 to 2023.[94] Lack of research funding likely correlates with not having a clear understanding of what a "normal" period is, or how common irregular periods are for adolescents. One study measured the hormone levels of a large cohort of women throughout their menstrual cycles and found that not a single participant's hormone levels matched "textbook" 28-day cycles.[95] Another recent study examined variabilities in the menstrual cycle in demographic groups, age cohorts and based on BMI, with those who were Asian or Hispanic, older or having obesity experiencing more cycle variability.[96,97]

Breast cancer receives the most funding of the selected conditions: cumulative global research funding for breast cancer is $393 per DALY.

The impact of that funding on improvements in breast cancer mortality over the past 30 years reflects the power of focus and investment. Research, education, activism and investment have led to huge gains overall – breast cancer mortality rates in the US, for example, decreased by 42% from 1989 to 2021.[98]

Even for breast cancer, the need for research funding persists. The increasing breast cancer burden in LMICS and LICs requires a fresh look at where research is conducted, whether the research in different geographical areas is completely transferrable and the areas of research that receive funding.[99] Disaggregated data by funding type – such as research funding for basic science versus implementation science – are not available in the database and not covered in this analysis. This data is important given that substantial work remains to understand effective ways to address socioeconomic and racial disparities, including in HICs: for example, Black women in the US are 40% more likely to die from breast cancer than white women, despite the presence of life-saving and life-prolonging treatments in the country.[100]

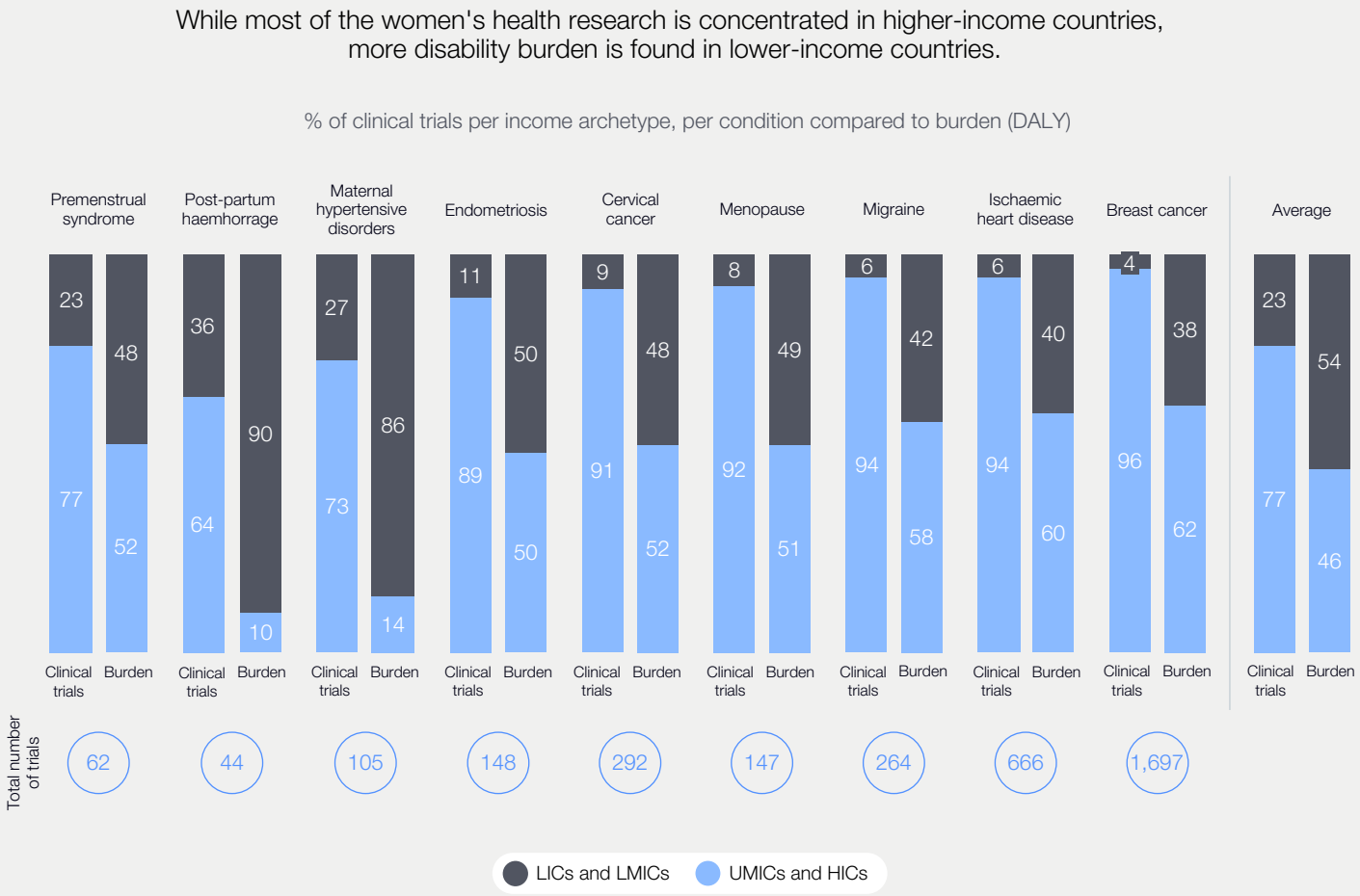
Across countries of all income levels, research is needed that provides greater insights into the genetic, biological, social and environmental factors of the selected conditions and helps with understanding different clinical outcomes. Enhanced research may translate into novel therapies, reduced disease burden and greater economic benefit for families, communities and countries.[101,102]

2.2.2 More than three-quarters of clinical trials for the selected conditions are conducted in high-income countries

Clinical trials can assess the effectiveness of new interventions, different ways to use existing interventions or other variables that could affect health. Reviewing what, how and where trials are conducted illustrates one measure of industry and academic priorities. The analysis carried out by the Forum and MHI looks at active clinical trials with women enrollees registered with clinicaltrials.gov between 1 June 2023 and 31 May 2024.

Clinical trials for the selected conditions are not conducted in LICs and LMICs relative to the burden of those conditions in lower-income countries. The Forum and MHI analysis found that women and girls in LICs and LMICs experience 54% of the women's health gap, yet 23% of clinical trials for the selected conditions focus on these regions. Upper-middle-income countries (UMICs) and HICs have 77% of clinical trials and only half of the global burden. While the evidence suggests that menopause symptoms may start earlier in women who live in LMICs,[103] only 8% of the clinical trials identified for menopause are concentrated in LMICs. Similarly, 85% of cervical cancer cases arise in LICs or LMICs,[104] yet only 9% of clinical trials for cervical cancer were conducted in these countries.

FIGURE 6 | **Global research distribution in the past 12 months based on WHO International Clinical Trials Registry Platform and clinicaltrials.gov**



Source: The Forum and MHI analysis, based on clinicaltrials.gov, Institute for Health Metrics and Evaluation. Data retrieved June 2024

Treatment effectiveness in LICs and LMICs is difficult to understand when clinical trials are not conducted in those countries or communities. The Forum and MHI analysis did not identify any clinical trials in LICs for 67% of the selected conditions: migraine, menopause, PMS, endometriosis, breast cancer and ischaemic heart disease. The answer is not "more trials for trials' sake", but to evaluate whether clinical trials consider globally representative samples of the disease burden and whether or not their results can be extrapolated across populations and geographies.

Additionally, research and funding for a selected condition do not imply that unmet need no longer exists. Post-partum haemorrhage and maternal hypertensive disorders have the greatest proportion of trials in LMICs and LICs out of the selected conditions, yet significant morbidity and mortality from these conditions persist across these countries.

The first step in LMICs and LICs is more funding for wide-scale infrastructure, training, quality improvements and implementation that can enable successful clinical trials to take place. Investment in local primary investigator-led trials can improve local participation and ensure that the research questions and end points are aligned with local relevance and community needs.[105]

In HICs, the outsized proportion of funding and clinical trials may mask disparities and inequities within those countries. Publication and funding bias may affect the rate of trials completed in LICs and LMICs,[106] but even when clinical trials are conducted in HICs, patient access to these trials and representation across minority racial and ethnic groups remains imbalanced[107,108]

Breast cancer has more registered clinical trials than all other female-specific selected conditions combined – 1,697 in total. In comparison, 44 trials for post-partum haemorrhage were registered. The prevalence of breast cancer is close to 500 per 100,000 population, and the prevalence of post-partum haemorrhage is 320 per 100,000 population.[109] This highlights a one-third higher prevalence of breast cancer compared to post-partum haemorrhage, and a near 40-fold difference in the number of trials for breast cancer compared to post-partum haemorrhage.

In UMICs and HICs, ensuring diverse access to clinical trials – across race, ethnicities and geography – and decentralizing clinical trial enrolment may provide equitable access to innovative research while helping to make sure the results of clinical trials are more broadly applicable.

Ensuring that innovative research and clinical trial enrolment reaches all women in all countries is dependent upon access to appropriate, high-quality care and care delivery systems.

2.3 Care for women

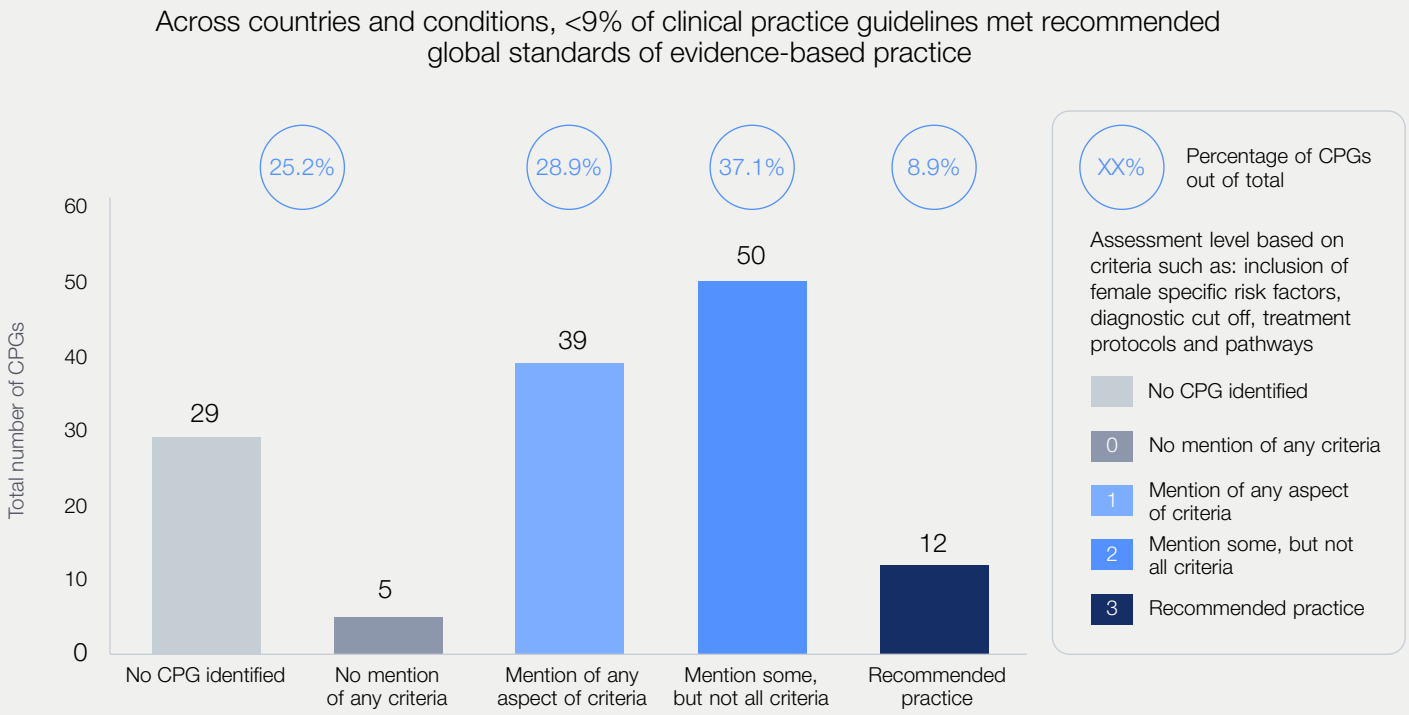
More than a third of the women's health gap stems from disparities in care delivery.

Even when evidence to support best practices exists, translating the findings from evidence-based research into clinical guidelines and subsequently adopting them into clinical practice is challenging.[110]

CPGs are evidence-based, nationally recognized and standardized recommendations for healthcare professionals – doctors, nurses or other healthcare practitioners – on how to diagnose and treat specific medical conditions. Evaluation of CPGs can illuminate the clinical standard set by a country and reveal whether that standard is reflective of evidence-based practice. Examining CPGs for the selected conditions in 15 countries across all income levels helps to create a scalable blueprint for all countries and all conditions that drive the women's health gap.

Evaluating a country's CPGs for the selected conditions helps clarify whether evidence-based, high-quality clinical guidelines are being recommended. Outdated, incomplete or missing guidelines can act as proxies to assess whether a country's care delivery system is prioritizing the condition and spectrum of care associated with it. Yet this metric is only the first step: while CPGs are meant to reduce variability in care delivery, the implementation of guidelines may differ due to lack of resources or insufficient or different care delivery environments. In well-resourced countries, CPGs may not encourage the best interventions available, and instead aim for universally applicable recommendations (the lowest common denominator). When better technology and interventions are available (e.g. imaging technology), CPGs could encourage them and women could benefit from them.

FIGURE 7 | **Average CPG analysis for 15 selected countries**



Source: The Forum and MHI analysis on assessment of national CPGs against global benchmarks. Methodology of grading and specific CPGs are included in the technical appendix

2.3.1 Among selected conditions, less than 9% of CPGs in the studied countries met recommended global standards

The Forum and MHI analysis found that none of the selected conditions had comprehensive or complete CPGs in all studied countries – and none of the studied countries had comprehensive or complete CPGs for all conditions. Practice-standard CPGs for women-specific conditions that affect health span were particularly sparse: in 25% of cases, there is either no CPG identified or no mention of any female-specific criteria across risk factors, diagnostic cut-off, treatment protocols or pathways.

CPGs for cervical cancer are present in all 15 of the studied countries, a feat not achieved by the other selected conditions. However, the country-level CPGs for cervical cancer were often incomplete – for example, specifics regarding vaccination targets, screening and time to treatment varied and were not always aligned with clinical evidence. Vaccination for human papilloma virus (HPV) almost entirely prevents cervical cancer, yet less than 25% of LICs have introduced HPV vaccination into their vaccine schedules and fewer than one in five girls around the world have been vaccinated for HPV.[111] Fewer than 5% of women in LICs and LMICs are screened for cervical cancer,[112] reaching as low as 1% of women screened in parts of Africa.[113] Screening coverage in HICs is at least seven times higher than it is in LICs and LMICs.[114]

CPGs for ischaemic heart disease met the standard for evidence-based recommended practice in only one of the studied countries, even though ischaemic heart disease is the leading cause of death for men and women worldwide. Few country-level CPGs for ischaemic heart disease acknowledge sex-based differences: 64% of CPGs for ischaemic heart disease mention women-specific risk factors and risk scores (e.g. age, menopause and hormone replacement therapy [HRT]); 64% of CPGs for ischaemic heart disease mention that women may present differently from men with acute cardiac events (e.g. with dizziness, nausea and fatigue); 29% of CPGs for ischaemic heart disease acknowledge that women may respond differently from men to treatment or may require a different treatment pathway (for example, blood pressure optimization, given that standard dosing of some medications such as ACE inhibitors and beta blockers can lead to increased side effects in women and personalized adjustment of medication for women may need to account for physiological differences). Only the Brazilian guidelines mentioned evidence-based diagnostic cut-offs for women. One country lacked CPGs for ischaemic heart disease completely.

Providers caring for women with ischaemic heart disease often lack the education, guidance and support needed to deliver sex-specific clinical care,[115] and as a result, women are less likely to receive evidence-based recommendations and treatment for ischaemic heart disease when compared to men.[116] This is further exacerbated by disparities and inequities in care delivery, including quality and access.

CPGs for migraine lacked complete evidence-based and practice standards in all of the 15 studied countries. CPGs exist for 10 of the 15 countries studied; of those, only seven country-level CPGs included migraine treatment guidelines adapted for menstruation, pregnancy and lactation. An example that reinforces this is that only about a quarter of adults in the US with episodic migraine receive treatment.[117] Even when medications are prescribed, clinical guidelines and healthcare payers often set a high bar for receiving them; patients often have to demonstrate failure to improve on multiple medications before access to third-line therapy is provided.[118] For example, calcitonin gene-related peptide (CGRP)-targeted medications are now considered an early option for migraine treatment,[119] but less effective and less well-tolerated generic treatment options are often prescribed first, sometimes due to prior authorization guidelines from payers. Many women's healthcare providers reported in 2020 that they were not aware of non-medication treatments with Level A evidence, including the effectiveness of biofeedback, cognitive behavioural therapy and lifestyle changes as treatments for migraines used in conjunction with medications.[120]

For the conditions affecting health span – migraine, PMS, endometriosis and menopause – more than half of the studied countries were entirely missing CPGs describing either prevention, diagnosis or treatment of the condition. Of the selected conditions, menopause was one of the lowest-performing in the CPG analysis, despite affecting most women globally at some point in their lifetimes. For PMS, a condition that affects 20–40% of women of reproductive age, 60% of the studied countries lacked CPGs entirely; of the countries with CPGs, most had comprehensive guidelines.

2.3.2 Global benchmarks may mask disparities within HICs while often creating less feasible expectations in LICs

Breast cancer and cervical cancer have higher CPG scores in most countries, although the high scores and the presence of CPGs across geographical areas and income levels may not equate to equitable implementation of the guidelines. Mammography, for example, is a globally recognized guideline for breast cancer screening included in most CPGs, although in HICs, access to screening can differ across race, ethnicity, socioeconomic class and geographical area. In LICs, access to mammography may be limited by the presence or lack of a mammography machine, reliability of electricity and availability of a workforce of technicians and radiologists (and surgeons and pathologists for women with a positive screen). Some LICs and LMICs highlight the challenges and feasibility of mammography within their CPGs. According to India's CPGs, for instance, "population-wide mammographic screening […] of asymptomatic women is neither feasible [nor] as useful".[121]

Additionally, CPGs may not reflect the evolution of clinical evidence that could help to address these inequities. In LMICs and LICs, educating women and the broader society on the signs and symptoms of breast cancer and when and how to seek care or support someone to seek care may promote early detection and intervention. In HICs, in which mammography has become routine, more precise approaches to screening, diagnosis and treatment may be beneficial, including earlier and easier access to stage-appropriate treatment and personalized, precision medicine.[122] The sensitivity of mammography differs for women with dense breast tissue; both unnecessary biopsies and missed cancer can be risks when other technologies such as MRI are not made available or reimbursed.[123] Implementation science and research and increasing awareness among communities can help reduce access and adherence challenges and demonstrate effective solutions. For example, using artificial intelligence (AI) to identify and connect with patients with gaps in care, communicating through text and phone calls in a patient's primary language, identifying and addressing health-related social needs and enrolling women in rural areas or through primary care into decentralized clinical trials may help all women to find and adhere to the highest-quality care.

2.3.3 Adoption and implementation of CPGs can vary within and between countries

CPGs may not be realistic in a country's current reality.[124] For example, the HPV vaccine needs continuous refrigeration, which may be difficult during a widescale power outage, or those with heart disease may benefit from visiting a cardiac rehabilitation centre but struggle with the accessible transport needed to get there. These cases reflect potential challenges in adopting CPGs for cervical cancer and for ischaemic heart disease, respectively.[125] Given the limited pragmatic research into the implementation of practice standards within LICs, CPGs – often developed based on research in HICs – may feel unattainable for some providers and health systems, creating a sense of futility.

Research on existing, locally relevant practices (i.e. "practice-based medicine") may help to encourage clinically useful and achievable CPGs. In India, a randomized controlled trial in Mumbai demonstrated the effectiveness of education and clinical breast examinations to help achieve a lower stage at presentation (also known as "clinical downstaging", indicating less extensive disease) in parallel with mammography.[126] Standardized protocols and discharge checklists, for example, support better consistency and compliance with higher-quality care.[127] More research is needed to develop CPGs that are effective within and across countries, recognizing both clinical evidence and local feasibility.

Even when resources do exist, such as in HICs, CPGs may not be adapted in day-to-day practice due to other barriers, such as lack of education and training, overstrained workforces, local access and resource challenges and structural discrimination according to race, gender, income levels or other factors.

Implementation of CPGs and clinical education are intimately linked. Medical education and training for the selected conditions – particularly around sex-specific differences across all selected conditions and diagnosis and treatment of conditions that affect health span – is limited, even for those in specialized programmes and in higher-income countries. For example, country-level CPGs for menopause and endometriosis are incomplete in the US. One US study found that only a third of obstetrics and gynaecology residency training programmes have a menopause curriculum, while another found that of almost 200 respondents, 20% reported not having any menopause lectures during residency.[128,129] Another study found that out of 67 residents in US obstetrics and gynaecology training programmes, most were comfortable diagnosing endometriosis but far less comfortable with treatment options or medical/surgical management.[130]

Education and training on clinical best practices improve care. For example, one training for residents paired a podcast series on menopause with an in-class discussion, resulting in an 18.3 percentage point gain (60.8% to 79.1%) in answering knowledge-based questions correctly along with an increase in the residents' self-ratings of knowledge, comfort and preparedness.[131]

CPGs for the selected conditions, even when present, are often not translated into clinical care for girls. For example, many of the selected conditions may affect children and adolescents, yet paediatric training on conditions that affect girls differently and disproportionately is minimal. Women-specific conditions often present with menarche,[132] and continue through adolescence as symptoms change and regulate. Lack of timely intervention may lead to longer-term consequences; for example, adhesions from endometriosis may lead to chronic pain and infertility. Paediatric history and physical exams often lack sexual and reproductive health; the lack of attention given to menstrual cycles and changes in sexual and reproductive health throughout adolescence are often not discussed in paediatrics appointments; and lack of focus in paediatric medical education and training on the selected conditions is a disservice to girls. For example, a 2020 survey of US paediatricians found that many reported not providing anticipatory guidance or discussing menstruation with patients, with male paediatricians significantly less likely to give patient education regarding menstruation or ask patients about their menstrual cycle.[133] Among obstetrics and gynaecology trainees in Europe surveyed in 2021, more than 40% said that no paediatric and adolescent gynaecology training (rotations, electives or lectures) were offered in their curriculum.[134] Ultimately, a lack of knowledge and training can mean missed diagnosis for health-span conditions, resulting in girls missing school, having associated mental health conditions, chronic pain and a sense of isolation. As puberty is starting earlier for girls,[135,136] ensuring provider knowledge and training on adolescent gynaecological health is critical.

CPGs could be adaptable to populations and health systems while aligning with the latest evidence-based medicine. They could lead to sex-specific education and training, across country income levels. They could be understood, recognized and implemented across specialties and age groups to ensure both women and girls receive evidence-based care. CPGs, when fully representative of evidence-based practice and implemented appropriately, could result in multidisciplinary clinical management incentivized by adherence to guidelines, timely and coordinated diagnosis and treatment, the highest-quality care that is achievable for a woman in her community and pragmatic research into the effectiveness of CPGs and effect on clinical outcomes.

2.4 Include *all* women

All women should be included in efforts to improve care.

Based on recent Forum and MHI analyses and expertise from the Global Alliance for Women's Health working groups, addressing inequity could have a greater impact on mortality for conditions affecting lifespan than any single treatment studied in recent clinical trials.

No number of efforts to count, study, analyse or deliver better care for women will succeed without concentrated efforts to address structural inequities across race, ethnicities, geographical origin or residence and other disparities within and between countries. Among the conditions affecting lifespan – breast cancer, cervical cancer, ischaemic heart disease, post-partum haemorrhage and maternal hypertensive disorders – eliminating disparities associated with race, gender and geography could have a greater effect on mortality than the single treatments in completed and resulted Phase 3 clinical trials between 2021 and 2023 for those conditions.[137]

By way of example, many of the recent treatment-related clinical trials for breast and cervical cancer focus on halting the progression of metastatic disease. The reasons behind women's mortality are often more complex than disease pathology alone, encompassing social determinants such as race, income and educational attainment. One 2017 study found that when Black women died of breast cancer in the US, a lack of private insurance was connected to more than a third of the risk of these deaths, while tumour characteristics accounted for 23% of the risk.[138] For cervical cancer, Black and Hispanic women in the US are more likely to experience delayed follow-up care after an abnormal pap smear, and Black women are 60% more likely than non-Hispanic white women to die of cervical cancer.[139,140] In one assessment of Indonesian patients diagnosed with cervical cancer in 2022, almost 90% said they were unaware of cervical cancer prevention.[141]

Despite a decline in overall deaths from ischaemic heart disease, women are more likely than men to die from an acute cardiovascular event[142] and the overall mortality rate for women with ischaemic heart disease remains high.[143] Complications are especially true for younger women: a study found that women between the ages of 18 and 55 with acute myocardial infarction experience more adverse outcomes than young men in the year after discharge compared to men.[144] Within geographical regions, wide disparities exist: for example, the risk of dying from ischaemic heart disease varies across Europe, with lower mortality rates for women in Germany than Romania.[145,146] In India, ischaemic heart disease rates are increasing faster in women than men, attributed to factors such as greater body weight, tobacco use, diabetes and periodontal infections, in addition to disparities in the delivery of healthcare by gender.[147]

For maternal health, disparities are well known. Within HICs, Japan has 4 maternal deaths per 100,000 live births; the United Kingdom has 5.5 maternal deaths per 100,000 live births; the US has 22.3 maternal deaths per 100,000 live births.[148] LICs, overall, have 430 maternal deaths per 100,000 live births.[149] But the picture is more complex when looking deeper within a country. In the US, rates of post-partum haemorrhage rose by 26% between 1994 and 2006 and exacerbated disparities:[150] Black women in the US are less likely to receive life-saving anti-haemorrhagic interventions than non-Black women.[151] Black women in the US are 2.6 times more likely to die from pregnancy-related complications than non-Hispanic white women, with 49.5 maternal deaths per 100,000 live births.[152]

Health-related social needs limit access to healthcare delivery and are often a barrier to inclusion in research and clinical trials. Efforts to address health-related social needs and understand the implications of social determinants of health are critical to improving health span and lifespan. While social determinants of health are correlated with health outcomes, addressing health-related social needs can sometimes have an even greater impact on medical conditions than the care provided, due to their effects on delayed presentation, delayed diagnosis, access to interventions and trust in the healthcare system – as when health-related social needs are linked to delays in the diagnosis and treatment of cancer.[153] When health-related social needs and mental health challenges are addressed, improvements in cancer care access and all-cause mortality are observed.[154] Closing the women's health gap will require provider education on the impact of social needs on clinical care and health outcomes, and training on screening for social needs and resources to support women with social needs and mitigate disparities.

Cultural barriers can lead many women, particularly those with lower levels of education and socioeconomic status, to avoid seeking healthcare. Feelings of shame and perceived stigma also affect care. In sub-Saharan Africa, "women reported fear of the cervical screening procedure and negative outcome, low level of awareness of services, embarrassment and possible violation of privacy, lack of spousal support, and societal stigmatization", among other reasons for non-participation.[155]

Another example is menopause, an expected transition for almost all women: globally, half of post-menopausal women believe that menopause is a taboo subject, and only 46% go to their doctors for symptom management while 28% have no plans to see their doctor.[156] Similarly, menstruation is still perceived as a taboo subject by many, including women and girls, leading to meaningful levels of period poverty.[157]

Dignity and trust between women and their providers are the foundation of clinical relationships and successful health outcomes for women. Awareness and education can encourage individuals to advocate for and institutionalize sex- and gender-responsive care, and ensure providers deliver it.

2.5 Invest in women

Additional investments are needed to support the other actions.

The past year has seen substantial public and private commitments for investment in women's health around the globe – but the work is only beginning.[158,159,160,161,162]

Innovative investment and funding approaches across the public, private and social sectors have recently launched. For example, Pivotal Ventures released an open call for organizations around the world that advance women's health and health equity, with $250 million in allocated funding for grants within a broader $1 billion commitment to advance the global power of women.[163] The Advanced Research Projects Agency for Health (ARPA-H), a research funding agency of the US Government, opened a "Sprint for Women's Health" to support health and biomedical breakthroughs. Within six months of the announcement, $113 million was invested to support research on conditions that affect women differently or disproportionately, and 70% of the funded organizations are women-led.[164]

When investments are made, returns are achieved. For every £1 of public investment into obstetrics and gynaecology services per woman in England, there is an 11-fold return on the financial investment.[165]

Research focused on the biology of health-span conditions requires more funding. For example, a 2024 study found that genetically-predicted levels of certain hormones were associated with endometriosis risk.[166] While basic science investments may seem distant from treatment gaps and policy decisions, they are intertwined. When the diagnosis of health-span conditions is delayed, fewer women are counted as having the condition, which can lead to less investment in research. Scientists, life sciences companies and investors require adequate data on prevalence and potential market size to comfortably inform their investments.

Investment also means looking at who is leading the research and how a clinical research programme or clinical trial is run. One recent analysis found that when the principal investigators leading cardiovascular clinical trials were women, they were more likely to enrol women.[167] Investment is needed in professorships, funded chairs and other dedicated research tracks for women's health in academic institutions – beyond those in obstetrics and gynaecology departments – recognizing that more than half of the women's health gap is tied to conditions that affect women differently or disproportionately from men.

Investors, philanthropists and government funders can also consider a holistic and comprehensive approach to health beyond the healthcare delivery system. This includes social factors – such as nutrition, education, housing, water, clothing or transport – and how they influence outcomes. For example, UNICEF estimates that more than 400 million children lack access to basic sanitation services at their school, and only about one in three schools offer bins for menstrual waste.[168] The connection between unmet social needs and health stretches into HICs – a McKinsey survey found that employed individuals in the US with one or more unmet basic social need were 2.4 times more likely not to receive needed physical healthcare and to have missed six or more days of work in the past year.[169]

3 The path to progress

Collecting data is the first step in uncovering the drivers that will end the disparities and inequities in women's health – but which data should be gathered and how best to use it?

The selected conditions can prematurely end or meaningfully impair the health of women around the world. The societal and endemic factors contributing to the women's health gap did not appear overnight, and solving each of the drivers in a vacuum will not close the gap.[170]

Closing the women's health gap – driven by the undercounting and under-reporting of women's health data, the lack of understanding of the efficacy of interventions for women, inequities and disparities in the care delivery system and a lack of investment in the health of women – requires focused action, global commitments, local and international accountability and a fundamental transformation of health and social systems. Some actions for consideration are covered in the following sections.

3.1 Count women: Measure women's health and health outcomes globally

Measuring and tracking components of the gap are important and meaningful first steps in the journey to equitable health and healthcare for women and girls. Measures that drive action and direct resources to areas of impact are critical.

The **Women's Health Impact Tracking (WHIT) platform** was created to address this need. WHIT was designed to measure the burden of health conditions that contribute to the women's health gap (in terms of disability, mortality and consequent economic effect) and country-level indicators of data availability, treatment effectiveness and quality and appropriateness of care delivery. It was designed by stakeholders, for stakeholders, as a practical and tactical tool to track progress over time and illuminate areas of opportunity to scale proven interventions to rapidly close the women's health gap.

WHIT allows anyone around the world to view the 2024 baseline, including the most recent data used for this report, with the potential to monitor year-on-year progress and create a previously unavailable level of transparency. It incorporates metrics across the selected conditions developed in the Global Alliance for Women's Health working groups and incorporates 15 countries that are representative of each income level.

WHIT is an initial step. It highlights important data gaps and creates a path to make relevant data available to stakeholders. Prior to the launch of the platform, researchers, policy-makers and business leaders gathered data on women's health conditions and outcomes from fragmented sources – a process that was inefficient and fails to reveal the big picture. With WHIT, leaders and interested parties can access centralized, tested data. This allows leaders to spend their time and efforts not on collecting data, but on understanding and using it. Additionally, WHIT was built for scale. Over time, it aims to expand to all countries and conditions that contribute to most of the women's health gap.

But data is useful only if used effectively, and no one stakeholder can reverse structural inequalities and inequities. Every life matters – and so does every death. One meaningful goal could be for all countries to standardize data collection for maternal mortality, pregnancy-related complications and additional conditions affecting the maternal health span. Additionally, healthy births could be measured.

Pregnancy is the "canary in the coal mine":[171] for an individual woman, complications in pregnancy can illuminate potential long-term health consequences; for a society, how pregnant women are cared for (or not) is indicative of investment and priorities in health and social systems. For example, women with gestational diabetes are more likely to develop diabetes mellitus, type 2, later in life; women with cardiac-related conditions in pregnancy may have vascular changes that persist after delivery and greater risk of ischaemic heart disease. By standardizing the collection of health metrics for pregnant women, healthcare professionals can have broader insights into the health of individual women and of populations in the longer term.

3.2 Study women: Understand hormonal health and women's biology

Better understanding of hormones and the biology of sex-related differences may improve women's lifespan and health span.

Researchers have found links between oestrogen, menopause and brain health. One study found that a decline in oestradiol during the menopause transition was associated with changes in the brain, including cognitive changes, effects on sleep and effects on mood.[173] Another analysis of close to 200 women between the ages of 40 and 65 found that menopause tended to affect brain structure, connectivity, energy metabolism and amyloid-beta deposition.[174]

Research into sex-specific biology across basic science, pathophysiology and clinical trials could include the implications of hormones on medication metabolism and effectiveness – including a more personalized approach to hormone replacement therapy (HRT) to drive better health outcomes.

For instance, a recent study evaluated oestrogen receptor activity across the brain for pre-, peri- and post-menopausal women. Oestrogen receptor density (a measurement of an organ's "hunger" for oestrogen) progressively increased in the brain over the menopause transition, and increased oestrogen receptor density in areas of cognition was associated with lower memory scores for women.

Most striking was that, based on PET imaging, the brains of post-menopausal women far past the menopause transition were still "hungry" for oestrogen.[175]

Basic science research on hormones, such as this study of oestrogen receptors in the brain, has implications for care delivery and healthcare payment. For example, most CPGs recommend the initiation of HRT around the menopause transition, and oestrogen therapy is often reimbursed by health insurance companies only when started in this time frame. Yet this research suggests that older women may also benefit from initiation of oestrogen replacement therapy. In other words, near-term research results may highlight opportunities for near-term impact in the lives of women.

3.3 Care for women: Implement CPGs for women-specific conditions and account for sex-specific differences within CPGs

CPGs offer standardized recommendations for healthcare professionals and could be enhanced to reflect women-specific evidence, particularly for women-specific conditions that affect health span. Having CPGs for women-specific conditions such as endometriosis and menopause and accounting for sex-specific differences in the CPGs for conditions that affect both men and women, such as ischaemic heart disease, are essential actions and not currently achieved across all of the studied countries or selected conditions. The time is now for healthcare providers to have access to comprehensive, evidence-based guidelines and the education, training and necessary infrastructure to implement them in practice.

CPGs based on research conducted in HICs sometimes clash with the reality of care delivery in LICs and LMICs. Even within UMICs and HICs, the actuality of care delivery – including resources, access and health-related social needs – may impair delivery of evidence-based clinical care. CPGs could help to account for local realities while also ensuring the best evidence-based care available in a geographical area. More research is needed to understand how to ensure the highest-quality care is delivered within and between countries, particularly those with fewer care delivery resources, and then incorporated into country-level CPGs when appropriate. The studied countries may have locally relevant clinical approaches that are effective within the reality of their communities and care systems, such as India's emphasis on education and clinical breast exams as a breast cancer screening tool, that could benefit from structured research. Overall, though, lower incomes, race and ethnicity, geography or other factors should not determine a woman's fate when it comes to her health – including and perhaps especially in countries with the resources to prevent disparities and inequities.

As the use of AI/machine learning continues to evolve, countries may also consider AI-enabled functions to ensure timely updates to CPGs. A challenge could be to make sure inputs into the language learning model reflect sex-specific differences and data and considerations specific to a country and its delivery system. Without this, AI could further perpetuate inequities and disparities in care delivery for women.

3.4 Include *all* women: Develop accessible solutions to enable early intervention and treatment for women around the world

Women in all countries could benefit from infrastructure, trained healthcare workforces and innovations that prioritize lifespan and health-span conditions.

These solutions can be high-quality and cost effective. One recent study of 78 hospitals in Kenya, South Africa, Nigeria and Tanzania found that providing calibrated blood-collection drapes and using bundled first-response treatment in hospitals helped diagnose post-partum haemorrhage earlier while also using resources more effectively.[176]

Low-dose aspirin is known to reduce the risk of maternal hypertensive disorders. One study found that women in the Democratic Republic of the Congo, Guatemala, India, Kenya, Pakistan and Zambia with a singleton pregnancy who received low-dose aspirin were 11% less likely to deliver before 37 weeks. Similarly, the risk of early pre-term birth was lowered by 25% and perinatal mortality was decreased by 16%.[177] More research is needed in LICs and LMICs to evaluate and overcome the barriers to women taking aspirin when indicated.

Digital health can also be an impactful catalyst. A programme in Tanzania and Lesotho, m-mama, connects women to community drivers and local ambulances via a technology platform to provide emergency transport for women in pregnancy and labour. m-mama provides a toll-free phone number and connects callers to a government-owned and operated dispatch service, which triages the woman's condition and deploys transport nationwide to the nearest and most appropriate facility identified by the platform. The programme provides approximately 50,000 rides annually and is set to launch in Kenya in 2025. m-mama found that maternal mortality reduced by 27% and infant mortality reduced by 40% in its pilot regions.[178]

However, even as digital health solutions become more accessible, stakeholders may consider how all countries – including HICs – are assessing their use across populations. A World Health Organization European Scoping Review found that the women studied were among those less likely to have access to digital technology or motivation to engage with digital platforms and that they are among the groups more likely to lack knowledge, skills and confidence in using digital technology.[179] Other studies of pregnant women in Europe have found that factors such as less education, lower income or not speaking the native language can make digital tools less effective.[180,181] However, an analysis of midwives largely across HICs found that many were positive about sending customizable SMS (text messages) and offering remote monitoring during pregnancy, noting that it complimented their work in high-risk pregnancies.[182]

Accessible and affordable interventions can prevent DALYs and save women's lives during pregnancy and delivery. Investment and research in care delivery innovation in LICs and LMICs could yield creative solutions for some of the biggest health challenges women and their children face.

3.5 Invest in women: Investors, businesses, governments, philanthropies and universities have a key role to play

Monumental investment in women, their health and their healthcare is needed to close the women's health gap.

Earlier in this report, actions that policy-makers, health and social systems, life sciences and investors can take to close the women's health gap were highlighted.

Additionally, given that most of the time women spend in poor health occurs during their working years, employers can play a meaningful role in advancing women's health. And employers benefit when they invest in women. For example, investing in menstrual health in the workplace has been shown to reduce absenteeism by 62% and to reduce workforce turnover by 23%.[183] Employers can create a culture of flexibility and caring in which the health of women is valued and emphasized. Employers often control an employee's physical working environment and can design workplaces to support women and their health. This could include private lactation rooms for nursing mothers, electric fans for women in menopause, having safe places to change menstrual pads, or making sure that sites requiring personal protective equipment have sizes for women. Employees are increasingly demanding and valuing more flexibility in their benefits, spanning from increased family-forming support to access to sex- and gender-specific care.

Women who are at leadership tables may be better able to help drive strategic investments and actions to close the women's health gap. As the Forum's *Global Gender Gap 2024* and McKinsey's *Women in the Workplace 2024*, in partnership with Leanin.org, reports have noted, women struggle in the career path from entry level roles to C-suite positions. The Forum notes that while women occupy around half of entry-level positions, they represent a quarter of C-suite roles.[184,185] Research is needed to understand the correlation between conditions driving the women's health gap and the "broken rung" of the leadership ladder. Fixing the ladder is important to the health and work life of women and to the organizations for which they work: firms with women in senior positions are more profitable and socially responsible, according to the *Harvard Business Review*.[186] McKinsey research also found that new businesses led by a woman or member of an under-represented group in 2023 were more likely to succeed.[187] *Women Count 2022* also found that companies in the United Kingdom whose executive committee membership was at least 50% women had the highest profit margin, and companies with between 25% and 49% women on their executive committees had the second-highest profit margin.[188]

Business leaders and investors may also consider how the next generation is learning – or not – about women's health conditions. Weaving in elements of health literacy – whether it's explaining how heart attack symptoms can look different or explaining what a cervix is – to boys and girls at an earlier age can be empowering for all students. Recent studies on menstruation have found that involving boys in menstrual education, for example, can help decrease teasing or embarrassment in schools and help them act as advocates for girls.[189,190]

Achieving the economic benefits of closing the women's health gap requires coordinated, collaborative and transformative investment between public, private and social sectors.

Conclusion

Public-, private- and social-sector stakeholders can drive change in a world in which the women's health gap is impeding productivity and holding women back from leading full and healthy lives.

Global health and social systems were not designed around the health of women. Women across the world are diagnosed with and often die from conditions that are preventable and treatable. They regularly experience a disability burden from the selected conditions, affecting lives and families, communities, workplaces and economies. They face barriers to accessing healthcare, are often seen by providers with a limited understanding of women's holistic health and healthcare, and face the risk of premature death and avoidable disability.

The challenges of knowing the true prevalence of women's health conditions, the limited understanding of the efficacy of sex-specific interventions, the difficulties of delivering evidence-based and equitable healthcare and the limited historical investment in the health of women – all widen the women's health gap and exacerbate morbidity and mortality from the selected conditions.

The Women's Health Impact Tracker is one step towards improving the lives of women today and for future generations. Public-, private- and social-sector stakeholders are beginning to recognize how tackling the selected conditions and closing the women's health gap benefits families, communities and economies. But closing the gap requires collaboration, investment and a commitment to transforming health and social systems for the betterment of society. The concepts outlined in this report – counting women, studying women, caring for women, including all women and investing in women – offer a framework for how to move forward.

Progress is possible, and closing the women's health gap is achievable. Now is the time for action that will improve the lives of women and girls around the world and enable stronger economies.

Technical appendix

This report takes a deeper look at how data and tracking can improve lives, livelihoods and economies. The goal of this technical appendix is to outline the approach and key assumptions of the report.

Contents

Introduction

This report and the accompanying Women's Health Impact Tracking (WHIT) Platform provide data-driven insights that track progress to close the women's health gap, in terms of gaps across care delivery, treatment efficacy and data availability.

In the 2024 report, *Closing the Women's Health Gap: A $1 Trillion Opportunity to Improve Lives and Economies*, 64 conditions were identified that affect women uniquely, differently or disproportionately to men and account for almost 86% of the global disease burden among women. To effectively address the gaps in care delivery, treatment efficacy, data availability and investment across these conditions, a phased approach was adopted. In the first year, nine conditions were selected using a framework that assessed their potential impact on women's lives and their broader economic impact, among other criteria. Process and outcome data for each condition was collected at a global level, and when data was unavailable, country-level data was tracked in 15 selected countries and impact-tracking metrics were subsequently defined.

This appendix provides the detailed methodologies, frameworks and data sources underpinning these efforts, ensuring transparency and enabling future application of the insights presented.

1 Selection of high-impact conditions selected for year 1, countries and metrics

1.1 Selected conditions

A selection framework identified nine women's health conditions that, collectively, account for one-third of the overall women's health gap and are the focus of the first edition of the WHIT platform. The following criteria guided the selection:

- Global burden of disease measured in disability-adjusted life years (DALYs)
- Economic impact measured in terms of potential change in GDP (estimated by the supply-side benefits from having a larger, healthier and more productive female labour force, which were used to project the annual potential GDP contribution to 2040)[191]
- Prevalence rate measured in rate per 100,000 population
- Incidence rate measured in rate per 100,000 population
- Burden and GDP impact in lower-middle-income countries (LMICs) and low-income countries (LICs)
- Global Alliance for Women's Health members' expert recommendations

Each criterion was given a different weighting depending on the potential to build a compelling investment case for addressing women's health disparities: global burden, GDP impact, Alliance members' expert recommendations all scored a 1 on relative relevance; prevalence rate and incidence rate scored a 2; and then LMIC and LIC burden and GDP impact scored a 3. For each criterion, conditions were ranked from lowest to highest across the 64 conditions, and each rank was multiplied by the allocated weight for the criteria. These seven criteria formed a composite score to rank the conditions as follows. Please refer to Figure 1 in the report for details.

1.2 Selection of countries

This report uses global data when available; when not possible, the analyses used data specific to 15 countries selected for more detailed examination. While measuring the contributors to the women's health gap is complex, this approach aims to use metrics that can track directional progress using a combination of quantitative and qualitative measures.

For the first year, 15 countries were selected across four income archetypes based on World Bank (2019) data.[192] The selection framework focused on diverse healthcare systems and socioeconomic conditions. Three to four countries per income archetype were included, based on the largest gap size (in terms of DALY) and opportunity for improvement. In addition to diversity across income archetypes and DALYs, countries were selected based on adequate data feasibility and Alliance priorities.

1.3 Selection of metrics

A set of seven metrics spanning the treatment efficacy gap, care delivery gap and data gap were identified, applicable to all nine prioritized women's health conditions and for which data were available.

These are accompanied by condition-specific metrics, where more detailed examinations are taken for metrics that directly correlate to closing of the women's health gap for these conditions.

FIGURE A1 **Seven programme-level metrics have been selected**

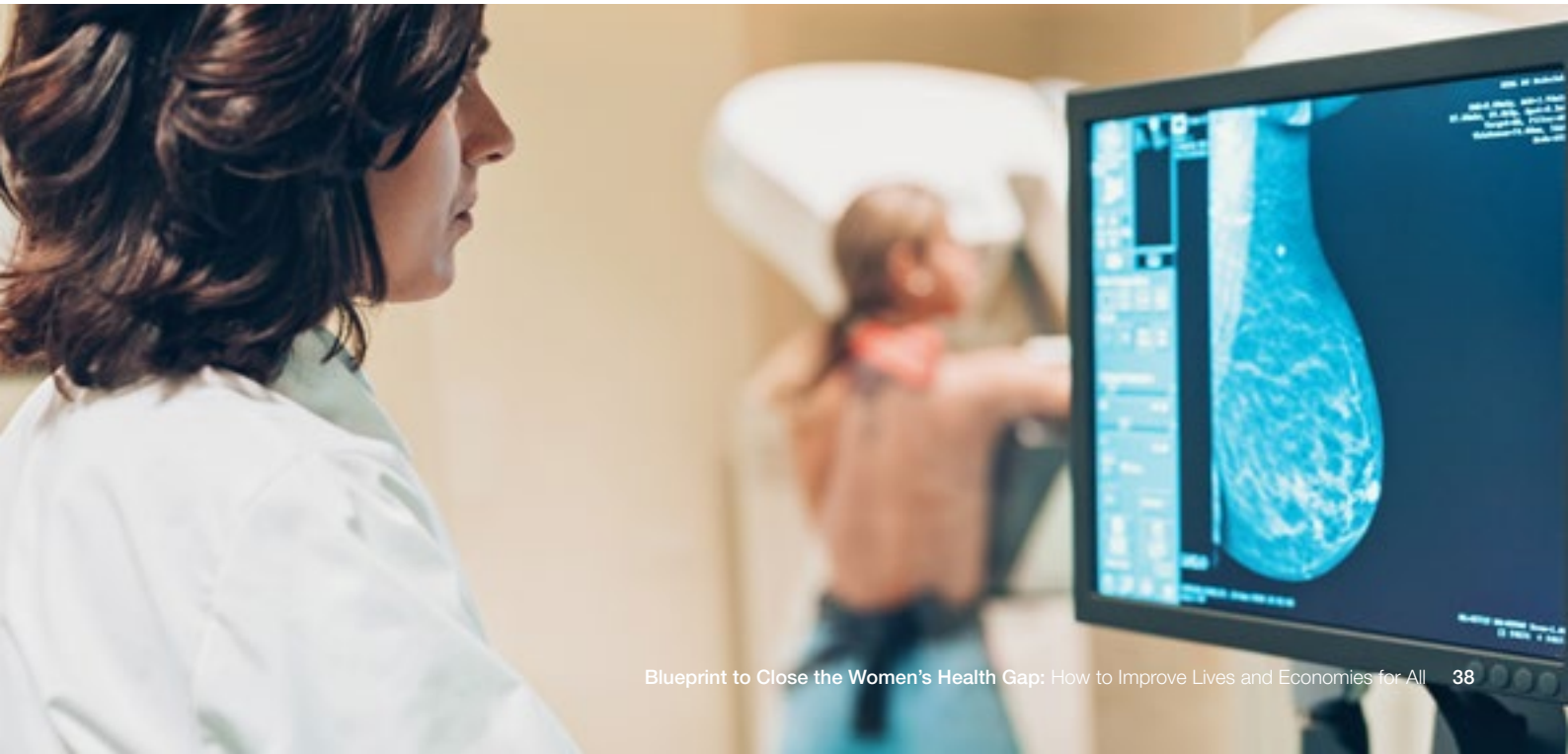
	Metric	Definition	Value in tracking this metric	Countries	Source
Data *Undercounting the impact of conditions in women*	1 Medication use coverage in volume data as compared to clinical practice guidelines (CPGs) or WHO EML (where available)	Assessment of how many medications in CPGs are included in global volume data	Medications included in CPGs/EMLs but not tracked in volume data indicates gap in coverage for patients, and poor understanding of appropriate care	Global	Global pharmaceutical volume data (IQVIA) WHO EMLs CPGs
Care delivery *Differences in uptake of interventions due to gender bias in care delivery*	2 Presence and comprehensiveness of CPGs focusing on female-only conditions or female-specific aspects or a condition	Assessment of how closely national CPGs follow global guidelines as a benchmark	Outdated, incomplete or missing guidelines for preventing, diagnosing and treating female-specific conditions contribute to the care delivery gap	15 deep dive countries	National clinical practice guidelines, expert insights
	3 Mortality rate (if applicable)	Trend in WHO-reported age–standardized mortality rate over time	Changes in mortality rate over time can indicate gaps in care delivery and efficacy	Global	WHO mortality dashboard Global Cancer Observatory database
Efficacy *Differences in treatment effectiveness between men and women*	4 Research funds over the past five years relative to the burden of the condition	Comparison of funding amount relative to burden for conditions	Increase in funding, research and development for a condition, especially if sex-disaggregated data is analysed, are proxies for improvement in efficacy	Global	World RePORT database, IHME
	5 # of innovative and ready-to-market assets in the pipeline (preclinical to Phase 3) focused on the condition	Analysis of new assets in pipeline and Phase 3 assets year on year		Global	Pharmaprojects, expert insights
	6 # of new clinical trials for a condition and locations of trials	Assessment of clinical trial distribution by income archetype		Global	Clinicaltrials.gov
	7 # of published trials with sex-disaggregated data	Trials with sex-disaggregated data compared to prevalence split by sex across conditions		Global	Clinicaltrials.gov

Source: MHI

FIGURE A2 | **Ten condition-level metrics have been selected**

Condition	Type of metric	Metric	Value in tracking this metric
Endometriosis	Data	1 No. of patient registries	Lack of data on prevalence delays diagnoses, treatment innovation and funding
		2 No. of centres of excellence for endometriosis	CoEs can improve outcomes by concentrating expertise, facilitating multidisciplinary care and driving research advancements
	Care delivery	3 Undercounting of prevalence	Undercounting in prevalence leads to underestimation of burden and under-allocation of resources for condition
Menopause	Data	3 Undercounting of prevalence	Undercounting in prevalence leads to underestimation of burden and under-allocation of resources for condition
	Care delivery	4 No. of countries with published workplace guidance	Acknowledgement of impact of menopause on the female workforce, creating supportive environments for women's health and potentially reducing economic losses
Maternal health	Care delivery	5 Skilled birth attendants	High rates of successful vaginal births attended by skilled birth attendants suggest positive maternal health outcomes and potentially reduced intervention rates
Breast cancer	Data	6 No. of patient registries	Lack of data on prevalence delays diagnoses, treatment innovation and funding
Cervical cancer	Efficacy	7 % uptake on the vaccination programme	High % uptake indicates progress in preventing the primary cause of cervical cancer
		8 No. of countries including HPV in vaccination programme	Signifies a global effort towards eliminating cervical cancer across income archetypes
		9 No. of countries with screening programme	Higher number of countries suggests increased access to early-detection methods and lower stigma of cancer
		10 % participation in screening programme	A high % participation reflects public awareness and use of preventative measures against cervical cancer

Source: World Economic Forum and McKinsey Health Institute analysis



2 Programme-level metrics

2.1 Data-gap metrics

2.1.1 Metric 1: Medication volume tracking

Definition: Medication use coverage in volume data as compared to clinical practice guidelines (brief)

Source: World Health Organization WHO Model Lists of Essential Medicines (EMLs), clinical practice guidelines (CPGs – see Metric 2.2.1), IQVIA

Period: Most recent year available

The first metric chosen for analysis reveals whether pharmaceutical treatments used for a condition (as outlined in CPGs and/or WHO EMLs) are reported and tracked. Across this metric, an array of data sources has been analysed, including CPGs, the WHO EMLs (both their presence and their comprehensiveness) and the volume of medications sold by condition. By gathering this data for whether treatments are used for a condition, the availability and accuracy of data and collaboration are reflected, with a call to action for stakeholders to fill these data gaps. It is important to note that this metric is not meant to capture disease management and is indicative only of data availability. Further, the data does not capture non-pharmaceutical interventions or direct measures of patient access to medication as highlighted in the report.

To understand the comprehensiveness of tracking, global volume data for therapeutics was compared to CPGs and/or WHO EMLs where available. Global volume data for therapeutics is collated and tracked globally through reporting from pharmaceutical companies and via data provided by healthcare practitioners on the volume of medication they prescribe by condition globally. Therapeutics recommended in the latest CPGs (further details follow in Metric 2) and WHO EMLs (where data was present) of the prioritized conditions were then analysed in comparison.

To conduct this analysis, an exhaustive list of therapeutics covered in global CPGs and the WHO EMLs (where present) was generated for each condition. Given the differences in medications listed in CPGs compared to EMLs, two approaches were taken to conduct the analysis. For EMLs, individual medications were listed, and medications included in volume data were compared against the names of medications. For CPGs, often classes of medications are listed, in the expectation that healthcare practitioners prescribe a class of medication to patients rather than acting on prescriptive directions on the name or brand of medication that should be available. Given this, and the data limitations available, the identified therapeutics were grouped into relevant buckets from the CPGs. These buckets were then compared to therapeutic buckets across the latest full-year volume data (current data uses 2023 latest figures) with each bucket being scored if it were present in the data. Exhaustivity of buckets across CPGs and WHO EMLs were calculated and scored per condition. Scores were allocated based on % exhaustivity: <50% exhaustivity received a score of 1, 50–75% exhaustivity received a score of 2 and >75% exhaustivity received a score of 3.

This metric demonstrates the presence (and absence) of data dependent upon multiple stakeholders. While the metric itself is important – i.e. knowing if medications recommended in evidence-based practice are tracked – the gaps in and sparsity of data reflect broader challenges with data collection, standardization and collaboration for conditions that contribute to the women's health gap.

2.2 Care delivery gap metrics

2.2.1 Metric 2: Clinical practice guidelines

Definition: Assessment of how closely national CPGs follow global benchmarks

Source: WHO guidelines, International Federation of Gynecology and Obstetrics (FIGO) guidelines, country-level clinical practice guidelines

Period: Most recent year available

CPGs are evidence-based, nationally recognized, standardized recommendations for healthcare professionals (doctors, nurses and other healthcare practitioners) on how to diagnose and treat specific medical conditions, and are foundational steps towards providing quality care. While designed to reduce variability of care provided and improve health outcomes, implementation challenges often arise given disparities in access to resources, knowledge or care-delivery environments that can meet these standards.

Outdated, incomplete or missing guidelines are proxies for a care delivery system that does not or is unable to prioritize the condition and spectrum of care associated with it. The presence and comprehensiveness of CPGs for the nine conditions in 15 countries were included in this analysis.

To conduct this assessment, a global benchmark was determined based on guidelines published by the WHO, FIGO or equivalent body for all conditions. The comprehensiveness of national CPGs (when available) from the 15 selected countries across the nine conditions was then assessed by comparing to the global benchmark. Then, each CPG was scored 1–3 for prevention (if applicable), diagnosis and treatment to identify gaps and opportunities for further development. These 1–3 assessment levels were based on the inclusion of risk factors specific to women, diagnostic cut-off, treatment protocols and pathways. A score of 1 indicates the guideline fell below the standard of the global guideline, a 2 indicates there are some gaps to achieving the global guideline standard and 3 indicates the guideline is in line with global guidelines.

CPGs were not always straightforward to identify, and in some cases individual requests had to be made to multiple stakeholders in different working groups to identify what was seen as a best-practice CPG for prevention, diagnosis or treatment of a condition. Some element of standardization and minimum requirement of quality in CPGs – for instance, benchmarked against global CPGs as attempted in this assessment – may have a positive effect on care delivery through more thorough and easily accessible guidance.

In the analysis itself, some allowances could be made in which CPGs for related or similar conditions might exist and could cover care guidance – for instance, antenatal care covering some of the elements assessed in maternal health-related conditions. However, this report maintains that a lack of clear guidance specifically for a condition is a gap that could be addressed to ensure comprehensive direction is available to support a minimum standard of care.

To ensure the assessment was globally applicable, the best-standard CPGs were applied as the benchmark against which to compare. However, there are some instances, particularly in LMICs, in which these CPGs may not be feasible or appropriate to implement. For example, mammographic screening is challenging to implement and not yet scaled in some LMIC countries; however, it is often included in the CPG benchmark as the best practice.

CPGs are also updated at countries' discretion and therefore some may be older than others, potentially creating inequities between the assessments. However, having an outdated CPG in itself is an aspect of the care delivery gap that countries could be encouraged to address. This analysis used the latest CPGs available at the country level to carry out the analysis, recognizing that the latest year of update may vary across conditions and countries.

2.2.2 Metric 3: Mortality rate

Definition: Mortality rate by condition

Source: WHO mortality database, Global Cancer Observatory database

Period: 2001–2023

Mortality measures the frequency of condition-specific deaths within a population. Mortality due to the women's health conditions included in the first year of tracking may be preventable with existing treatments and is often connected to disparities in care. Data was collected only for conditions where applicable, with not all conditions having mortality as a likely and direct outcome. Conditions included are ischaemic heart disease, post-partum haemorrhage, breast cancer and cervical cancer.

Data from the WHO mortality and Global Cancer Observatory databases were collected in August 2024. The WHO mortality database was used to track mortality for ischaemic heart disease and post-partum haemorrhage, whereas the Global Cancer Observatory database was used to collect data on breast and cervical cancer.

Both the WHO mortality database and the Global Cancer Observatory database were selected for analysis due to the relative comprehensiveness of data they provide for conditions. The Global Cancer Observatory registry collects the most comprehensive cancer data, while the WHO mortality database covers other conditions completely. However, it is important to note challenges in both. The WHO mortality database has limited LMIC and LIC data, providing an incomplete view of the global condition-related mortality. On the contrary, the Global Cancer Observatory database does not capture historical data, indicating a limited view of how mortality related to cancer has changed over time.

It is also important to note the differences in methodology between databases. The WHO mortality dashboard relies on data provided by civil registries submitted by countries, without adjustments for completeness. In 2001, the WHO developed the new (WHO World Standard) standard population, considering a revised reflection of the world population today. It is important to note the use of different methodologies for standardizing populations in the age-standardized mortality rates across the WHO dashboard and the global CAN database. These methodologies were retained by the authors, and were used as comparatives when understanding mortality for different conditions.

2.3 Efficacy gap metrics

2.3.1 Metric 4: Research funds

Definition: Comparison of research funding amount relative to burden for conditions

Source: World RePORT database, Institute for Health Metrics and Evaluation (IHME)

Period: 2019–2023

A metric to track research funding in relation to the disability burden is "dollar per DALY": the ratio of total global research dollars allocated to a specific condition and the number of DALYs attributed to that condition worldwide. This metric may have implications for efficacy. Funding attributed to conditions can support increased investment in new therapies, studying the effectiveness of therapies and evidence on their adoption in different care settings. It also demonstrates funding priorities over time, and how conditions with significant burdens are supported. This analysis compared the cumulative funding from 2019 to 2023 (the past five years) related to a condition, compared to the condition's burden, measured in DALYs. This may help reach an understanding of how funding and resource allocation is distributed globally, compared to the burden a disease carries for populations, and allow a comparison between conditions.

Data captured for funding relating to conditions is derived from the World RePORT database, a global database tracking research initiatives and funding from national and international institutions over the past eight years. While a comprehensive number of institutions are tracked in the database, the database does not capture every grant and funding allocation for conditions. Further, many of the institutions are based in high-income regions. Although funding from these institutions can be allocated to other regions outside of high-income countries (HICs), it is possible that funding in other regions is less comprehensively accounted for given research institution priorities, and the presence of local funders who are not included in this database.

Additionally, to assess funding by condition, initiatives were searched for on the World RePORT database in June 2024. Initiatives were identified based on the inclusion of the condition in the initiative abstract or title. This means that for some initiatives allocated across multiple conditions, initiatives and the funding for these initiatives are counted in more than one condition. An example is maternal health conditions, for which initiatives may be allocated across maternal hypertension, post-partum haemorrhage, maternal sepsis and other specific maternal health disorders.

While this leads to double counting in some cases, the inclusion of conditions in the abstract or title of the initiative is still important to reflect when tracking the closing of the gap. By mentioning the condition somewhere in the research, awareness is further drawn to that condition. This is particularly relevant for women's health conditions, for which stigma is often high and understanding of the disease can be low. Allocating increased funding for women's health conditions, whether initiatives focused specifically on the biological manifestation of the disease or those targeting populations with the disease, could contribute to the closing of the gap by increasing awareness and understanding.

2.3.2 Metric 5: Assets in the pipeline

Definition: Assessment of innovative assets relative to burden for conditions

Source: Pharmaprojects, IHME

Period: April 2023–June 2024

Assets in the pipeline for women's health conditions – pharmaceutical assets in clinical trials in progress from preclinical to Phase 3 – can be an indicator of where pharmaceutical companies and researchers are focusing efforts for treatments and medical interventions. These assets were assessed by the McKinsey Health Institute (MHI) team in collaboration with the Forum to understand the level of innovation and readiness to market for pharmaceutical interventions.

To capture year-on-year impact, the initial data, comprising Year 0, was taken from April 2023, and an updated view on Year 1 was captured in June 2024 from the Pharmaprojects database. Innovation and readiness to market were assessed for three categories of pipeline products:

1. New assets that have entered the pipeline in the past year
2. New assets that have entered the pipeline for that indication in the past year
3. Phase 3 assets

The absolute number of assets in the pipeline may not capture the full potential for innovation: e.g. a condition may have many assets that lead to incremental improvement or few approvals for actual treatments if over-indexed on early-stage development; others may have few assets, although those assets may lead to a leapfrog impact. That said, the more assets in the pipeline for a condition, the more likely an intervention for a condition may come to market and have potential to improve the standard of care over time.

Assessing pipeline assets as a proxy to understanding potential shifts in care delivery is complex. Given the long development times and resources required to ensure assets are making it to late-stage trial phases, a fraction of pipeline assets is approved out of total pipeline trials. Understanding innovation and where the standard of care may be improved is nuanced.

Innovation and quantity of innovative assets for each prioritized condition were measured to track impact, with an additional focus on later-stage (Phase 3) assets that may come to market sooner. Readiness to market was also measured, with assets in later stages possibly more likely to come to market earlier, alongside those with similar assets on the market already in the indication and medications that are similar receiving expedited review designation.

From speaking with experts, looking at novel, first-in-class assets for mechanisms of action is a core indicator of innovation, meaning assets that are the first of their kind for the mechanism of action in an indication. However, there are other specific criteria for innovation on an individual asset and indication basis that make the assessment challenging to scale to all indications.

One such example is assets already launched and entering the pipeline for a new indication. This challenge is particularly complex when looking at oncology indications. It is often the case that early-stage oncology assets are trialled across multiple tumours, given the broad focus of oncology research and development initially. Once in trials, the indications narrow, and assets come to market specifically for indications. In this analysis, for example, there are assets in preclinical and Phase 1 stages that fall into both breast and cervical cancer indications. With this in mind, assessing innovation by first-in-class for the indication is less applicable for oncology, even though often relevant once assets are advanced to later trial stages.

2.3.3 Metric 6: Number of clinical trials

Definition: Number of clinical trials per condition

Source: clinicaltrials.gov

Period: June 2023–May 2024

Clinical trial data can be used to indicate research and funding focus areas and potential innovations in the care delivery pipeline. Clinical trial data can be a useful proxy for understanding industry and academic priorities. Active clinical trials with women enrolees registered with clinicaltrials.gov were assessed (1 June 2023 to 31 May 2024) to understand the location of trial settings, as compared to the burden of conditions in different income archetype regions.

To understand the locations and number of clinical trials, clinicaltrials.gov and the international clinical trials registry platform were used. Condition-specific queries were created using the terms mentioned earlier, and the trials tagged under those conditions over the past year were downloaded and analysed. Trials were analysed for the location, split into the four income archetypes.

2.3.4 Metric 7: Sex-disaggregated data

Definition: Proportion of trials publishing sex-disaggregated data

Source: clinicaltrials.gov

Period: January 2022–December 2022

Sex-disaggregated research data is critical in the interpretation of research findings.[193] Research has shown that this can improve the understanding of treatment effectiveness and potential sex-related differences in the effects of those treatments (e.g. side effects, efficacy, dosage, etc.).[194,195]

To better understand the current state of sex disaggregation of data in the selected conditions, a comprehensive assessment identified relevant and published clinical trials completed from 1 January 2022 to 31 December 2022, captured the available published results and assessed these results to determine whether published data was disaggregated by sex. The clinicaltrials.gov database was used, with the search terms specified under migraine and ischaemic heart disease (IHD). This assessment was conducted only for migraine and for IHD, whereas the other seven conditions were excluded given they mostly or exclusively affect women.

This metric was applicable to only two conditions, and the analysis was done manually. As clinical trial databases do not report in this level of detail, each trial examined was explored manually and one at a time as part of the assessment. It may be the case that some pharmaceutical companies do collect and review sex-disaggregated data and simply do not publish it. However, it is argued that the publication of data may be beneficial to advance scientific knowledge overall[196] – for instance, sex-disaggregated data published today may inform future publications or meta-analyses in the future and further the understanding of sex-based differences.

3 Condition-level metrics

3.1 Metric 1: Undercounting of prevalence

Definition: Estimate of real-world prevalence of endometriosis and menopause compared to global databases

Source: IHME, WHO, academic literature

Period: IHME 2019 Global Burden of Disease (GBD) dataset (the most recent academic study available)

Undercounting the prevalence of women's health conditions exacerbates the data gap and contributes to a more limited understanding of how burdensome these conditions are. Addressing prevalence can provide a more accurate picture of the number of women with a disease and the disease severity, contributing to increased awareness, better access to care and the possibility of enhanced treatments. This analysis focused solely on endometriosis and menopause; however, it is likely there are other gaps that are women-specific given current research. More analysis is needed.

In the McKinsey Health Institute's analysis with the Forum, a data gap was uncovered for the undercounting of endometriosis and menopause prevalence globally. For these two conditions, there is an opportunity to address an estimated 6 million DALYs if the data gap was closed by 2040.

Undercounting of prevalence was analysed by comparing the endometriosis disease burden based on the WHO prevalence and IHME disease weight and the IHME-reported endometriosis burden. Similarly for menopause, the difference was looked at between real disease burden based on prevalence sizing from academic literature and the IHME prevalence, for which menopause falls in the "other gynaecological conditions" bucket. Given the inclusion of menopause in this broad category of "other gynaecological conditions", it is not possible to clearly identify the underlying prevalence, or the symptom severity associated with menopause in the data. As all women transition to menopause at some point, lack of complete data further compounds the limited understanding of the condition more broadly.

3.2 Metric 2: Number of patient registries

Definition: Number of patient registries that exist across countries for conditions

Source: Press search, Forum working groups

Period: Most recent year available

Patient registries are observational studies that collect and store information about patients with conditions over time. They are important centres of data and knowledge, as they can inform on symptoms relating to conditions, medication use, use of care and other patient-reported outcomes.

By establishing national patient registries for different conditions, enhanced care can be delivered to patients, with the hope of better patient outcomes.

The current number of patient registries for endometriosis and for breast cancer were researched globally. Using input from the experts in Forum working groups, the team was able to identify these patient registries and validate sources across regions. In future years, an additional number of conditions will likely be included and further countries included.

3.3 Metric 3: Number of centres of excellence – endometriosis

Definition: Number of endometriosis centres of excellence globally

Source: Press search, Forum working groups

Period: Most recent year available

Centres of excellence are one-stop locations for the diagnosis and treatment for patients with suspected endometriosis. They are a core way for women with endometriosis to receive consistent, evidence-based care, and are cost-effective centres of research and training. Centres of excellence were identified by the MHI and Forum teams in 15 countries.

3.4 Metric 4: Number of countries with published workplace guidance

Definition: Number of countries with menopause workplace guidance

Source: Press search, Forum working groups

Period: Most recent year available

Workplace policies are an important part of improving menstrual health. Establishing workplace guidance on menopause could support awareness of menopause, help to retain top talent in the workforce and improve lifestyle interventions for menopause. The number of national guidelines for menopause in different countries was researched. Only the UK has an established guideline with its Equality and Human Rights Commission's *Menopause in the Workplace: Guidance for Employers* and this policy is referenced as a potential avenue for other countries to establish national guidelines.

3.5 Metric 5: Skilled birth attendants

Definition: Proportion of live births that have a skilled birth attendant present at time of birth

Source: WHO

Period: Most recent year available

A metric to assess the number of skilled birth attendants per 1,000 births was selected across countries. This metric is important to track, as high rates of successful vaginal births attended by skilled birth attendants suggest positive maternal health outcomes and potentially reduced intervention rates.[197] Data was looked at from the WHO's dashboard in July 2024, with the latest available data on proportion of births with skilled attendants as a percentage referenced.[198] Data was available for 14 out of the 15 prioritized countries, except for the United Kingdom.

3.6 Metric 6: Number of countries including HPV in their national vaccination programmes

Definition: Number of countries that include human papillomavirus (HPV) vaccination in their national vaccination programmes

Source: HPV Information Centre, WHO

Period: July 2023

Four metrics were looked at specifically for cervical cancer, which relate to the HPV vaccine and screening for cervical cancer.

The first metric uses data collected by the WHO and national health ministries to assess whether HPV vaccination is included in the country's national programme. For this metric, the WHO collects data from the WHO Noncommunicable Disease (NCD) Country Capacity Survey, which includes a question on whether HPV vaccinations are included in national immunization schedules.[199] Countries that mark Yes include HPV vaccination in the national vaccination schedule. This data is collected every two years, and the most recent report was released in July 2023. For Türkiye and India, data is not available yet, as national vaccination programmes are in the process of being introduced.[200]

3.7 Metric 7: Percentage coverage of the HPV vaccination programmes

Definition: Population coverage of the full-dose HPV vaccination regime

Source: HPV Information Centre, WHO

Period: July 2023

The next metric looks at the percentage of women and girls receiving full-coverage uptake of the HPV vaccine, by country. High percentage coverage within populations indicates progress towards preventing the primary cause of cervical cancer, HPV. The WHO estimates vaccination coverage across countries through the WHO/UNICEF Joint Reporting Form on Immunization,[201] and the data is updated based on when countries report changes. Global data is updated each year in July to provide an overall view of vaccination coverage. The most recent data available was taken for this metric to understand country-level vaccination coverage. Data for Türkiye and India is not available because national vaccination programmes are in the process of being introduced.

3.8 Metric 8: Number of countries using the HPV test in screening programmes

Definition: Number of countries that include the HPV test in their national screening programmes for cervical cancer

Source: HPV Information Centre, WHO

Period: July 2023

Determining whether countries use the HPV test in their national screening programmes is also an indicator of whether the primary cause of cervical cancer is being prevented, and HPV testing is recommended by the WHO.[202] Data was looked at globally from the HPV Information Centre which is part of the WHO's International Agency for Research on Cancer. The database publishes information on indicators across cervical cancer, and this indicator was whether HPV tests are included in national cervical cancer screening programmes.

3.9 Metric 9: Number of countries with screening programmes in line with the WHO

Definition: Number of countries that have cervical cancer screening programmes in line with WHO recommendations

Source: HPV Information Centre, WHO

Period: July 2023

It is important to implement cervical cancer screening programmes nationally, as cervical cancer screening can allow earlier detection of cancer and can reduce the stigma associated with cervical cancer.[203] The HPV Information Centre collects data on screening programmes, where the existence of official national recommendations, the year of implementation and screening ages are collected by country. For this metric, existence of cervical cancer screening by country was noted, with a count of how many countries have implemented screening programmes.

3.10 Metric 10: Percentage participation in screening programmes

Definition: Proportion of women aged 25–65 screened for cervical cancer

Source: HPV Information Centre, WHO

Period: July 2023

Linked to the previous metric, the HPV Information Centre also collects data on overall screening coverage. The proportion of women aged 25–65 screened for cervical cancer is used as the primary indicator globally, with this metric tracking the percentage of women covered by country. The HPV Information Centre collects further data on the percentage of women screened for cervical cancer in the past five years, and in the past three years for a more granular view.

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