



Accelerate progress—sexual and reproductive health and rights for all: report of the Guttmacher–Lancet Commission

Ann M Starrs, Alex C Ezeh, Gary Barker, Alaka Basu, Jane T Bertrand, Robert Blum, Awa M Coll-Seck, Anand Grover, Laura Laski, Monica Roa, Zeba A Sathar, Lale Say, Gamal I Serour, Susheela Singh, Karin Stenberg, Marleen Temmerman, Ann Biddlecom, Anna Popinchalk, Cynthia Summers, Lori S Ashford

Executive summary

Sexual and reproductive health and rights (SRHR) are fundamental to people's health and survival, to economic development, and to the wellbeing of humanity. Several decades of research have shown—and continue to show—the profound and measurable benefits of investment in sexual and reproductive health. Through international agreements, governments have committed to such investment. Yet progress has been stymied because of weak political commitment, inadequate resources, persistent discrimination against women and girls, and an unwillingness to address issues related to sexuality openly and comprehensively.

Health and development initiatives, including the 2030 Agenda for Sustainable Development and the movement toward universal health coverage, typically focus on particular components of SRHR: contraception, maternal and newborn health, and HIV/AIDS. Countries around the world have made remarkable gains in these areas over the past few decades, but the gains have been inequitable among and within countries, and services have often fallen short in coverage and quality. Moreover, in much of the world, people have insufficient access to a full set of sexual and reproductive health services, and their sexual and reproductive rights are not respected or protected. Acceleration of progress therefore requires adoption of a more holistic view of SRHR and tackling of neglected issues, such as adolescent sexuality, gender-based violence, abortion, and diversity in sexual orientations and gender identities.

Progress in SRHR requires confrontation of the barriers embedded in laws, policies, the economy, and in social norms and values—especially gender inequality—that prevent people from achieving sexual and reproductive health. Improvement of people's wellbeing depends on individuals' being able to make decisions about their own sexual and reproductive lives and respecting the decisions of others. In other words, achieving sexual and reproductive health rests on realising sexual and reproductive rights, many of which are often overlooked—eg, the right to control one's own body, define one's sexuality, choose one's partner, and receive confidential, respectful, and high-quality services.

The evidence presented in this report reveals the scope of the unfinished SRHR agenda. Each year in developing regions, more than 30 million women do not give birth in a health facility, more than 45 million have inadequate or no antenatal care, and more than 200 million women want to avoid pregnancy but are not using modern

contraception. Each year worldwide, 25 million unsafe abortions take place, more than 350 million men and women need treatment for one of the four curable sexually transmitted infections (STIs), and nearly 2 million people become newly infected with HIV. Additionally, at some point in their lives nearly one in three women experience intimate partner violence or non-partner sexual violence. Ultimately, almost all 4.3 billion people of reproductive age worldwide will have inadequate sexual and reproductive health services over the course of their lives.

Other sexual and reproductive health conditions remain less well known but are also potentially devastating for individuals and families. Between 49 million and 180 million couples worldwide might be affected by infertility, for which services are mainly available only to the wealthy. An estimated 266 000 women

Key messages

- Sexual and reproductive health and rights (SRHR) are essential for sustainable development because of their links to gender equality and women's wellbeing, their impact on maternal, newborn, child, and adolescent health, and their roles in shaping future economic development and environmental sustainability.
- Everyone has a right to make decisions that govern their bodies, free of stigma, discrimination, and coercion. These decisions include those related to sexuality, reproduction, and the use of sexual and reproductive health services.
- SRHR information and services should be accessible and affordable to all individuals who need them regardless of their age, marital status, socioeconomic status, race or ethnicity, sexual orientation, or gender identity.
- The necessary investments in SRHR per capita are modest and are affordable for most low-income and middle-income countries. Less-developed countries will face funding gaps, however, and will continue to need external assistance.
- Countries should incorporate the essential services defined in this report into universal health coverage, paying special attention to the poorest and most vulnerable people.
- Countries must also take actions beyond the health sector to change social norms, laws, and policies to uphold human rights. The most crucial reforms are those that promote gender equality and give women greater control over their bodies and lives.

Published Online

May 9, 2018

[http://dx.doi.org/10.1016/S0140-6736\(18\)30293-9](http://dx.doi.org/10.1016/S0140-6736(18)30293-9)

See Online/Comment

[http://dx.doi.org/10.1016/S0140-6736\(18\)30888-2](http://dx.doi.org/10.1016/S0140-6736(18)30888-2), and [http://dx.doi.org/10.1016/S0140-6736\(18\)30901-2](http://dx.doi.org/10.1016/S0140-6736(18)30901-2)

Guttmacher Institute, New York, NY, USA

(A M Starrs MIA, S Singh PhD, A Biddlecom PhD,

A Popinchalk MPH,

C Summers DrPH); **African**

Population and Health

Research Center, Nairobi,

Kenya, School of Public Health,

University of Witwatersrand,

Johannesburg, South Africa,

Center for Global Development,

Washington, DC, USA

(A C Ezeh PhD); **Promundo,**

Washington, DC, USA

(G Barker PhD); **Department of**

Development Sociology,

Cornell University, Ithaca, NY,

USA (Prof A Basu MSc); Tulane

School of Public Health and

Tropical Medicine, Tulane

University, New Orleans, LA,

USA (Prof J T Bertrand PhD);

Johns Hopkins Bloomberg

School of Public Health,

Johns Hopkins University,

Baltimore, MD, USA

(Prof R Blum PhD); **Government**

of Senegal, Dakar, Senegal

(A M Coll-Seck MD); **Lawyer's**

Collective, Delhi, India

(A Grover LLB); **Early Signal**

Foundation, New York, NY,

USA (L Laski MD); Independent

Consultant (M Roa LLM,

L S Ashford MSc); Population

Council, Islamabad, Pakistan

(Z A Sathar PhD); World Health

Organization, Geneva,

Switzerland (L Say MD,

K Stenberg MSc); International

Islamic Center For Population

Studies And Research, Al Azhar

University, Cairo, Egypt

(Prof G I Serour MD); and

Department of Obstetrics and

Gynaecology, Aga Khan

University, Nairobi, Kenya

(Prof M Temmerman PhD)

Correspondence to:
Dr Susheela Singh, Guttmacher
Institute, New York, NY 10038,
USA
ssingh@guttmacher.org

die annually from cervical cancer even though it is almost entirely preventable. Men also suffer from conditions, such as STIs and prostate cancer, that go undetected and untreated because of social stigma and norms about masculinity that discourage them from seeking health care.

This report proposes a comprehensive and integrated definition of SRHR and recommends an essential package of SRHR services and information that should be universally available. The package is consistent with, but broader than, the sexual and reproductive health targets of the 2030 Agenda for Sustainable Development. Our recommended package includes the commonly recognised components of sexual and reproductive health—ie, contraceptive services, maternal and newborn care, and prevention and treatment of HIV/AIDS. Additionally, the package includes less commonly provided components: care for STIs other than HIV; comprehensive sexuality education; safe abortion care; prevention, detection, and counselling for gender-based violence; prevention, detection, and treatment of infertility and cervical cancer; and counselling and care for sexual health and wellbeing. Recognising that many countries are not prepared to provide the full spectrum of services, we recommend that governments commit to achieving universal access to SRHR and to making continual and steady progress, regardless of their starting point.

Our assessment of the costs of the major components of sexual and reproductive health services for which cost data are available shows that meeting all needs for these services would be affordable for most countries. The cost of meeting all women's needs for contraceptive, maternal, and newborn care is estimated to be on average US\$9 per capita annually in developing regions. The investments would also yield enormous returns; evidence shows that access to sexual and reproductive health services saves lives, improves health and wellbeing, promotes gender equality, increases productivity and household income, and has multigenerational benefits by improving children's health and wellbeing. These benefits pay dividends over many years and make it easier to achieve other development goals.

The means and knowledge—in the form of global guidelines, protocols, technology, and evidence of best practices—are available to ensure that all people receive the confidential, respectful, and high-quality sexual and reproductive health services they need. Successful interventions have been piloted in many low-income and middle-income countries, some of which are highlighted in this report, but many effective approaches have not been implemented on a wide scale. Thus, civil society groups and others committed to advancing SRHR must work across sectors, and they must hold governments accountable to their commitments not only to improve health but also to uphold human rights.

Introduction

For too long sexual and reproductive health and rights (SRHR) have been treated as a narrow set of siloed health issues, with little recognition of their centrality to people's overall health and wellbeing. This approach is rooted in cultural and political sensitivities related to sexuality, reproductive choice, and gender inequality. For all individuals to live healthy and satisfying lives and to achieve their full potential, their SRHR must be fulfilled and respected. Substantial health gains have been achieved since world leaders reached landmark agreements defining sexual and reproductive health almost 25 years ago at the International Conference on Population and Development (ICPD; Sept 5–13, 1994, Cairo, Egypt),¹ but full attainment of SRHR remains elusive for many people. Now is the time to embrace SRHR in its totality.

SRHR have far-reaching implications for people's health and for social and economic development. Unintended pregnancy, complications of pregnancy and childbirth, unsafe abortion, gender-based violence, sexually transmitted infections (STIs), including HIV, and reproductive cancers threaten the wellbeing of women, men, and families. Therefore, SRHR “are essential for the achievement of social justice and the national, regional and global commitments to the three pillars of sustainable development: social, economic and environmental.”²

Two targets of the globally adopted 2030 Agenda for Sustainable Development³ explicitly mention sexual and reproductive health. Target 3.7—under the health goal—states, “By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes”. Target 5.6—under the gender equality goal—aims to, “Ensure universal access to sexual and reproductive health and reproductive rights”, in accordance with previously negotiated UN agreements. Although these targets offer a solid basis for moving forward, they do not offer a comprehensive agenda for SRHR.

To help realise a broader vision of SRHR, this report presents a positive, progressive, and evidence-based agenda for global, regional, and national progress on SRHR to 2030 and beyond. It defines priorities based on needs, gaps in services, and the potential for change, and presents recommendations for action. It examines seven components of SRHR, including some that are often overlooked in international policy: safe abortion services, treatment of infertility, prevention of cervical cancer, STIs, and violence against women and girls. We recognise that SRHR is too often considered a women's issue, and so this report acknowledges men's needs and the part men can and should play in supporting women's rights and access to needed health services. It also highlights specific groups, such as adolescents and people of diverse sexual orientations and gender identities, whose needs must be better understood and served.

We propose a new, comprehensive definition of SRHR that builds on various international and regional agreements, as well as technical reports and guidelines. We also describe the evolving global consensus on SRHR, which has progressed intermittently over the past several decades. We examine the global trends that shape SRHR, and the social, cultural, and structural determinants of individuals' sexual and reproductive health. Next, we present evidence on sexual and reproductive health needs in defined areas, gaps in service coverage, and barriers to meeting identified needs. We also examine populations with distinct needs for information and services, including adolescents, men, and groups of people who face specific disadvantages. For each subsection, we present the most recent, comparative data from modelled estimates, national surveys, and other evidence from multicountry studies. From the available evidence, we then make the investment case for SRHR using the most recent data on the costs and benefits of sexual and reproductive health care. Finally, we highlight effective and promising interventions in sexual and reproductive health, and we present recommendations for high-priority actions based on the evidence and rooted in human rights to serve as a guide for those who want to work for change.

The definition of SRHR and forward-looking agenda forged by this Commission are designed to challenge and inspire the global community to act. The recommendations are based on a thorough analysis of existing evidence, and they build on the work of technical experts from countries in every major region of the world. Thus, we call on the SRHR community, including governments, multilateral agencies, and non-governmental organisations, to adopt and use the new SRHR definition, thereby unifying the field around a holistic and unified approach. We also urge this community to embrace the recommended package of essential SRHR interventions and ensure its inclusion in national and international plans and frameworks that work toward universal health coverage. Such inclusion would acknowledge the centrality of SRHR within systems that aim to improve the health and rights of all people.

The Guttmacher–Lancet Commission on Sexual and Reproductive Health and Rights consists of 16 commissioners from Africa, Asia, Europe, the Middle East, North America, and Latin America, with multidisciplinary expertise and experience in a broad range of SRHR issues. From 2016 to 2018, the Commission held several consultations and synthesised available evidence, with the support of researchers at the Guttmacher Institute (New York, NY, USA), African Population and Health Research Center (Nairobi, Kenya), and other organisations affiliated with some of the commissioners. The advisory group for the Commission, consisting of 23 representatives from SRHR, global health, and funding organisations, also provided feedback on drafts of the report.

Section 1: Defining sexual and reproductive health and rights

The evolving international consensus

The global health and human rights communities have worked for decades to define and advance SRHR, encountering both advances and setbacks. The first global agreement that created a common language was the Programme of Action of the ICPD.¹ It defined reproductive health and listed the elements of reproductive health care—ie, family planning, maternal health care, safe abortion where not against the law, education on sexuality and reproductive health, and prevention and appropriate treatment of infertility, reproductive tract infections, and sexually transmitted diseases, including HIV/AIDS. ICPD described reproductive rights as resting on, “the basic right of all couples and individuals to decide freely and responsibly the number, spacing and timing of their children and to have the information and means to do so.” ICPD also defined sexual health as including, “the enhancement of life and personal relations”, but it did not use the term sexual rights.

ICPD broke new ground by linking reproductive rights to human rights that were already protected under international laws (panel 1).⁷ It is also credited with shifting the primary focus of family planning programmes from reducing fertility and curbing population growth to empowering women and promoting individual choice with regard to childbearing.⁸ The reproductive health and rights community, especially women's rights activists and non-governmental organisations, played a major part in this shift. They argued that population and development policies should advance gender equality and the empowerment of women and that family planning should be part of comprehensive reproductive health care.⁹

Panel 1: Principles of human rights as applied to sexual and reproductive health

The right to sexual and reproductive health is an integral part of the “right to the highest attainable standard of physical and mental health,” enshrined in article 12 of the International Covenant on Economic, Social and Cultural Rights.⁴ As with the right to health, the right to sexual and reproductive health entails both freedoms and entitlements. The freedoms include the right of individuals to make free and responsible decisions and choices concerning their bodies and their sexual and reproductive health. The entitlements include unhindered access to a range of health facilities, goods, services, and information that enable people to fulfil the right to sexual and reproductive health.⁵ Freedom and bodily autonomy are civil rights that states are obligated to recognise and respect, whereas entitlements might require states to move towards full realisation of the right to health gradually (“progressive realization”)⁶ because of limited capacity and issues of affordability.

Panel 2: Components of sexual and reproductive health and rights

Sexual health

“A state of physical, emotional, mental and social well-being in relation to sexuality; it is not merely the absence of disease, dysfunction or infirmity. Sexual health requires a positive and respectful approach to sexuality and sexual relationships, as well as the possibility of having pleasurable and safe sexual experiences, free of coercion, discrimination and violence. For sexual health to be attained and maintained, the sexual rights of all persons must be respected, protected and fulfilled.”¹⁸

Sexual health implies that all people have access to:

- counselling and care related to sexuality,¹⁹ sexual identity, and sexual relationships
- services for the prevention and management of sexually transmitted infections, including HIV/AIDS,²⁰ and other diseases of the genitourinary system²¹
- psychosexual counselling, and treatment for sexual dysfunction and disorders¹⁸
- prevention and management of cancers of the reproductive system²²

Sexual rights^{19,16}

Sexual rights are human rights and include the right of all persons, free of discrimination, coercion, and violence, to:

- achieve the highest attainable standard of sexual health, including access to sexual and reproductive health services¹⁰
- seek, receive, and impart information related to sexuality
- receive comprehensive, evidence-based, sexuality education²⁰
- have their bodily integrity respected
- choose their sexual partner
- decide whether to be sexually active or not
- engage in consensual sexual relations
- choose whether, when, and whom to marry
- enter into marriage with free and full consent and with equality between spouses in and at the dissolution of marriage¹⁷
- pursue a satisfying, safe, and pleasurable sexual life, free from stigma and discrimination
- make free, informed, and voluntary decisions on their sexuality, sexual orientation, and gender identity¹

Reproductive health

“Reproductive health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity, in all matters relating to the reproductive system and to its functions and processes.”³

Reproductive health implies that all people are able to:

- receive accurate information about the reproductive system and the services needed to maintain reproductive health
- manage menstruation in a hygienic way, in privacy, and with dignity²³
- access multisectoral services to prevent and respond to intimate partner violence and other forms of gender-based violence²⁴
- access safe, effective, affordable, and acceptable methods of contraception of their choice²⁵
- access appropriate health-care services to ensure safe and healthy pregnancy and childbirth, and healthy infants
- access safe abortion services, including post-abortion care^{3,24,26}
- access services for prevention, management, and treatment of infertility²⁰

Reproductive rights¹⁰

Reproductive rights rest on the recognition of the human rights of all couples and individuals to decide freely and responsibly the number, spacing, and timing of their children, to have the information and means to do so, and the right to attain the highest standard of reproductive health. They also include:

- the right to make decisions concerning reproduction free of discrimination, coercion, and violence
- the right to privacy, confidentiality, respect, and informed consent
- the right to mutually respectful and equitable gender relations

A year after ICPD, delegates to the Fourth World Conference on Women in Beijing, China (Sept 4–15, 1995),¹⁰ reaffirmed the ICPD agreement and defined the human rights of women as including, “their right to have control over and decide freely and responsibly on matters related to their sexuality...free of coercion, discrimination and violence.” The Beijing document also affirmed that, “Equal relationships between women and men in matters of sexual relations and reproduction, including full respect for the integrity of the person, require mutual respect, consent and shared responsibility for sexual behaviour and its consequences.”¹⁰

At these and subsequent UN conferences, however, consensus was difficult to achieve on some elements of

SRHR. On abortion, for example, a protracted and highly publicised debate in Cairo, 1994,¹ ended in a compromise, with language that called for abortion to be safe “where abortion is not against the law.” The Beijing agreement added language calling for countries to review laws that criminalise abortion. Sexual rights have also been a challenging element; in various global and regional conferences, some governments have resisted including the term sexual rights in consensus documents because they were not willing to endorse the right of women and girls to bodily autonomy, the rights of adolescents to make independent decisions about sexual activity, or the acceptance of diverse sexual orientations and gender identities.¹¹

In 2000, crafters of the Millennium Development Goals (MDGs), the UN plan to reduce poverty worldwide by 2015, omitted sexual and reproductive health altogether out of concern that including it might put adoption of the Millennium Declaration¹² at risk. It took 7 years for advocates to gain a global agreement to add a target to the MDGs that called for universal access to reproductive health.¹³

The UN's current development agenda Transforming Our World: the 2030 Agenda for Sustainable Development³ adopted by all UN Member States in 2015, does include sexual and reproductive health and reproductive rights although it still excludes any mention of sexual rights. The agenda's 17 Sustainable Development Goals (SDGs) contain 169 targets to be achieved by 2030, one of which calls for, "universal access to sexual and reproductive health and reproductive rights" in accordance with the Cairo and Beijing agreements. The wording signalled an embrace of the principles and commitments expressed in these documents, but also the lack of consensus among countries to go beyond them.

Since 2013, countries have made more far-reaching commitments in various regional consensus agreements. Although widely different in scope and approach, regional consensus documents from Africa (the Maputo Plan of Action, 2016–30),¹⁴ Latin America and the Caribbean (the Montevideo Consensus),² Asia,¹⁵ and Europe and Central Asia¹⁶ use the broader term, "sexual and reproductive health and rights", and contain more progressive language on a range of issues. Examples include listing "safe abortion care" as a component of SRHR and calling for countries to "ensure access to safe abortions to the full extent of national laws and policies";¹⁴ promoting, protecting, and guaranteeing SRHR to contribute to social justice;² and organising dedicated services for those who have no access, such as adolescents, unmarried people, those living in institutions, migrants, asylum seekers, people living with HIV, people with disabilities, and lesbian, gay, bisexual, transgender, queer, and intersex people (LGBTQI).¹⁶

Creating an integrated definition of sexual and reproductive health and rights

Over the past 20–25 years, language around SRHR has evolved considerably. The SRHR community widely recognises that each component of SRHR is linked to other components, and that fulfilment of SRHR is essential to attain sexual and reproductive health. We present the components of SRHR (panel 2), drawing from various UN and regionally negotiated documents, and WHO technical publications, including an operational framework for sexual health (published 2017).^{17,18} The components of SRHR are presented as conceptually distinct to the extent possible, although in the literature the definitions are often combined or overlapping.

Building on agreements,^{1,2,10,14–16} WHO publications,^{17,18} and on international human rights treaties and

principles,²⁷ we present a comprehensive, integrated definition of SRHR as the basis for the remainder of this report (panel 3). Although the definition applies to everyone, the issues are especially relevant for women because of biological factors and because of socially defined gender roles that discriminate against them.

The definition of SRHR reflects an emerging consensus on the services and interventions needed to address the sexual and reproductive health needs of all individuals. Additionally, it addresses issues, such as violence, stigma, and bodily autonomy, which profoundly affect individuals' psychological, emotional, and social wellbeing, and it addresses the needs and rights of previously neglected groups. As such, it offers a universal framework to guide governments, UN agencies, civil society, and others in designing policies, services, and

Panel 3: Integrated definition of sexual and reproductive health and rights

Sexual and reproductive health is a state of physical, emotional, mental, and social wellbeing in relation to all aspects of sexuality and reproduction, not merely the absence of disease, dysfunction, or infirmity. Therefore, a positive approach to sexuality and reproduction should recognise the part played by pleasurable sexual relationships, trust, and communication in the promotion of self-esteem and overall wellbeing. All individuals have a right to make decisions governing their bodies and to access services that support that right. Achievement of sexual and reproductive health relies on the realisation of sexual and reproductive rights, which are based on the human rights of all individuals to:

- have their bodily integrity, privacy, and personal autonomy respected;
- freely define their own sexuality, including sexual orientation and gender identity and expression;
- decide whether and when to be sexually active;
- choose their sexual partners;
- have safe and pleasurable sexual experiences;
- decide whether, when, and whom to marry;
- decide whether, when, and by what means to have a child or children, and how many children to have;
- have access over their lifetimes to the information, resources, services, and support necessary to achieve all the above, free from discrimination, coercion, exploitation, and violence.

Essential sexual and reproductive health services must meet public health and human rights standards, including the "Availability, Accessibility, Acceptability, and Quality" framework of the right to health.²⁸ The services should include:

- accurate information and counselling on sexual and reproductive health, including evidence-based, comprehensive sexuality education;
- information, counselling, and care related to sexual function and satisfaction;
- prevention, detection, and management of sexual and gender-based violence and coercion;
- a choice of safe and effective contraceptive methods;
- safe and effective antenatal, childbirth, and postnatal care;
- safe and effective abortion services and care;
- prevention, management, and treatment of infertility;
- prevention, detection, and treatment of sexually transmitted infections, including HIV, and of reproductive tract infections; and
- prevention, detection, and treatment of reproductive cancers.

	Adolescent SRHR	Gender based violence	HIV/AIDS and other STIs	Contraception	Maternal and newborn health	Safe abortion	Infertility	Reproductive cancers
SDG 1: End poverty in all its form everywhere*	..	..	..	..	..	..	..	..
SDG 3: Ensure healthy lives and promote wellbeing for all at all ages								
3-1 By 2030, reduce the global maternal mortality ratio to <70 per 100 000 livebirths	Linked	Linked	..	Linked	Stated	Linked	..	..
3-2 By 2030, end preventable deaths of newborns and children aged <5 years, with all countries aiming to reduce neonatal mortality to at least ≤12 per 1000 livebirths and under-5 mortality to at least ≥25 per 1000 livebirths	Linked	Linked	Linked	Linked	Stated	..	..	..
3-3 By 2030, end the epidemics of AIDS, tuberculosis, malaria, and neglected tropical diseases, and combat hepatitis, water-borne diseases, and other communicable diseases	Linked	Linked	Stated	Linked	Linked	..	..	..
3-4 By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment, and promote mental health and wellbeing	..	..	..	..	..	..	..	Linked
3-7 By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes	Stated	Linked	Stated	Stated	Stated	Linked	Linked	Linked
3-8 Achieve universal health coverage, including financial risk protection, access to quality essential health-care services, and access to safe, effective, quality, and affordable essential medicines and vaccines for all	Linked	..	Stated	Stated	Stated	Linked	Linked	Linked
SDG 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all								
4-7 By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship, and appreciation of cultural diversity and of culture's contribution to sustainable development	Linked	Linked	..	..	..	..	..	..
SDG 5: Achieve gender equality and empower all women and girls								
5-1 End all forms of discrimination against all women and girls everywhere	Linked	Linked	Linked	Linked	Linked	Linked	..	Linked
5-2 Eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking, and sexual and other types of exploitation	Linked	Stated	Linked	Linked	Linked	Linked	..	..
5-3 Eliminate all harmful practices, such as child, early, and forced marriage, and female genital mutilation	Linked	Stated	..	..	..	..	..	..
5-6 Ensure universal access to SRHR as agreed in accordance with the Programme of Action of the ICPD and the Beijing Platform for Action, and the outcome documents of their review conferences	Stated	Stated	Stated	Stated	Stated	Linked	Linked	Stated
5.c Adopt and strengthen sound policies and enforceable legislation for the promotion of gender equality and the empowerment of all women and girls at all levels	Linked	Linked	..	..	..	..	..	..
SDG 10: Reduce inequality within and among countries†								
SDG 13: Take urgent action to combat climate change and its impacts†								
SDG 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all, and build effective, accountable, and inclusive institutions at all levels								
16-1 Significantly reduce all forms of violence and related death rates everywhere	Linked	Linked	..	..	..	..	..	..
16-2 End abuse, exploitation, trafficking, and all forms of violence against and torture of children	Linked	Linked	..	..	..	..	..	..
Data from United Nations General Assembly, 2015. ³ Stated means the area is mentioned in the target or indicator language. Linked means the area relates to the SDG target but is not specifically mentioned in the target. SRHR=sexual and reproductive health and rights. SDGs=sustainable development goals. SRH=sexual and reproductive health. STIs=sexually transmitted infection. ICPD=International Conference on Population and Development. *No targets under this SDG explicitly state or link to the key areas of SRHR; however, fulfilling this goal contributes to the achievement of the SRHR agenda and vice versa. †Although no targets under this SDG explicitly state or link to key areas of SRHR, fulfilling SRHR contributes to achieving this goal.								

Table 1: Linkages between key areas of SRHR and the SDGs

programmes that address all aspects of SRHR effectively and equitably.

Adoption and implementation of this definition globally and within countries will have broad social, economic, and political implications.²⁹ It will depend on individuals demanding their rights, civil society organisations advocating on behalf of individuals, and governments respecting, protecting, and fulfilling those rights. Programme implications include providing comprehensive, evidence-based, and age-appropriate sexuality education for all children and adolescents; developing and monitoring standards of health care that fulfil the rights listed in panel 3; and ensuring access to the full range of sexual and reproductive health services. To achieve these aims, fundamental changes to health systems might be required to ensure that the health workforce has the means and skills to provide what is needed. Additionally, actions will be required in sectors other than health to address underlying determinants of SRHR, such as education, water and sanitation, food and nutrition, and legal and justice systems.⁵ The private sector and civil society organisations have important parts to play in all of these sectors.

The SDGs³ provide a common set of targets and indicators for governments to monitor their progress; selected benchmarks explicitly refer to some aspects of SRHR, but they fall short of addressing the full scope of people's SRHR needs. The SDG targets most closely related to SRHR fall under goal 3 (health), goal 4 (education), and goal 5 (gender equality; table 1). The targets either state explicitly or are linked to eight key components of SRHR in our definition, each of which is discussed in this report. Goal 16, which promotes peaceful and inclusive societies, implies achieving greater gender equality and addressing gender-based violence.³⁰

Section 2: Global trends affecting sexual and reproductive health and rights

Although SRHR centre around individual autonomy and choices, fulfilling these rights takes place in a broader social, economic, cultural, and health care context. This complex array of factors has shifted considerably over the past two decades and continues to do so.

Changes in the size and composition of populations

Although people need SRHR information and services over the life course, needs are concentrated among women and men of reproductive age (women aged 15–49 years, and men aged 15–59 years). This group accounts for 4·3 billion people, roughly half the world's population. The relative size of the age group varies by region (figure 1) and influences the magnitude of the demand for sexual and reproductive health services. From 2015 to 2030, the size of this age group will grow in poorest countries, whereas in the two higher-income groups of countries this age group will shrink.

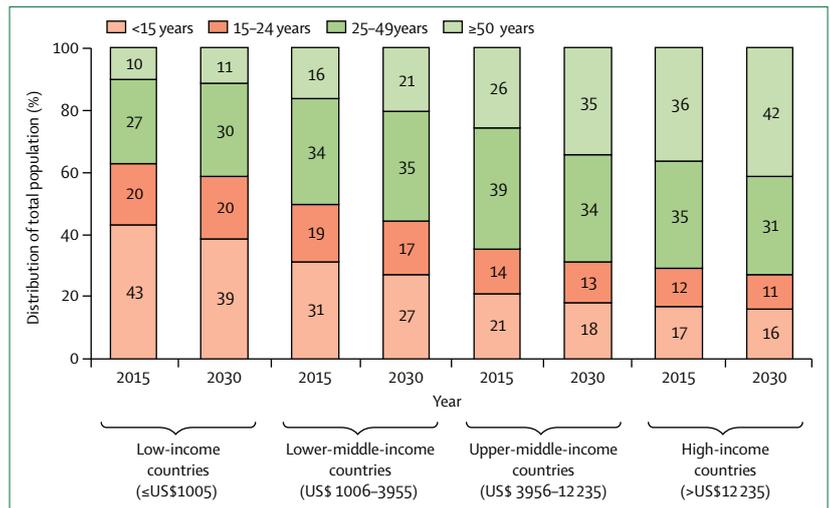


Figure 1: Distribution of the total population by major age groups

Data from UN Population Division, medium variant projections, 2017.³¹ Country classification by income is based on 2016 gross national income (GNI) per capita from the World Bank. Projections for 2030 assume income groupings will remain constant over time.

Average family size in much of the world is now between two and three children.³² Many exceptions remain, however, especially in sub-Saharan Africa. Women in Niger and Democratic Republic of Congo, for example, have six or more children on average, and on the basis of recent trends are projected to have large families of five to six children on average in 2030. Low-income countries will continue to grow for some time and will account for a large share of the world population growth in the 21st century.

As a result, health authorities in low-income and middle-income countries must meet existing needs for sexual and reproductive health services and plan for the needs of growing populations. Moreover, these countries are also experiencing an increase in chronic non-communicable diseases. The rising prevalence of risk factors, such as hypertension, diabetes, and obesity, add complexity to sexual and reproductive health care.³³

Finally, as women and men around the world marry later and delay having children, they are more likely to seek infertility-related care. The need for such care is emerging in countries of all income levels, but services are likely to be less available in lower-income countries. In the USA, about 17% of all women aged 25–44, and 41% of women with fertility problems, have used infertility services.³⁴

Displacement and conflict

SRHR problems are accentuated among displaced and refugee populations, whose numbers have increased dramatically in the past few decades. 65·6 million people were estimated to be forcibly displaced at the end of 2016, and the number of refugees returning has fallen sharply—a reflection of many more refugees remaining in exile and in protracted situations than in previous

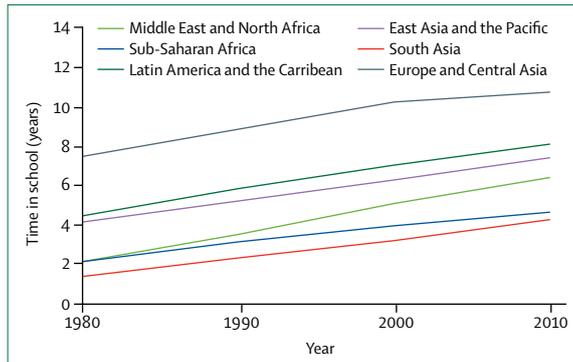


Figure 2: Average number of years of schooling for women aged ≥15 years, 1980–2010
 Data from Barro RJ and Lee JW, 2013.⁴⁶ Data unavailable for North America. The average number of years of schooling for women in the USA was 11.9 years in 1980, and has been consistently above 12 years since 1985.⁴⁶

decades.³⁵ Displacement often occurs because of war and political conflict, but it can also result from environmental stress or conflicts over scarce resources. Over the past 20 years, an average of 340 natural disasters have occurred per year, affecting 200 million people annually.³⁶

Women and girls in emergency situations have a heightened need for sexual and reproductive health services because of their increased risk of STIs, including HIV, unwanted pregnancy, maternal death and illness, and sexual and gender-based violence.³⁶ In Colombia, during a period of internal conflict, an estimated 21 girls aged 10–14 years were raped daily, or about 7500 annually.³⁷ Global humanitarian agencies are strained to address basic needs in fragile contexts and many do not respond adequately to SRHR needs. Prospects for improvement are not favourable as the number of displaced people continues to rise.

Climate change

Climate change could lead to even greater population movements, and reversals in development gains; scientists consider it the greatest threat to health in the 21st century.³⁸ Combatting climate change and its effects is also one of the SDGs (table 1). The direct effects of climate change—including heat stress, floods, drought, and intense storms—threaten people’s health through adverse changes in air pollution, spread of disease, food insecurity and undernutrition, displacement due to destruction of homes and communities, and poor mental health.³⁹

SRHR is linked with climate change because the health of a future population will affect a country’s ability to cope and adapt. Public health strategies are likely to accompany countries’ climate mitigation and adaptation efforts. Many experts view universal access to voluntary family planning as a “climate-compatible” development strategy⁴⁰ because it helps to empower women and to enable couples to choose the number and spacing of their children.

Population growth is one of the factors driving climate change, but the relationship is complex.⁴¹ Although

less-developed nations have higher population growth rates, their citizens contribute the least to global carbon emissions on a per capita basis, while they bear a disproportionate burden of the impact of climate change on the health of the planet. Overconsumption by wealthy countries and inefficiencies in production and consumption are among the leading causes of climate change.⁴² Adoption of an approach based on human rights and equity is a central principle for both population health and environmental sustainability, and it offers a constructive and positive way forward on this challenging topic.

Social, economic, and cultural determinants

Evidence from around the world consistently shows that some characteristics—higher education, greater household wealth, and urban residence—are associated with fewer deaths and disability due to sexual and reproductive health problems. Higher educational attainment enhances women’s ability to access information and services and to exercise more control over their reproductive lives.⁴³ For women, higher education is associated with improved access to health care, fewer births,⁴⁴ and healthier and better educated children than women educated to a lower level; for men, higher education is associated with more participation in child care and more equitable attitudes about men’s and women’s roles.⁴⁵

The world has seen dramatic improvements in women’s education; however, the average years of schooling they attain remains low in some regions. The average years of schooling for women aged 15 years and older has consistently increased across all regions since the 1980s (figure 2). As of 2010, most young men and women in developing regions have attained some secondary education or higher.⁴⁶ Notably, the gap between female and male education worldwide is gradually closing, consistent with global development goals.

Women’s increased participation in the formal labour force, along with changing gender norms and smaller families, have opened the way for men to take a more active role in caregiving and managing the household. A study⁴⁷ of 20 developed countries found that between 1965 and 2003, the contribution of employed married men to housework and child care increased substantially by an average of 6 h per week from a baseline average of 11 h per week. Despite these gains, sharing of household responsibilities remains extremely uneven. Women now make up 40% of the formal workforce globally, but they continue to do two to ten-times more caregiving and domestic work than men.⁴⁸

A decline in the proportion of people living in poverty worldwide is also a welcome trend because families with more disposable income are better able to avoid health risks and pay for health care. Also, higher socioeconomic status is usually associated with better health, including better sexual and reproductive health. Because of rapid

population growth, however, large numbers of people still live in poverty in some regions. In sub-Saharan Africa, for example, the proportion of people living below the poverty line declined from 57% to 43% between 2002 and 2012, but the absolute number hardly changed.⁴⁹

Urbanisation is increasing worldwide,⁵⁰ with potentially positive and negative effects on SRHR. The concentration of health services in urban areas has improved health for some, but it has also intensified the inequities in health care within urban areas and between urban and rural populations.⁵¹ A 2015 study⁵² found that 56% of the global rural population does not have access to essential health-care services compared with 22% of urban residents. Cities are heterogeneous, however, and almost all those in low-income and middle-income countries have large slum populations that typically have higher health risks and reduced access to care than other urban residents. A study⁵³ of five major cities in sub-Saharan Africa, for example, revealed earlier sexual debut, lower condom use, and more sexual partners among slum residents than non-slum residents in all five settings.

Delinking of sex, marriage, and reproduction

Historically, most societies have sanctioned women's sexual activity and childbearing within marriage only. But because young people stay in school longer and marry later, these events are increasingly delinked and therefore the timing and the type of sexual and reproductive health information and services needed are changing. Marriage does not always precede sexual activity, and neither sexual activity nor marriage necessarily lead to pregnancy and childbirth.

Additionally, childbearing outside of a formal marriage has become more common all over the world partly because of increases in the age of first marriage and partly because of changing norms and values. An estimated 15% of the world's births occur outside of marriage, with enormous variation across countries and regions. In countries where extra-marital births carry strong social disapproval, including China, India, and most countries in north Africa and western and southern Asia, the proportion of births out of wedlock is low, typically less than 1%. Conversely, in many countries in Europe, Latin America, and North America, more than half of births occur outside of formal marriages.⁵⁴ Many of these children live with cohabiting parents.⁵⁴

Changing gender norms

Among the social and cultural changes occurring worldwide, people around the world are reconsidering the parts that women and men play in the family, society, and economy. Gender norms—defined by culture and expressed through the parts that men and women play—exert a powerful influence on individual SRHR. Men and women have unequal status in nearly all societies, resulting in women having fewer opportunities outside

the home and less autonomy regarding sexual behaviour, marriage, and reproductive decision making.^{55,56}

Research has shown that men and boys who adhere to more rigid views about masculinity—such as believing that men need sex more than women do, that men should dominate women, and that women are responsible for domestic tasks—are more likely to report having used violence against a partner, to have had an STI, to have been arrested, and to abuse substances.⁵⁷ Norms about masculinity can also discourage men from seeking health care, creating vulnerabilities in the form of untreated STIs, low rates of HIV testing and treatment, and low adherence to treatment.⁵⁸ When women marry men who are more sexually experienced, they might unknowingly become exposed to these infections.

Gender norms often create a double standard with regard to men and women's sexual behaviour—eg, unmarried women who engage in sexual activity are shamed, whereas their male peers who do the same are celebrated. Social stigma can prevent unmarried women from seeking sexual and reproductive health care, especially contraception and abortion.⁵⁵ In societies where men are socially dominant, they might act as gatekeepers, restricting women's access to sexual and reproductive information and services.⁵⁹ Unequal power can also result in poor communication between partners about sex and contraception. Women acting independently to prevent pregnancy could provoke backlash from their partners, which might lead the women to resort to covert contraceptive use.⁶⁰ Conversely, in societies with more equitable gender norms, men's support for women's autonomy and rights can facilitate women's access to information and services.

Laws, policies, and programmes affecting health and health care

National laws and policies have also evolved over time, providing the frameworks and setting the rules for implementing SRHR-related programmes and services. In some cases, they provide guarantees or protections for human rights; in others, they impose limitations. For example, laws that restrict women's and adolescents' access to health services by requiring third-party authorisation, laws that require service providers to report personal information (breaching patient confidentiality), and laws that criminalise same-sex relationships can prevent people from seeking and receiving the information and services they need. Similarly, many countries apply criminal law to prohibit provision of and access to abortion services, which has major implications for women experiencing an unwanted pregnancy.

Coercion in reproductive decision making—whatever form it takes—is a violation of human rights. Forcing a woman to terminate a pregnancy she wants, or to continue a pregnancy that she does not want, violates the right to decide freely whether and when to bear a child—and the right to have that decision respected and

Panel 4: Universal health coverage

In keeping with the overarching theme—leave no one behind—Sustainable Development Goal 3 on health,³ centres around attaining universal health coverage. Several principles are embodied in this proposal: equity in access to health services without the risk of financial hardship, provision of high-quality services that can improve health, and progressive realisation—ie, every country can make continual progress regardless of its starting point. Equity in access means that everyone should have access to and receive services, not only those who can pay for them. A progressive approach toward universal health care would give priority to reforms that address inequities from the outset, benefitting less advantaged people to an equal or greater degree than those who are more advantaged.^{67,68}

guaranteed by government.⁶¹ One of the most extreme examples of government intervention in reproduction, China's one-child policy, was enacted in 1980 to restrict population growth and maximise gross domestic product (GDP) growth. The policy was relaxed in 2016, in response to its unintended social and economic consequences, including an ageing population and a sex ratio skewed towards men.⁶²

The political environment can determine whether or not countries advocate, ignore, or suppress SRHR. Politics in the USA, for example, the largest government donor for global health programmes, have had ripple effects in low-income and middle-income countries that receive US health assistance. Under conservative administrations, the US Government has applied the Mexico City Policy which prohibits funding to foreign non-governmental organisations that provide or advocate abortion, even with non-US funds. The effects of this policy have been felt widely, including cutbacks in effective sexual and reproductive health programmes in sub-Saharan Africa, and Latin America and the Caribbean. Evidence shows that the policy has even had the opposite effect intended in these regions, leading to an increase in abortions and unintended pregnancies.^{63,64} Conversely, in other countries, politics has shifted in favour of expanding sexual and reproductive health programmes. Strong political leadership in Rwanda and Malawi, for example, helped bring about major increases in the use of modern contraceptives and maternal health care among poor, rural, and less-educated populations.^{65,66}

Scarce human and financial resources, and a paucity of political commitment in some cases, have prevented health-care systems in low-income and middle-income countries from offering comprehensive sexual and reproductive health services. Typically, publicly funded health-care services provide maternal, newborn, and child health services, and to a lesser extent family planning.⁶⁷ Where HIV is endemic, HIV/AIDS services have often received priority and external donor assistance.

Yet, domestic and international funding for other sexual and reproductive health services—related to abortion, STIs, sexual violence, sexual function, infertility, and reproductive cancers—has been much more scarce.

As part of the SDGs, governments have agreed to work towards universal health coverage so that everyone can obtain health care without being forced into poverty.³ Out-of-pocket payments for health care place a heavy financial burden on households in many settings and can prevent some people from seeking care at all. The objective of universal health care is for everyone to have access to high-quality, essential health care without risk of financial hardship (panel 4).

However, efforts to implement universal health care have not been uniformly successful. A study⁶⁹ created an index of coverage of essential health services in 183 countries and found the median value to be just 65 of 100 (range 22–86). Median service coverage was 27% lower in the lowest wealth quintile than the national population. Lessons from country implementation have shown that for universal health care to successfully address inequity, health systems must focus efforts on reaching disadvantaged groups rather than serve those that are easiest to reach.⁶⁸ Financial systems need to raise and pool resources, and strategically purchase and provide the agreed-upon priority services.

SDG 3 holds countries accountable for providing access to essential health services, including information and counselling, in areas such as maternal and child health, family planning, nutrition, and prevention and management of infectious and non-communicable diseases.³ Yet the SDG targets and indicators omit many SRHR services and as a result governments might assign low priority to them.

Technology and innovation

Technological advances have transformed sexual and reproductive health in a myriad of ways and is expected to do so in the future. Modern contraception is arguably the most revolutionary intervention in sexual and reproductive health in the 20th century, facilitating the delinking of sex and reproduction and enabling couples to choose the number and timing of their children. Antiretroviral therapy for HIV has saved millions of lives and has changed the course of the AIDS pandemic. Medical abortion methods have enabled women to reduce reliance on weak health systems and to terminate a pregnancy in the privacy of their own homes. 21st century information technology has already transformed how people form and maintain relationships and receive health information.

New technologies on the horizon bring the potential for other improvements in SRHR. These include newer and easier-to-use contraceptive implants,⁷⁰ new contraceptive methods for men, new forms of antiretroviral treatment for people living with HIV, and lower-cost assisted reproductive technologies for infertile couples. Additionally, the explosion of digital media globally, especially

the use of mobile phones, is creating new opportunities for information and counselling on SRHR. This report will discuss many of these innovations in subsequent sections.

Section 3: The need for information and services

To fulfil their SRHR, virtually everyone needs information and services at multiple points during their lives. This report reviews seven areas of information and services for sexual and reproductive health (figure 3) that should be universally available—especially to people who face unusual obstacles to receiving care (see the following section). Our primary focus is on people living in low-income and middle-income countries for whom needs are greatest, but we also provide comparisons with high-income countries and with worldwide averages when available.

For each component of SRHR in figure 3, we will discuss people’s needs, gaps in services, and obstacles to be overcome. Some service components have been studied extensively—contraception, maternal and newborn health care, and HIV/AIDS—whereas others, such as STIs other than HIV, gender-based violence, infertility, and reproductive cancers, have received far less attention. Although each of these seven components is important on its own, during a person’s life they interconnect many times and individuals might need more than one service at once.

Some limitations in the report are unavoidable. Although we define sexual health holistically to include sexual function, satisfaction, and pleasure, these aspects of sexual health have been largely absent from organised SRHR programmes and their links to reproductive health have been understudied.⁷¹

Similarly, the age groups covered in the report are limited to the available evidence. The evidence presented pertains mainly to studies of 1.9 billion women aged 15–49 years and 2.4 billion men 15–59 years, the ages for which reproductive health survey data are generally available.³¹ We also provide some information on adolescents aged 10–14 years, an age group who merit further study. We recognise that the upper age limit of reproduction is higher than 59 for men and can be higher than 49 for some women: and sexuality has no upper age limit. Increases in life expectancy and healthy ageing are leading to more people who are sexually active at older ages, with implications for sexual health and rights. Later in the report, we make recommendations for additional research on understudied groups of people and the spectrum of issues related to sexuality. Nevertheless, this report largely focuses on the core reproductive ages for which evidence is available, and it makes recommendations based on this evidence.

Around the world, survey results typically show that people who are less educated, live in rural areas, and poorer have greater unmet needs for sexual and reproductive health services than those who are

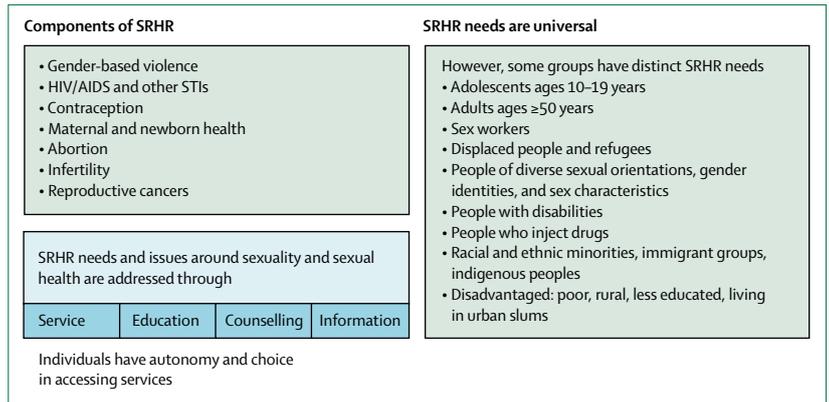


Figure 3: Components of SRHR and populations in need
SRHR=sexual and reproductive health and rights. STIs=sexually transmitted infections.

more educated, live in urban areas, and better-off. Representative data on other marginalised people, such as sex workers, displaced people, refugees, and people who live in slums, are scarce because these groups are often not reached by household surveys. Groups of people with distinct needs or who face greater obstacles to care are discussed in the next section.

We address SRHR needs worldwide to the extent data permit. Given our interest in addressing people’s needs in low-income and middle-income countries, we provide data on countries grouped by income level, where feasible. However, because of data constraints for some aspects of SRHR, data are shown for developing regions—as defined by the UN Population Division. Only 3% of the population of developing regions live in high-income countries; the few countries concerned are in Asia, and Latin America and the Caribbean. A complete list of countries included in each of the grouping systems can be found in the appendix.

See Online for appendix

Gender-based violence

Worldwide, more than one in three women experiences intimate partner violence or non-partner sexual violence in her lifetime.⁷² Intimate partner violence—the most common form of gender-based violence—occurs early in life; an estimated 29% of adolescent women aged 15–19 years who have ever had partners have experienced it. The violence is deeply rooted in gender inequality and has severe consequences for physical and mental health and wellbeing, hindering the achievement of other social and economic goals. Although violence against women is a long-standing problem, effective responses to it, especially prevention, have not been implemented on a wide scale.

Defining the problem

Gender-based violence is any act of violence that is inflicted upon an individual because of his or her gender or sexual orientation. The violence can take different forms, physical, sexual, or psychological, and it

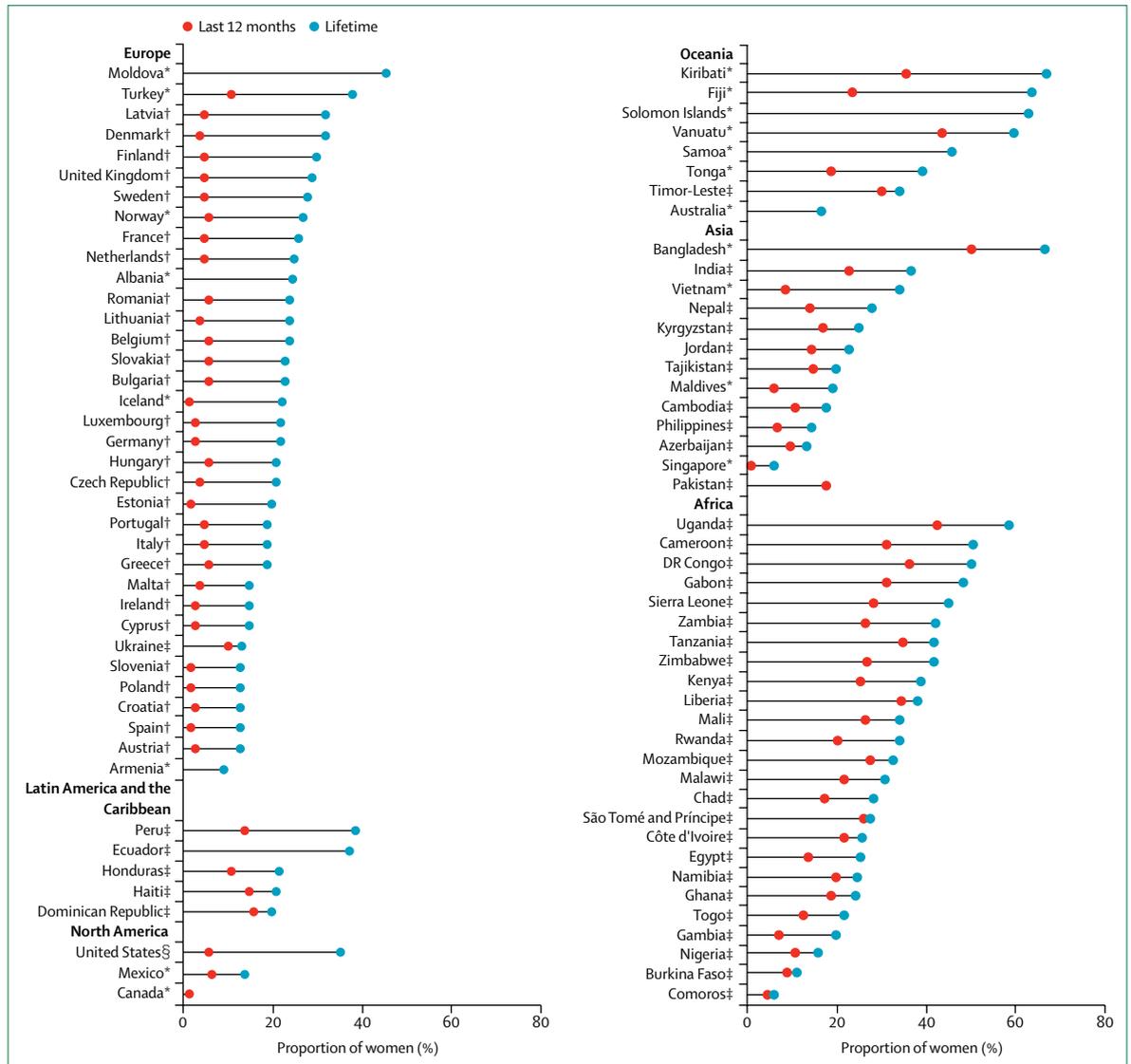


Figure 4: Proportion of women who have experienced partner violence (physical or sexual) during their lifetime and in the past 12 months, 2000-15
 Not all countries have data available on both indicators, the proportion experiencing partner violence in the past 12 months and lifetime. *Data from age groups covered differ across countries from 2000-13, from UN Department of Economic and Social Affairs, 2015.⁷⁸ †Data from ever-partnered women aged 17-74 years, from European Union Agency for Fundamental Rights, 2014.⁷⁹ ‡Data from Demographic Health Surveys Programme, 2016.⁸⁰ §Data from women aged 18 years and older about their experiences of rape, physical violence or stalking (or both) from Black MC et al., 2011.⁸¹

encompasses harmful practices, such as child marriage, sex trafficking, honour killings, sex-selective abortion, female genital mutilation, and sexual harassment and abuse.⁷³ Gender-based violence is often used as a weapon of war in conflict settings.⁷⁴ Though most of this type of violence is inflicted on women and girls, men and boys can also be affected, particularly during childhood, if they do not conform to social norms regarding sexual orientation and gender identity, and during periods of conflict.⁷⁵ Most perpetrators are intimate partners, defined as past or current sexual partners, although they are sometimes family members, friends, acquaintances, strangers, teachers, colleagues, military, or police officers.⁷²

Goal 5 of the SDGs includes targets calling for the elimination of violence against women and all harmful practices, such as child, early, and forced marriage, and female genital mutilation (or cutting), by 2030. Female genital mutilation, usually performed early in life on girls aged 0-14 years, is a traditional practice that aims to reduce sexual desire in women and render them marriageable from a cultural perspective. It is an extreme form of discrimination against women and a violation of their human rights—ie, their right to health, security, and physical integrity, and to be free from torture and cruel, inhuman, or degrading treatment.⁷⁶ Female genital mutilation is associated with a range of

complications, including severe bleeding, problems urinating, infections, and complications in childbirth. At least 200 million girls and women in 30 countries, primarily in Africa, the Middle East, and Asia, have been subjected to the practice.⁷⁷

Scope of partner violence and sexual violence against women
Intimate partner violence is disturbingly common. Worldwide, an estimated 30% of women aged 15 years and older in an intimate relationship have experienced physical or sexual violence by their partner⁷² (comparable, cross-country data on emotional or psychological violence are not available). The proportion of women reporting intimate partner violence varies widely by country (figure 4). Some of this variation could be due to different amounts of under-reporting, but more research is needed to understand the variations. Women's reports of intimate partner violence in the previous 12 months range from 1% in Canada to 51% in Bangladesh. Some women experience violence during pregnancy, which is typically perpetrated by the biological father of the child she is carrying. In countries with Demographic and Health Survey (DHS) data, 2–16% of women who have ever been pregnant reported experiencing violence during pregnancy.⁸⁰

Non-partner sexual violence, perpetrated mostly by acquaintances or strangers, affects an estimated 7% of women worldwide.⁸² Prevalence estimates for this type of violence are highest in central Africa (21%), southern Africa (17%), and Australia and New Zealand (16%).⁸²

Studies show that men are the usual perpetrators of intimate partner violence and sexual violence. The International Men and Gender Equality Survey, a multi-country survey of male attitudes and practices, revealed that between 18% and 46% of men report having been physically violent with an intimate partner, and slightly higher proportions of women report experiencing such violence.^{83,84} The factors associated with men's use of violence against their partners include witnessing or experiencing violence in childhood, rigid gender attitudes, men's economic and social power over women, work stress, unemployment, poverty, and alcohol abuse.⁴⁵

Consequences of partner violence

Broadly speaking, partner violence both results from and perpetuates a power imbalance between partners in an intimate relationship, with serious ramifications for health and wellbeing. Specifically, intimate partner violence or non-partner sexual violence can result in psychological trauma and stress, minor to severe physical injuries, and death in the most extreme cases.⁷² Women who have experienced intimate partner violence are more likely to have worse physical health, more mental health problems, attempt suicide, and have HIV (in some settings) than those who have not.⁷² Moreover, women experiencing violence during pregnancy are more likely to have unintended pregnancies, induced abortions, miscarriages,

stillbirths, and babies with low birthweight.^{85,86} Women who experience non-partner sexual violence are also at greater risk of alcohol and drug abuse, and mental health disorders.⁷²

Barriers to care and support

In countries that have policies on gender-based violence, the translation of policies into national, institutionalised programmes has been extremely slow. Widespread public attention focused on the matter only relatively recently (panel 5).⁷⁸ Although evidence on the magnitude and effect of intimate partner violence and non-partner sexual violence has grown in the past few years, with more prevalence studies at the national level using comparable methods, the largest challenge has been taking promising and evidence-based programming to sufficient scale.⁷⁹ Also, evidence is scarce on how to prevent gender-based violence in situations during and after conflict, and massive gaps exist in services for survivors of sexual violence in these situations.

For survivors of violence, the barriers to access to treatment and related services are many. Perhaps most important, the deep-seated beliefs and normative practices in male-dominated communities that put women at risk of violence also prevent them from seeking care and support. Additionally, untrained, inept, and corrupt law enforcement often further victimise women who have experienced violence.⁷⁸ Having steady funding streams built into ministries and national budgets to combat intimate partner violence and sexual violence continues to be a major challenge.

The promise of prevention

The scale-up of prevention efforts to end gender-based violence has been slow, despite increasing evidence on a range of effective programmes—eg, microfinance initiatives for women linked to training that aims to transform gender relationships, community interventions to change social norms, group education for men and boys combined with community outreach, and protective orders and shelters.⁸⁷ Alcohol reduction programmes and parenting programmes to reduce child abuse have also shown promise because they can reduce the risk factors for violence. The slow scale-up of evidence-based prevention programmes means that the acceptance of norms that support male authority, female obedience, and intimate partner violence might continue from one generation to the next. As is the case for other SRHR issues, governments must take existing evidence into account when planning on a national scale and put adequate resources behind those plans.

HIV/AIDS and other sexually transmitted infections

HIV, the most fatal STI, remains a major public health threat despite enormous progress in controlling the epidemic and saving lives in the past 15 years.⁸⁸ Young people, men of all ages, and key populations are being

Panel 5: Turning points

One late evening in December, 2012, a 23-year-old paramedical intern in Delhi, India, was brutally raped by a group of six young men who had lured her onto a public bus. Usually, sexual violence and sexual harassment against women in most countries are common enough not to be newsworthy. They are not reported in many cases and usually are not pursued effectively by law enforcement even when they are reported.

But this event shook up local, national, and international communities. In the days and months after the rape—especially after the young woman died of the injuries incurred—there were scores of public protests, demands for better laws, and calls for swifter enforcement of laws throughout India and in other countries. The Nirbhaya (the pseudonym given to the young woman, meaning fearless) gang-rape case signalled a turning point in activism against sexual violence on several fronts: more serious attention to the issue in the media, more frequent reporting of such crimes, fast-tracked procedures for trying rape cases in India, fast-tracked legal reforms on sexual violence passed in the Indian Parliament, and less politically cautious discussions of sexual violence on international platforms, such as the UN.

The case also exposed the mindset that plagues many parts of the world, because some political figures, religious leaders, lawyers, and other professionals made sexist and degrading comments on the matter, blaming the young woman, and rape victims in general, for asking for trouble through the way they dress, how they move around in public, how they socialise with unrelated male friends, and so on. This public exposure of people's biases, in turn, galvanised activists to make louder demands for change.

In October, 2017, the Twitter hashtag #MeToo went viral, with thousands of women sharing their experiences of sexual assault and abuse. The explosion of personal stories came after an onslaught of allegations against a prominent movie producer, resulting in his expulsion from the US Academy of Motion Picture Arts and Sciences. The attention on sexual harassment and abuse was not limited to Hollywood, however—it spread throughout the USA and worldwide. Stories varied from the street to the workplace, from unwanted advances to coercion, and to rape. #MeToo was crucial in confronting the stigma and shame associated with being sexually assaulted or harassed; it showed that sexual violence is not an isolated occurrence but a deeply entrenched problem in society.

#MeToo achieved what Tarana Burke wanted when she first tweeted it in 2006: it raised awareness about the overwhelming prevalence of sexual harassment and called for the perpetrators to be held accountable. In the USA, #MeToo was successful in removing perpetrators, from chief executive officers to elected officials, from their positions of power—positions that had allowed them to commit these acts in the first place. Not only did this social media movement prove the power of strength in numbers, but also the possibility of bringing about cultural change by rejecting shame and stigma and demanding higher standards.

left behind. Moreover, evidence is growing that achievement of the UNAIDS 90–90–90 goal by 2020 (90% of all people living with HIV know their HIV status, 90% of people living with HIV who know their status are on treatment, and 90% of people on treatment are virally suppressed) will not control the epidemic.^{89,90} However, STIs other than HIV receive little attention in health policies and services despite contributing greatly to the sexual and reproductive health disease burden worldwide. WHO estimates that more than 1 million STIs are acquired every day worldwide. A paucity in knowledge combined with the persistent social stigma surrounding STIs prevents many people from seeking and receiving counselling, testing, and treatment.

Defining the problem

Of more than 30 bacteria, viruses, and parasites spread through sexual contact, eight are most common. Four are curable: syphilis, gonorrhoea, chlamydia, and trichomoniasis. The other four—HIV, hepatitis B, herpes simplex virus, and human papillomavirus (HPV)—are viral infections and are incurable, although their symptoms can be managed and the progression of disease altered.⁹¹ Young people are especially susceptible to STIs, but sexually active people can be at risk of infection at any age.

Gonorrhoea and chlamydia are major causes of pelvic inflammatory disease and infertility in women. HPV is one of the most common STIs, and some types of HPV can lead to cervical cancer. Some STIs, such as herpes, syphilis, and gonorrhoea, can increase the risk of acquiring HIV, and several STIs, including HIV and syphilis, can be transmitted from mother to child.⁹¹ Mother-to-child transmission of syphilis can result in stillbirth, neonatal death, low birthweight and preterm birth, sepsis, pneumonia, and congenital deformities.⁹²

Although HIV (and some other STIs) can also be spread through other means, such as contaminated blood and injecting drug equipment, the prevention of sexual and mother-to-child transmission of the virus is a major concern for SRHR programmes.

Scope of infections and key populations

Each year, there are an estimated 358 million new infections with one of the four curable STIs (table 2)—chlamydia, gonorrhoea, syphilis, and trichomoniasis.⁹⁴ More than 500 million people are living with genital herpes, and at any point in time more than 290 million women have an HPV infection.⁹¹

According to UNAIDS, there were 1.8 million new HIV infections worldwide in 2016, a decline of 16% since 2010, and 36.7 million people were living with HIV.⁹⁵ AIDS-related deaths were 1 million in 2016, a decline of 48% since the peak of the epidemic in 2005.

Sub-Saharan Africa remains the epicentre of the global AIDS pandemic, accounting for 64% of new HIV infections and 73% of AIDS-related deaths in 2016.⁹⁵ Surveillance data on other STIs is much weaker, because screening for STIs in low-resource settings is usually limited to antenatal care attendees and blood donors.⁹⁶ Nevertheless, the populations at highest risk are known to overlap with those at risk of HIV.⁹⁷

In 2016, men who have sex with men, sex workers, transgender people, people who inject drugs, and the clients and sexual partners of these populations accounted for 44% of new HIV infections globally.⁹⁵ UNAIDS reported that in 2014, sex workers were 10-times more likely to acquire HIV than adults in the general population; men who have sex with men were 24-times more likely to acquire HIV; and transgender people were 49-times more likely to be living with HIV. Criminalisation and stigmatisation of same-sex relationships and sex

work make access to HIV prevention services more difficult for these individuals. Homophobia drives gay men and other men who have sex with men away from HIV testing and prevention activities, and it is associated with lower adherence to treatment.⁹⁵

Young women aged 15–24 years are also at high risk of HIV infection. They accounted for 26% of new adult infections globally in 2015, despite accounting for only 10% of the adult population.⁹⁵

Achievements in response to infections

Among the wide array of services and interventions to control HIV/AIDS, antiretroviral therapy stands out as having changed the course of the epidemic.⁸⁸ These medicines decrease the viral load in infected people, allowing them to live longer and reducing the risk of further transmission. The provision of these medicines to pregnant and breastfeeding women has virtually eliminated transmission of HIV from mother to child in some parts of the world.⁸⁸ As of 2016, 21 million people living with AIDS (57%) are being treated, compared with fewer than 1 million in 2000.⁹⁵

To be effective, prevention of HIV and other STIs must focus on population subgroups with high proportions of infected people and people with multiple partners, while also making information and services available to the general population. Thus, where HIV programmes have been implemented well and at sufficient scale, they have been accompanied by a stronger health response to STIs overall—eg, in Sri Lanka and Thailand.^{97,98} In the absence of comprehensive programmes addressing both HIV and STIs, however, most STIs remain undiagnosed and untreated.

Differences between men and women in risk, prevention, and treatment of sexually transmitted infections

Survey data on men’s sexual behaviours in developing regions reveal that some are exposed to the risk of contracting STIs (including HIV) because they have had sex with multiple partners. The proportion of sexually active men aged 15–59 years who have had more than one sexual partner or who have paid for sex in the past year ranges from 2% in Niger to 39% in Gabon, and averages 19% across 37 countries (table 3).³² Apart from abstinence, correct and consistent condom use is the only way to prevent STIs. Although most men know about condoms, only an average 40% of men at risk of STIs in these countries used a condom the last time they had sex, and this proportion is highly variable across countries. This means that large proportions of men with multiple partners (the majority in some countries) are either not using condoms or are using them inconsistently.

Men’s self-reports of having had an STI or symptoms of an STI infection in the past 12 months, likely to be grossly underestimated, also provide evidence of men’s exposure to STIs. A substantial proportion of men with

	Women aged 15–49 years (n)	Men aged 15–49 years (n)	Total (N)
Chlamydia	69 million	63 million	131 million
Gonorrhoea	34 million	44 million	78 million
Trichomoniasis	68 million	74 million	143 million
Syphilis	3 million	3 million	6 million
Total	174 million	184 million	358 million

Data from WHO, 2016–93

Table 2: Global estimates of new cases of four curable sexually transmitted infections, 2012

	Range	Mean (unweighted)
Proportion of sexually active men aged 15–59 years who need HIV/STI prevention*	2–39%	19%
Proportion of men needing HIV/STI prevention who used condoms during the last time they had sex	13–73%	40%
Proportion of sexually active men aged 15–59 years who report having an STI or symptoms of an STI in the past year	1–17%	6%
Proportion of men reporting symptoms of an STI who seek advice or treatment†	24–89%	68%

Data from Demographic and Health Surveys Program.³² Sexually active includes all married men and unmarried men who have been sexually active in the past 3 months. Includes data for 30 countries in sub-Saharan Africa, 4 in Asia, and 3 in Latin America and the Caribbean. *Men who paid for sex, married men with partners other than a wife (or wives) or cohabiting partner, or unmarried men with two or more partners in past year. †From either a formal or informal source. STIs=sexually transmitted infections.

Table 3: Sexually active men with need for HIV/STI prevention and treatment services in 37 countries, 2010–15

symptoms indicated that they sought advice or treatment: about two-thirds on average, across 37 countries.

Estimating women’s risk of contracting STIs is difficult; they might not report multiple relationships because of social stigma, and they might not be aware of their partners’ risky sexual behaviour. Also, the risk of an STI can be difficult to measure when one or both partners have an STI with no obvious symptoms. A 2014 Guttmacher study⁹⁹ found that women at high risk of STIs due to multiple sexual partners are more likely to report using condoms than those at low risk; still only a few use them consistently. Additionally, the same study estimated that eight in ten married women with curable STIs are not receiving treatment—mostly because they do not have or recognise symptoms and do not know they are infected.

Obstacles to prevention and management

In low-resource settings, factors such as low condom use, asymptomatic infections, and a scarcity of simple, affordable tests for STIs impede efforts to prevent, detect, and manage the infections. Moreover, antibiotic resistance has increased in recent years, leading to a search for new drugs and treatment options.¹⁰⁰ Research^{101,102} has

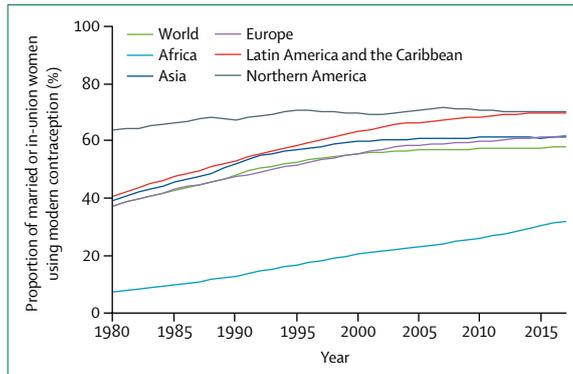


Figure 5: Proportion of married or in-union women using modern contraception, 1980–2017
 Data from UN Department of Economic and Social Affairs, Population Division, 2017.¹⁰⁹

shown that men are less likely to be tested for HIV than women, and they are also less likely to seek treatment. Given that treatment has been the most successful intervention for control of HIV/AIDS, the low testing and treatment of men are an impediment to the next wave of progress.

In 2015, *The Lancet Commission on AIDS*⁸⁸ reviewed the global response to HIV/AIDS and laid out a path to ending the disease as a public health threat by 2030. It concluded that the global attention and resource mobilisation responsible for the drop in AIDS mortality after 2005, must be sustained—and stepped up again—to achieve further progress.^{88,103} The decline in new HIV infections has slowed and even reversed in some places, and condom use has plateaued, indicating that prevention efforts must be strengthened along with efforts to increase the proportion of people living with HIV who are on treatment.^{88,104}

The AIDS Commission also highlighted insufficient attention to the structural and root causes of the HIV epidemic. In most of the world, barriers such as stigma, discrimination, gender inequality, gender-based violence, and difficulty reaching vulnerable populations, including adolescents, continue to hold back progress. To make matters worse, punitive and ineffective laws and policies, such as laws criminalising same-sex relationships and sex work, push high-risk populations further underground and decrease their access to services. Increased attention to these broader factors would speed progress in addressing HIV/AIDS and other STIs.

Contraception

The need for modern contraceptive services remains substantial in low-income and middle-income countries. According to 2017 estimates, 214 million women of reproductive age (13% of women aged 15–49 years) in developing regions have an unmet need for modern contraception—that is, they want to avoid a pregnancy but are not using a modern method.¹⁰⁵ Use of modern contraceptives in 2017, prevents an estimated 308 million

unintended pregnancies, and meeting all women’s needs for these methods would avert an additional 67 million annually.

Modern contraceptive use

High-quality contraceptive services are essential for enabling women and couples to have the number of children they want, when they want them, and for avoiding unintended pregnancies, unplanned births, and abortions. Additionally, many women, men, and adolescents need contraceptive methods that can help prevent STIs, including HIV.¹⁰⁴

The evidence presented here focuses on modern contraceptive methods because they have a sound basis in reproductive biology, a protocol for correct use, and evidence of efficacy.¹⁰⁷ In this analysis, modern contraceptive methods are defined to include female and male sterilisation; intrauterine devices (IUDs); hormonal implants, injections, and pills; male and female condoms and other supply methods; modern fertility awareness methods (ie, methods that have a defined protocol for use, such as the Standard Days Method),¹⁰⁸ and emergency contraception pills. Modern contraceptive use has increased steadily since 1980 in Africa, Asia, Latin America and the Caribbean, and Europe (figure 5). By 2015, more than half of all married (and in-union) women worldwide and in every major region were using a modern contraceptive method, except in Africa where it stood at 32%. Nine in ten married contraceptive users worldwide rely on a modern method,¹⁰⁹ with much variation among countries.

A wide array of factors, such as method availability and individual knowledge, preferences, and concerns, influence patterns of modern contraceptive use. Among the major regions, in Africa injectables are more common than other methods, whereas in Asia and Latin America and the Caribbean female sterilisation is more common.^{108,110} Male-controlled methods (condom, vasectomy, and withdrawal) accounted for 21% of all contraceptive use worldwide in 2015 (among married women reporting method use), virtually the same rate as in the mid-1990s.¹⁰⁹ Vasectomy is far less common than female sterilisation, even though vasectomy is technically easier, has fewer complications, and is less expensive to perform.¹¹⁰

High rates of discontinuation and low rates of contraceptive switching lead to a leaking bucket phenomenon; therefore, contraceptive services must focus not only on attracting new users but also on improving continuation rates and encouraging past users who still want to avoid pregnancy to resume use.¹¹¹ In 19 developing countries with recent survey data 38% of women, on average, stopped using reversible methods in the first year of use. Side-effects or health concerns were the dominant cause, accounting for 20% of all women who discontinued.¹¹²

Unmet need for modern contraception and total need

The concept of unmet need focuses attention on the degree to which an individual's preference to avoid pregnancy is fulfilled and, by extension, the degree to which family planning programmes need strengthening.¹¹³ Researchers identify women with unmet need using responses to the DHS and similar surveys. Women with unmet need for modern contraception are those who are married, in-union, or unmarried and sexually active, fecund, do not want a (or another) child in the next 2 years or at all, and who are not using any contraception or are using a traditional method. Women who identify their pregnancy as unintended, or who are experiencing post-partum amenorrhea after an unintended pregnancy, are also included because their experience indicates that they wanted to avoid becoming pregnant at some point in the past year.¹¹⁴

The total need for contraception (also referred to as total demand) is the total number of sexually active, fecund women who want to avoid a pregnancy. It equals the sum of the number of women using modern contraception plus the number who have an unmet need for modern methods. Total need for contraception, both as an absolute number and as a proportion of all women, changes over time as women's fertility preferences shift. For example, the proportion of married or in-union women aged 15–49 years who wanted to avoid pregnancy in eastern Africa increased from 43% in 1990 to 65% in 2017, compared with relatively stable, high proportions in South America of 82% in 1990 and 87% in 2017.¹⁰⁹

New estimates for all women of reproductive age show that about half of the 1.6 billion women of reproductive age who live in developing regions in 2017, want to avoid a pregnancy (either postpone or stop childbearing) and therefore need contraception. Among women in need of contraception, nearly one in four—214 million—are not using modern methods.

Because of increasing numbers of unmarried, sexually-active women who also want to avoid pregnancy, survey data on contraceptive use for all women, regardless of marital status, are becoming more widely available. Although these data are more inclusive than those limited to married or in-union women, they yield lower estimates for prevalence of contraceptive use. As of 2017, 42% of all women of reproductive age in developing regions were using modern contraceptive methods, ranging from 22% in Africa to 52% in Latin America and the Caribbean (figure 6).

The proportion of need for contraception that is satisfied with modern methods is an indicator used to measure global progress toward universal access to sexual and reproductive health by 2030 (figure 6), under SDG 3 (to ensure healthy lives).¹¹⁵ If all women who wanted to avoid pregnancy were using modern methods, the proportion of need satisfied would reach 100%. In reality, not all of these women will decide to use a modern method—some women will use traditional

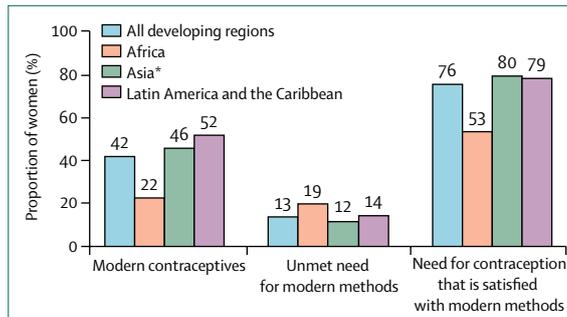


Figure 6: Proportion of all women aged 15–49 years who use modern contraception, who have unmet need for modern methods, and who have a contraceptive need that is satisfied with use of modern methods, 2017

Data from Darroch JE et al, 2017.¹⁰⁵ *Includes eastern Asia (predominantly China) and Oceania.

methods and other women will use no method at all for a wide range of reasons that vary in the degree to which policies and programmes can address them.

As of 2017, the proportion of need for family planning that was satisfied with modern method use was 76% in developing regions.¹⁰⁵ In Africa, just 53% of women who need modern contraception are using it. The poorest women tend to have the lowest need satisfied with modern method use.¹¹⁶

Barriers to contraceptive use

Legal, policy, social, cultural, and other structural barriers can prevent individuals from accessing and using contraception. As of 2015, 35 countries had at least one policy restricting access to contraceptive services, such as excluding provision to unmarried women (eg, in Bangladesh and Indonesia) or requiring parental consent for minors (eg, in Mexico and the Philippines).¹¹⁷ Social norms also prevent people, especially adolescents and unmarried women, from accessing services and using methods effectively. In some cases, health-provider or community assumptions about women's needs conflict with women's own assessments of their needs, especially in contexts where there has been a history of contraceptive coercion or discrimination (eg, people living with HIV¹¹⁸ or living with a disability). The sexual acceptability of contraception—including factors such as pleasure and changes in menstrual bleeding patterns—affects both women's sexual health and contraceptive use.⁷¹ Common reasons given by women for not using any contraceptive method, despite wanting to avoid pregnancy, often relate to whether or not they perceive themselves to be at risk of pregnancy or they have concerns about the methods.¹¹⁹

Men can support their wives or partners in having their desired number and timing of pregnancies by helping them use female-controlled methods effectively or by using a male contraceptive method (condoms or vasectomy). Surveys of men in Africa, Asia, and Latin America and the Caribbean show that men are generally supportive of family planning, but some men have reservations about their wife's use of some methods.¹²⁰

Maternal and newborn health care

Maternal and newborn mortality is increasingly concentrated in the poorest countries. More than 300 000 women worldwide lost their lives in 2015 due to causes related to pregnancy or its management, with two in three of those deaths occurring in sub-Saharan Africa.¹²¹ Although maternal and newborn deaths have declined substantially in the past two decades, thanks in part to more women giving birth in health facilities,¹²² gaps in the coverage, content, and quality of key services persist.

Need for services

Pregnancy and delivery should be welcome events, but they also entail risks of ill health and death for women and their infants, most of which can be prevented. The SDGs call for ending all preventable maternal and newborn mortality by 2030.³ Pregnancy-related health risks, if not identified and treated promptly and properly, can impair women's health and that of their children, their ability to have and care for children, their ability to work, and the capacity of households to cope with financial and economic shocks.¹²³

Scope and magnitude of maternal and newborn ill health

Globally, the maternal mortality ratio decreased 44% between 1990 and 2015, from 385 deaths per 100 000 livebirths to 216,¹²¹ a pace that must be accelerated if the SDG target of fewer than 70 deaths per 100 000 livebirths is to be reached by 2030. Some evidence suggests increases in maternal mortality since 2000 in countries that have been affected by conflict (eg, Afghanistan) and in some high-income countries (eg, USA).^{124,125}

The health of the mother and her newborn are closely linked. Progress in maternal survival has helped progress newborn survival. From 1990 to 2015, neonatal deaths (those occurring in the first 28 days after birth) declined 42% worldwide from 4·6 million to 2·6 million.¹²⁴ However, because neonatal mortality has declined more slowly than infant and child mortality, a growing share of child mortality is concentrated in the neonatal period.¹²⁶ Neonatal deaths accounted for about 45% of all deaths in children younger than 5 years in 2015.¹²⁴

A woman's lifetime risk of maternal death in 2015, was estimated to be 1 in 3300 in high-income countries compared with 1 in 41 in low-income countries.¹²⁷ Stillbirths (fetal deaths after 28 weeks' gestation) also reflect persistent inequities in health. The stillbirth rate in sub-Saharan Africa in 2015, was estimated to be more than eight-times that in developed regions (28·7 per 1000 total births in sub-Saharan Africa vs 3·4 in developed regions) and, given the pace of change, the gap is not projected to close in this century.¹²⁸

Severe maternal morbidities are far more common than maternal death, and they have a direct bearing on survival of the fetus and newborn. Data on women

attending hospitals across 28 low-income and middle-income countries indicate that for every maternal death, there were just over five near misses (defined as basic organ dysfunction).¹²⁹ The risk of late fetal death or neonatal death increases significantly in the presence of severe maternal complications.¹³⁰

Some women suffer mental health disorders during and after pregnancy, though less information is available for women in low-income and middle-income countries than high-income countries. A systematic review¹³¹ of studies showed a weighted mean prevalence of mental disorders (including depression) of 16% during pregnancy (based on data from nine developing countries) and of 20% in the postnatal period (data from 17 developing countries). A complex mix of risk factors included socioeconomic disadvantage, unintended pregnancy, younger age, and unmarried status.

An important shift has occurred with respect to nutritional status and maternal and newborn health: a higher prevalence of overweight mothers than underweight mothers is now seen across all regions.¹³² This shift, and particularly the rise in obesity, has consequences for health systems that must manage the increased risks of health complications faced by pregnant women who are obese. It also calls attention to the larger public health issue of obesity prevention before and after pregnancy.¹³³

Magnitude and effect of maternal and newborn health services

Pregnant women and newborns need a continuum of quality health care to reduce preventable mortality and to improve maternal and newborn health.^{134,135} The recommended, evidence-based interventions include antenatal care with a skilled provider, delivery by a skilled attendant in a health facility, postnatal care for the mother and newborn (including routine checkups and support for breastfeeding, and assessment for postpartum depression), and care for women after a miscarriage, stillbirth, or abortion.^{134,136} Within these broad interventions several actions are recommended: antenatal screening for pre-eclampsia, anaemia, diabetes, and intrauterine growth restriction, integration of services, support for infections—eg, syphilis, HIV, hepatitis B—and information about breastfeeding and contraception, among other actions.^{108,135}

Coverage of essential services for maternal and newborn health, such as antenatal care and delivery by skilled health personnel, has improved substantially over the past two decades.^{137,138} However, across the continuum of care, postnatal care has among the lowest coverage (eg, median national coverage of postnatal care visits for babies was 28% in 35 countries with data),¹³⁷ and coverage gaps for other essential maternal and newborn health services continue to persist in developing regions.¹³⁸ Estimates for 2017, show that 63% of pregnant women in developing regions received four or more antenatal care visits, ranging from 51% of

pregnant women in Africa to 88% in Latin America and the Caribbean (figure 7). However, 37% (45 million) of women did not receive adequate or any antenatal care. Under the new WHO recommendation of an ideal standard of at least eight antenatal care visits, coverage gaps would be even larger. Nearly three in four (72%) women delivered in a health facility in developing regions, while more than one in four women delivered at home or elsewhere (more than 30 million), usually without skilled care or access to treatment for delivery complications. Facility-based deliveries are lowest in Africa (56%) and highest in Latin America and the Caribbean (91%).

Receipt of facility-based services does not mean that all recommended care is provided, however.¹³⁹ Basic maternal health care is not sufficient to save pregnant women with life-threatening complications; rather, comprehensive emergency care and improvements in the quality of care are also needed.¹²⁹

Caesarean-section deliveries are recommended only when clinically indicated, and the amount of coverage shows evidence of underuse and overuse. Both situations indicate gaps in quality of care. In Africa overall, the proportion of women who had a caesarean-section delivery was just 9% (figure 7), reflecting a low proportion of deliveries occurring in facilities and shortages in surgical facilities, equipment, and trained personnel, among other factors.¹³⁵ High proportions (in Latin America and the Caribbean, and in private and urban settings in other regions) reflect use of caesarean section for non-medical reasons, resulting in higher costs and possible increased maternal and neonatal health risks.¹³⁵ Recent evidence shows that caesarean-section rates of more than 10% are not associated with reductions in maternal and newborn mortality rates when compared with caesarean-section rates under that threshold; however, evidence is insufficient to assess the association with other outcomes, such as stillbirths and maternal and perinatal morbidity.¹⁴⁰

Coverage of essential maternal and newborn health services has increased steadily over the past 20 years, with the most rapid increases among people living in the lowest two wealth quintiles in developing countries.¹²² Despite these improvements, coverage tends to be lowest for the most disadvantaged women, measured by household-wealth quintile or other indicators of socioeconomic status. In 2017, in Africa, 35% of women in the lowest-income quintile delivered their baby in a health facility compared with 84% in the highest-wealth quintile (figure 8).

Gaps also persist for large groups of pregnant women with specific health needs. Approximately 1.5 million pregnant women in developing regions are living with HIV, and more than one third of them do not receive antiretroviral medication.⁹⁹ The WHO treat-all recommendation removes all limitations on eligibility for antiretroviral therapy, such as CD4 counts; hence, all

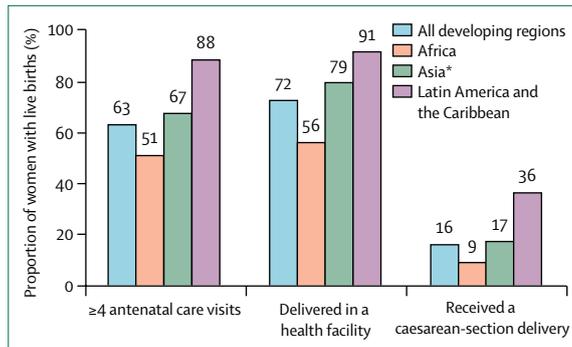


Figure 7: Coverage of selected maternal health interventions by region, 2017
Data from Darroch JE et al, 2017.¹⁰⁵ Based on births in 2017, and women's care during pregnancy for the last birth in the past 2 or 3 years (depending on the survey). *Includes eastern Asia (predominantly China) and Oceania.

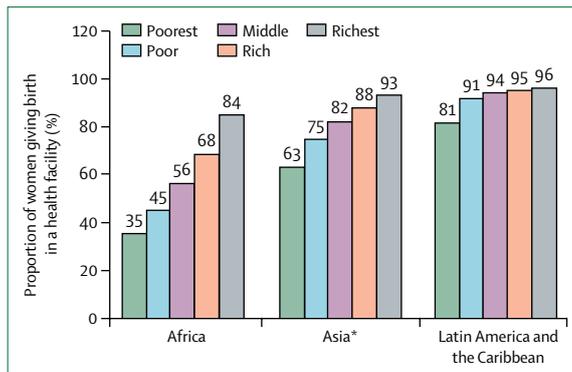


Figure 8: Proportion of women giving birth in a health facility by income quintile, 2017

Data from Darroch JE et al, 2017.¹⁰⁵ *Includes eastern Asia (predominantly China) and Oceania.

pregnant women living with HIV should receive treatment to prolong their lives and to prevent new HIV infections in their newborns.¹⁴¹ Routine offers of HIV testing and counselling at the first antenatal care visit (and, in high prevalence settings, as part of delivery and postpartum care) are crucial for achieving universal coverage of antiretroviral treatment for all pregnant women living with HIV.¹⁴²

Safe abortion

Around the world, unintended and unwanted pregnancies are common challenges that women and couples face. About 44% of all pregnancies worldwide are unintended, and some 56% of unintended pregnancies end in an induced abortion.¹⁴² A small share of wanted pregnancies also end in abortion because continuing the pregnancy would endanger the woman's health, because of fetal abnormalities, or because a woman's circumstances change after she becomes pregnant. Most developing countries have restrictive abortion laws; thus, abortions in developing regions are far more likely to be illegal and unsafe than in developed regions.

Global abortion incidence

A recent study¹⁴³ that implemented a new statistical approach to estimate abortion incidence worldwide, estimated 56 million induced abortions took place annually in 2010–14, which translates to an annual abortion rate of 35 abortions for every 1000 women aged 15–44 years (table 4). The abortion rate and the proportion of unintended pregnancies ending in abortion can be influenced by many factors, including the level of unmet need for contraception and the strength of motivation of women and couples to have small families. The abortion rate varies widely across regions, but in no country or subregion do abortions not occur. Moreover, the rate does not vary significantly across groups of countries classified by income level or legal status of abortion (compared with reference groups low income and prohibited altogether or permitted only to save life, respectively).

25 years ago, the abortion rate was higher in the global north than in the south.¹⁴³ But the abortion rate has declined in developed regions as contraceptive use has become more widespread. Now, the abortion rate is higher in developing regions, where the desire for smaller

families is increasing yet contraceptive access is poor and use is low.

Definition and estimates of unsafe abortion

Abortion is a very safe procedure when performed in accordance with medical guidelines. The risk of death from abortion is far lower than the risk associated with labour and delivery in high-resource settings.^{145–147} Conversely, unsafe abortions—those done by unqualified providers or using an outdated or damaging method, or both—pose a serious threat to women’s health.

Ensuring the wellbeing of a woman who has an abortion requires more than a medically safe procedure. Holistically, an abortion can only be considered safe if a woman can have one without risk of criminal or legal sanction, and without risk of being stigmatised by her family and her community if they were to learn about her abortion, which can lead to stress and isolation. Some have argued that the safety of abortion exists on a gradation, and that studies of the incidence of unsafe abortion should take full account of both the non-medical and medical dimensions of safety.^{148,149} But the evidence is too sparse to classify abortions according to multiple categories of safety that take all of these dimensions into account.

Recent estimates of the safety of abortion are based on a model in which the proportion of abortions that are considered safe is a function of the extent to which safe abortion methods are available, women can afford them, and women are empowered to seek out and use safe abortion services.¹⁵⁰ With these criteria, an estimated 45% of abortions (25 million) occurring in 2010–14 were unsafe, and these abortions were further categorised as either less safe or least safe. Some 31% of abortions were classified as less safe, indicating they were done either by a trained provider using an outdated abortion method—eg, sharp curettage—or the abortion was done using a safe method—eg, misoprostol—but without access to accurate information or backup support from a trained provider. Another 14% of abortions were deemed to have been least safe—ie, done by untrained persons using dangerous, invasive methods, such as ingestion of harmful substances or insertion of foreign bodies. In developing regions, 50% of abortions are unsafe, compared with 13% in the developed world (unsafe abortions in developed regions are largely concentrated in eastern Europe; many of these are dilation and curettage procedures,¹⁵¹ a method not recommended by WHO). In western Africa 85% of abortions are unsafe, and in middle Africa 88% are classified as unsafe.

Complications and mortality from unsafe abortion

Recent estimates of the proportion of maternal deaths that are due to abortion, miscarriage, and ectopic pregnancy range from 8%¹⁵² to 11%.¹⁵³ The proportion can change because the incidence of other causes of maternal death change. Therefore, the case fatality rate (CFR, the number of abortion-related deaths per 100 000 abortions) is a more

	Abortions (N)		Abortion rate	
	Millions	90% UI*	per 1000 women, aged 15–44 years	90% UI
World	55.9	51.8–68.6	35	32–43%
Developed countries	6.6	6.0–8.8	27	24–36%
Developing countries	49.3	45.0–61.4	36	33–45%
UN geographic regions				
Africa	8.2	7.4–11.3	34	31–46%
Asia	35.5	30.5–45.9	36	31–46%
Latin America	6.5	5.3–8.9	44	36–61%
North America	1.2	1.1–1.3	17	16–18%
Europe	4.3	4.0–5.5	29	27–37%
Oceania	0.1	0.1–0.2	19	15–28%
World Bank income categories†				
High-income countries	7.8	7.1–10.3	29	26–38%
Upper-middle-income countries	20.9	17.3–27.9	38	31–50%
Lower-middle-income countries	23	20.1–30.1	35	31–47%
Low-income countries	4.2	3.8–5.5	33	30–43%
Legal ground for abortion				
Prohibited altogether	3.2	2.7–4.8	33	28–47%
Permitted				
To save woman’s life	12.8	11.2–17.4	39	34–53%
Physical health	6.3	5.9–7.9	43	40–53%
Woman’s mental health	2.5	2.1–3.7	32	27–48%
Socioeconomic grounds	10.3	7.5–15.6	31	22–47%
On request	20.7	17.3–27.3	34	28–45%
Physical or mental health, socioeconomic grounds	19.2	16.7–25.4	34	30–45%

Data from Sedgh G, et al., 2016.¹⁴³ *Uncertainty interval around the estimate. †Country classification by income level is based on 2014 gross national income per capita from the World Bank.¹⁴⁴

Table 4: Estimated number of abortions and abortion rate in women aged 15–44 years, 2010–14

appropriate measure with which to compare the safety of abortion across regions over time. Based on the range of abortion mortality estimates (mentioned previously), the CFR is 42–63 women for every 100 000 abortions done.^{143,154} Globally, the rate dropped by about 42% between 1990–94 and 2010–14, from a CFR of 108 to 63. It is highest in Africa, at 141 per 100 000 abortions. Non-fatal complications from unsafe abortions are far more common than deaths, however. These complications range in severity from incomplete abortion (accounting for most complications) to a small proportion with very serious symptoms, such as sepsis and trauma to the reproductive organs. An estimated 6·9 million women in developing regions sought treatment for complications from an unsafe induced abortion in 2012.¹⁵⁵

Trends that have helped make abortion safer

Empirical evidence is scarce on how the incidence of unsafe abortion has changed over time globally and in each world region. But abortions appear to have become safer in recent years for several reasons: an increasing share of abortions are done with the use of pharmaceutical drugs rather than more invasive, less safe methods; abortion laws have been liberalised in several countries, paving the way for the provision of safe, legal abortion services; and in some countries where few physicians are available, midlevel providers are increasingly permitted to provide medication abortion and are trained to do safe abortion, increasing women's access to services.¹⁵⁶

In low-resource settings, medical abortion (a non-surgical abortion with the use of pharmaceutical drugs) poses a lower risk of severe complications than many of the dangerous and unsafe methods that untrained practitioners or women themselves have traditionally used.¹⁵⁰ Optimally, mifepristone is used in combination with misoprostol to medically induce abortion, and this combined method is highly effective and safe; but mifepristone can be costly and is generally not available where abortion is highly restricted by law. In such settings, misoprostol alone is increasingly being used, particularly since the late 1990s, and because it is 75–90% effective in inducing an abortion and is not invasive, it is probably leading to improvements in abortion safety.¹⁵¹ The most common problems experienced after abortion induced by misoprostol alone are prolonged bleeding and incomplete abortion—relatively mild complications that are more likely to occur when suboptimal regimens or doses of the medication are used.^{151,157} Two systematic reviews^{158,159} on the effect of medical abortion have concluded that the expanded use of misoprostol for abortion in Latin America and the Caribbean has led to a reduction in the incidence and severity of abortion complications.

More than 30 countries, many in the developing world, amended their laws to expand access to safe and legal abortion services between 1994 and 2014.¹⁶⁰ Liberalisation of laws alone does not guarantee access to safe abortion; the change in the law must be followed by investments in

building up a cadre of trained providers, ensuring they provide safe, confidential care, and raising women's awareness of their right to such care—all of which can take years.¹⁶¹ In India, where law reform in 1971 permitted abortion under broad criteria, most abortions did not meet legal requirements by 2015; however, widespread use of medication abortion, largely from informal providers, has resulted in abortion being much safer now than a decade or more ago.^{162,163} Nevertheless, abortions have become safer in some developing countries where the grounds for legal abortion have been expanded.^{164–166} Arguably, making abortion legal also improves women's wellbeing because it spares many women the harm that comes from risking legal or criminal sanctions for their actions.

Training of mid-level providers has contributed to the expansion of access to safe abortion. The WHO safe abortion guidelines make clear that first-trimester abortion procedures, in particular medication abortion, can be safely provided by properly trained non-physicians.¹⁵¹ A review¹⁶⁷ of evidence from ten developing countries shows that the care provided by trained midlevel providers is often of equal quality to that provided by physicians, and that training midlevel providers has led to increased access to safe abortion care.

Persistent barriers to safe abortion: stigma and providers' attitudes

Stigma is possibly the most understudied and pervasive means by which an abortion affects a woman's wellbeing. Stigma (including the fear of being stigmatised, even if no one learns of the abortion) can lead to feelings of isolation, shame, and guilt, which compromise a woman's emotional and psychological wellbeing. The stigma attached to abortion exists in high-income and low-income countries, and in countries with liberal and restrictive abortion laws.¹⁶⁸

In some settings, the number of providers willing to do the procedure is limited by the stigma associated with abortion, thereby obstructing women's access to a safe abortion. A systematic review¹⁶⁹ found that some providers held negative attitudes toward abortion in most countries in southeast Asia and sub-Saharan Africa for which such evidence was available. Health-care providers also reported experiencing being stigmatised by their families, colleagues, and communities for providing abortions.

Whether to avoid being stigmatised or because of their own attitudes toward abortion, some providers cite conscientious objection as a basis for refusing to provide abortion care. The WHO guidelines on safe abortion, however, state that the right to conscientious objection does not extend to a right to impede or deny access to lawful abortion services or to delay care. The guidelines advise that health-care providers must refer women to an easily accessible provider. Yet, in many settings, providers' refusal to perform abortions is pervasive and impedes women's legal right to safe abortion.¹⁷⁰

Prevention and treatment of infertility

Infertility, or the inability to conceive, is a neglected area of SRHR, particularly in regions with high total fertility.¹⁷¹ As many as 180 million couples worldwide are potentially affected by infertility, depending on estimates, but an absence of political concern combined with the high cost of assisted reproductive technologies have resulted in a huge divide between high-income and low-income nations in the availability of fertility care. Much more could be done, however, to raise awareness about and prevent infertility, to research low-cost solutions, and to make access to new technologies more equitable across the globe.

The need to address infertility

Reproductive health care has been defined to include prevention and appropriate treatment of infertility since the ICPD in 1994.¹ The definition of reproductive rights, which includes the ability to “decide freely and responsibly the number, spacing and timing of their children and to have the information and means to do so,” implies support for both women who want a pregnancy and those who do not.

In addition to the rights-based rationale, a strong public health argument can be made for addressing infertility. Research has shown that infertility is associated with psychological distress,¹⁷² intimate partner violence,¹⁷³ and risky sexual behaviours,¹⁷⁴ as well as social consequences, such as stigma and exclusion,¹⁷⁵ marital instability,¹⁷⁶ and economic hardship.¹⁷⁷ Although men and women can experience infertility, women are often blamed and bear the most severe consequences even if they are not the cause of infertility.¹⁷⁸ In societies where women’s identity and social position is highly dependent on having children, a couple’s infertility can have severe consequences for women.

Moreover, fears related to infertility can deter fertile individuals from using contraceptive methods.¹⁷⁹ In some societies, young people might feel pressured to prove their fertility at an early age because of the high value placed upon childbearing.¹⁸⁰ Additionally, as women around the world increasingly start childbearing at later ages,^{181,182} demands for diagnosis and treatment of infertility could increase given the positive correlation between older age and infertility.¹⁸³

Measuring infertility

WHO defines clinical infertility as, “a disease of the reproductive system defined by the failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse.”¹⁸⁴ However, few nationally representative estimates of infertility prevalence use a clinical definition, and the variation in definitions and measurement of infertility across studies complicates efforts to summarise current estimates.¹⁸⁵ Several factors have substantial effect on the estimates: the population studied (eg, the general population vs

individuals seeking treatment; women vs people vs couples); the outcome considered (ie, an ability to conceive vs ability to carry a pregnancy to term); and the length of time spent trying for pregnancy (ie, 1 year for clinical studies vs 2 years for epidemiological studies vs 3–5 years for demographic studies).¹⁸⁶ Distinguishing between primary infertility (an inability to bear any children) and secondary infertility (an inability to bear a child after having an earlier birth) is also important.

Nonetheless, in the past 15 years, three large-scale analyses have generated global estimates of infertility, with different measurement approaches and results ranging from 48·5 million¹⁸⁷ to 186 million¹⁷⁶ couples affected by primary or secondary infertility. A 2007 study¹⁸⁸ using a 12-month exposure period—the time-frame after which clinical intervention might be recommended—estimated that about 72 million women were living with infertility worldwide, with about 40 million likely to seek infertility care. Innovative measurement approaches have been applied to 2013 DHS data in Nigeria, with the use of a technique that could be replicated in other countries that have similar surveys to generate inexpensive estimates of infertility prevalence that are nationally representative.¹⁸⁹

Large, prospective studies have not been done on causes of infertility in low-resource settings, but several factors might play an important role: age, fallopian tube occlusion (which can stem from STIs, post-partum infections, or infections after pregnancy loss, primarily due to unsafe abortion), and genetic, lifestyle, or environmental factors.¹⁹⁰

Prevention and treatment of infertility

Prevention of infertility can begin by reducing risk factors for the condition. Interventions include comprehensive sexuality education and counselling that incorporate information on STI prevention and fertility awareness to address, for example, menstrual irregularities and optimal timing of sexual intercourse to achieve pregnancy.^{191–193} Health education could also target other modifiable factors, such as tobacco, alcohol, nutrition, and occupational exposure to certain chemicals.^{194–196} Local providers working in health centres and communities could educate people, counter some of the myths and misperceptions surrounding infertility, and refer affected couples to the appropriate services at the district or regional hospital levels.¹⁹⁰

Secondary infertility, the inability to become pregnant after an earlier birth—which has largely preventable and treatable causes—is more common worldwide than primary infertility (the inability to conceive a child at all).¹⁸⁷ Secondary infertility could be reduced by access to safe delivery and safe abortion care; availability of contraceptive options to prevent unintended pregnancy; and prevention, detection, and treatment of infections.^{197,198}

Where available, drugs to induce ovulation can address infertility caused by disorders of ovulation, and intrauterine

insemination can be used for low sperm counts and unexplained infertility. Surgery can address blocked tubes and uterine fibroids, or other abnormalities of the reproductive tract. Assisted reproductive technologies might be useful in any of these conditions, when appropriate.¹⁹⁹ Availability of care might be important for specific populations, such as HIV-serodiscordant couples, LGBTQI populations, and women with medical issues affecting fertility, such as cancer.

Other options for people who cannot bear children include adoption and surrogacy, which require laws and regulations to protect the rights and health of the individuals involved. Surrogacy, in which a woman becomes pregnant and gives birth with the intention of giving the child to another person or couple, is permitted in some countries, but it has complex legal and ethical implications. The coercion and exploitation of surrogate mothers is of concern due to financial incentives, health risks posed by multiple pregnancies (including increased exposure to risk and complications), and the psychological effects of separating from a child post-partum.²⁰⁰

Barriers to care

Availability, access, and quality of interventions to address infertility remain insufficient in many parts of the world, particularly in developing countries.¹⁹⁰ Even basic interventions such as counselling, medical examinations, and information on infertility and treatment options are often scarce.²⁰¹

Since infertility has not been a high priority in global public health, gaps persist in service delivery from prevention to care and treatment.¹⁹⁰ Education and counselling on sexuality and fertility is far from universal, surveillance and treatment of STIs is rare, and access to sexual and reproductive health care varies. Advanced treatment of infertility requires highly skilled labour and expensive equipment, which remain a challenge in developed countries and are virtually non-existent in many poor countries.²⁰² Assisted reproductive technology is often not included in essential primary health-care packages or covered by insurance companies.²⁰³

The cost of treatments is perhaps the biggest barrier to increasing access. Nevertheless, a starting point is to raise awareness about the issue, reduce stigma around infertility, and counsel couples about their options.²⁰⁴ To overcome financial barriers to infertility treatment, international networks, such as the Walking Egg and Friends of Low-Cost IVF, are researching innovative ways to develop low-cost treatments.²⁰⁵

Reproductive cancers

Access to services to prevent and treat reproductive cancers is grossly inequitable across countries and for the people on lower-incomes in even the wealthiest countries.²⁰⁶ Cancer is a growing crisis in low-income and middle-income countries where the burden of disease is shifting toward chronic, non-communicable

diseases.²⁰⁶ We focus here on cervical cancer because far too many women are dying in the prime of their lives from a disease that could be prevented with relatively simple and affordable technologies. If not addressed, deaths from cervical cancer worldwide could soon exceed those due to pregnancy and childbirth.

Scope and magnitude

Reproductive cancers occur in both women and men; in women, they include gynaecological and breast cancers, and in men, they can be found in the prostate, testicles, and penis. Every year, 2.7 million women are diagnosed with gynaecological and breast cancers worldwide, and more than 1 million women die from these causes (mostly in low-income and middle-income countries).²⁰⁷ An estimated 1.1 million men worldwide were diagnosed with prostate cancer in 2012—the second most common cancer in men²⁰⁸ (testicular and penile cancer are far rarer). About half of the 0.3 million deaths due to prostate cancer annually occur in low-income and middle-income countries.²⁰⁸

*The Lancet Series*²⁰⁹ that reviewed women’s reproductive cancers highlighted opportunities for progress, and recommended that these cancers be considered “an integral part of women’s health policy both to achieve universal health care and the Sustainable Development Goals.” An estimated 530 000 women were diagnosed with cervical cancer in 2012, and 266 000 died, nearly 90% of whom were in a low-income or middle-income country.²⁰⁷ It is the fourth most common cancer in women worldwide, and in much of sub-Saharan Africa it is the most common cancer affecting women. The highest incidence rates are in eastern, southern, middle, and western Africa, Melanesia, Central America, the Caribbean, and South America—all with incidence rates of 20 or higher (figure 9).

Mortality rates vary up to 18-times between different regions of the world, ranging from less than 2 per

For more on the **Walking Egg** see <http://thewalkingegg.com>

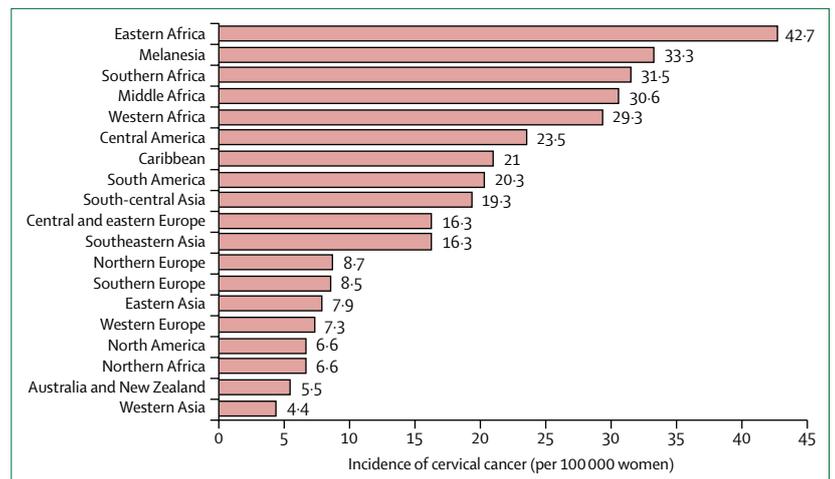


Figure 9: New cases of cervical cancer per 100 000 women per year by subregion, 2012
Data from GLOBOCAN, International Agency for Research on Cancer, 2012.²¹⁰

100 000 in western Asia, western Europe, and Australia and New Zealand, to more than 20 per 100 000 in Melanesia (20·6), middle (22·2) and eastern (27·6) Africa.²¹⁰ Along with other reproductive cancers, cervical cancer can cause substantial disability and premature death among women in the prime of their lives, disrupt family life, and reduce productivity and income, thus exacerbating the cycle of poverty.

Causes of cervical cancer and barriers to treatment

Cervical cancer is mainly caused by persistent infection with one or more of the high-risk subtypes of the HPV—the most common STI, usually acquired early in life. Most HPV infections resolve on their own, but a minority persist and some lead to precancer, which if not treated can progress to cancer 10–20 years later. Deaths from cervical cancer are far too high considering that the causation and progression of cervical cancer are well known, highly effective HPV vaccines have existed for almost a decade, and cost-effective screening and treatment options for early (precancerous) lesions exist.^{211,212}

Comprehensive cervical cancer prevention and control requires equitable and affordable access to care.²¹³ Four interventions are key, along with information, education, and counselling: (1) primary prevention with HPV vaccination for girls aged 9–13 years, (2) secondary prevention with cervical screening, diagnosis, and treatment of precancerous lesions, (3) treatment for invasive cervical cancer, and (4) palliative care.²¹¹

Most new cases and deaths from cervical cancer occur in countries where the coverage of HPV vaccination²¹⁴ and cervical screening are poor.²¹⁵ In high-income countries, cervical cancer incidence and mortality fell dramatically over the past 30–40 years due to effective screening (Pap tests) and treatment services. For women in low-income and middle-income countries, little progress has been seen. Where resources are limited, WHO recommends very low-cost visual inspection with acetic acid (vinegar) and cryotherapy to treat precancerous lesions.²¹¹ HPV DNA testing can also be used to detect the presence of high-risk types of HPV; these tests are becoming increasingly affordable for low-income and middle-income countries.

Primary and secondary prevention of cervical cancer are “best buys” according to WHO.²¹⁶ Unfortunately, HPV vaccination coverage has not increased by much despite special pricing for eligible countries offered through Gavi, the Vaccine Alliance, since 2013, and the Pan American Health Organization Revolving Fund. Immunised girls in low and lower-middle income countries represent less than 1% of the total immunised worldwide.²¹⁴ Although girls and boys should both receive HPV education, WHO does not recommend vaccinating boys because vaccinating girls is much more cost-effective in resource-limited settings and directly protects those at risk of developing cervical cancer.²¹¹

As for secondary prevention, WHO recommends that screening be offered at least once in a lifetime to every

woman aged 30–49 years, who will benefit the most from this screening.²¹¹ Despite global efforts to make screening approaches affordable and accessible, most women in low-income and middle-income countries are not screened for cervical cancer.^{215,217}

Implementing all four prevention and control interventions requires a strong health system with effective linkages between the different levels of care. Lessons from the past 5–10 years indicate that scaling up to reach the entire population at risk of even one of these interventions—for example, HPV vaccination in national immunisation programmes²¹⁷—has been far more difficult than anticipated. Vaccination programmes have been hampered by issues such as affordability, competition for scarce health resources, logistical challenges, and weak national and international support (ie, not all countries are eligible for Gavi funding).²¹⁴

Section 4: Populations in need of services

Some population groups have distinct SRHR needs or have greater obstacles to obtaining sexual and reproductive health care than others (figure 3). First, adolescents are a key population for nearly all sexual and reproductive health services. From ages 10–19 years, girls and boys experience major transitions, including the onset of puberty and, for some, the beginning of sexual activity, cohabitation, or married life, and childbearing. Second, men account for half of the reproductive-age population but are often reluctant to seek care at health facilities that cater primarily to pregnant women and their infants, leaving them underserved and inhibiting them from playing a greater role in supporting women's sexual and reproductive health.

Third, we highlight disadvantages experienced by people with non-conforming sexual orientations and gender identities, who face stigma and discrimination around the world, and who, in some countries, are subjected to extreme violence and are criminalised. Social exclusion of this population causes obstacles for them when accessing sexual and reproductive health care, including too few knowledgeable providers of their particular sexual and reproductive health needs and fear of discriminatory treatment.²¹⁸ Fourth, the needs of displaced people and refugees are also described in this section because their numbers are growing worldwide and their precarious living situations put them at high risk of sexual and reproductive health problems.

A scarcity of data limits what can be described about the SRHR risks and needs of many of these groups, particularly for other marginalised populations, such as people with disabilities, older people beyond the reproductive years, people living on the streets, sex workers, and people who inject drugs. Conventional household surveys might not reach them, or the surveys do not have specific questions that pertain to them, or both. Yet, the very characteristics that exclude them from surveys (and limit the availability of data) might make

them more vulnerable to sexual and reproductive health problems and, therefore, in greater need of services.

Adolescents

Adolescence is a crucial time to lay the foundation for healthy sexual and reproductive lives and to address issues that are especially harmful to women's health: inequitable gender norms, child marriage, and gender-based violence.²¹⁹ It is also an important period for sexual development and exploration of sexual orientation because the expectation to adhere to gender roles and norms begins to intensify and solidify in these formative years.²²⁰

Experiences during adolescence can determine the trajectory of people's lives. About half of 19-year-old women in developing regions are sexually active mostly, but not always, because they are married, and about half of their pregnancies are unintended.²²¹ Adolescent girls and women are also highly susceptible to STIs, including HIV. Providing adolescent women and men the SRHR information and services they need requires overcoming social, cultural, health system, and legal obstacles, and must start with the acknowledgment that they might already be sexually active or could soon be.

Although WHO and other UN agencies define adolescents as those aged 10–19 years, survey data and research on the SRHR of adolescents are typically available only for those aged 15–19 years. We highlight what is known about younger adolescents in panel 6.

Marriage, sexual activity, and childbearing

Adolescent women in developing regions commonly experience first sex, marriage, and childbearing in close succession. Some adolescent women are sexually active before marriage (in all subregions, although to varying degrees), and some of these women become pregnant and acquire STIs. However, most sexual activity and childbearing occurs within marriage or a cohabiting union in these regions.²²¹

Figure 10 compares these life events between adolescent men and women in sub-Saharan Africa—a region for which data on men are sufficient to make such a comparison. As expected, young women are more likely to be married and have a child than young men at each age of adolescence. The data also show that some female and male adolescents are sexually active before marriage. However, the gap between being sexually active and being married is much greater for adolescent men than for adolescent women at every age.

Other studies have also found that adolescent males aged 15–19 years are more likely to have had non-marital sexual relations than their female peers, although these relations vary across countries.²²⁴ For example, in Vietnam, 52% of male adolescents aged 15–19 years reported non-marital sexual behaviour in the past year compared with 4% of female adolescents; in Kenya, 98% of males reported non-marital sex, compared with 56% of females.²²⁵

Panel 6: Sexual and reproductive experiences of adolescents aged 10–14 years in developing regions

Early adolescence, defined as ages 10–14 years, is a period of rapid physical, social, emotional, and cognitive changes that have implications for wellbeing in later adolescence and adulthood. National survey data in more than 100 countries,²²² along with other small-scale studies, offer insights into the sexual and reproductive experiences of these younger adolescents through the retrospective reporting of adolescents aged 15–19 years.

- Most adolescents aged 10–14 years have never experienced sexual intercourse; however, some have begun to explore intimate relationships and engage in sexual activities, such as kissing, hugging, fondling, and oral and anal sex.
- In nationally representative surveys, adolescent females' self-reports of sexual intercourse before age 15 years ranges from 0–29%; smaller scale studies show a smaller range of 1–20%.
- For many adolescents, first sexual intercourse results from coercion or violence. The likelihood of first sex being coerced is higher when it occurs at very young ages (eg, 28–62% of girls who had first intercourse before age 12 years in three sub-Saharan African countries) than in ages of 12–14 years (21–28%).²²³
- Child marriage disproportionately affects girls. The proportion of adolescent girls married before age 15 years varies by country—from <1% to 24%—as well as by region, residence, and wealth. It is most prevalent among girls living in rural areas and in the poorest households.
- Early marriage is associated with early motherhood. Adolescent girls younger than 15 years had an estimated 777 000 births in developing regions in 2016; 58% of these births took place in Africa, 28% in Asia, and 14% in Latin America and the Caribbean.

More research is needed on the sexual and reproductive health and rights needs of girls and boys aged 10–14 years, with careful consideration of methodological and ethical constraints. The evidence is crucial for informing strategies to meet their needs, such as delivering comprehensive sexuality education, reducing prevalence of child marriage, addressing sexual violence, promoting equitable gender norms, and providing financial incentives in education.

Despite worldwide efforts to end child marriage (before age 18 years), the practice remains common in developing regions, particularly in south Asia and sub-Saharan Africa.²²⁶ An estimated 7% of girls in developing regions marry before age 15 years, and 28% marry before age 18 years.²²¹ Parents often marry off their young daughters to preserve their premarital virginity and protect them from sexual harassment; they might also do so for economic reasons, to settle debts, form alliances, or protect family honour.²²⁷ Adolescent men, on the other hand, might delay marriage until they have a job or

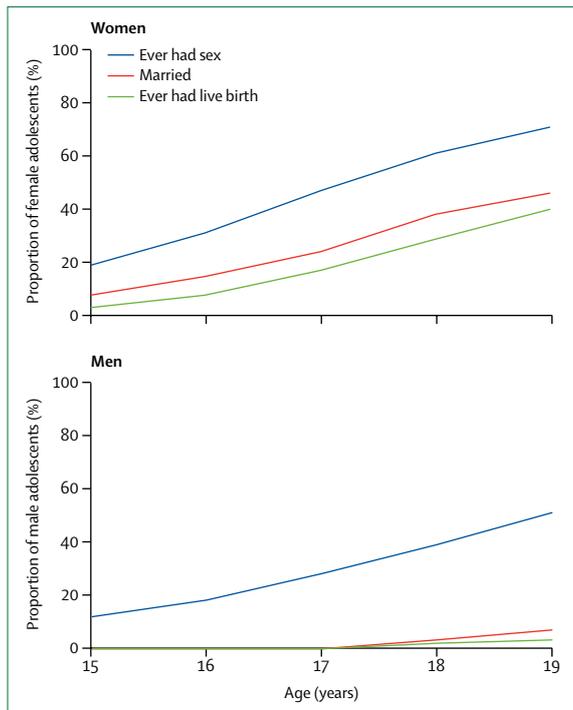


Figure 10: Sexual activity, marriage, and childbearing in adolescent men and women aged 15–19 years in sub-Saharan Africa, 2016
 Data from Darroch JE et al, 2016²²¹ and Demographic Health Surveys Program.³²
 Married includes formal marriages and cohabitating unions.

believe they have sufficient means to support themselves and their families.

Married adolescent girls are highly vulnerable to SRHR problems for several reasons: they are often socially isolated, tend to begin childbearing early, are vulnerable to STIs, including HIV, and are often unable to negotiate safer sex with their husbands, who are typically much older.²²⁸ Adolescents who give birth at very young ages (ie, aged 15 years and younger) have increased risks of pregnancy-related complications and death. Additionally, women who marry before adulthood are at greater risk of intimate partner violence and forced sexual intercourse than those who marry at age 18 years or older.²²⁹

Moreover, the babies of adolescent mothers face greater health risks than those born to older mothers, in part a reflection of the higher risks for first births and in part due to the worse health status of young mothers.²³⁰ For example, the firstborn children of mothers younger than 18 years have the highest risk of neonatal mortality, preterm birth, and infant mortality.²³¹ Babies of adolescents also face the highest risk of infant and child mortality, as well as stunting and anaemia.²³²

According to data from 2016, about half of adolescent pregnancies in developing regions are unintended, with variation by region.²²¹ In Latin America and the Caribbean, 74% of adolescent pregnancies are unintended. About half of unintended adolescent pregnancies in this region and in Africa end in induced abortion, as do 65% in Asia.²²¹ In

the developed countries with complete abortion statistics, the proportion of unintended pregnancies among adolescents ending in abortion varies widely, but for most of these countries it falls within the 35–55% range.²³³

Contraceptive needs and services for adolescents

In developing regions, adolescent women who want to avoid a pregnancy might encounter many barriers to using contraception. They might feel social pressure to have a child, especially if they are married, or they might find it difficult to access and use contraceptive services. Of adolescent women in need of contraception (ie, those who are sexually active and do not want a child for at least 2 years), 60% are not using a modern method, ranging from 34% in South America to 78% in middle Africa.²²¹

Adolescents who use contraceptives in developing regions most commonly rely on male condoms (38%), the contraceptive pill (27%), and injectables (19%);²²¹ few adolescents are using long-acting reversible methods such as implants and IUDs, which have higher rates of effectiveness.²³⁴ Failure of contraceptives is an important concern. A 2014 review²³⁵ of the most recent surveys in 43 developing countries found that women younger than 25 years had much higher rates of contraceptive failure during the first year of use for all methods than women older than 25 years.

Providers typically offer condoms or other short-term methods to adolescents; many believe that long-acting methods such as IUDs and implants are inappropriate for women who have never had a child. However, the Global Consensus Statement on Expanding Contraceptive Choice for Adolescents and Youth²³⁶ asserts that there is no medical reason to withhold long-acting reversible methods from adolescents. Additionally, emergency contraception and female condoms could meet some adolescents' needs, but they are often not available.

HIV and sexually transmitted infections

An estimated 250 000 adolescents aged 15–19 years became infected with HIV in 2015, of which almost two-thirds (160 000) were female adolescents.²³⁷ In sub-Saharan Africa, girls account for three in four new HIV infections among adolescents aged 15–19 years.²³⁸ Compared with young men, young women are more likely to acquire HIV, and the age of infection is 5–7 years earlier often coinciding with sexual debut.²³⁹ Other STIs, including HPV, are also commonly acquired in the early reproductive years—ie, younger than 25 years.²⁴⁰

Young women's disproportionate burden of HIV is driven by many factors. Adolescents and young women are physiologically more susceptible to acquiring HIV than men and women older than 25 years,²³⁹ and they might also find it difficult to protect themselves from the infection. Some of the challenges include inadequate access to high-quality sexual and reproductive health information and services; insufficient secondary schooling and comprehensive sexuality education;

harmful gender norms, including child marriage; cross-generational sexual relationships (older men and younger women); inability to ask their partners to use condoms; and increased risk of violence in conflict settings.^{241–243} When older men living with HIV are partners of adolescent women, their risky and sometimes exploitative behaviours place these young women at high risk of contracting the virus.

In developing regions, the proportion of adolescents aged 15–19 years having had HIV tests is only 12% for women and 9% for men. Only a few of sexually active adolescent women who have an STI or who have symptoms seek care in a health facility.²⁴⁴ Many adolescents do not know where to seek STI services, and those who do might feel ashamed or afraid to get treatment from health-care providers.

Confronting sexist imagery and harmful stereotypes in the media
As access to the internet and use of social media becomes universal, exposure to sexist and stereotyped images of men and women can proliferate quickly. Young people, particularly boys and young men, commonly view pornography and erotic material, with a large body of research^{245–248} showing negative effects. Specifically, a review²⁴⁹ found that exposure of adolescents and young adults to media that sexualises girls and women is associated with greater acceptance of stereotyped notions about gender and sexual roles, including notions of women as sexual objects. The constant exposure to dominant notions of male aggression reinforces biases among boys and men about the inferiority of girls and women.

Protecting adolescents from sexual violence, coercion, and exploitation does not mean shielding them from sexuality education, however.²⁴⁹ Children can and should be given age-appropriate and evidence-informed education about sex and sexuality. Comprehensive sexuality education covers sexual behaviour (including sexual pleasure and intimate relationships) and can raise awareness about degrading, sexist, and factually incorrect or distorted representations of sex.²⁵⁰ Adolescents also need to be taught to be informed consumers of the internet and equipped to deal with the risk of seeing unsuitable content.

Barriers to care

Many social, gender, cultural, and legal barriers prevent adolescents from obtaining high-quality sexual and reproductive health information and services.^{251–254} Unmarried women who are sexually active face barriers such as policies, regulations, or community norms that exclude them from receiving information and services.²⁵⁵ In many countries, adolescents who are not legally classified as adults require parental consent to obtain medical care, including HIV testing and counselling.^{256,257} In some countries where sexual activity is illegal for people younger than 16 years, health-care providers

might not be allowed to maintain patient confidentiality.²⁴⁴ In other countries, government policies restrict adolescents' access to sexual and reproductive health services and education. Bias among providers can also be an issue because some might refuse to serve adolescents or unmarried women even in the absence of legal or administrative prohibitions. Finally, the cost to access relevant services could dissuade adolescents from seeking or using them.

Men as partners in sexual and reproductive health and rights

Men's sexual and reproductive behaviours can put them and their partners at risk of unintended pregnancy and STIs, including HIV, yet they often do not have the information and services to prevent unhealthy behaviours and their negative consequences. The ICPD Programme of Action¹ noted, "Men play a key role in bringing about gender equality since, in most societies, men exercise preponderant power in nearly every sphere of life, ranging from personal decisions regarding the size of families to the policy and programme decisions taken at all levels of government. It is essential to improve communication between men and women on issues of sexuality and reproductive health, and the understanding of their joint responsibilities, so that men and women are equal partners in public and private life."

Research has long shown gaps in understanding of men's sexual and reproductive health and the most effective ways to reach out to them to improve their health and to engage them in supporting their wives' and partners' health.²⁵⁸ Such research has increased over the past two decades—a reflection of a growing consensus about the need to better understand masculinity overall.

An index³² of men's support for their partners' sexual and reproductive health and empowerment suggests that such support is generally low. The index is based on men's agreement or disagreement with four statements. Men are considered supportive if they: (1) agree that a wife or partner is justified in asking her husband or partner to use a condom if he has an STI, (2) disagree that intimate partner violence is justified for any reason, (3) disagree that contraceptive use is women's business and men do not need to be involved in contraceptive decision-making, and (4) disagree that women who use contraception might become promiscuous. The proportion of men who strongly support their partners' sexual and reproductive health and empowerment—ie, they responded accordingly to all four statements—ranges from 12% in Lesotho to 77% in Rwanda (figure 11). Of the four measures considered, intimate partner violence being justified (2) and women who use contraception become promiscuous (4) are the two measures that tend to drive down the amount of men's support for women's sexual and reproductive health and empowerment.

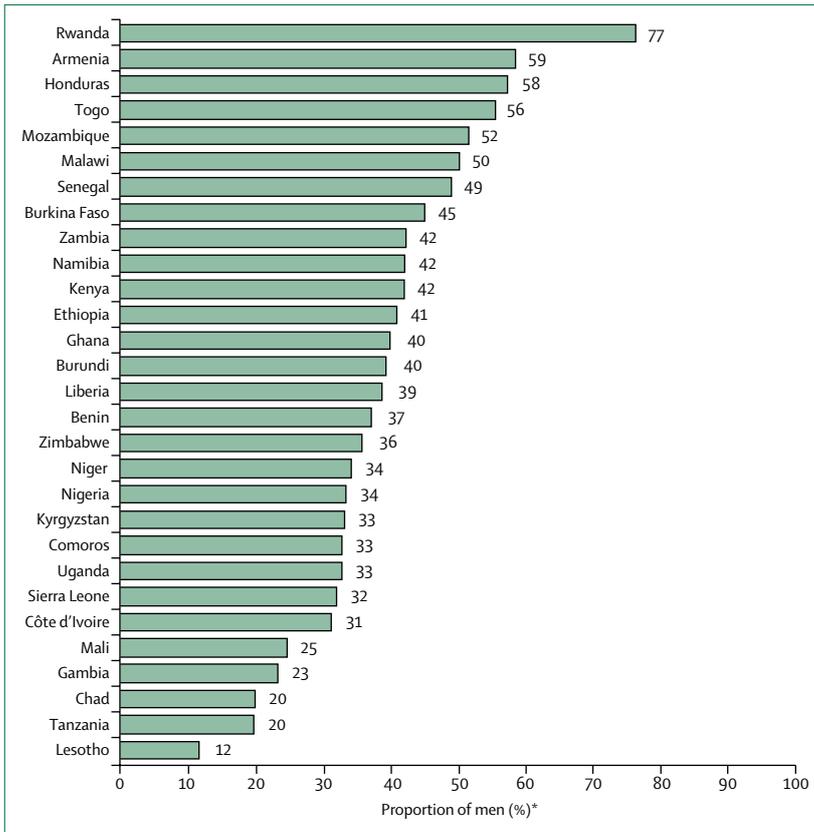


Figure 11: Proportion of men who support women's sexual and reproductive health, 2010–15
 Data from Demographic Health Surveys Program.³² Includes men aged 15–59 years for all countries except Bangladesh, Kenya, Malawi, Uganda, and Zimbabwe, which included men aged 15–54 years; and Armenia, Kyrgyz Republic, Lesotho, Nepal, Nigeria, Tanzania, and Timor Leste, which included men aged 15–49 years. *This figure shows the proportion of men who strongly support their partners sexual and reproductive health and empowerment according to the Sexual and Reproductive Health Index, which asks if men agree with the following statements (1) wife or partner is justified in asking husband or partner to use a condom if he has a sexually transmitted infection, (2) intimate partner violence is never justified, (3) contraceptive use is not only a woman's business, and (4) contraception does not cause women to be promiscuous

Women continue to shoulder the responsibility of contraceptive use and use of male contraceptive methods has not changed much since the mid-1990s. One barrier is the few male options available, which could be addressed through greater investment in new methods for men.

Acknowledgment and expansion of men's role in maternal and child health are also key. A systematic review²⁵⁹ of studies in developing regions found that male involvement was significantly associated with reduced odds of post-partum depression and improved use of skilled birth attendance and postnatal care. Male involvement during pregnancy and post-partum appeared to have greater benefits than male involvement during delivery. Given that men are often gatekeepers for women's access to services, involving men during pregnancy, childbirth, and onward (when women want) can potentially increase gender equality and male support for women's SRHR.

Programmes that engage men and boys

Promising programmes have been piloted in diverse country settings to promote men's sexual and reproductive health and increase their support for their partners' health. A WHO assessment of interventions with men related to sexual and reproductive health, maternal and child health, gender-based violence, fatherhood, and HIV/AIDS found that such interventions elicited important changes in men's attitudes and behaviours, despite being of short duration.^{57,83} Some of the more successful programmes work with individuals, groups, and communities to change norms about what it means to be men, to cultivate and reinforce the notion that masculinity can be associated with caregiving, to raise awareness about reproductive health, and to encourage men to seek medical care when needed.

The growing attention to men's roles as fathers is promising, as evidence suggests that men who are more involved in their children's lives are more likely to pay attention to reproductive health issues. Brazil's Prenatal Programme for Fathers and Men's Health Initiative, developed as part of Brazil's national health-care policy for men, offers examples of how simple interventions, such as training health professionals (including online training), offering men and fathers opportunities to attend to their own health needs (including HIV testing), and giving women the option to have their partners present at birth, can result in large numbers of men accessing services, and women's increased sense of safety and support during the antenatal and birth process.²⁶⁰

Unfortunately, insufficient funding means many successful programmes are never scaled up after the pilot stage. Another reason is the reluctance of some donors, programme managers, reproductive health advocates, and women's rights activists to promote research on or to promote availability of services for men.²⁶¹ Some might view investing in men's sexual and reproductive health needs as tantamount to taking from the few funds allocated to meet women's needs. Some programmes have avoided this binary view and instead adopt a gender-synchronised or gender relational approach that engages men, women, girls, and boys of all sexual orientations and gender identities to challenge the rigid constructions of masculinity and femininity that are harmful to health and wellbeing.²⁶² Under this approach, programmes targeting men are held accountable for their effect on women, women-centred programmes seek ways to constructively engage men, and some programmes engage both sexes (ie, take a couples approach) from their inception. Programmes that engage both sexes work toward mutual understanding and shared goals; they seek to equalise the balance of power between women and men through recognition of how men and women reinforce notions of masculinity and femininity and therefore need to be engaged in reconstructing these roles. Promising approaches can be found in the Stepping Stones programme and Soul City in South

Africa, and the Gender Equity Movement in Schools in India.²⁶²

People with diverse sexual orientations, gender identities and expression, and sex characteristics

LGBTQI individuals face serious barriers in many countries to accessing sexual and reproductive health information and services, including pervasive stigma and discrimination, criminalisation of their sexual practices, violence, and even fear for their lives. When they do receive services, they might not disclose their sexual orientation, activities, or gender identity to their health providers, inhibiting their ability to receive the information and care they need.²¹⁸ Additionally, the care they receive might be of poor quality because providers are judgmental or do not have sufficient knowledge about their specific needs.²¹⁸ Many of their sexual and reproductive health needs are common to all adolescents and adults, but some are specific to their status. Their needs include contraceptive counselling and services; reproductive health screenings; access to safer sex technologies; counselling for STI risk prevention, STI treatment, pregnancy-related services, partner violence, and sexual violence; counselling on fertility options; and hormone therapy.^{218,263,264}

Under-reporting is a major issue around the world because of stigma. Research in the Philippines, for example, found that among adolescents aged 15–24 years, more than half (52%) had an accepting attitude towards LGBTQI individuals.²⁶⁵ However, only about 1% said they had been attracted to or had a crush on the same sex, and among those who were sexually active 11% indicated they had ever had sex with someone of the same sex—15% of male respondents compared with 4% of females.

Studies in the USA on young LGBTQI individuals, in particular, show that they believe they must declare their status (come out) to seek health services, and that fear for their safety can prevent them from using health care.²⁶⁶ Most lesbian, gay, and transgender youth have not discussed their sexual orientation with their health-care provider.²⁶⁷ Stigma, bullying, and other forms of discrimination based on sexual orientation and gender identity are key factors undermining health-care access. Also, providers might not give good-quality care because they do not have sufficient knowledge about the issues these adolescents face, or about appropriate ways to respond, and because few resources are devoted to serving this population.^{218,266}

Comprehensive medical guidelines are needed to address the sexual and reproductive health needs of LGBTQI individuals, and providers must be made aware of them.^{218,268} Some global medical guidelines exist to help health professionals and their patients assess the range of services available to them according to their clinical needs and goals for gender expression,²⁶⁴ although their use in low-income and middle-income countries is likely to be limited. Effective guidelines need to be developed

and disseminated, and training of providers improved to address the needs of this population.

Going forward, data collection assessing the sexual and reproductive health needs of people with diverse sexual orientations, gender identities and expression, and sex characteristics should be expanded and improved. Terminology, amount of disaggregation, definitions and subpopulations covered often differ, resulting in data and evidence that are not easily comparable. Under-reporting because of stigma also affects the quality of data and evidence. Researchers should assess and improve existing questionnaires, explore different data collection approaches, and include standardised questions on sexual orientation and gender identity on more population-based surveys.²¹⁸

Finally, health professionals and researchers should recognise the range of behaviours and identities grouped together under umbrella terms such as LGBTQI and sexual minorities. Although they have some health challenges in common, individual subgroups might have unique and varying health-care needs.^{218,269}

Displaced people and refugees

The absence of sexual and reproductive health services for women and adolescents who have been displaced due to conflict or natural disaster has long been documented. Adolescents in conflict and crisis settings face unusually grave health risks. Adolescent girls are at increased risk of forced sex, sexual assault, and exploitation, and in some cases, child marriage and sex trafficking. Adolescent boys are also exposed to sexual violence, and some face pressure to prove their sexual prowess in addition to bearing a disproportionate share of the consequences of conflict.²⁴⁵ Educational, social, and health services might be discontinued or unavailable, and families might be broken apart, leading to diminished security and protection—all of which increase the risk of unwanted pregnancy, STIs, and unsafe abortion.²⁷⁰

In the mid-1990s, the Inter-Agency Working Group (IAWG) on Reproductive Health in Crises was formed to address the special needs of people in these emergency settings. IAWG developed a field manual²⁷¹ defining a minimum initial service package for reproductive health, which was revised in 2011. IAWG's 2012–14 multicountry assessment found increased awareness of the service package and expansion of services in humanitarian settings compared with 10 years earlier, but it also found serious shortcomings.²⁷² For example, emergency obstetric and newborn care was inadequate, use of emergency, long-acting, and permanent contraception was low, diagnosis and treatment of STIs other than HIV was insufficient, and commodity management was poor, leading to stock-outs. Studies of emergency settings in Burkina Faso, Democratic Republic of Congo, and South Sudan found no minimum standard of sexual and reproductive health services, despite facilities reporting

that they were providing services.²⁷³ Many providers had poor knowledge about these health services and even when they were available, refugees and displaced persons reported being unaware of them.

Additionally, the IAWG assessment found that safe abortion services are rarely provided in humanitarian crisis settings—an especially noteworthy finding given the high risk of sexual violence and unintended pregnancies in these settings. One major barrier is service providers’ assumption that abortion services are illegal.²⁷⁴ However, in most of these countries abortion is permitted to save a woman’s life and in some, also to preserve her health; additionally, abortion laws have been liberalised in several countries that have large numbers of displaced persons or refugees. Another misconception limiting the provision of abortion services, is the assumption that abortion services are not needed, or that “abortion is too complicated to provide in crises”,²⁷⁴ indicating the need for additional evidence to quantify the need for these services.

Additional groups with specific disadvantages

People living with disabilities are another underserved population subjected to harmful stereotypes and myths. They have similar SRHR needs as able-bodied people; however, they are much more likely to be victims of physical and sexual abuse and rape, even by their caretakers in some situations. They are also more likely to be subjected to forced or coerced procedures, such as sterilisation, abortion, and contraception.²⁷⁵ Inadequate information and a paucity of targeted resources contribute to this group’s vulnerability; these disadvantages begin early in life and continue in adulthood.²⁷⁶

Other groups also have higher than average risk of poor sexual health because of their specific life circumstances. For example, those who live on the streets, especially children and young people, are at high risk of sexual violence, have little or no access to information and health care, and are likely to be at very high risk of poor SRHR outcomes. Racial and ethnic

minorities, immigrants, and indigenous peoples might also have limited access to sexual and reproductive health services because of discrimination and poor access to health care generally. More research is needed on groups such as these.

Section 5: Benefits and costs of investing in sexual and reproductive health and rights

Would the essential sexual and reproductive health services described in this report provide good value for money? And can countries afford them all? Evidence shows the investments yield benefits on many levels and over time, in addition to enhancing individual health and human rights. These benefits include reductions in health-care costs due to expanded preventive care, improvements in children’s health and wellbeing as a result of better care for their mothers, and social and economic benefits for families and societies that pay dividends across generations. Moreover, analyses suggest that the cost of meeting the health SDGs overall by 2030, could be met with domestic resources in all but the poorest countries.²⁷⁷ Investments in SRHR are modest, accounting for only a small fraction of current and projected health spending.

Health benefits of investments in contraception, and maternal and newborn care

The immediate health benefits resulting from modern contraceptive use and maternal and newborn care are dramatic and well documented. The most recent data show that fully meeting the need for contraception for 214 million women in developing regions, who currently want to avoid pregnancy but are not using a modern method, would avert an additional 67 million unintended pregnancies in 2017, beyond the 308 million averted due to current use. Moreover, unplanned births would decline from 30 million to 7 million per year, and induced abortions would reduce from 48 million to 12 million per year. The reduction in unintended pregnancies combined with full care for all pregnant women and newborns, would result in a drop in maternal deaths from 308 000 to 84 000 (73%; figure 12). Newborn deaths would decline by a similar proportion from 2.7 million to about 538 000 annually.

These estimates are conservative because they do not include the effect of spacing births on infant survival and health, nor do they quantify the long-term benefits of these health improvements to families and societies. Moreover, the estimates include health system investments, such as improving facilities and boosting the health workforce. Such investments would strengthen health care more broadly, especially in rural areas where health burdens are often greatest and services are minimal.⁹⁹

Many large-scale studies have found that meeting women’s need for contraception, in particular, can have a large impact on maternal, infant, and child deaths^{279,280} and that it is a “best buy” among health interventions.^{281,282}

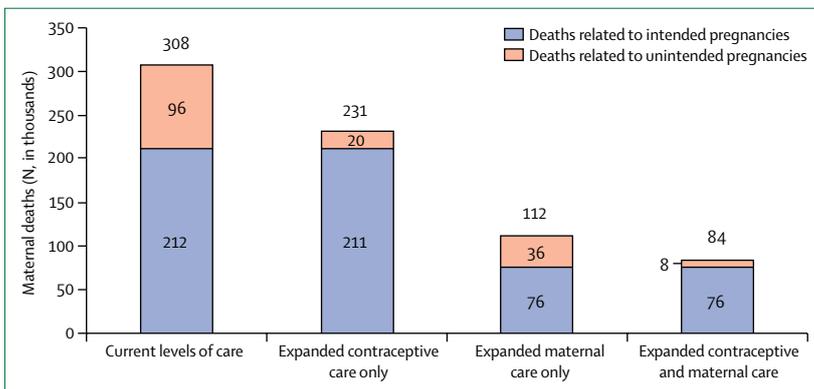


Figure 12: Maternal deaths in different scenarios of provision of modern contraceptive services and maternal and newborn health care, 2017
 Data from Darroch JE et al, 2017.²⁷⁸ Expanded care means 100% coverage for women in need of the specified services.

The global Disease Control Priorities Project²⁸³ identified family planning and maternal and newborn health interventions among the most cost-effective of all health interventions, with substantial social and economic benefits. The project found that improved access and quality of care around childbirth can generate a “quadruple return” on investment by saving maternal and newborn lives and preventing stillbirths and disability.

Social and economic gains from investment

Studies have also documented the non-health returns of SRHR for individuals and societies. A WHO study group created the Global Investment Framework for Women’s and Children’s Health in 2014, which aimed to estimate the social and economic benefits of providing contraceptive, maternal, newborn, and child health services in 74 low-income and middle-income countries, representing 87% of the population of developing regions.²⁸⁴ The study estimated an average benefit–cost ratio of 8·7:1 for all social and economic benefits, and projected this ratio to rise sharply to almost 39:1 by 2050 (using a 3% discount rate to account for future inflation).

The social and economic benefits of reduced fertility, which results in part from improved access to contraception, include gains in infant survival through healthier timing and spacing of births, children’s health, education, and wellbeing, women’s economic productivity, household income and savings, and GDP per capita. A review of evidence by Canning and Schultz,²⁸⁵ found that fertility declines lead to a boost in per capita income because of lower youth-dependency ratios and because of changes in the social and economic position of women that allow more of them to enter the formal labour force. Fertility declines can have long-term effects on economic growth when the next generation of healthier and better educated children enter the labour force. These effects, known as the demographic dividend (panel 7), could help fuel emerging economies, such as those in sub-Saharan Africa, if appropriate economic and social policies are in place.²⁸⁸

If SRHR investments were to include interventions to end child marriage, the effects could potentially be large. A study²⁸⁹ of the benefits of ending child marriage considered what total fertility would be if child marriage were to be eliminated (hypothetically in 2014) and childbearing delayed until after age 18 years. The social and economic benefits from delaying childbearing were estimated globally for 106 countries at US\$22 billion in 2015 and \$566 billion in 2030. The rapid increase in the benefits stems from the fact that the effects of child marriage and early childbirth on population growth are cumulative. The welfare benefits would accrue in large part to people living in poverty because they have high rates of child marriage and early childbirth.²⁸⁹

Additional benefits of investing in SRHR are potentially large and require further research. These include increasing the capacity of girls and women to make decisions about their own health and fertility,²⁹⁰ the effect

Panel 7: The demographic dividend

The demographic dividend refers to the opportunity for accelerated economic growth and development that arises from a change in the age structure of the population, provided that the appropriate policies are in place. When a large cohort of young people moves through adulthood and has fewer children than previous generations, a bulge in the working-age population results. When these adults have fewer people to support with the same income and assets, household and state resources can be redirected to invest in education and the economy. A virtuous cycle can result from having a larger, better-educated workforce with fewer children to support—children who will in turn be more educated and employable, provided countries maintain political stability, strengthen institutions, and have viable economic policies.²⁸⁶

In countries with a large proportion of the population of childbearing age, such as in sub-Saharan Africa today, a decline in births has the potential to profoundly affect the economy.²⁸⁷ Countries in Asia, Latin America, and north Africa that had these demographic shifts in earlier decades, invested in health and education and benefited from higher growth in gross domestic product. The countries that harnessed the demographic dividend improved health and education, attracted foreign investment, and enacted economic policies that helped create jobs, resulting in economic growth and reductions in poverty and inequality.²⁸⁴

of delaying childbearing to older than 20 years on women’s lifetime earnings,²⁹¹ and the potential effects of reduced population growth on strained natural resources.²⁹² Moreover, many SRHR outcomes are valuable to individuals and societies even if they are not quantifiable: fulfilling human rights, improving social equity, empowering women, and engendering more peaceful societies.

Investments in family planning and girls’ education are high on the list of proposed solutions to climate change because these investments increase gender equality, meet women’s expressed needs, and result in lower fertility, all of which benefit the planet as a positive side-effect.^{293,294} Some scientists have quantified the benefits of these two interventions by calculating the reduction in carbon emissions that would result from lower population growth brought about by meeting the global unmet need for contraception.²⁹⁴ These scientists acknowledge that countries with high fertility account for only a small share of carbon dioxide emissions; however, investing in girls and women is considered beneficial for all societies and for the planet.

Quantifying the costs of services

Programme planners need cost estimates for the full range of sexual and reproductive health services; however, most available data pertain only to the largest

	Total annual cost (US\$, in millions)	Annual cost per person (US\$)
Cost of current level of care		
Modern contraceptive use	\$6332	\$1.01
Maternal and newborn care*	\$23829	\$3.81
Abortion care†	\$1848	\$0.30
Total	\$32008	\$5.11
Cost of fully meeting needs for contraception, abortion, and maternal and newborn care at WHO-recommended standards		
Modern contraceptive use	\$12070	\$1.93
Maternal and newborn care*	\$40732	\$6.51
Abortion care‡	\$756	\$0.12
Total	\$53558	\$8.56
Major regions		
Africa	\$22348	\$17.93
Asia	\$24738	\$5.67
Latin America and the Caribbean	\$6472	\$9.99
Country income levels§		
Upper-middle and high	\$21771	\$8.30
Lower-middle	\$23001	\$7.76
Low	\$8786	\$13.05
Low and middle	\$51762	\$8.52

Data from Darroch JE, et al, 2017^{116,278} *Estimates apply to all pregnancy outcomes (ie, miscarriages, stillbirths, and livebirths) except abortion. Estimates do not include HIV testing or treatment for pregnant women and newborns. †Includes cost of obtaining abortions (safe and unsafe) and provision of care after abortion. ‡Assumes no change in abortion laws. §World Bank classifications according to 2015 gross national income per capita: low income is ≤US\$1025, lower-middle is \$1026–4035, and upper-middle and high-income is ≥\$4036. Estimates are higher than the previously published estimates in Singh S, et al, 2014,³⁹ mainly due to the updated salary estimates from WHO that have increased three-times from their 2005 estimates.

Table 5: Estimated total costs for contraception, maternal and newborn care, and abortion, developing regions, 2017

service categories: contraception, maternal and newborn care, post-abortion care, and HIV prevention and treatment. Less complete information is available for other STIs and for cervical cancer. Data gaps are greatest for services related to intimate partner violence, infertility, and men’s sexual and reproductive health, for comprehensive sexuality education, and for the service needs of especially vulnerable groups of people. We present global cost estimates for major service components with some regional comparisons, and we describe costing tools to assist national researchers and planners.

Contraceptive, maternal, and newborn care costs in 2017

Darroch and colleagues^{105,278} have compiled the latest comprehensive cost estimates of contraceptive, maternal, newborn, and abortion care. This study identified women’s met and unmet needs for these services, estimated the cost of satisfying all needs, and quantified the health benefits that would be attained by doing so.

The cost estimates include direct service costs (personnel and supplies) for the provision of modern contraceptive methods and pregnancy-related care for all pregnancy outcomes—livebirths, stillbirths, miscarriages, and abortions, along with care for newborns. The indirect costs (programmes and systems costs) of supporting these services are also included. The cost of HIV/AIDS prevention and treatment, also a major cost category of sexual and reproductive health services, is not included in this study.

The study’s estimates allow for a comparison of the cost of current coverage for selected services in 2017, with the cost of fully meeting the need for the services. The analysis sums the prices of inputs, which vary by region. The totals do not represent actual expenditures because this would require having national spending data for each service, which are not available for many countries. Total costs and expected outcomes are modelled based on existing evidence so that the costs and benefits of alternative scenarios can be compared. The analysis covers all developing regions, which include 96% of the population of low-income and middle-income countries.

Costs are shown in table 5 for two scenarios: current coverage of women receiving contraceptive and maternal and newborn care (for all pregnancy outcomes), for which the content typically does not meet WHO-recommended standards, and 100% coverage of women in need of these services with the content improved to meet WHO standards.

The annual cost of modern contraceptive services in developing regions—reflecting 671 million women using modern methods in 2017—was \$6.3 billion, including direct and indirect costs. Given that an estimated 214 million women had an unmet need for modern methods in 2017, meeting all women’s needs for improved, modern contraceptive care in developing regions—including current users and those with unmet need—would cost \$12.1 billion annually, or \$1.93 per person.

The cost nearly doubles to meet all 885 million women’s needs because of the increased number of women to be served, the improved care that all women (both current and new users) should receive, and because those with unmet need tend to be concentrated in regions, such as sub-Saharan Africa, that have weak health systems. Substantial investments in programmes and systems will be essential to ensure that current users continue using their methods correctly and that women who have an unmet need for modern methods can overcome barriers to using them. The investments include increasing the availability and adequacy of service sites, training health workers, expanding information and education efforts, strengthening management and supervision, and improving logistics to ensure continuous supplies of reproductive health commodities. Realistically, these extensive improvements might not be achieved within a year, however, some countries—eg, Rwanda⁶⁵ and

Malawi⁶⁶—greatly improved services and increased modern contraceptive use in a short time.

The cost in 2017 of providing health care to pregnant women (including those who have miscarriages, stillbirths, abortions, and livebirths) and to newborns is estimated at \$25.7 billion in developing regions (\$23.8 billion for maternal and newborn care and \$1.8 billion for abortion care). Fully meeting women's needs for both sets of services would cost \$53.6 billion, or \$8.56 per person in developing regions—a sum slightly lower than investing in improved pregnancy-related care alone. Investing simultaneously lowers costs because greater use of modern contraceptives averts unintended pregnancies and the cost of care associated with these pregnancies (maternal, newborn, and abortion care). In short, every additional dollar invested in contraception above the current level of services reduces the resources needed for pregnancy-related care by \$2.20 per person.

The average annual cost per person for meeting all women's needs for contraceptive and maternal and newborn care varies across regions and country-income categories. It is lowest in Asia and highest in Africa (table 5), in part because of higher indirect costs in Africa. The average for low-income and middle-income countries is \$8.52.

The additional investment needed to reach full coverage of contraceptive and maternal and newborn care is considerable, averaging a 67% increase in developing regions overall, but varying greatly by country-income category (figure 13). The increase is largest in low-income countries because unmet needs are highest and because their health systems require the most upgrades to reach all women in need of the recommended standards of care. The expected increase in Africa to fully meet women's needs for these services is \$12.69 per capita (reflecting an increase from \$5.24 to \$17.93). Countries would not be expected to achieve such increases immediately; rather, these modelled estimates are meant to highlight the size of the gap and the resources required to close it.

The increases shown are consistent with the magnitude of increase described in the SDG Health Price Tag,²⁷⁷ developed by WHO for 67 low-income and middle-income countries of which sexual, reproductive, and maternal and child health are part of the full range of health services costed. In the WHO analysis, if all countries achieve the SDG health targets by 2030 (gradually rather than all at once), total spending on health care in the final year would average \$271 per person (in 2014 US\$). About 75% of the increase for 2016–30 would be for health-system improvements, especially the addition of more trained health personnel, and expansion and improvement of health facilities. 85% of the costs could be met with domestic resources, although as many as 32 of the world's poorest countries would face funding gaps and require external assistance.²⁷⁷

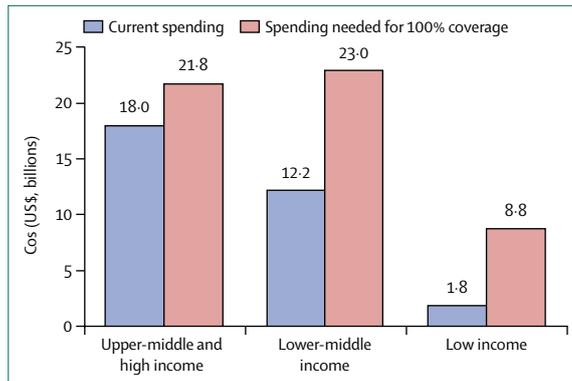


Figure 13: Increase in cost of care to reach full coverage of improved contraceptive, maternal, and newborn care, 2017

Data from Darroch JE et al, 2017.²⁸⁵ World Bank classifications based on gross national income, 2015: low income is \leq US\$1025, lower-middle is \$1026–4035, and upper-middle and high income is \geq \$4036. The data presented cover 96% of the population of low-income and middle-income countries.²⁹⁵

Even the poorest countries can move toward universal coverage; where clinical services are weak, progressive expansion of the package of services available is possible.²⁷⁷ Determining costs nationally requires context-specific analysis to assess SRHR health needs and the appropriate services to meet these needs. Strategic planning tools, such as the joint UN OneHealth Tool, can help assess costs for health strategies by linking service delivery targets to the required investments and anticipated effect on health.²⁹⁶ The tool links strategic objectives and targets of health programmes to the required investments in health systems, giving planners a framework for scenario analysis, costing, analysis of effect on health, and budgeting.

Investing in other components

HIV/AIDS costs are not combined with those modelled above because of different service structures, target populations, and estimation methods, and because countries have widely varying epidemiological profiles. A 2016 study²⁹⁷ by Stover and colleagues estimated the cost of rapid scale-up of key HIV prevention and treatment services to near-universal coverage, with the goal of reducing new HIV infections and AIDS-related deaths by 90% between 2010 and 2030. The estimates include biomedical (eg, HIV testing and antiretroviral treatment) and behavioural interventions (eg, to increase condom use and reduce the number of sexual partners), as well as enabling interventions such as cash-transfers to families to keep their girls in school (in countries with low female school-enrolment). Compared with the \$19.2 billion spent on the HIV/AIDS response in low-income and middle-income countries in 2014, an additional \$6 billion annually (totalling \$25.2 billion annually) would be needed by 2020 to achieve the goal of near-universal coverage.

A 2014 analysis⁹⁹ showed that the costs of treatment for the four major curable STIs (chlamydia, gonorrhoea, syphilis, and trichomoniasis) for all women in need of these services would be \$1.7 billion annually, but

\$356 million would be saved in treatment costs for women with pelvic inflammatory disease due to untreated chlamydia and gonorrhoea. This 2014 study also estimated that the annual cost of fully meeting the need for HIV-related care among pregnant women living with AIDS and their newborns would be \$4.2 billion.

Among other SRHR components, cervical cancer prevention is relatively inexpensive and would not require large additions to the core package of services presented here. A 2016 study²⁹⁸ by the Harvard School of Public Health (Boston, MA, USA) estimated costs of a gradual scale-up of comprehensive cervical cancer prevention in low-income and middle-income countries, to achieve full coverage by 2024 of various intensities. The minimal-intensity scenario, which involves HPV vaccination for all 10-year-old girls and once-in-a-lifetime screening and preventive treatment for women aged 35 years, for a 10-year period from 2015–24, would cost \$13.6 billion (of which \$8.6 billion would be for vaccination of 10 year-olds and \$5.0 billion would be for screening and treatment of 35 year olds). Screening and preventive treatment includes primary screening tests, diagnostic testing, and treatment of precancerous lesions with the use of low-cost technologies that have proven effective.

Although investments in education work in concert with health service investments, cost data are scarce on key interventions such as girls' education and comprehensive sex education. The available data indicate that the costs are not prohibitive, however. A 2011 UNESCO study²⁹⁹ of the costs and cost-effectiveness of sexuality education programmes in six countries found the programmes with low costs per student were those that were part of the school curriculum, had mandatory student enrolment, and were implemented on a large scale. For example, the additional cost of these programmes constituted only 0.5% in India, 0.2% in Estonia, and 0.1% of the expenditures per student in secondary education in the Netherlands.

Paying for care and closing gaps

Who pays for sexual and reproductive care? Out-of-pocket spending by individuals and households, along with international contributions, tend to be proportionally highest in poorest countries, whereas wealthier countries rely more on pooled funding—ie, government revenues and employer and employee contributions to health insurance. In most low-income and middle-income countries, maternal and child health care are given priority as part of the domestically funded service package.

External donor funding plays an important role in sexual and reproductive health services, particularly in countries with the highest health burdens. In 2013, overseas assistance for reproductive, sexual, and maternal and newborn health care was an estimated \$7.2 billion, or 30% of development assistance for health.³⁰⁰ However, maintenance of this amount of funding is not guaranteed and in any given country, donor funds can vary from year

to year,³⁰⁰ complicating the local planning and budgeting process and making long-term sustainability a crucial issue. In all countries, sexual and reproductive health services should be part of universal health coverage (panel 4), which entails expanding service provision and extending financial risk protection in the form of public or private insurance.

Evidence suggests that user fees, even when they are very low, could deter poor people from using preventive health care. Additionally, in places where men control the family's finances, women face the additional barrier of having to ask for money for their own sexual and reproductive health-care needs. Results from randomised controlled trials of user fees for preventive health products for pregnant women (eg, insecticide-treated bednets to prevent malaria infection and anaemia) showed that such fees reduced the proportion of individuals in need who received the intervention.³⁰¹ To move away from a dependence on these fees, countries must improve domestic tax policies and tax administration, relying to a greater degree on tax revenues to provide social protection for all. Such reforms are in line with the Addis Ababa Action Agenda,³⁰² the global framework for financing development after 2015.

Many low-income and middle-income countries have already embarked on such reforms. For example, Colombia introduced mandatory social health insurance with its Law 100 in 1993, which is funded through payroll contributions and general tax revenues and includes fully subsidised health care for the poor. Beneficiaries enrol with public or private insurers (health funds), have legal rights to a broad set of health benefits (expanded in 2017),³⁰³ and receive care from a mix of public and private providers. Since Law 100 was passed, improvements have been most pronounced among the poorest individuals and in the least-developed areas of the country. Insurance has been crucial for rural and poor families because it increases the likelihood of receiving antenatal care, of having a qualified provider attend a birth, of receiving care when ill, and of children receiving all their immunisations.³⁰⁴

A study³⁰⁵ of nine low-income and middle-income countries pursuing health-system reforms in Africa and Asia (Ghana, India, Indonesia, Kenya, Mali, Nigeria, the Philippines, Rwanda, and Vietnam), found that countries typically pursue universal health coverage in incremental steps. Although no single approach or path was taken in the nine countries, some common patterns emerged, such as the use of tax revenues to subsidise target populations and creation of large insurance pools to protect against health risks. All these countries have increased enrolment in government health insurance, expanded the package of benefits that people receive, and decreased out-of-pocket spending by households while increasing the government's share of total health expenditures. Other studies have shown that innovative financing schemes such as voucher programmes,

performance-based financing, social insurance programmes, and conditional cash transfers to families can improve sexual and reproductive health in a wide range of settings;³⁰⁶ therefore, these innovative interventions offer useful guidance that can be adapted for other settings.

The average investment per person per year of \$8·56, in 2017, for contraceptive, maternal and newborn care is manageable for most countries, when viewed from the perspective of current spending levels and projected trends of increased government spending on health in the next two decades.³⁰⁷ However, government spending on health in low-income countries is expected to fall short of internationally set targets for these countries; external assistance is likely to be needed to help countries make progress toward their sexual and reproductive health goals.

Given the high rates of return to sexual and reproductive health services and their centrality to achieving development goals, these services should be prioritised for additional domestic and donor-agency investments. Moreover, unless governments take an integrated approach to investing in SRHR rather than separate calls to action, fragmentation, duplication, and inefficiency around adolescent health, family planning, maternal and newborn health, gender-based violence, and HIV/AIDS is a real risk.

Section 6: Areas of action to improve sexual and reproductive health and rights

Advancing SRHR requires not only improvements in health care, but also changes in the enabling environment. Recognising the importance of contextual factors—global, national, and community—in influencing people's SRHR, this section describes five areas of action: (1) legal and policy reforms, (2) addressing social determinants of SRHR, (3) education and communications, (4) health systems, and (5) technology and innovation. The interventions we describe are illustrative of effective interventions; although they are not comprehensive, they reflect the complexity of SRHR and the wide range of possible strategies to meet people's needs. Changes in any single area are likely to be insufficient; most successful approaches to improving SRHR outcomes have used multipronged strategies.

Legal and policy reforms

A broad range of legal and policy reforms are crucial to improving women's SRHR. One essential reform is to broaden the grounds under which abortion is permitted. Abortion law reform paves the way to training providers in safe abortion care, ensuring access to safe methods and destigmatising the practice. In South Africa, where a liberal abortion law went into effect in 1997, the incidence of severe complications from unsafe abortions declined between two study periods, 1994 and 1999–2001, and the number of women who died due to abortion fell by 91%.¹⁶⁴ In Nepal, where a liberal abortion law went into effect in 2004, the proportion of abortion

complications that were severe dropped dramatically between 2001 and 2010.¹⁶⁵ And, in Mexico City, after first-trimester abortion became legal on demand in 2007, use of medication abortion and manual vacuum aspiration increased (method recommended by WHO), shifting away from the more invasive procedure, dilation and curettage.¹⁶⁶ In the public sector in Mexico City, medication abortion as a proportion of legal abortion procedures rose from 25% in 2007 to 83% in 2014.³⁰⁸

Other examples of legal reforms include the decriminalisation of consensual sexual relationships and the non-discriminatory provision of sexual and reproductive health services. In Peru, more than 10 000 young people successfully challenged the constitutionality of the criminalisation of consensual sex among teens, which had the effect of prohibiting preventive reproductive health services for adolescents. In 2012, the court ruled in their favour referring to international human rights law and the country's constitution (and the fact that many teens were already parents), and it declared that young people aged 14–18 years had a right to personal autonomy and self-determination regarding their sexuality.^{309,310}

Addressing social determinants

Community-level interventions can alter cultural and societal norms and practices that undermine and violate women's rights, including norms that place women at risk of gender-based violence.³¹¹ Examples of such interventions include awareness-raising campaigns, group training, peer education, and popular entertainment with educational content. A successful example of such a programme is SASA! in Uganda, which reduced the social acceptability of intimate partner violence among men and women and reduced the incidence of physical and sexual violence.³¹² Because of its proven impact (piloted with a clustered randomised controlled trial), it is now replicated in the control areas of Uganda and in 15 other countries. Other ways to alter gender norms include the direct engagement of men and boys to examine their attitudes and behaviours (section 4).

Another example is the use of monetary incentives for low-income families in the form of cash transfers, often conditioned on school attendance. This approach, in which national or local governments disburse funds directly to families to ensure their children stay in school and receive the health care they need, can be combined with other programmes, such as sexual and reproductive health education and adolescent-friendly services, to enhance their effectiveness in promoting positive behaviours.³¹³

Education and communications for social change

Some programmes harness the potential of the internet as a source of good information and a force for social change, and as a tool to counter the misinformation and negative stereotypes and behaviours that circulate widely. Websites such as Youth Health Talk, Love Matters, and It's Your Sex Life present accurate information on health topics in ways

For more on **Youth Health Talk** see <http://www.healthtalk.org/>

For more on **Love Matters** see <http://lovematters.in/en>

For more on **It's Your Sex Life** see <http://www.itsyoursexlife.com>

For more on **Girl Effect Mobile** see <http://www.girleffect.org/>

For more on **Everyday Sexism** see <http://everydaysexism.com/>

For more on **Futures without Violence** see <https://www.futureswithoutviolence.org/>

For more on **A Call to Men** see <http://www.acalltomen.org/>

For more on **MenEngage Alliance** see <http://menengage.org/>

that are accessible and appealing for young people. Girl Effect Mobile is designed to connect girls in developing countries with inspiring stories and advice to increase their self-esteem and ensure their health, safety, education, economic security, and rights.³¹³ Some communications efforts depict women and girls in leadership roles, question homophobic attitudes, and support open discussions about sexuality.²⁴⁵ Everyday Sexism depicts healthy, frank discussions about sexuality and creates a space for activism against sexism. Other websites, such as Futures Without Violence, A Call to Men, and MenEngage Alliance, promote healthy versions of manhood and engage young men in ending sexism.

Comprehensive sexuality education in schools is an evidence-based strategy that can bring about widespread change by providing hundreds of millions of children and adolescents with the knowledge and skills to navigate reproductive health, sexual health, and sexuality issues in adolescence and adulthood.²⁵⁰ Global, systematic reviews^{314–318} have shown that successful programmes improve knowledge and self-esteem, positively change attitudes, gender, and social norms, increase decision making and communication skills, delay sexual initiation, and increase contraceptive use. In terms of content, comprehensive sexuality education that builds skills, uses participatory teaching methods, and discusses gender, power, and rights is more likely to be associated with positive sexual and reproductive health outcomes than programmes that merely provide information.³¹⁶

Improving health systems

Closing gaps in the coverage and quality of sexual and reproductive health care will require a wide range of actions, including task shifting, integrating services, ensuring that supplies of medicines and commodities are adequate and that facilities are well-equipped, and improving quality.

Shifting tasks among health workers

Low-income and lower-middle-income countries face serious shortfalls of health workers relative to needs, and the shortages are projected to continue up to 2030 even as the global health workforce grows.³¹⁹ In the face of these shortages, robust evidence supports shifting some tasks from higher-level to lower-level health workers. WHO defines task shifting as, “to train cadres who do not normally have competencies for specific tasks to deliver them and thereby increase levels of health care access.”³²⁰ Reviews³²¹ of evidence have shown such an approach can be safe and effective. Access to contraceptives, for example, could be increased by shifting the provision of injectables and IUDs from doctors to midwives and auxiliary nurses, insertion and removal of implants from doctors to nurses, and vasectomy from doctors to associate clinicians.³²⁰ Another example is the valuable role that midwives have in maternal and newborn health care when they are integrated into a

team of health providers, with referral mechanisms and sufficient resources in place.³²²

Integrating services to avoid missed opportunities

Evidence shows that integrating health services can improve efficiency in the health system, increase people's access to a range of essential services, improve people's satisfaction with their care, and improve health outcomes.³²³ Moving away from the vertical administration of sexual and reproductive health services does not mean offering all services in one place, but ensuring that referrals and linkages work well and that services avoid missed opportunities. Many sexual and reproductive health conditions are connected along the life course and overlap at specific stages; thus, integrated services are better positioned to address multiple needs.

One example is providing contraceptive services as part of antenatal and post-partum care, and care after abortion. Unmet need for contraception is high during the extended post-partum period because some women believe they are not at risk of becoming pregnant.³²⁴ After an abortion, women also crucially need counselling about contraception. The methods offered to women (eg, post-partum IUD or implants, pills or injectables, or counselling on the lactational amenorrhea method), must consider women's preferences and their ability to use the methods effectively.³²⁵ Counselling post partum and after abortion have been associated with increased contraceptive use in low-income and middle-income countries, but implementation is far from universal despite guidelines in various countries mandating inclusion of contraceptive services in care after abortion.³²⁶ Additionally, programmes that integrate family planning with HIV services show evidence of increased use of contraceptive methods and decreased pregnancy rates among women living with HIV compared with programmes offering these services separately.^{327,328}

Reproductive health services commonly miss opportunities to screen women for cervical cancer despite proven, low-cost methods to screen for HPV infection and to treat women for precancerous lesions. Many lives could be saved simply by offering screening according to WHO guidelines at least once for all women aged 30–49 years, followed by immediate treatment with simple procedures, such as cryotherapy, which can be performed in an outpatient setting.²¹¹ Argentina, El Salvador, Guatemala, Honduras, and Nicaragua have made progress with the use of self-collected specimens for HPV testing. Some countries are now testing community tracking mechanisms to ensure that women who have screened positive return for treatment, and to record relevant indicators in national health information systems.²¹⁵

Ensuring consistent supplies of health commodities

Addressing gaps in supply chains for essential medicines, supplies, and equipment is also a key part of strengthening health systems; it requires global efforts to

reduce fragmentation and country efforts to improve forecasting, logistics management, and distribution. One global effort, the UN Commission on Life-Saving Commodities for Women and Children,³²⁹ identified 13 essential overlooked commodities that are low-cost and high-impact that could have the greatest effect in reducing preventable deaths in reproductive, maternal, newborn and child health. For example, in Latin America and the Caribbean, the creation of coordinating committees on contraceptive security has become an important mechanism for ensuring that health ministries continue to support contraceptive procurement and a functioning supply chain. To prevent stock-outs, many countries in this region have now fully taken over procurement of supplies from international donors and have introduced a specific line item in the national budget for purchasing them.³³⁰ This mechanism is instructive for other regions, particularly sub-Saharan Africa, where data show continued problems with stock-outs of contraceptive methods in health facilities, indicating persistent supply chain problems that merit urgent attention.³³¹

Fulfilling every person's right to high-quality care

High-quality care must be safe, effective, timely, efficient, equitable, and people-centred,³³² with all patients treated in a respectful and dignified manner. Documented evidence of the mistreatment of women during childbirth illustrates that abuse can occur at many different levels, from interactions with health providers to “systemic failures at the health-facility and health-system levels.”³³³

High-quality services rely on quality counselling, which, according to WHO, should be provided by trained professionals and be private, confidential, tailored to patients' needs, and free of judgment and coercion.³³⁴ Guidelines are available for the assessment of the quality of HIV counselling and testing,³³⁵ and a range of indicators can be used to track elements of quality in contraceptive services.³³⁶ With regard to maternal and newborn care, evidence shows that health-care audits, feedback mechanisms, training, and the use of checklists (ie, for delivery care) are effective approaches for improving health providers' performance and adherence to practice standards and, as a consequence, for improving maternal and newborn outcomes.³³⁴

The involvement of women's groups and others who represent users or clients of health services, and respect for their priorities and views, is another crucial element of ensuring quality of care. For example, the White Ribbon Alliance, a worldwide network for safe motherhood, has created awareness of government commitments to maternal health and has mobilised communities to hold governments accountable through community score cards, health facility checklists, and other community advocacy initiatives.³³⁷ Monitoring and review processes and reports must include or be linked to such accountability structures to ensure that the information generated and shared results in action.

Technology and innovation

Future innovations to provide better care for more people span the range of services covered in this report and are too numerous to describe here. A key area of innovation cutting across all elements of SRHR is digital technology—ie, content transmitted over the internet or computer networks, including text, audio, video, and graphics. The use of mobile phones and other digital media in health is often referred to as mHealth (short for mobile health). Digital media can overcome barriers to high-quality care encountered in traditional health services, such as long waiting times, a perceived or real absence of privacy or confidentiality, stigma, and provider biases. For providers, mHealth expenses are typically affordable, and text messaging is especially cost-effective.³³⁸

Receiving sexual and reproductive health information via mobile phones is especially appealing to young people because it is low-cost, convenient, and private. Systematic reviews,^{339–341} including reviews of randomised control trials, have found that delivering the information via mobile phones can improve knowledge, reduce sexual risk behaviour, increase use of health services, such as STI testing, and improve health outcomes among young people.

New developments in contraceptive technologies have the potential to expand choices of methods and the ways in which they are delivered, thereby addressing concerns about side-effects and other issues that discourage women from using a method. The Subcutaneous DMPA (Sayana Press, Pfizer, Kent, UK), for example, is an injectable contraceptive that combines the drug and a shorter needle in a device that can be administered with minimal training, including by self-injection.³⁴² Other contraceptive developments include new male contraceptive methods, both hormonal and non-hormonal, that address the large unmet need among men who want to control their fertility, and for women, vaginal rings that extend the period of pregnancy prevention from 1 to 3 months.³⁴³

Future innovations in STI and HIV control, in addition to vaccines, will involve multipurpose prevention technologies—products that can prevent more than one STI or prevent both pregnancy and STIs. Technologies under development include vaginal rings that protect against HIV and pregnancy, as well as vaginal gels that protect against HIV and other STIs.³⁴⁴ Despite the need for these technologies, their development has been hampered by insufficient private and public funding.

Finally, infertility care is an emerging field in global medicine that has the potential to reach far more people than are currently served with evidence-based and affordable solutions.²⁰⁵ The cost of assisted reproduction could be reduced with the use of a lower-cost drug protocol for ovarian stimulation, as well as simpler laboratory and culture systems for in-vitro fertilisation and embryo transfer.³⁴⁵ Although these procedures

typically require a sophisticated laboratory with expensive equipment such as incubators, researchers are testing the use of cheaper, substitute equipment (eg, putting petri dishes in warm baths) that could reduce laboratory costs dramatically.¹⁹⁰

Section 7: Implications and recommendations

SRHR are essential to human life and to overall health and wellbeing over the life course; therefore, SRHR must be an integral part of public health and development strategies. Apart from the intrinsic value of fulfilling individual rights and improving health, investing in SRHR is beneficial to societies because it strengthens families and helps increase prosperity. As this report has shown, people with the least social capital and least access to health care bear a disproportionate burden of poor sexual and reproductive health. Thus, a comprehensive approach is crucial; it must address gaps in health services as well as the social, cultural, economic, and gender barriers that prevent people from fully achieving SRHR, as defined earlier in this report.

To advance SRHR for all, the Commission makes the following recommendations to national, regional, and global policy makers, health practitioners, educators, and health and rights advocates.

Adopt and apply the comprehensive definition of sexual and reproductive health and rights in this report, with specific attention to sexual and reproductive rights

The definition of SRHR presented in this report (panel 3) is broad, inclusive, and based on human rights principles; it builds on international consensus agreements and technical guidelines that take a progressive approach to ensuring health and wellbeing. We recognise that governments are unlikely to negotiate and adopt a progressive global agreement on SRHR in the foreseeable future. Use of this definition by health policy makers and practitioners, educators, programme planners, non-governmental organisations, and activists will help advance a common agenda for SRHR, and doing so will advance progress toward sustainable development. Specific actions to accomplish the vision should be based on evidence of people's needs in each country and on proven and promising approaches, such as those described in this report.

A starting point for improving sexual and reproductive health and fulfilling related rights is speaking frankly and accurately about sexuality and reproduction. For too long, issues related to human sexuality have been omitted from public policy, left out of school curricula, and avoided in public discourse. Sufficient evidence exists, however, that identifies people's sexual and reproductive health needs and effective ways to address them, including the provision of an essential package of sexual and reproductive health interventions (panel 8). Additionally, SRHR encompasses more than merely

disease prevention; it includes the right to make decisions governing one's own body and to pursue a satisfying, safe, and pleasurable sexual life.

Support changes in laws, policies, and social norms and structures that enable all people to understand, protect, and fulfil their sexual and reproductive health and rights, and to respect the rights of others

Challenging gender norms, especially those that depict men as aggressive and dominant and women as sex objects who are vulnerable and dependent on men, is a shared responsibility that requires action from civil society organisations, educators, the media, and opinion leaders. The most extreme manifestation of these stereotypes and scripts is gender-based violence—for which laws and penalties might exist but are often not enforced. To promote gender equality is in society's best interest for many reasons—eg, achievement of a better educated populace and more productive workforce—in addition to curbing gender-based and sexual violence.

High-priority legal and policy reforms supporting SRHR include outlawing child marriage, promoting gender equality and women's autonomy, liberalising abortion laws, and prohibiting discrimination against people with diverse sexual orientations and gender identities and expression. Laws and policies must support the right of all individuals to decide whether, when, and whom to marry, and the right to access services that protect reproductive choice. Protecting and fulfilling SRHR for all includes supporting the rights of infertile and same-sex couples to start families, which might require reforms in laws and regulations related to infertility treatment, adoption, and surrogacy.

Enforcement of civil laws is a crucial issue because customary laws and practices might continue to perpetuate violations of individual rights even when the legal system supports SRHR. To counter opposition based on long-standing customs and beliefs, sexual and reproductive health advocates must work in local communities to engage parents, teachers, and community and religious leaders. Respecting cultural and religious values is important, but these values should not be used to justify denying people their rights. A continuation of the status quo would mean that human rights violations, such as child marriage, female genital mutilation, intimate partner violence, and sexual coercion and violence, will persist, along with major inequalities in health and access to health care.

To move the SRHR policy agenda forward, advocates and policy makers should bring scientific evidence to legislative and other policy debates, including those taking place in courts. Activists and lawyers should use and build on existing international comparable legal standards whenever possible, to argue cases regarding individuals' rights to SRHR whether it be for quality

maternal health care, abortion, or treatment for HIV/AIDS. Scientists can also contribute to legislative and policy debates, providing relevant data and citing results from national or international studies that document the need for sexual and reproductive health services and support feasible solutions.

Progression of norms and values to reduce negative taboos and stigma around SRHR is important to improving health. Many information and education campaigns and community programmes have worked to do so (see previous section). Programmes must give special attention to individuals who are most vulnerable to discrimination and social exclusion, so that no one is left behind in efforts to improve health.

Progressively expand access to an essential, integrated package of sexual and reproductive health interventions, ensuring that the needs of vulnerable and marginalised populations are addressed

Building on the vision for SRHR and evidence presented here, this Commission recommends that every country provide an essential package of sexual and reproductive health interventions, consistent with those recommended by WHO¹⁸ (panel 8). This package aligns with the Commission's comprehensive definition of SRHR (panel 3) and the specific needs and service gaps identified, for which proven and effective interventions exist. Services must be provided in ways that respect human rights, global medical ethics (as defined by WHO), and public health standards.

Because national health systems are at various stages of development, countries might require a step-wise approach, in which they determine their priorities for the short term while making institutional reforms to lay the foundation for future progress. Participatory and transparent policy discussions about which interventions to add, in which order, are crucial for defining an appropriate package.³⁴⁶ Priorities must be set and trade-offs are inevitable, but equity should be a core value³⁴⁷—ie, countries should work towards guaranteeing an essential package for the entire population and ensuring that people and communities receive the services they need without financial hardship. Financial risk protection is a key principle of universal health coverage; it can be achieved through a combination of subsidies and pooled funding for health services.

Health ministries and service providers should consider the points of entry for health care and how best to integrate sexual and reproductive health interventions with other health-care services, with a goal of bundling services to avoid missed opportunities. Examples include integrating HIV/STI prevention with other sexual and reproductive health services, including contraceptive services in post-partum and post-abortion care, and ensuring that women older than 30 years receiving sexual and reproductive health care are also screened for cervical cancer.

Panel 8. Essential package of sexual and reproductive health interventions

- Comprehensive sexuality education
- Counselling and services for a range of modern contraceptives, with a defined minimum number and types of methods
- Antenatal, childbirth, and postnatal care, including emergency obstetric and newborn care
- Safe abortion services and treatment of complications of unsafe abortion
- Prevention and treatment of HIV and other sexually transmitted infections
- Prevention, detection, immediate services, and referrals for cases of sexual and gender-based violence
- Prevention, detection, and management of reproductive cancers, especially cervical cancer
- Information, counselling, and services for subfertility and infertility
- Information, counselling, and services for sexual health and wellbeing

Innovative information campaigns, through traditional media, the internet, and social media channels, should be used to communicate accurate information about sexual and reproductive health; dispel myths and misperceptions about modern contraception, HIV/AIDS, and reproductive cancers; and address stigma around adolescent sexuality, abortion, sexual orientation, and gender identity and expression. Digital media (ie, mobile phones, tablets, and personal computers) should be exploited to increase people's access to accurate information. Even one-on-one counselling can take place via digital media, bridging service gaps in remote areas that might not have been possible years ago.

Health systems and health-care providers must provide counselling at all health facilities that offer contraceptives. Such counselling should include information about contraceptive methods and other SRHR issues relevant for the individual, such as STIs, HIV, cancers, pregnancy, and childbirth. The counselling that women receive should also be offered to men and couples wherever feasible, respecting individuals' rights to confidentiality and privacy. Counselling should also be available and appropriate for adolescents, respecting their need for confidentiality.

Global and national health programmes should take full advantage of new sexual and reproductive health technologies that have proven effective, such as self-administered contraceptive injections, medication abortion in primary-level facilities, and low-cost approaches for the prevention of cervical cancer. Multipurpose methods to prevent pregnancies and STIs are also promising. The global health community should advocate these and other technologies as having the potential to improve SRHR and should support their

research and development. However, not all change will occur in the public sector; partnerships with the private sector will be key to technological innovation and service delivery.

Secure sustainable domestic and international financing to achieve full access to the essential sexual and reproductive health package

To satisfy unmet need for a package of contraceptive, abortion, maternal, and newborn health services, including information, education, and counselling, our analysis shows that a minimum global investment of US\$54 billion is needed in low-income and middle-income countries. The total amounts to only \$9 per capita annually, an affordable amount given what most countries spend on health each year from all sources—eg, out-of-pocket payments, pooled funding (insurance), and government revenues. These investments represent good value for money considering the dividends that can be reaped from high-quality sexual and reproductive health care and improved SRHR outcomes.

For these gains in service provision to be achieved, health systems need sustainable and predictable financing. Given that countries are in different stages of development and have varying abilities to invest, ministries of health and finance must make essential sexual and reproductive health services a joint priority and ensure they are included in national health budgets. Based on an approach that covers everyone but favours the poor, out-of-pocket payments should be minimised for the defined benefit package, including essential sexual and reproductive health services.³⁴⁸ Sustainable funding can be achieved through a combination of domestic tax revenues and insurance mechanisms, described briefly in this report. In countries with insufficient resources to guarantee essential health services or financial risk-protection for the poor, international donors and development partners must continue to provide support. Also, in low-income countries, ensuring multiple streams of funding, including domestic resource mobilisation, can protect against sudden changes in policy or funding from a single donor.

National governments and donor agencies should ensure that the essential components of SRHR continue to be explicitly included in the financing frameworks for global development initiatives, such as the SDGs and universal health coverage, the Global Strategy for Women's, Children's and Adolescents' Health,²⁷⁷ and the World Bank's Global Financing Facility.

Take action on components of sexual and reproductive health and rights often neglected in programme implementation, but which impact large numbers of people

The global health community and national policy makers must devote greater attention to SRHR issues and service components affecting large numbers of people and for which the intensity of need is great, the potential benefits

extend beyond the affected group and over time, and for which evidence of effective approaches exist. Specific issues that meet these criteria and that are often overlooked or underfunded include safe abortion services, comprehensive sexuality education and sexual and reproductive health services for adolescents, prevention and treatment of gender-based violence, and engaging men as partners in SRHR.

Provide access to safe abortion services and liberalise abortion laws where necessary

Evidence shows that legal restrictions on abortion do not reduce the occurrence of abortions; abortion rates are essentially the same in countries where the procedure is prohibited as in countries where it is available on request. Where abortion is illegal, however, it is usually less safe. Given that more than 40% of pregnancies worldwide are unintended, and nearly 60% of these end in induced abortion, this issue is far too large for policy makers to ignore.

A starting point in abortion care is to ensure that safe abortion services are available and accessible to the full extent permissible by law, that care for complications of unsafe abortion is available, that these services are comprehensive and of high quality, and that women who obtain an abortion or providers are not punished. In the long term, legal and policy reforms must be enacted that broaden the criteria under which an abortion is allowed.

Ensure adolescents have access to sexual and reproductive health information and services without discrimination

With recognition that health-related attitudes and behaviours are formed early in life, all countries should establish national curricula for comprehensive sexuality education based on evidence and drawing from international technical guidance. Such guidance is available to education ministries and school systems to assist in building a culturally relevant and age-appropriate curriculum in primary and secondary schools.³⁴⁹ Sex education programmes must do more than increase knowledge; they should include strategies to increase gender equality. Successful programmes include developing skills to empower people to enter healthy relationships and protect their health. In the face of opposition to sex education, educators and advocates should use evidence from rigorous programme assessments to dispel the myth that teaching young people about sexuality increases sexual promiscuity and risk-taking.³¹⁷

Adolescents must have access to SRHR information and services regardless of their age or marital status. Political leaders must acknowledge and accept that consensual sexual activity occurs among unmarried young people, that they do need information about sexual and reproductive health, and that services must be

available to them to protect their health and improve health outcomes. Given the harmful gender stereotypes and false information circulating on the internet today, it is in the interests of parents, educators, and policy makers to provide accurate information to adolescents before and as they begin their sexual and reproductive lives.

Address sexual and gender-based violence through policies, services, and prevention programmes

Global health programmes working to end sexual and gender-based violence are rapidly developing an evidence base, finding approaches that work, and using the evidence to take such approaches to scale and embed them in institutions and policies. Providers can take immediate and crucial steps to respond to women who have experienced violence.⁸⁷ Prevention of violence in the first place is also important and will require long-term efforts that overlap with changes previously described in the enabling environment for SRHR. Prevention programmes must address the risk factors for violence and, along with empowering women and girls, engage men, boys, and communities in changing the social norms regarding masculinity that can drive sexual and gender-based violence.

Engage men to support women's health, rights, and autonomy, and address the sexual and reproductive health and rights of men

Programmes should engage men to become supportive partners in SRHR while protecting women's autonomy in sexual and reproductive decision making. Investment in men's SRHR does not necessarily take away from women's SRHR; more recent relational approaches seek to understand and address the needs of both women and men. Comprehensive sexuality education and other information and education activities can help to redefine masculinity and femininity, combat violence, and promote healthier and more equitable behaviours, beginning at a young age. Additionally, investment should increase in the development and promotion of male contraceptive methods—eg, condoms, vasectomy, and male hormonal methods—to increase shared responsibility for pregnancy prevention. Equality in reproduction also implies that men should be informed partners in maternal and child health care, and that they should be encouraged and held accountable to do their share of unpaid care in the home.

Men are often socialised in ways that discourage them from acknowledging or discussing sexual and reproductive health problems; therefore, they might avoid seeking health care for fear of appearing weak or vulnerable. Also, they might avoid primary health-care clinics that are perceived to serve mainly women and children. Health policies and programmes must proactively engage men in SRHR services, whether it be to use male contraceptive methods, to seek STI and HIV

testing and treatment, or to support their partners' use of these services. Many promising programmes have been piloted to increase men's involvement in their own and their partners' SRHR, but they must be introduced and brought to scale in more countries.

Provide additional support to groups often marginalised, disadvantaged, and subject to discrimination

SRHR programmes and services must pay special attention to the needs of vulnerable and marginalised people to improve equity and help those least able to access services. These populations vary from one country to another and include those who are often hardest to reach, such as the poorest people in remote rural areas or in slums, racial and ethnic minorities, people with disabilities, sex workers, people who inject drugs, street children, and migrant populations. We highlight two groups below for whom evidence shows services falling well short of needs.

Protect the sexual and reproductive health and rights of displaced and refugee populations and strengthen services in humanitarian settings

Internally displaced people and refugees living in fragile and potentially volatile settings face a particularly high risk of sexual and gender-based violence, HIV and other STIs, and unintended pregnancy. Therefore, they need access to a wide range of sexual and reproductive health services that meet minimum standards of quality, starting with the more commonly provided services and including other components, such as care for survivors of sexual violence, treatment for STIs and safe abortion care. The best ways to deliver these services might be context-specific, but international guidance (the Minimum Initial Service Package) is available for setting priorities, managing reproductive health supplies, and training providers on SRHR in crisis settings.²⁷¹ Community outreach is also essential because stigma, discrimination, and violence in these settings can inhibit the use of sexual and reproductive health services.

Acknowledge and address the sexual and reproductive health and rights of people with diverse sexual orientations, gender identities and expression, and sex characteristics

Around the world, LGBTIQI people face persistent discrimination—sometimes legally sanctioned and sometimes violent. These individuals suffer from higher rates of unintended pregnancies, HIV, other STIs, violence, and mental health conditions than the general population, and many individuals are reluctant to seek care or reveal information about their sexuality to health-care providers. SRHR policies and programmes must acknowledge and respond to their needs, both to protect their human rights and to address urgent health conditions. In this neglected area, research is crucial to learn more about the health needs of specific subpopulations and effective programmes and services to meet these needs.

Address evidence gaps and prioritise sexual and reproductive health and rights research needed for policy and programme decision making

This report identified several populations having heightened or neglected SRHR needs but did not discuss them in detail because of a paucity of evidence. More representative survey data is needed on these groups: adolescents aged 10–14 years, adolescent boys, street or slum children, men of reproductive age, women and men aged 50 years and older, people with disabilities, sex workers, people who inject drugs, LGBTQI individuals, refugees and migrants, and people living in areas of conflict. Much of the research in SRHR focuses on women of reproductive age—especially those who are married—and on their most common needs for contraceptive and maternal health services.

Because behaviours such as intimate partner violence, non-partner sexual violence, and abortion are usually hidden from public view, approaches are needed to improve the quality and comparability of data and evidence on prevalence, consequences, and service needs. Additionally, more research is needed to assess how best to prevent intimate partner violence rather than merely respond to it, how to prevent sexual violence during and after conflict, and how to take effective programmes to scale.

To strengthen other SRHR programmes and services that have received insufficient attention, in-depth and evaluation studies are needed on the quality, availability, and effect of comprehensive sexuality education programmes; on how to engage men to a greater degree in SRHR in ways that respect women's autonomy; on screening, diagnosis, and management of STIs other than HIV; and on low-cost approaches for preventing and treating infertility, and cervical and breast cancer. Technological advancements will continue to be important for improving sexual and reproductive health; therefore, investments in research and development must continue, with attention given to how new technologies effect people's behaviour.

A key component of SRHR for which the global health literature is sparse is sexual wellbeing and pleasure. Development of interventions related to sexual function and satisfaction is also greatly needed, given the almost total absence of these services in many parts of the world. Most programmes view sexual health from a disease perspective and educate people about how to avoid harmful consequences of sex rather than how to live a fulfilling sexual life. To develop more positive programming, researchers could start by undertaking research to measure and understand the magnitude of need for information, counselling, and services in this area.

In coming years, health and development policies and programmes must increasingly address the causes and consequences of climate change. In low-income and middle-income countries, the complex interconnections

among population growth and migration, SRHR, and climate change must continue to be studied, with a focus on protecting the rights of poor and marginalised populations.

Efforts should also be undertaken to improve the measurement of sexual and reproductive health through health management information systems, vital registration, and programme assessments. In addition to research, these activities help fill knowledge gaps, identify priorities, adjust programmes, and ensure accountability.

Strengthen and use accountability processes at all levels to ensure that sexual and reproductive health and rights goals and commitments are realised

The Commission recognises that frameworks for monitoring and assessing SRHR programmes and services already exist as part of several global health initiatives launched since 2010 (appendix). Thus, we do not recommend a new SRHR-specific monitoring framework or set of goals and targets. At the very least, government health ministries should ensure that commitments are honoured with the use of frameworks developed under the 2030 Agenda for Sustainable Development, the Global Strategy for Women's, Children's and Adolescents' Health, Ending Preventable Maternal Mortality, Every Newborn Action Plan, Countdown to 2030, Family Planning 2020, and the WHO monitoring of progress toward universal health coverage.

Indicators used by these global initiatives include some of the key components of care covered in this report: sexual and reproductive health care for adolescents; detection of intimate partner violence; prevention, detection, and management of HIV and other STIs; contraceptive services; maternal and newborn care; and screening for cervical cancer. However, they fall short in substantial ways. Few or no targets exist that are related to men's SRHR, safe abortion, infertility, and other reproductive cancers, or that address the needs of people of diverse sexual orientations and gender identities and expression. National policy makers and partner organisations working on SRHR programmes should collaborate to expand the agenda to include a broader set of services, covering people's SRHR needs over the life course and including people often missed in traditional service settings.

The official adoption of a defined package of health services that includes comprehensive SRHR is a clear commitment that helps promote accountability. Once a part of national laws and government health policy, people have the right to receive the services (at certain standards of care) and seek recourse if they cannot obtain them.

Human rights monitoring bodies are another mechanism for promoting action. Since human rights principles and conventions underlie SRHR, states that have signed and ratified the conventions are obligated to implement them through domestic laws, policies, budgets, and judicial decisions—or they can be held

accountable in a court of law. Consensus agreements, such as the SDGs, and technical documents, such as the Global Strategy for Women's, Children's and Adolescents' Health, do not have the same legal standing as treaties and conventions, but they serve as guidance for governments worldwide and as sources of leverage for health, development, and rights advocates.

A culture of accountability is important because what is not counted often does not count, and therefore does not get done. A culture of care and a culture of respect are important for the protection of all people's rights. Ideally, national leadership at the highest levels, including heads of state, will support the realisation of SRHR for all. National governments, in turn, must hold local communities accountable for upholding individual rights and implementing global standards for medical ethics and public health. Where opposition to specific rights or services exists, or where services do not meet acceptable standards, advocacy by civil society organisations, backed by UN agreements and human rights treaties, will be essential.

Accelerating progress toward 2030

This Guttmacher–*Lancet* Commission presents a bold vision for advancing SRHR beyond the boundaries that politics, funding, and existing programme structures have imposed to date. It draws its inspiration from the international consensus reached more than 20 years ago at the ICPD and places the discussion of SRHR in the current context, using the latest evidence on needs and service gaps.

Mobilisation of women's and human rights groups and engaging adolescents, men, and health activists will be essential for moving the SRHR agenda forward. Just as civil society groups spearheaded the SRHR and HIV/AIDS movements in the 1990s and 2000s, they should feature prominently in future efforts, especially in sensitive areas of SRHR that governments are reluctant to address. Civil society organisations will need to advocate for change and hold governments and other implementing organisations accountable for promises made and obligations incurred.

The unfinished agenda is large, yet the rapid pace of technological change, the health, education, and economic gains of the past 20 years, and the renewal of global development goals give hope that progress in achieving universal access to SRHR is possible. Inclusive and equitable progress is only possible, however, if attention is also given to the protection of human rights for all.

Contributors

The Guttmacher–*Lancet* Commission on Sexual and Reproductive Health and Rights was led by the Guttmacher Institute, the African Population and Health Research Center, and *The Lancet*. AMS and ACE were co-chairs of the Commission. All authors contributed to the overall structure and concepts. LA, AMS, SS, AEB, AP, and CS (the writing team) prepared the first draft. SS, AB, and AP assessed and compiled data and evidence, and the writing team met regularly during the Commission. All authors reviewed the first, subsequent, and final drafts of the report, developed conclusions and recommendations, and approved the final submission.

Declaration of interests

We declare the work for the Guttmacher–*Lancet* Commission on Sexual and Reproductive Health and Rights was supported by the Dutch Ministry of Foreign Affairs (The Hague, Netherlands), UK Aid from the UK Government (London, UK), the Norwegian Agency for Development Cooperation (Oslo, Norway), The William and Flora Hewlett Foundation (Menlo Park, CA, USA), the Swedish International Development Cooperation Agency (Stockholm, Sweden), the German Federal Ministry for Economic Cooperation and Development (Bonn, Germany), and The David and Lucile Packard Foundation (Los Altos, CA, USA). KS and LS are employees of WHO; the authors alone are responsible for the views expressed in this report and they do not necessarily represent the decisions, policy, or views of WHO. All authors declare no competing interests.

Acknowledgments

This report was made possible by support to the Guttmacher Institute from the Dutch Ministry of Foreign Affairs, UK Aid from the UK Government, the Norwegian Agency for Development Cooperation, The William and Flora Hewlett Foundation, the Swedish International Development Cooperation Agency, the German Federal Ministry for Economic Cooperation and Development, and The David and Lucile Packard Foundation. Funding covered travel, accommodation, and meals for three meetings of the Commission. The funding also supported writing, research assistance time, and coordination of the final report. The findings and conclusions in this report are those of the authors and do not necessarily reflect positions and policies of the donors. The project secretariat, housed in the Guttmacher Institute, included Alanna J Galati, who contributed valuable input to the Commission, and Tanwa Onabanjo-Edge, who provided administrative support. Special recognition goes to the research teams at the Guttmacher Institute, African Population and Health Research Center (APRHC), and WHO who contributed to the content of the report: Vanessa Woog (Guttmacher Institute) and Caroline Kabiru (APRHC) on adolescent sexual health; Akinrinola Bankole, Rubina Hussain (Guttmacher Institute), and Chimaraoke Izugbara (APRHC) on men's sexual and reproductive health; Joyce Mumah (APRHC) on contraceptive services; Sophia Chae (Guttmacher Institute) on gender-based violence; Gilda Sedgh (Guttmacher Institute) on safe abortion; Estelle Sidze (APRHC) and Sarah Keogh (Guttmacher Institute) on information, education, and counselling; WHO colleagues on reproductive cancers; Chelsea Polis (Guttmacher Institute) and Abdhalah Ziraba (APRHC) on infertility; and Jacqueline Darroch and Elizabeth Sully (Guttmacher Institute) on estimates of the costs of sexual and reproductive health services. We thank Amanda Berry, Kate Castle, Shivani Kochhar, Grant Kopplin, Rachel Murro, and Tsuyoshi Onda for their research assistance and support to the authors and research teams. We thank Devan Martin and Lou Guzik for developing the Commission website, and Haleigh Kent-Bryant for editing and maintaining the site content. Additional thanks to Michael Moran, the graphic designer who created the graphics for the report. We thank the members of the Advisory Group who provided insights and feedback on the report: Kathryn Anderson, Ipas; Björn Andersson, UNFPA; Anneka Knutsson, UNFPA; Edith Asamani and Ankit Gupta, Women Deliver Young Leaders; Divya Bajpai, International HIV/AIDS Alliance; Carmen Barroso, Independent Accountability Panel; Julia Bunting, Population Council; Helena Choi, William and Flora Hewlett Foundation; Althea Anderson, William and Flora Hewlett Foundation; Lana Dakan, David and Lucile Packard Foundation; Suzanne Ehlers, PAI; Pia Engstrand, Swedish International Development Cooperation Agency; Beth Fredrick, Johns Hopkins Bloomberg School of Public Health; Helga Fogstad, Partnership for Maternal, Newborn & Child Health; Pape Gaye, IntraHealth International; Kate Gilmore, Office of the United Nations High Commissioner for Human Rights; Lambert Grijns, Ministry of Foreign Affairs of the Netherlands; Stuart Halford, Sexual Rights Initiative; Catherina Hinz, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH; Yilma Melkamu, International Planned Parenthood Federation; Will Niblett, UK Department for International Development; Rose Oronje, African Institute for Development Policy; Nina Strøm, Norwegian Agency for Development Cooperation; and Sivananthi Thanenthiran, ARROW. We also thank the peer reviewers who provided useful feedback on the earlier submissions of the Commission to *The Lancet*.

References

- 1 UN Population Fund. Programme of action adopted at the International Conference on Population and Development, Cairo, Sept 5–13, 1994. New York, NY: United Nations Population Fund, 2004.
- 2 Cepal N. Montevideo consensus on population and development, 2013. <http://repositorio.cepal.org/handle/11362/40336> (accessed Sept 18, 2017).
- 3 UN. Transforming our world: the 2030 agenda for sustainable development. A/RES/70/1. New York, NY: United Nations, 2015.
- 4 Committee on Economic, Social and Cultural Rights. General comment no. 14: the right to the highest attainable standard of health (Art. 12). Aug 11, 2000. <http://www.refworld.org/docid/4538838d0.html> (accessed Sept 12, 2017).
- 5 Committee on Economic, Social and Cultural Rights. General comment no. 22 (2016) on the right to sexual and reproductive health (article 12 of the International Covenant on Economic, Social and Cultural Rights). <https://www.escr-net.org/resources/general-comment-no-22-2016-right-sexual-and-reproductive-health> (accessed Sept 12, 2017).
- 6 Office of The United Nations High Commissioner for Human Rights. Special rapporteur on the right to health. <http://www.ohchr.org/EN/Issues/Health/Pages/SRRRightHealthIndex.aspx> (accessed Aug 30, 2017).
- 7 UN Population Fund, Center for Reproductive Rights. ICPD and human rights: 20 years of advancing reproductive rights through UN treaty bodies and legal reform. June, 2013. <http://www.unfpa.org/publications/icpd-and-human-rights> (accessed July 24, 2017).
- 8 McIntosh C, Finkle J. The Cairo conference on population and development: a new paradigm? *Popul Dev Rev* 1995; 21: 223–60.
- 9 Germain A, Kyte R. The Cairo consensus: the right agenda for the right time. New York, NY: International Women's Health Coalition, 1995.
- 10 UN. Beijing declaration and platform for action. New York, NY: United Nations, 1995: 93–97.
- 11 Starrs A, Anderson R. Definitions and debates: sexual health and sexual rights. *Brown J World Aff* 2016; 22: 7–23.
- 12 Crossette B. Reproductive health and the Millennium Development Goals: the missing link. *Stud Fam Plann* 2005; 36: 71–79.
- 13 Galati A. Sexual and reproductive health and rights in the context of the Sustainable Development Goals. *Guttmacher Policy Rev* 2015; 18: 77–84.
- 14 African Union. Maputo plan of action 2016–2030 for the operationalisation of the continental policy framework for sexual and reproductive health and rights. Addis Ababa: African Union, 2015. <https://www.au.int/web/en/document/maputo-plan-action-2016-2030-operationalisation-continental-policy-framework-sexual-and> (accessed July 24, 2017).
- 15 UNESCAP. Report of the sixth Asian and Pacific population conference. Bangkok: United Nations Economic and Social Commission for Asia and the Pacific, 2014.
- 16 WHO, Regional Committee for Europe. Action plan for sexual and reproductive health: towards achieving the 2030 agenda for sustainable development in Europe—leaving no one behind. 2016. <http://www.euro.who.int/en/health-topics/Life-stages/sexual-and-reproductive-health/publications/2016/action-plan-for-sexual-and-reproductive-health-towards-achieving-the-2030-agenda-for-sustainable-development-in-europe-leaving-no-one-behind-2016> (accessed July 26, 2017).
- 17 WHO. Defining sexual health: report of a technical consultation on sexual health. Geneva: World Health Organization, 2002.
- 18 WHO. Sexual health and its linkages to reproductive health: an operational approach. Geneva: World Health Organization, 2017.
- 19 World Association of Sexology. Declaration of sexual rights. 2014. http://www.worldsexology.org/wp-content/uploads/2013/08/declaration_of_sexual_rights_sep03_2014.pdf (accessed Feb 11, 2016).
- 20 UN Department of Economic and Social Affairs, Population Division. Report on the forty-fifth session (April 15, 2011 and April 23–27, 2012). Resolution 2012/1 adolescents and youth. New York, NY: United Nations Economic and Social Council Official Records, 2012.
- 21 Chou D, Cottler S, Khosla R, Reed GM, Say L. Sexual health in the International Classification of Diseases (ICD): implications for measurement and beyond. *Reprod Health Matters* 2015; 23: 185–92.
- 22 UN Population Fund, Population council. Planning and implementing an essential package of sexual and reproductive health services. New York, NY: United Nations Population Fund, 2011. <http://www.unfpa.org/resources/planning-and-implementing-essential-package-sexual-and-reproductive-health-services> (accessed Aug 30, 2017).
- 23 UNESCO. Puberty education and menstrual hygiene management. Paris: United Nations Educational, Scientific and Cultural Organization, 2014.
- 24 UN Women. Elimination and prevention of all forms of violence against women and girls. 2013 commission on the status of women agreed conclusions. New York, NY: United Nations Women, 2013.
- 25 The African Union Commission. Plan of action on sexual and reproductive health and rights (Maputo plan of action). Addis Ababa: African Union, 2006.
- 26 WHO. Leading the realisation of human rights to health and through health: report of the high-level working group on the health and human rights of women, children and adolescents. Geneva: World Health Organization, 2017.
- 27 Miller A. Sexuality and human rights—discussion paper. Vernier: International Council on Human Rights Policy, 2009.
- 28 WHO. The right to health. Joint fact sheet WHO/OHCHR/323. August, 2007 http://www.who.int/mediacentre/factsheets/fs323_en.pdf (accessed Nov 13, 2016).
- 29 Office of The United Nations High Commissioner for Human Rights. Joint statement by UN human rights experts*, the rapporteur on the rights of women of the inter-american commission on human rights and the special rapporteurs on the rights of women and human rights defenders of the African commission on human and peoples' rights. <http://www.ohchr.org/EN/NewsEvents/Pages/DisplayNews.aspx?NewsID=16490&LangID=E> (accessed Sept 24, 2015).
- 30 Hudson VM, Ballif-Spanvill B, Caprioli M, Emmett CF. Sex and world peace. New York, NY: Columbia University Press, 2012.
- 31 UN DESA. Population division. World population prospects: the 2017 revision. New York, NY: United Nations Department of Economic and Social Affairs, 2017.
- 32 The Demographic and Health Surveys Program. Special tabulations by the Guttmacher Institute of the Demographic and Health Surveys. <https://dhsprogram.com/> (accessed Sept 23, 2016).
- 33 Graham W, Woodd S, Byass P, et al. Diversity and divergence: the dynamic burden of poor maternal health. *Lancet* 2016; 388: 2164–75.
- 34 Chandra A, Copen CE, Stephen EH. Infertility service use in the United States: data from the National Survey of Family Growth, 1982–2010. *Natl Health Stat Rep* 2014; 73: 1–21.
- 35 UN High Commissioner for Refugees. Global trends: forced displacement in 2016. Geneva: The United Nations Refugee Agency, 2016.
- 36 UN Population Fund. State of world population 2015—shelter from the storm: a transformative agenda for women and girls in a crisis-prone world. New York, NY: United Nations Population Fund, 2015.
- 37 Plan International. Counting the invisible: using data to transform the lives of girls and women by 2030. Woking: Plan International, 2016.
- 38 The Lancet. Sexual and reproductive health and climate change. *Lancet* 2009; 374: 949.
- 39 Watts N, Adger WN, Agnolucci P, et al. Health and climate change: policy responses to protect public health. *Lancet* 2015; 386: 1861–914.
- 40 Worldwatch Institute, Population Reference Bureau. Making the connection: population dynamics and climate compatible development. Washington, DC: Population Reference Bureau, 2014.
- 41 Campbell-Lendrum D, Lusti-Narasimhan M. Taking the heat out of the population and climate debate. *Bull World Health Organ* 2009; 87: 807.
- 42 Whitmee S, Haines A, Beyrer C, et al. Safeguarding human health in the Anthropocene epoch: report of The Rockefeller Foundation–Lancet Commission on planetary health. *Lancet* 2015; 386: 1973–2028.
- 43 Jejeebhoy S. Women's education, autonomy and reproductive behavior: experience from developing countries. New York, NY: Oxford University Press, 1995.

- 44 Güneş PM. The role of maternal education in child health: Evidence from a compulsory schooling law. *Econ Educ Rev* 2015; **47**: 1–16.
- 45 Barker G, Contreras J, Heilman B, Singh A, Verma R, Nascimento M. Evolving men: Initial Results from the International Men and Gender Equality Survey (IMAGES). Washington, DC: International Center for Research on Women, Instituto Promundo, 2011.
- 46 Barro RJ, Lee JW. A new data set of educational attainment in the world, 1950–2010. *J Dev Econ* 2013; **104**: 184–98.
- 47 Hook JL. Care in context: men's unpaid work in 20 countries, 1965–2003. *Am Sociol Rev* 2006; **71**: 639–60.
- 48 Levto R, Van der Gaag N, Greene M, Kaufman M, Barker G. State of the world's fathers: a MenCare advocacy publication. Washington, DC: Promundo, Rutgers, Save the Children, Sonke Gender Justice, MenEngage Alliance, 2015.
- 49 UN Department of Economic and Social Affairs, Statistics Division. SDG indicators global database, 2016. <https://unstats.un.org/sdgs/indicators/database/> (accessed July 31, 2017).
- 50 UN DESA, Population Division. World urbanization prospects: the 2014 revision. New York, NY: United Nations Department of Economic and Social Affairs, 2014.
- 51 Matthews Z, Channon A, Neal S, Osrin D, Madise N, Stones W. Examining the “urban advantage” in maternal health care in developing countries. *PLoS Med* 2010; **7**: e1000327.
- 52 International Labour Organization. Global evidence on inequities in rural health protection. New data on rural deficits in health coverage for 174 countries. Geneva: International Labour Office, 2015.
- 53 Greif MJ, Dodoo FN-A, Jayaraman A. Urbanisation, poverty and sexual behaviour: the tale of five African cities. *Urban Stud* 2011; **48**: 947–57.
- 54 Chamie J. Out-of-wedlock births rise worldwide. YaleGlobal Online. March 16, 2017. <http://yaleglobal.yale.edu/content/out-wedlock-births-rise-worldwide> (accessed Aug 7, 2017).
- 55 Blanc AK. The effect of power in sexual relationships on sexual and reproductive health: an examination of the evidence. *Stud Fam Plann* 2001; **32**: 189–213.
- 56 Namasivayam A, Osuorah DC, Syed R, Antai D. The role of gender inequities in women's access to reproductive health care: a population-level study of Namibia, Kenya, Nepal, and India. *Int J Womens Health* 2012; **4**: 351–64.
- 57 WHO. Engaging men and boys in changing gender-based inequity in health evidence from programme interventions. Geneva: World Health Organization, 2007.
- 58 Courtenay WH. Constructions of masculinity and their influence on men's well-being: a theory of gender and health. *Soc Sci Med* 2000; **50**: 1385–401.
- 59 Sternberg P, Hubley J. Evaluating men's involvement as a strategy in sexual and reproductive health promotion. *Health Promot Int* 2004; **19**: 389–96.
- 60 Biddlecom AE, Fapohunda BM. Covert contraceptive use: prevalence, motivations, and consequences. *Stud Fam Plann* 1998; **29**: 360–72.
- 61 Barot S. Governmental coercion in reproductive decision making: see it both ways. *Guttmacher Policy Rev* 2012; **15**: 7–12.
- 62 Feng W, Cai Y, Gu B. Population, policy and politics: how will history judge China's one-child policy? *Popul Dev Rev* 2012; **38** (suppl): 115–29.
- 63 Bingenheimer JB, Skuster P. The foreseeable harms of Trump's global gag rule. *Stud Fam Plann* 2017; **48**: 279–90.
- 64 Jones KM. Contraceptive supply and fertility outcomes: evidence from Ghana. *Econ Dev Cult Change* 2015; **64**: 31–69.
- 65 Muhoza DN, Rutayisire PC, Umubyeyi A. Measuring the success of family planning initiatives in Rwanda: a multivariate decomposition analysis. *J Popul Res* 2016; **4**: 361–77.
- 66 Advancing Partners and Communities. Community-based health system model series. Malawi's community-based health system model: structure, strategies, and learning. May 3, 2017. https://www.advancingpartners.org/sites/default/files/technical-briefs/apc_malawi_brief_508.pdf (accessed Sept 7, 2017).
- 67 Kowalski S. Universal health coverage may not be enough to ensure universal access to sexual and reproductive health beyond 2014. *Glob Public Health* 2014; **9**: 661–68.
- 68 Gwatkin DR, Ergo A. Universal health coverage: friend or foe of health equity? *Lancet* 2011; **377**: 2160–61.
- 69 Hogan DR, Stevens GA, Hosseinpoor AR, Boerma T. Monitoring universal health coverage within the Sustainable Development Goals: development and baseline data for an index of essential health services. *Lancet Glob Health* 2018; **6**: e152–68.
- 70 Reproductive Health Supplies Coalition. Product brief caucus on new and underused reproductive health technologies. Contraceptive implants. Brussels: Reproductive Health Supplies Coalition, 2013.
- 71 Higgins JA, Smith NK. The sexual acceptability of contraception: reviewing the literature and building a new concept. *J Sex Res* 2016; **53**: 417–56.
- 72 WHO, London School of Hygiene and Medicine, South African Medical Research Council. Global and regional estimates of violence against women: prevalence and health effects of intimate partner violence and non-partner sexual violence. Geneva: World Health Organization, 2013.
- 73 UN Women. Committee on the Elimination of Discrimination against Women. General recommendations, no. 19. Violence against women. 1992. <http://www.un.org/womenwatch/daw/cedaw/recommendations/recomm.htm> (accessed Sept 13, 2017).
- 74 Cohen DK, Nordás R. Sexual violence in armed conflict: Introducing the SVAC dataset, 1989–2009. *J Peace Res* 2014; **51**: 418–28.
- 75 Russell W. Sexual violence against men and boys. *Forced Migr Rev* 2007; **27**: 22–23.
- 76 WHO. Female genital mutilation. Fact sheet. <http://www.who.int/mediacentre/factsheets/fs241/en/> (accessed Jan 10, 2017).
- 77 UNICEF. Female genital mutilation/cutting: a global concern. New York, NY: United Nations International Children's Emergency Fund, 2016.
- 78 UN DESA. The world's women 2015: trends and statistics. New York, NY: United Nations Department of Economic and Social Affairs, 2015.
- 79 European Union Agency for Fundamental Rights. Violence against women: an EU-wide survey. Vienna: European Union Agency for Fundamental Rights, 2014.
- 80 The Demographic and Health Surveys Program. 2016. USAID, 2016. <https://www.statcompiler.com/en/> (accessed Sept 23, 2016).
- 81 Black M, Basile K, Breiding M, et al. The National Intimate Partner and Sexual Violence Survey (NISVS): 2010 summary report. Atlanta, GA: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention, 2011.
- 82 Abrahams N, Devries K, Watts C, et al. Worldwide prevalence of non-partner sexual violence: a systematic review. *Lancet* 2014; **383**: 1648–54.
- 83 Peacock D, Barker G. Working with men and boys to prevent gender-based violence: principles, lessons learned, and ways forward. *Men Masculinities* 2014; **17**: 578–99.
- 84 Levto R, Barker G, Contreras-Urbina M, Heilman B, Verma R. Pathways to gender-equitable men: findings from the International Men and Gender Equality Survey in eight countries. *Men Masculinities* 2014; **17**: 467–501.
- 85 Silverman JG, Gupta J, Decker MR, Kapur N, Raj A. Intimate partner violence and unwanted pregnancy, miscarriage, induced abortion, and stillbirth among a national sample of Bangladeshi women. *BJOG* 2007; **114**: 1246–52.
- 86 Boy A, Salihu HM. Intimate partner violence and birth outcomes: a systematic review. *Int J Fertil Womens Med* 2004; **49**: 159–64.
- 87 What Works to Prevent Violence. A global programme to prevent violence against women and girls: a summary of the evidence. <http://www.whatworks.co.za/documents/publications/2-a-summary-of-the-evidence-and-research-agenda-for-what-works/file> (accessed Oct 26, 2017).
- 88 Piot P, Abdool Karim SS, Hecht R, et al. Defeating AIDS—advancing global health. *Lancet* 2015; **386**: 171–218.
- 89 UNAIDS. 90–90–90—an ambitious treatment target to help end the AIDS epidemic. Geneva: Joint United Nations Programme on HIV/AIDS, 2017.
- 90 UNAIDS. Ending AIDS: progress towards the 90–90–90 targets. Geneva: Joint United Nations Programme on HIV/AIDS, 2017.
- 91 WHO. Sexually transmitted infections (STIs). Fact sheet. <http://www.who.int/mediacentre/factsheets/fs110/en/> (accessed Sept 13, 2017).
- 92 Newman L, Kamb M, Hawkes S, et al. Global estimates of syphilis in pregnancy and associated adverse outcomes: analysis of multinational antenatal surveillance data. *PLoS Med* 2013; **10**: e1001396.

- 93 Newman L, Rowley J, Vander Hoorn S, et al. Global estimates of the prevalence and incidence of four curable sexually transmitted infections in 2012 based on systematic review and global reporting. *PLoS One* 2015; **10**: e0143304.
- 94 WHO. Report on global sexually transmitted infection surveillance 2015. Geneva: World Health Organization, 2016.
- 95 UNAIDS. UNAIDS data 2017. Geneva: Joint United Nations Programme on HIV/AIDS, 2017.
- 96 World Health Assembly. Draft global health sector strategies: sexually transmitted infections, 2016–2021. Geneva: World Health Organization, 2016.
- 97 WHO. Report on global sexually transmitted infection surveillance 2013. Geneva: World Health Organization, 2014.
- 98 UNAIDS. 2015 progress report on the global plan towards the elimination of new HIV infections among children and keeping their mothers alive. Geneva: Joint United Nations Programme on HIV/AIDS, 2015.
- 99 Singh S, Darroch JE, Ashford LS. Adding it up: the costs and benefits of investing in sexual and reproductive health 2014. New York, NY: Guttmacher Institute, 2014.
- 100 The Lancet Infectious Diseases. Time to take sexually transmitted infections seriously. *Lancet Infect Dis* 2016; **16**: 981.
- 101 Staveteig S, Wang S, Head SK, Bradley SE, Nybro E. Demographic patterns of HIV testing uptake in sub-Saharan Africa. DHS comparative reports 30. Calverton, MD: ICF International, 2013.
- 102 Auld AF, Shiraishi RW, Mbofana F, et al. Lower levels of antiretroviral therapy enrollment among men with HIV compared with women—12 countries, 2002–2013. *MMWR Morb Mortal Wkly Rep* 2015; **64**: 1281–86.
- 103 Kates J, Wexler A, Lief E. Financing the response to HIV in low- and middle-income countries: international assistance from donor governments in 2015. Menlo Park, CA: Kaiser Family Foundation, 2016.
- 104 UNAIDS. Prevention gap report. Geneva: Joint United Nations Programme on HIV/AIDS, 2016.
- 105 Darroch JE, Sully E, Biddlecom A. Adding it up: investing in contraception and maternal and newborn health, 2017. New York, NY: Guttmacher Institute, 2017.
- 106 Schelar E, Polis CB, Essam T, et al. Multipurpose prevention technologies for sexual and reproductive health: mapping global needs for introduction of new preventive products. *Contraception* 2016; **93**: 32–43.
- 107 Festin MPR, Kiarie J, Solo J, et al. Moving towards the goals of FP2020—classifying contraceptives. *Contraception* 2016; **94**: 289–94.
- 108 Darroch JE, Singh S, Weissman. Adding it up: the costs and benefits of investing in sexual and reproductive health 2014. Estimation Methodology. New York, NY: Guttmacher Institute, 2016.
- 109 UN DESA. Model-based estimates and projections of family planning indicators 2017. New York, NY: United Nations Department of Economic and Social Affairs, 2017.
- 110 UN DESA, Population Division. Trends in contraceptive use worldwide 2015. New York, NY: United Nations Department of Economic and Social Affairs, 2015.
- 111 Jain AK, Obare F, RamaRao S, Askew I. Reducing unmet need by supporting women with met need. *Int Perspect Sex Reprod Health* 2013; **39**: 133–41.
- 112 Ali M, Cleland J, Shah I. Causes and consequences of contraceptive discontinuation: evidence from 60 demographic and health surveys. Geneva: World Health Organization, 2012.
- 113 Casterline JB, Sinding SW. Unmet need for family planning in developing countries and implications for population policy. *Popul Dev Rev* 2000; **26**: 691–723.
- 114 Bradley SEK, Croft TN, Fishel JD, Westoff CF. Revising unmet need for family planning. Calverton, MD: ICF International, 2012.
- 115 United Nations, Economic and Social Council, Inter-Agency and Expert Group on Sustainable Development Goal Indicators. Report of the Inter-Agency and Expert Group on Sustainable Development Goal Indicators (E/CN.3/2017/2). Annex III. Revised list of global Sustainable Development Goal indicators. <https://unstats.un.org/sdgs/indicators/Official%20Revised%20List%20of%20global%20SDG%20indicators.pdf> (accessed April 19, 2017).
- 116 Darroch JE, Sully E, Biddlecom A. Special tabulations from Adding It Up: The Costs and Benefits of Investing in Sexual and Reproductive Health 2017. New York: Guttmacher Institute, 2017.
- 117 UN DESA, Population Division. World population policies database. New York, NY: United Nations Department of Economic and Social Affairs, 2014.
- 118 Lopez LM, Grey TW, Chen M, Denison J, Stuart G. Behavioral interventions for improving contraceptive use among women living with HIV. *Cochrane Database Syst Rev* 2016; **8**: CD010243.
- 119 Sedgh G, Ashford LS, Hussain R. Unmet need for contraception in developing countries: examining women's reasons for not using a method. New York, NY: The Guttmacher Institute, 2016.
- 120 MacQuarrie KLD, Edmeades J, Steinhaus M, Head SK. Men and contraception: trends in attitudes and use. Rockville, MD: ICF International, 2015.
- 121 Alkema L, Chou D, Hogan D, et al. Global, regional, and national levels and trends in maternal mortality between 1990 and 2015, with scenario-based projections to 2030: a systematic analysis by the UN Maternal Mortality Estimation Inter-Agency Group. *Lancet* 2016; **387**: 462–74.
- 122 Victora CG, Barros AJD, França GVA, da Silva ICM, Carvajal-Velez L, Amouzou A. The contribution of poor and rural populations to national trends in reproductive, maternal, newborn, and child health coverage: analyses of cross-sectional surveys from 64 countries. *Lancet Glob Health* 2017; **5**: e402–07.
- 123 Miller S, Belizán JM. True costs of maternal death. *Reprod Health* 2015; **12**: 56.
- 124 GBD 2015 Child Mortality Collaborators. Global, regional, national, and selected subnational levels of stillbirths, neonatal, infant, and under-5 mortality, 1980–2015: a systematic analysis for the Global Burden of Disease Study 2015. *Lancet* 2016; **388**: 1725–74.
- 125 MacDorman MF, Declercq E, Cabral H, Morton C. Recent increases in the US maternal mortality rate: disentangling trends from measurement issues. *Obstet Gynecol* 2016; **128**: 447–55.
- 126 Wardlaw T, You D, Hug L, Amouzou A, Newby H. UNICEF report: enormous progress in child survival but greater focus on newborns urgently needed. *Reprod Health* 2014; **11**: 82.
- 127 WHO, UNICEF, UN Population Fund, World Bank Group, UN Population Division. Trends in maternal mortality: 1990 to 2015. Estimates by WHO, UNICEF, UNPF, World Bank Group and the United Nations Population Division. Geneva: World Health Organization, 2015.
- 128 Lawn JE, Blencowe H, Waiswa P, et al. Stillbirths: rates, risk factors, and acceleration towards 2030. *Lancet* 2016; **387**: 587–603.
- 129 Souza JP, Gülmezoglu AM, Vogel J, et al. Moving beyond essential interventions for reduction of maternal mortality (the WHO Multicountry Survey on Maternal and Newborn Health): a cross-sectional study. *Lancet* 2013; **381**: 1747–55.
- 130 Vogel JP, Souza JP, Mori R, et al. Maternal complications and perinatal mortality: findings of the World Health Organization Multicountry Survey on Maternal and Newborn Health. *BJOG* 2014; **121** (suppl 1): 76–88.
- 131 Fisher J, Cabral de Mello M, Patel V, et al. Prevalence and determinants of common perinatal mental disorders in women in low- and lower-middle-income countries: a systematic review. *Bull World Health Organ* 2012; **90**: 139G–49G.
- 132 Black RE, Victora CG, Walker SP, et al. Maternal and child undernutrition and overweight in low-income and middle-income countries. *Lancet* 2013; **382**: 427–51.
- 133 Poston L, Caleyachetty R, Cnattingius S, et al. Preconceptional and maternal obesity: epidemiology and health consequences. *Lancet Diabetes Endocrinol* 2016; **4**: 1025–36.
- 134 Bhutta ZA, Das JK, Bahl R, et al. Can available interventions end preventable deaths in mothers, newborn babies, and stillbirths, and at what cost? *Lancet* 2014; **384**: 347–70.
- 135 Miller S, Abalos E, Chamillard M, et al. Beyond too little, too late and too much, too soon: a pathway towards evidence-based, respectful maternity care worldwide. *Lancet* 2016; **388**: 2176–92.
- 136 WHO. Pregnancy, childbirth, postpartum and newborn care: a guide for essential practice, 3rd edn. Geneva: World Health Organization, 2013.
- 137 Victora CG, Requejo JH, Barros AJD, et al. Countdown to 2015: a decade of tracking progress for maternal, newborn, and child survival. *Lancet* 2016; **387**: 2049–59.
- 138 UN Statistics Division. Statistical annex: global and regional data for Sustainable Development Goal indicators. New York, NY: United Nations, 2017.

- 139 Hodgins S, D'Agostino A. The quality-coverage gap in antenatal care: toward better measurement of effective coverage. *Glob Health Sci Pract* 2014; **2**: 173–81.
- 140 Betran AP, Torloni MR, Zhang JJ, et al. WHO statement on caesarean section rates. *BJOG* 2016; **123**: 667–70.
- 141 WHO. Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection: recommendations for a public health approach, 2nd edn. Geneva: World Health Organization, 2016.
- 142 Bearak J, Popinchalk A, Alema A, Sedgh G. Global, regional, and subregional trends in unintended pregnancy and its outcomes from 1990 to 2014: estimates from a Bayesian hierarchical model. *Lancet* 2018; **6**: e380–89.
- 143 Sedgh G, Bearak J, Singh S, et al. Special tabulations of updated data from Abortion incidence between 1990 and 2014: global, regional, and subregional levels and trends. *Lancet* 2016; **388**: 258–67.
- 144 World Bank. New Country Classifications, July 2, 2015. <http://blogs.worldbank.org/opendata/new-country-classifications> (accessed Nov 15, 2015).
- 145 Bartlett LA, Berg CJ, Shulman HB, et al. Risk factors for legal induced abortion-related mortality in the United States. *Obstet Gynecol* 2004; **103**: 729–37.
- 146 Zane S, Creanga AA, Berg CJ, et al. Abortion-related mortality in the United States: 1998–2010. *Obstet Gynecol* 2015; **126**: 258–65.
- 147 Raymond EG, Grimes DA. The comparative safety of legal induced abortion and childbirth in the United States. *Obstet Gynecol* 2012; **119**: 215–19.
- 148 Ganatra B, Tunçalp Ö, Johnston HB, Johnson BR Jr, Gülmezoglu AM, Temmerman M. From concept to measurement: operationalizing WHO's definition of unsafe abortion. *Bull World Health Organ* 2014; **92**: 155.
- 149 Sedgh G, Filippi V, Owolabi OO, et al. Insights from an expert group meeting on the definition and measurement of unsafe abortion. *Int J Gynaecol Obstet* 2016; **134**: 104–06.
- 150 Ganatra B, Gerdtts C, Rossier C, et al. Global, regional, and subregional classification of abortions by safety, 2010–14: estimates from a Bayesian hierarchical model. *Lancet* 2017; **390**: 2372–81.
- 151 WHO. Safe abortion: technical and policy guidance for health systems, 2nd edn. Geneva: World Health Organization, 2012.
- 152 Say L, Chou D, Gemmill A, et al. Global causes of maternal death: a WHO systematic analysis. *Lancet Glob Health* 2014; **2**: e323–33.
- 153 GBD 2015 Maternal Mortality Collaborators. Global, regional, and national levels of maternal mortality, 1990–2015: a systematic analysis for the Global Burden of Disease Study 2015. *Lancet* 2016; **388**: 1775–812.
- 154 GBD 2015 Maternal Mortality Collaborators. Special tabulations from supplementary appendix of Global, regional, and national levels of maternal mortality, 1990–2015: a systematic analysis for the Global Burden of Disease Study 2015. *Lancet* 2016; **388**: 1775–812.
- 155 Singh S, Maddow-Zimet I. Facility-based treatment for medical complications resulting from unsafe pregnancy termination in the developing world, 2012: a review of evidence from 26 countries. *BJOG* 2016; **123**: 1489–98.
- 156 Singh S, Remez L, Onda T, Sedgh G. Abortion worldwide: uneven progress and unequal access, under review. New York, NY: Guttmacher Institute, 2017.
- 157 Blumenthal P, Clark S, Coyaji K, et al. Providing medical abortion in low-resource settings: an introductory guidebook. New York, NY: Gynuity Health Projects, 2009.
- 158 Zamberlin N, Romero M, Ramos S. Latin American women's experiences with medical abortion in settings where abortion is legally restricted. *Reprod Health* 2012; **9**: 34.
- 159 Dzuba IG, Winikoff B, Peña M. Medical abortion: a path to safe, high-quality abortion care in Latin America and the Caribbean. *Eur J Contracept Reprod Health Care* 2013; **18**: 441–50.
- 160 Mayall K, Fine JB. Abortion worldwide: 20 years of reform. New York, NY: Center for Reproductive Rights, 2014.
- 161 Singh S, Sedgh G, Bankole A, Hussain R, London S. Making abortion services accessible in the wake of legal reforms. New York, NY: Guttmacher Institute, 2012.
- 162 Singh S, Shekhar C, Acharya R, et al. The incidence of abortion and unintended pregnancy in India, 2015. *Lancet Glob Health* 2018; **6**: e111–20.
- 163 Stillman M, Frost JJ, Singh S, Moore AM. Abortion in India: a literature review. New York, NY: Guttmacher Institute, 2016.
- 164 Jewkes R, Rees H, Dickson K, Brown H, Levin J. The impact of age on the epidemiology of incomplete abortions in South Africa after legislative change. *BJOG* 2005; **112**: 355–59.
- 165 Henderson JT, Puri M, Blum M, et al. Effects of abortion legalization in Nepal, 2001–2010. *PLoS One* 2013; **8**: e64775.
- 166 Mondragón y Kalb M, Ahued Ortega A, Morales Velazquez J, et al. Patient characteristics and service trends following abortion legalization in Mexico City, 2007–10. *Stud Fam Plann* 2011; **42**: 159–66.
- 167 Ipas. Expanding roles of providers in safe abortion care: a programmatic approach to meeting women's needs. Chapel Hill, NC: Ipas, 2016.
- 168 Hanschmidt F, Linde K, Hilbert A, Riedel-Heller SG, Kersting A. Abortion stigma: a systematic review. *Perspect Sex Reprod Health* 2016; **48**: 169–77.
- 169 Rehnström Loi U, Gemzell-Danielsson K, Faxelid E, Klingberg-Allvin M. Health care providers' perceptions of and attitudes towards induced abortions in sub-Saharan Africa and Southeast Asia: a systematic literature review of qualitative and quantitative data. *BMC Public Health* 2015; **15**: 139.
- 170 Johnson BR Jr, Kismödi E, Dragoman MV, Temmerman M. Conscientious objection to provision of legal abortion care. *Int J Gynaecol Obstet* 2013; **123** (suppl 3): S60–62.
- 171 Vayena E, Peterson HB, Adamson D, Nygren K-G. Assisted reproductive technologies in developing countries: are we caring yet? *Fertil Steril* 2009; **92**: 413–16.
- 172 Dyer SJ, Abrahams N, Mokoena NE, Lombard CJ, van der Spuy ZM. Psychological distress among women suffering from couple infertility in South Africa: a quantitative assessment. *Hum Reprod* 2005; **20**: 1938–43.
- 173 Stellar C, Garcia-Moreno C, Temmerman M, van der Poel S. A systematic review and narrative report of the relationship between infertility, subfertility, and intimate partner violence. *Int J Gynaecol Obstet* 2016; **133**: 3–8.
- 174 Dhont N, Muvunyi C, Lüchters S, et al. HIV infection and sexual behaviour in primary and secondary infertile relationships: a case-control study in Kigali, Rwanda. *Sex Transm Infect* 2011; **87**: 28–34.
- 175 Rouchou B. Consequences of infertility in developing countries. *Perspect Public Health* 2013; **133**: 174–79.
- 176 Rutstein SO, Shah IH. DHS comparative reports 9. Infecundity, infertility, and childlessness in developing countries. Calverton, MD: ORC Macro, 2004.
- 177 Dyer SJ, Patel M. The economic impact of infertility on women in developing countries—a systematic review. *Facts Views Vis ObGyn* 2012; **4**: 102–09.
- 178 Inhorn MC, Patrizio P. Infertility around the globe: new thinking on gender, reproductive technologies and global movements in the 21st century. *Hum Reprod Update* 2015; **21**: 411–26.
- 179 Sedgh G, Hussain R. Reasons for contraceptive non-use among women having unmet need for contraception in developing countries. *Stud Fam Plann* 2014; **45**: 151–69.
- 180 Wood K, Jewkes R. Blood blockages and scolding nurses: barriers to adolescent contraceptive use in South Africa. *Reprod Health Matters* 2006; **14**: 109–18.
- 181 Sneeringer SE. Fertility transition in sub-Saharan Africa: a comparative analysis of cohort trends in 30 countries. DHS comparative reports 23. Calverton, MD: ICF International, 2009.
- 182 OECD. Fertility rates. In: Society at a Glance. Paris: Organisation for Economic Co-operation and Development, 2009: 64–65.
- 183 Leridon H. A new estimate of permanent sterility by age: sterility defined as the inability to conceive. *Popul Stud (Camb)* 2008; **62**: 15–24.
- 184 Zegers-Hochschild F, Adamson GD, de Mouzon J, et al. International Committee for Monitoring Assisted Reproductive Technology (ICMART) and the World Health Organization (WHO) revised glossary of ART terminology, 2009. *Fertil Steril* 2009; **92**: 1520–24.
- 185 Gurunath S, Pandian Z, Anderson RA, Bhattacharya S. Defining infertility—a systematic review of prevalence studies. *Hum Reprod Update* 2011; **17**: 575–88.
- 186 Ezeh A, Bankole A, Cleland J, García-Moreno C, Temmerman M, Ziraba AK. Burden of reproductive ill health. In: Black RE, Laxminarayan R, Temmerman M, Walker N, eds. Reproductive, maternal, newborn, and child health: disease control priorities, 3rd edn. Washington, DC: The International Bank for Reconstruction and Development, 2016.

- 187 Mascarenhas MN, Flaxman SR, Boerma T, Vanderpoel S, Stevens GA. National, regional, and global trends in infertility prevalence since 1990: a systematic analysis of 277 health surveys. *PLoS Med* 2012; **9**: e1001356.
- 188 Boivin J, Bunting L, Collins JA, Nygren KG. International estimates of infertility prevalence and treatment-seeking: potential need and demand for infertility medical care. *Hum Reprod* 2007; **22**: 1506–12.
- 189 Polis CB, Cox CM, Tunçalp Ö, McLain AC, Thoma ME. Estimating infertility prevalence in low-to-middle-income countries: an application of a current duration approach to Demographic and Health Survey data. *Hum Reprod* 2017; **32**: 1064–74.
- 190 Asemota OA, Klatsky P. Access to infertility care in the developing world: the family promotion gap. *Semin Reprod Med* 2015; **33**: 17–22.
- 191 Healy DL, Trounson AO, Andersen AN. Female infertility: causes and treatment. *Lancet* 1994; **343**: 1539–44.
- 192 Ochsendorf FR. Sexually transmitted infections: impact on male fertility. *Andrologia* 2008; **40**: 72–75.
- 193 Kudesia R, Talib HJ, Pollack SE. Fertility awareness counseling for adolescent girls; guiding conception: the right time, right weight, and right way. *J Pediatr Adolesc Gynecol* 2017; **30**: 9–17.
- 194 Augood C, Duckitt K, Templeton AA. Smoking and female infertility: a systematic review and meta-analysis. *Hum Reprod* 1998; **13**: 1532–39.
- 195 Collins GG, Rossi BV. The impact of lifestyle modifications, diet, and vitamin supplementation on natural fertility. *Fertil Res Pract* 2015; **1**: 11.
- 196 Kovac JR, Khama A, Lipshultz LI. The effects of cigarette smoking on male fertility. *Postgrad Med* 2015; **127**: 338–41.
- 197 Scholes D, Stergachis A, Heidrich FE, Andrilla H, Holmes KK, Stamm WE. Prevention of pelvic inflammatory disease by screening for cervical chlamydial infection. *N Engl J Med* 1996; **334**: 1362–66.
- 198 Weström L, Joesoef R, Reynolds G, Hagdu A, Thompson SE. Pelvic inflammatory disease and fertility. A cohort study of 1844 women with laparoscopically verified disease and 657 control women with normal laparoscopic results. *Sex Transm Dis* 1992; **19**: 185–92.
- 199 Stevenson EL, Hershberger PE, Bergh PA. Evidence-based care for couples with infertility. *J Obstet Gynecol Neonatal Nurs* 2016; **45**: 100–10.
- 200 Söderström-Anntilla V, Wennerholm U-B, Loft A, et al. Surrogacy: outcomes for surrogate mothers, children and the resulting families—a systematic review. *Hum Reprod Update* 2016; **22**: 260–76.
- 201 Gerrits T, Shaw M. Biomedical infertility care in sub-Saharan Africa: a social science—review of current practices, experiences and view points. *Facts Views Vis ObGyn* 2010; **2**: 194–207.
- 202 Nachtigall RD. International disparities in access to infertility services. *Fertil Steril* 2006; **85**: 871–75.
- 203 Kissin DM, Boulet SL, Jamieson DJ, et al. Fertility treatments in the United States: improving access and outcomes. *Obstet Gynecol* 2016; **128**: 387–90.
- 204 Gerrits T, Van Rooij F, Esho T, et al. Infertility in the Global South: raising awareness and generating insights for policy and practice. *Facts Views Vis ObGyn* 2017; **9**: 39–44.
- 205 Ombelet W. Is global access to infertility care realistic? The Walking Egg Project. *Reprod Biomed Online* 2014; **28**: 267–72.
- 206 Ginsburg O, Bray F, Coleman MP, et al. The global burden of women's cancers: a grand challenge in global health. *Lancet* 2017; **389**: 847–60.
- 207 Ferlay J, Soerjomataram I, Dikshit R, et al. Cancer incidence and mortality worldwide: sources, methods and major patterns in GLOBOCAN 2012. *Int J Cancer* 2015; **136**: E359–86.
- 208 GLOBOCAN. Cancer fact sheets: prostate cancer. <http://globocan.iarc.fr/old/FactSheets/cancers/prostate-new.asp> (accessed Sept 18, 2017).
- 209 Ginsburg O, Badwe R, Boyle P, et al. Changing global policy to deliver safe, equitable, and affordable care for women's cancers. *Lancet* 2017; **389**: 871–80.
- 210 GLOBOCAN. Cancer fact sheets: cervical cancer. <http://globocan.iarc.fr/old/FactSheets/cancers/cervix-new.asp> (accessed Jan 9, 2017).
- 211 WHO. Comprehensive cervical cancer control: a guide to essential practice. Geneva: World Health Organization, 2014.
- 212 Denny L, de Sanjose S, Mutebi M, et al. Interventions to close the divide for women with breast and cervical cancer between low-income and middle-income countries and high-income countries. *Lancet* 2017; **389**: 861–70.
- 213 Knaul FM, Bhadelia A, Arreola-Ornelas H, et al. Women's reproductive health in transition: the overlapping challenge of breast and cervical cancer. *Cancer Contr* 2014; **11**: 50–59.
- 214 Bruni L, Diaz M, Barrionuevo-Rosas L, et al. Global estimates of human papillomavirus vaccination coverage by region and income level: a pooled analysis. *Lancet Glob Health* 2016; **4**: e453–63.
- 215 Tsu V, Jerónimo J. Saving the world's women from cervical cancer. *N Engl J Med* 2016; **374**: 2509–11.
- 216 WHO. Global action plan for the prevention and control of NCDs 2013–2020. Geneva: World Health Organization, 2013.
- 217 WHO. Assessing national capacity for the prevention and control of noncommunicable diseases: global survey. Geneva: World Health Organization, 2015.
- 218 Graham R, Berkowitz B, Blum R, et al. The health of lesbian, gay, bisexual, and transgender people: building a foundation for better understanding. Washington, DC: The Institute of Medicine, 2011.
- 219 Patton GC, Sawyer SM, Santelli JS, et al. Our future: a *Lancet* commission on adolescent health and wellbeing. *Lancet* 2016; **387**: 2423–78.
- 220 Kågesten A, Gibbs S, Blum RW, et al. Understanding factors that shape gender attitudes in early adolescence globally: a mixed-methods systematic review. *PLoS One* 2016; **11**: e0157805.
- 221 Darroch JE, Woog V, Bankole A, Ashford LS. Adding it up: costs and benefits of meeting the contraceptive needs of adolescents. New York, NY: Guttmacher Institute, 2016.
- 222 Woog V, Kågesten A. The sexual and reproductive health needs of very young adolescents aged 10–14 in developing countries: what does the evidence show? New York, NY: Guttmacher Institute, 2017.
- 223 Moore AM, Awusabo-Asare K, Madise N, John-Langba J, Kumi-Kyereme A. Coerced first sex among adolescent girls in sub-Saharan Africa: prevalence and context. *Afr J Reprod Health* 2007; **11**: 62–82.
- 224 Patton GC, Coffey C, Cappa C, et al. Health of the world's adolescents: a synthesis of internationally comparable data. *Lancet* 2012; **379**: 1665–75.
- 225 UNICEF. The state of the world's children. Adolescence: an age of opportunity. New York, NY: United Nations International Children's Emergency Fund, 2011.
- 226 UNICEF. Ending child marriage: progress and prospects. New York, NY: United Nations International Children's Emergency Fund, 2014.
- 227 UN Population Fund. Marrying too young: end child marriage. New York, NY: United Nations Population Fund, 2012.
- 228 Santhya KG, Jejeebhoy SJ. Sexual and reproductive health and rights of adolescent girls: evidence from low- and middle-income countries. *Glob Public Health* 2015; **10**: 189–221.
- 229 Girls Not Brides, ICRW. Taking action to address child marriage: the role of different sectors. Washington, DC: International Center for Research on Women, 2016.
- 230 Fall CHD, Sachdev HS, Osmond C, et al. Association between maternal age at childbirth and child and adult outcomes in the offspring: a prospective study in five low-income and middle-income countries (COHORTS collaboration). *Lancet Glob Health* 2015; **3**: e366–77.
- 231 Kozuki N, Lee AC, Silveira MF, et al. The associations of parity and maternal age with small-for-gestational-age, preterm, and neonatal and infant mortality: a meta-analysis. *BMC Public Health* 2013; **13** (suppl 3): S2.
- 232 Finlay JE, Özalın E, Canning D. The association of maternal age with infant mortality, child anthropometric failure, diarrhoea and anaemia for first births: evidence from 55 low- and middle-income countries. *BMJ Open* 2011; **1**: e000226.
- 233 Sedgh G, Finer LB, Bankole A, Eilers MA, Singh S. Adolescent pregnancy, birth, and abortion rates across countries: levels and recent trends. *J Adolesc Health* 2015; **56**: 223–30.
- 234 Trussell J. Contraceptive efficacy. In: Hatcher R, Trussell J, Nelson A, Cates WJ, Stewart F, Kowal D, eds. Contraceptive technology, 20th edn. New York, NY: Ardent Media, 2011.

- 235 Polis CB, Bradley SE, Bankole A, Onda T, Croft T, Singh S. Contraceptive failure rates in the developing world: an analysis of demographic and health survey data in 43 countries. New York, NY: Guttmacher Institute, 2016.
- 236 WHO, Department of Reproductive Health and Research. Global consensus statement for expanding contraceptive choice for adolescents and youth to include long-acting reversible contraception. Geneva: World Health Organization, 2015.
- 237 UNICEF. The state of the world's children 2016 statistical tables. Paris: United Nations International Children's Emergency Fund, 2016.
- 238 UNICEF. Results for adolescents: ending the adolescent AIDS epidemic, eastern and southern Africa region. Paris: United Nations International Children's Emergency Fund, 2016.
- 239 Dellar RC, Dlamini S, Karim QA. Adolescent girls and young women: key populations for HIV epidemic control. *J Int AIDS Soc* 2015; **18** (suppl 1): 19408.
- 240 Kamb ML, Lackritz E, Mark J, Jackson DB, Andrews HL. Sexually transmitted infections in developing countries: current concepts and strategies on improving STI prevention treatment and control. Atlanta, GA: Centers for Disease Control and Prevention, 2007.
- 241 UNICEF. Towards an AIDS-free generation: children and AIDS. Sixth stocktaking report, 2013. New York, NY: United Nations International Children's Emergency Fund, 2013.
- 242 UNAIDS. Global report: UNAIDS report on the global AIDS epidemic 2013. Geneva: Joint United Nations Programme on HIV/AIDS, 2013.
- 243 UNAIDS, The African Union. Empower young women and adolescent girls: fast-tracking the end of the AIDS epidemic in Africa. Geneva: Joint United Nations Programme on HIV/AIDS, 2015.
- 244 Woog V, Singh S, Browne A, Philbin J. Adolescent women's need for and use of sexual and reproductive health services in developing countries. New York, NY: Guttmacher Institute, 2015.
- 245 Kato-Wallace J, Barker G, Sharafi L, Mora L, Lauro G. Adolescent boys and young men: engaging them as supporters of gender equality and health and understanding their vulnerabilities. New York, NY: UN Population Fund, 2016.
- 246 Horvath MA, Alys L, Massey K, Pina A, Scally M, Adler JR. Basically...porn is everywhere. A rapid evidence assessment on the effects that access and exposure to pornography has on children and young people. London: Middlesex University, 2013.
- 247 Collins RL, Martino S, Shaw R. Influence of new media on adolescent sexual health: evidence and opportunities. Santa Monica, CA: Department of Health and Human Services, 2011.
- 248 Owens EW, Behun RJ, Manning JC, Reid RC. The impact of internet pornography on adolescents: a review of the research. *Sex Addict Compulsivity* 2012; **19**: 99–122.
- 249 Flood M. The harms of pornography exposure among children and young people. *Child Abuse Rev* 2009; **18**: 384–400.
- 250 UNESCO. International technical guidance on sexuality education—an evidence based approach. Paris: UNESCO, 2018.
- 251 Biddlecom AE, Munthali A, Singh S, Woog V. Adolescents' views of and preferences for sexual and reproductive health services in Burkina Faso, Ghana, Malawi and Uganda. *Afr J Reprod Health* 2007; **11**: 99–110.
- 252 Delany-Moretlwe S, Cowan FM, Busza J, Bolton-Moore C, Kelley K, Fairlie L. Providing comprehensive health services for young key populations: needs, barriers and gaps. *J Int AIDS Soc* 2015; **18** (suppl 1): 19833.
- 253 Center for Reproductive Rights. Adolescents' access to reproductive health services and information. <https://www.reproductiverights.org/project/adolescents-access-to-reproductive-health-services-and-information> (accessed Jan 24, 2016).
- 254 Bankole A, Malarcher S. Removing barriers to adolescents' access to contraceptive information and services. *Stud Fam Plann* 2010; **41**: 117–24.
- 255 WHO. From evidence to policy: expanding access to family planning expanding access to contraceptive services for adolescents. Geneva: World Health Organization, 2012.
- 256 UNAIDS. Securing the future today: synthesis of strategic information on HIV and young people. Geneva: Joint United Nations Programme on HIV/AIDS, 2011.
- 257 Sam-Agudu NA, Fodayan MO, Ezeanolue EE. Seeking wider access to HIV testing for adolescents in sub-Saharan Africa. *Pediatr Res* 2016; **79**: 838–45.
- 258 Alan Guttmacher Institute. In their own right: addressing the sexual and reproductive health needs of men worldwide. New York: Guttmacher Institute, 2003.
- 259 Yargawa J, Leonardi-Bee J. Male involvement and maternal health outcomes: systematic review and meta-analysis. *J Epidemiol Community Health* 2015; **69**: 604–12.
- 260 Spindler E. Beyond the prostate: Brazil's national healthcare policy for men. Brighton: Promundo-US, Sonke Gender Justice and the Institute of Development Studies, 2015.
- 261 Edström J, Hassink A, Shahrokh T, Stern E. Engendering men: a collaborative review of evidence on men and boys in social change and gender equality. Brighton: Promundo-US, Sonke Gender Justice and the Institute of Development Studies, 2015.
- 262 Greene M, Levack A. Synchronizing gender strategies: a cooperative model for improving reproductive health and transforming gender relations. Washington DC: Population Reference Bureau, 2010.
- 263 American College of Obstetricians and Gynecologists. Health care for lesbians and bisexual women. Committee opinion no. 525. Washington, DC: American College of Obstetricians and Gynecologists, 2012.
- 264 World Professional Association for Transgender Health. Standards of care for the health of transsexual, transgender, and gender nonconforming people. Minneapolis, MN: World Professional Association for Transgender Health, 2011.
- 265 Mejia-Raymundo C, Cruz GT, University of the Philippines Population Institute and Demographic Research and Development Foundation. Youth sex and risk behaviors in the Philippines. Quezon City: Demographic Research and Development Foundation, 2004.
- 266 Acevedo-Polakovich ID, Bell B, Gamache P, Christian AS. Service accessibility for lesbian, gay, bisexual, transgender, and questioning youth. *Youth Soc* 2013; **45**: 75–97.
- 267 Meckler GD, Elliott MN, Kanouse DE, Beals KP, Schuster MA. Nondisclosure of sexual orientation to a physician among a sample of gay, lesbian, and bisexual youth. *Arch Pediatr Adolesc Med* 2006; **160**: 1248–54.
- 268 Travers R, Guta A, Flicker S, et al. Service provider views on issues and needs for lesbian, gay, bisexual, and transgender youth. *Can J Hum Sex* 2010; **19**: 191–98.
- 269 Blondeel K, Say L, Chou D, et al. Evidence and knowledge gaps on the disease burden in sexual and gender minorities: a review of systematic reviews. *Int J Equity Health* 2016; **15**: 16.
- 270 Tanabe M, Schlecht J, Manohar S. Adolescent sexual and reproductive health programs in humanitarian settings: an in-depth look at family planning services. New York, NY: Women's Refugee Commission, Save the Children, United Nations High Commissioner For Refugees, United Nations Population Fund, 2012.
- 271 Inter-Agency Working Group on Reproductive Health in Crises. Minimum initial service package. <http://iawg.net/minimum-initial-service-package/> (accessed Nov 1, 2017).
- 272 Chynoweth SK. Advancing reproductive health on the humanitarian agenda: the 2012–2014 global review. *Confl Health* 2015; **9**: 11.
- 273 Casey SE, Chynoweth SK, Cornier N, Gallagher MC, Wheeler EE. Progress and gaps in reproductive health services in three humanitarian settings: mixed-methods case studies. *Confl Health* 2015; **9** (suppl 1): S3.
- 274 McGinn T, Casey SE. Why don't humanitarian organizations provide safe abortion services? *Confl Health* 2016; **10**: 8.
- 275 Women Enabled International. Women Enabled International submission to OHCHR report on mental health and human rights. Washington, DC: Women Enabled International, 2016.
- 276 UN Population Fund, WHO. Promoting sexual and reproductive health for persons with disabilities. New York, NY: United Nations Population Fund, 2009.
- 277 Stenberg K, Hanssen O, Edejer T-T, et al. Financing transformative health systems towards achievement of the health Sustainable Development Goals: a model for projected resource needs in 67 low-income and middle-income countries. *Lancet Glob Health* 2017; **5**: e875–87.
- 278 Darroch JE, Sully E, Biddlecom A. Adding it up: investing in contraception and maternal and newborn health 2017. Supplementary Tables. New York, NY: Guttmacher Institute, 2017.

- 279 Ahmed S, Li Q, Liu L, Tsui AO. Maternal deaths averted by contraceptive use: an analysis of 172 countries. *Lancet* 2012; **380**: 111–25.
- 280 Bishai DM, Cohen R, Alfonso YN, Adam T, Kuruvilla S, Schweitzer J. Factors contributing to maternal and child mortality reductions in 146 low- and middle-income countries between 1990 and 2010. *PLoS One* 2016; **11**: e0144908.
- 281 Levine R, and the What Works Working Group. Millions saved: proven successes in global health. Washington, DC: Center for Global Development, 2004.
- 282 Jamison DT, Breman JG, Measham AR, et al. Disease control priorities in developing countries, 2nd edn. Washington, DC: World Bank, 2006.
- 283 Black RE, Levin C, Walker N, Chou D, Liu L, Temmerman M. Reproductive, maternal, newborn, and child health: key messages from Disease Control Priorities, 3rd edition. *Lancet* 2016; **388**: 2811–24.
- 284 Stenberg K, Axelson H, Sheehan P, et al. Advancing social and economic development by investing in women's and children's health: a new Global Investment Framework. *Lancet* 2014; **383**: 1333–54.
- 285 Canning D, Schultz TP. The economic consequences of reproductive health and family planning. *Lancet* 2012; **380**: 165–71.
- 286 Gribble J, Bremner J. Population bulletin. Achieving a demographic dividend. Washington, DC: Population Bulletin, 2012.
- 287 Drummond P, Thakoor VJ, Yu S. Africa rising: harnessing the demographic dividend. IMF working paper no. 14/143. Washington, DC: International Money Fund, 2014.
- 288 Gay E, Lee M, Ngunyena P, Djagadou K. The demographic dividend in Africa relies on investments in the reproductive health and rights of adolescents and youth. Washington DC: Population Reference Bureau.
- 289 Wodon QT, Onagoruwa AO, John N, et al. Economic impacts of child marriage: global synthesis report. Washington, DC: World Bank, 2017.
- 290 Varkey P, Kureshi S, Lesnick T. Empowerment of women and its association with the health of the community. *J Womens Health (Larchmt)* 2010; **19**: 71–76.
- 291 Greene M, Merrick T. The case for investing in research to increase access to and use of contraception among adolescents. Seattle, WA: Alliance for Reproductive, Maternal and Newborn Health, 2015.
- 292 Stephenson J, Crane SF, Levy C, Maslin M. Population, development, and climate change: links and effects on human health. *Lancet* 2013; **382**: 1665–73.
- 293 Worrall S. 100 practical ways to reverse climate change. National Geographic. May 28, 2017. <https://news.nationalgeographic.com/2017/05/climate-change-global-warming-drawdown-hawken/> (accessed Oct 20, 2017).
- 294 Drawdown. Women and girls: family planning. Feb 7, 2017. <http://www.drawdown.org/solutions/women-and-girls/family-planning> (accessed Oct 20, 2017).
- 295 World Bank. New country classifications by income level. July 1, 2016. <https://blogs.worldbank.org/opendata/new-country-classifications-2016> (accessed July 15, 2016).
- 296 WHO. OneHealth tool: supporting integrated strategic health planning, costing and health impact analysis. Geneva: World Health Organization, 2013.
- 297 Stover J, Bollinger L, Izazola JA, et al. What is required to end the AIDS epidemic as a public health threat by 2030? The Cost and Impact of the Fast-Track Approach. *PLoS One* 2016; **11**: e0154893.
- 298 Campos N, Sharma M, Clark A, et al. Comprehensive global cervical prevention: costs of scaling up within a decade. Boston, MA: Center for Health Decision Science, 2016.
- 299 UNESCO. Cost and cost-effectiveness of sexuality education programmes in six countries. Paris: United Nations Educational, Scientific and Cultural Organization, 2011.
- 300 Grollman C, Arregoces L, Martínez-Álvarez M, Pitt C, Mills A, Borghi J. 11 years of tracking aid to reproductive, maternal, newborn, and child health: estimates and analysis for 2003–13 from the Countdown to 2015. *Lancet Glob Health* 2017; **5**: e104–14.
- 301 Abdul Latif Jameel Poverty Action Lab. The price is wrong: charging small fees dramatically reduces access to important products for the poor. Cambridge, MA: J-Pal Global, 2011.
- 302 UN. Addis Ababa action agenda of the third international conference on financing for development. New York, NY: United Nations, 2015.
- 303 Semana. Qué va a pasar sin el POS. Semana. Feb 17, 2017. <http://www.semana.com/vida-moderna/articulo/pos-es-sustituido-por-un-nuevo-mecanismo/515869> (accessed April 21, 2017).
- 304 Escobar ML, Giedion U, Giuffrida A, Glassman AL. Colombia: after a decade of health system reform. In: Glassman AL, Escobar ML, Giuffrida A, Giedion U, eds. From few to many: ten years of health expansion in Colombia. Washington, DC: Inter-American Development Bank, 2009.
- 305 Lagomarsino G, Garabrant A, Adyas A, Muga R, Otoo N. Moving towards universal health coverage: health insurance reforms in nine developing countries in Africa and Asia. *Lancet* 2012; **380**: 933–43.
- 306 High Impact Practices in Family Planning. Financing commodities and services: mobilizing resources to sustain current and future family planning demand. Washington, DC: United States Agency for International Development, 2014.
- 307 Dieleman JL, Templin T, Sadat N, et al. National spending on health by source for 184 countries between 2013 and 2040. *Lancet* 2016; **387**: 2521–35.
- 308 Dirección General de Planeación y Coordinación Sectorial. Manual de procedimientos para la interrupción legal del embarazo en las unidades médicas. Mexico City: Secretaría de Salud del Distrito Federal, 2008.
- 309 Tribunal Constitucional (Peru). Sentencia del pleno jurisdiccional del tribunal constitucional. Lima: Tribunal Constitucional, 2012.
- 310 Campbell OMR, Calvert C, Testa A, et al. The scale, scope, coverage, and capability of childbirth care. *Lancet* 2016; **388**: 2193–208.
- 311 Ellsberg M, Arango DJ, Morton M, et al. Prevention of violence against women and girls: what does the evidence say? *Lancet* 2015; **385**: 1555–66.
- 312 Abramsky T, Devries K, Kiss L, et al. Findings from the SASA! Study: a cluster randomized controlled trial to assess the impact of a community mobilization intervention to prevent violence against women and reduce HIV risk in Kampala, Uganda. *BMC Med* 2014; **12**: 122.
- 313 Fiszbein A, Schady NR, Ferreira FHG. Conditional cash transfers: reducing present and future poverty. Washington, DC: World Bank, 2009.
- 314 Fonner VA, Armstrong KS, Kennedy CE, O'Reilly KR, Sweat MD. School based sex education and HIV prevention in low- and middle-income countries: a systematic review and meta-analysis. *PLoS One* 2014; **9**: e89692.
- 315 Haberland N, Rogow D. Sexuality education: emerging trends in evidence and practice. *J Adolesc Health* 2015; **56** (suppl): S15–21.
- 316 Haberland NA. The case for addressing gender and power in sexuality and HIV education: a comprehensive review of evaluation studies. *Int Perspect Sex Reprod Health* 2015; **41**: 31–42.
- 317 Kirby DB. The impact of abstinence and comprehensive sex and STD/HIV education programs on adolescent sexual behavior. *Sex Res Soc Policy* 2008; **5**: 18.
- 318 UNESCO. Emerging evidence, lessons and practice in comprehensive sexuality education: a global review. Paris: United Nations Educational, Scientific and Cultural Organization, 2015.
- 319 Liu JX, Goryakin Y, Maeda A, Bruckner T, Scheffler R. Global health workforce labor market projections for 2030. *Hum Resour Health* 2017; **15**: 11.
- 320 WHO. WHO recommendations: optimising health worker roles to improve access to key maternal and newborn health interventions through task shifting. Geneva: World Health Organization, 2012.
- 321 Polus S, Lewin S, Glenton C, Lerberg PM, Rehfuess E, Gülmezoglu AM. Optimizing the delivery of contraceptives in low- and middle-income countries through task shifting: a systematic review of effectiveness and safety. *Reprod Health* 2015; **12**: 27.
- 322 ten Hoope-Bender P, de Bernis L, Campbell J, et al. Improvement of maternal and newborn health through midwifery. *Lancet* 2014; **384**: 1226–35.
- 323 Dudley L, Garner P. Strategies for integrating primary health services in low- and middle-income countries at the point of delivery. *Cochrane Database Syst Rev* 2011; **7**: CD003318.
- 324 Cleland J, Shah IH, Daniele M. Interventions to improve post-partum family planning in low- and middle-income countries: program implications and research priorities. *Stud Fam Plann* 2015; **46**: 423–41.

- 325 Cleland J, Shah IH, Benova L. A fresh look at the level of unmet need for family planning in the post-partum period, its causes and program implications. *Int Perspect Sex Reprod Health* 2015; **41**: 155–62.
- 326 Shah IH, Santhya KG, Cleland J. Post-partum and post-abortion contraception: from research to programs. *Stud Fam Plann* 2015; **46**: 343–53.
- 327 Cohen CR, Grossman D, Onono M, et al. Integration of family planning services into HIV care clinics: results one year after a cluster randomized controlled trial in Kenya. *PLoS One* 2017; **12**: e0172992.
- 328 O'Reilly KR, Kennedy CE, Fonner VA, Sweat MD. Family planning counseling for women living with HIV: a systematic review of the evidence of effectiveness on contraceptive uptake and pregnancy incidence, 1990 to 2011. *BMC Public Health* 2013; **13**: 935.
- 329 Pronyk PM, Nemser B, Maliqi B, et al. The UN commission on life saving commodities 3 years on: global progress update and results of a multicountry assessment. *Lancet Glob Health* 2016; **4**: e276–86.
- 330 Bertrand JT, Ward VM, Santiso G, et al. Family planning in Latin America and the Caribbean: the achievements of 50 years. Chapel Hill, NC: Measure Evaluation, 2015.
- 331 FP2020. Contraceptive stock-outs and availability—measurement. Momentum at the midpoint 2015–2016. <http://progress.familyplanning2020.org/en/measurement-section/contraceptive-stock-outs-and-availability-indicators-10-11> (accessed March 20, 2017).
- 332 Tunçalp Ö, Were WM, MacLennan C, et al. Quality of care for pregnant women and newborns—the WHO vision. *BJOG* 2015; **122**: 1045–49.
- 333 Bohren MA, Vogel JP, Hunter EC, et al. The mistreatment of women during childbirth in health facilities globally: a mixed-methods systematic review. *PLoS Med* 2015; **12**: e1001847.
- 334 Rodriguez MI, Kismodi E, Cottingham J. Ensuring human rights in the provision of contraceptive information and services: guidance and recommendations. Geneva: World Health Organization, 2014.
- 335 WHO. Consolidated guidelines on HIV testing services: 5Cs: consent, confidentiality, counselling, correct results, and connection. Geneva: World Health Organization, 2015.
- 336 Leisher S, Sprockett A, Longfield K, Montagu D. Quality measurement in family planning: past, present, future: papers from the Bellagio meeting on family planning quality. Oakland, CA: Metrics for Management, 2016.
- 337 The White Ribbon Alliance. Opportunities for citizen-inclusive accountability for women's, children's, and adolescent's health. Washington, DC: The White Ribbon Alliance, 2017.
- 338 Ippoliti NB, L'Engle K. Meet us on the phone: mobile phone programs for adolescent sexual and reproductive health in low-to-middle income countries. *Reprod Health* 2017; **14**: 11.
- 339 Guse K, Levine D, Martins S, et al. Interventions using new digital media to improve adolescent sexual health: a systematic review. *J Adolesc Health* 2012; **51**: 535–43.
- 340 L'Engle KL, Mangone ER, Parcesepe AM, Agarwal S, Ippoliti NB. Mobile phone interventions for adolescent sexual and reproductive health: a systematic review. *Pediatrics* 2016; **138**: e20160884.
- 341 Burns K, Keating P, Free C. A systematic review of randomised control trials of sexual health interventions delivered by mobile technologies. *BMC Public Health* 2016; **16**: 778.
- 342 PATH. Reproductive health global program. Sayana press introduction and research: expanding access and options. <http://sites.path.org/rh/recent-reproductive-health-projects/sayanapress/> (accessed Sept 1, 2016).
- 343 Bliethe DL. Pipeline for contraceptive development. *Fertil Steril* 2016; **106**: 1295–302.
- 344 Fernández-Romero JA, Deal C, Herold BC, et al. Multipurpose prevention technologies: the future of HIV and STI protection. *Trends Microbiol* 2015; **23**: 429–36.
- 345 Van Blerkom J, Ombelet W, Klerkx E, et al. First births with a simplified culture system for clinical IVF and embryo transfer. *Reprod Biomed Online* 2014; **28**: 310–20.
- 346 Rumbold B, Baker R, Ferraz O, et al. Universal health coverage, priority setting, and the human right to health. *Lancet* 2017; **390**: 712–14.
- 347 Ottersen T, Norheim OF, Chitah BM, et al. Making fair choices on the path to universal health coverage: Final report of the WHO Consultative Group on Equity and Universal Health Coverage. Geneva: World Health Organization, 2014. http://apps.who.int/iris/bitstream/10665/112671/1/9789241507158_eng.pdf (accessed Sept 15, 2017).
- 348 Jamison DT, Summers LH, Alleyne G, et al. Global health 2035: a world converging within a generation. *Lancet* 2013; **382**: 1898–955.
- 349 UNESCO, UNAIDS, UN Population Fund, UNICEF, WHO. International technical guidance on sexuality education. Paris: United Nations Educational, Scientific and Cultural Organization, 2009.