

Achieving universal access to sexual and reproductive health services: the potential and pitfalls for contraceptive services in South Africa

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Universal access to sexual and reproductive health services was included in the Millennium Development Goals and has been carried forward in the new Sustainable Development Goals (SDGs). Access to contraception is highlighted in the Family Planning 2020 (FP2020) initiative. Given South Africa's ongoing commitment to the SDGs and FP2020, this chapter explores the potential for achieving universal access to contraceptive services in South Africa against the backdrop of the country's domestic policies, current implementation efforts and HIV epidemic.

South Africa's laws, policies and guidelines on contraceptive service provision in the public sector are progressive and comprehensive, and promote integrated, rights-based service delivery.

The chapter begins with a description of South Africa's enabling policy environment with regard to sexual and reproductive health and rights generally, and contraception specifically. Service delivery norms and approaches for budgeting and expenditure tracking are described, and national and provincial contraceptive statistics are presented.

Public sector delivery of contraceptive services nationally faces both similar and unique challenges as compared to other health services. Issues relating to health systems constraints are identified, including scarce resources and the burden of HIV in the country, and their impact on delivery of contraceptive services is discussed. The recent introduction and roll-out of the subdermal contraceptive implant is highlighted as a case study illustrating both successes and challenges.

Finally, key recommendations are provided for contraceptive service delivery in the future in light of ongoing research and changes on the horizon – such as National Health Insurance, national-level efforts to integrate HIV and primary care services, and efforts under-way as part of the National Development Plan.

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Introduction

The Millennium Development Goals (MDGs) were established in 2000, and 2015 marked the deadline for taking stock of achievements. Large strides were made in some areas; however, much remains to be addressed on a global scale.¹ MDG 5b called for “universal access to sexual and reproductive health services.”² In sub-Saharan Africa, use of contraception among women aged 15 to 49, married or in a union, more than doubled from 1990 to 2015, yet 24% of these women still have an unmet need for contraception.¹ Recognising the need for further action, the new Sustainable Development Goals (SDGs) were established in 2015, and these again include universal access to sexual and reproductive health.³

Family Planning 2020 is a global initiative founded in London in 2012 with the aim of making modern contraceptives accessible to an additional 120 million women by 2020.⁴ Individual countries are expected to make their own, locally applicable commitments, which are then made public and tracked through various mechanisms.

South Africa adopted both sets of development commitments – the MDGs and the SDGs – and has also established domestic commitments for FP2020. These commitments are aligned to the country’s laws, policies and guidelines on health. However, looking back, the country has struggled to make progress on health-related MDGs for various reasons. In this chapter, we explore the potential for achieving universal access to sexual and reproductive health services in South Africa under the new SDGs, focusing specifically on access to contraceptive services for pregnancy prevention and birth spacing. This is not meant to minimise the importance of access to other essential sexual and reproductive health services such as screening and treatment for reproductive cancers, maternity services, safe termination of pregnancy services, and care and recourse for survivors of gender-based violence. Indeed, we acknowledge that too much attention on one indicator can work to the detriment of other services.⁵ With that said, access to contraception has become a *de facto* proxy indicator for access to sexual and reproductive health services within the global SDG framework and therefore warrants special attention.

The chapter begins with a description of South Africa’s enabling policy environment with regard to sexual and reproductive health and rights generally, and contraception specifically. Service delivery norms and approaches for budgeting and expenditure tracking are described, and national and provincial statistics for contraceptive services are presented. We then highlight challenges – based on past and current experiences – which are critical to consider given South Africa’s goals for improving and scaling up access to services. The delivery of contraceptive services in the public sector faces both similar and unique challenges as compared with other health services. Health systems constraints and provider- and women-focused issues are identified, and their impact on delivery of contraceptive services is discussed. South Africa recently introduced a new contraceptive method into the mix available in the public health sector – the subdermal contraceptive implant (hereafter referred to as ‘the implant’). Introduction of this method provides an opportunity to explore in-depth the opportunities and pitfalls the country has experienced with the introduction of a new method and what we can learn for the provision of quality contraceptive services into the future. Throughout the chapter we take into consideration

the changing landscape of South Africa’s HIV epidemic, which permeates virtually all aspects of service delivery and presents particular challenges for contraceptive service delivery.

South Africa’s contraception laws, policies, and guidelines

South Africa’s excellent laws, policies and guidelines provide a supportive, rights-based framework for delivery of sexual and reproductive health services. Access to health care is valued at the highest levels. The country’s Constitution guarantees the right to access healthcare services, including sexual and reproductive health services, for all,⁶ and the National Development Plan considers “providing affordable access to quality health care while promoting health and wellbeing” as central to achieving its domestic development goals.⁷ The National Health Act (61 of 2003) acknowledges the particular health needs of vulnerable groups, including women, and provides for free health care for pregnant women, including women undergoing termination of pregnancy.⁸ The new National Adolescent Sexual and Reproductive Health and Rights Framework Strategy (2014–2019)⁹ and the Strategic Plan for Maternal, Newborn, Child, and Women’s Health and Nutrition in South Africa (2012–2016)¹⁰ are broadly supportive of adolescents’ and women’s rights and access to health services and specifically acknowledge the challenges faced by young women in accessing sexual and reproductive health services.

The National Contraceptive Policy Guidelines released in 2001 contained a focus on the right of all women to choose a method and stressed quality of care.¹¹ This was a significant departure from the perceived coercive, population control-focused policies that targeted Black women under apartheid.¹² The 2001 guidelines were updated in 2012 and released as the National Contraception and Fertility Planning Policy and Service Delivery Guidelines and the National Contraceptive Clinical Guidelines (hereafter we refer to both jointly as ‘the guidelines’ or the ‘CFP policy and guidelines’).¹³ The revised CFP policy and guidelines acknowledge the role of contraception in prevention of maternal mortality. The country’s HIV epidemic is also addressed in the guidelines through discussion of the pivotal role of contraception in prevention of mother-to-child transmission of HIV; the special needs of HIV-positive women and men regarding contraception, conception and fertility planning; and potential pharmacokinetic interactions between hormonal contraceptive methods and other medications, including antiretroviral drugs (ARVs) and tuberculosis (TB) medications.

Perhaps most importantly, the guidelines establish the importance of addressing women’s needs – at all ages. The overall emphasis is on high-quality services giving all women the freedom to choose from a range of options and methods, from healthy conception to long-acting and permanent methods of contraception. According to the guidelines, contraceptive clients should have access to “accurate, unbiased information about all available methods in order to make an informed choice,” and, “clients should be provided with the method/s that they request, subject to meeting relevant medical eligibility criteria and availability.”¹³ Table 1 provides a listing of the contraceptive methods that should be available in the public sector. Other methods, such as the Nuva Ring and the contraceptive patch

(not listed in Table 1), are available in the private sector, but at a cost. According to the CFP guidelines, methods should be offered in the public sector in a comprehensive, integrated manner and include discussion of fertility plans, offer of voluntary HIV counselling, screening for sexually transmitted infections and TB, and education on breast and cervical cancer screening.¹³

High knowledge and uptake of contraceptive methods

The Contraceptive Prevalence Rate (CPR) is used to represent current use of contraception. It is defined as the proportion of women aged 15 to 49 who are 'currently' using a contraceptive method. The CPR has traditionally been reported for women who are married or 'in a union', although more recently the data are also available for women who are sexually active and for all women combined.¹⁵

The most often-cited source of information on CPR for South Africa is the South Africa Demographic and Health Survey (SADHS).¹⁶ The last SADHS in the country was conducted in 2003 – well over a decade ago.¹⁶ Considering use of modern contraceptive methods, the CPRs for all women, married or in a union, and sexually active women aged 15 to 49 were 50.1%, 59.8% and 64.6% respectively.¹⁷ A more recent analysis, which used modelling, estimated the CPR for South African women (married or in a union)

in 2010 to be 63.7%, suggesting a possible gain of 3.8% for this group since 2003.¹⁷ This estimated rate for women married or in a union in South Africa is similar to the rate estimated for Southern Africa in 2010 (62.2%), and is much higher than the estimated CPR for Africa as a whole (30.9%). However, South Africa's CPR is lower than that of other upper-middle-income countries (Mexico 72.1%, Russia 78.6%, Brazil 79.5%), and lower than rates in the United States (77.1%) and Europe (72.0%).¹⁷

The most popular method of contraception in the 2003 SADHS was the injectable; 26.7% of all women aged 15 to 49 used this method at the time of the survey (Figure 1). Among women who were currently using a contraceptive method at the time of the survey, 53.2% were using an injectable method (data not shown).¹⁶ Use of long-acting and permanent methods such as the intrauterine contraceptive device (IUCD) or sterilisation was much lower at 0.6% and 7.3% of all women aged 15 to 49.

Table 1: Modern contraceptive methods that should be available in the public sector based on national guidelines

Method	Effectiveness* ¹⁰	Duration	Availability according to guidelines**
Female sterilisation (tubal ligation)	Typical use: 0.5% Perfect use: 0.5%	Permanent	Limited current availability; guidelines emphasise creating one service point per district.
Male sterilisation (vasectomy)	Typical use: 0.15% Perfect use: 0.10%	Permanent	Limited facilities.
Levonorgestrel releasing intrauterine system (LNG-IUS)	Typical use: 0.2% Perfect use: 0.2%	5 years	Only available for contraception in the public sector as second-line option for select women.
Copper intrauterine contraceptive device (IUCD)***	Typical use: 0.8% Perfect use: 0.6%	5 years****	All service levels
Subdermal implants	Typical use: 0.05% Perfect use: 0.05%	Implanon-NXT 3 years Jadelle 5 years*****	All service levels
Progestogen-only injectables	Typical use: 6% Perfect use: 0.2%	DMPA (Depo) 12 weeks Net-EN 8 weeks	All service levels
Low-dose combined-oral contraceptive pills	Typical use: 9% Perfect use: 0.3%	Daily	All service levels
Progestogen-only pills	Typical use: 9% Perfect use: 0.3%	Daily	All service levels
Emergency contraceptive pills*****	58-95% effective depending on how early it is taken.	Up to 5 days after unprotected sex	All service levels
Male condoms	Typical use: 18% Perfect use: 2%	Coitally dependent	All service levels
Female condoms	Typical use: 21% Perfect use: 5%	Coitally dependent	All service levels

Sources: National Department of Health, 2012;¹³ Hatcher and Trussell, 2014.¹⁴

DMPA/Depo – Depot medroxyprogesterone acetate, Net-EN – Norethisterone enanthate

* Expressed as failure rates.

** Actual availability differs. For some methods access is extremely limited.

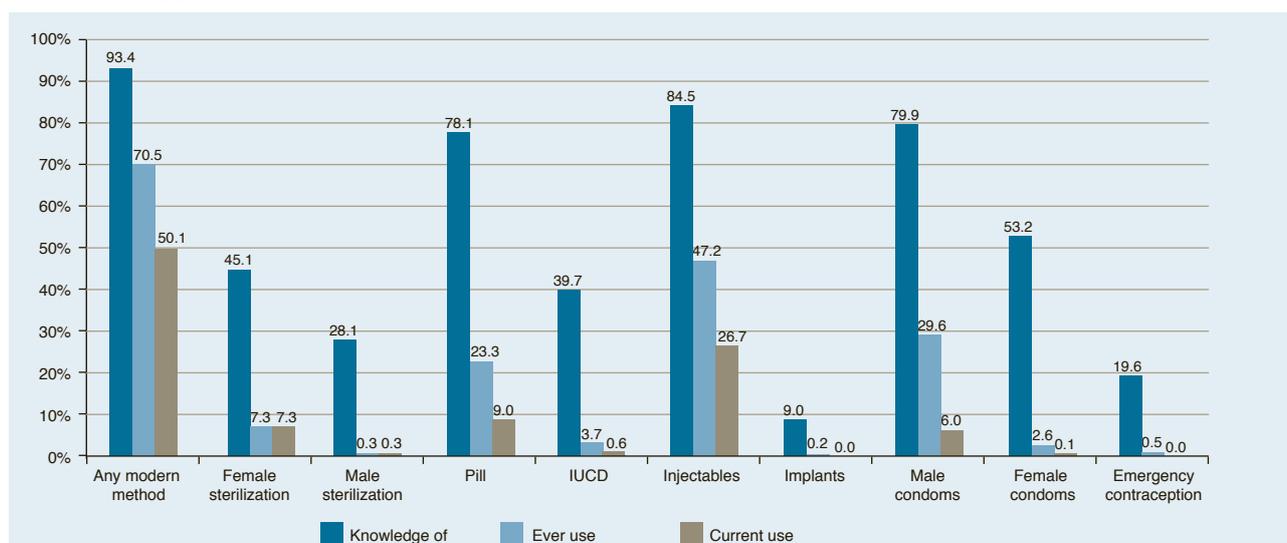
*** Also available as an emergency contraceptive method.

**** The product currently available 'on tender' in South Africa is registered for five years; however, the Copper T380a IUCD is effective for 10 years.

***** This method is not yet available in the public sector despite being registered for use there.

***** Some clinics provide combined oestrogen and progestogen methods (i.e. essentially combined oral contraceptive pills (COCs)); however, the dedicated product is recommended instead of COCs.

Figure 1: Knowledge of, ever use and current use of modern contraceptive methods by all women aged 15 to 49 in South Africa, by method

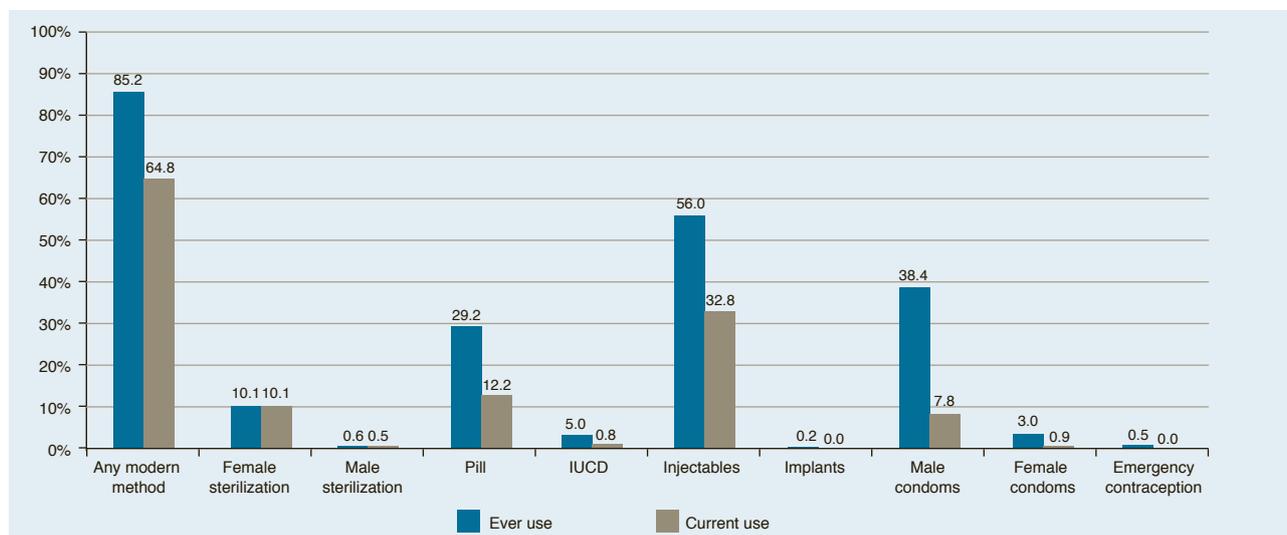


Source: SADHS, 2003.¹⁶

Note: The implant was not available in South Africa in 2003. Also, condom use represents only those women who used condoms exclusively (i.e. the condom data exclude women who used condoms plus another method).

Reported use of methods is higher if one considers sexually active women only, rather than all women. Figure 2 presents 'ever use' and 'current use' of contraceptive methods in 2003 for sexually active women; for this group, the CPR rises to 64.6%.

Figure 2: Ever use and current use of contraceptive methods by sexually active women aged 15 to 49 in South Africa, by method (2003)^{2*}



Source: SADHS, 2003.¹⁶

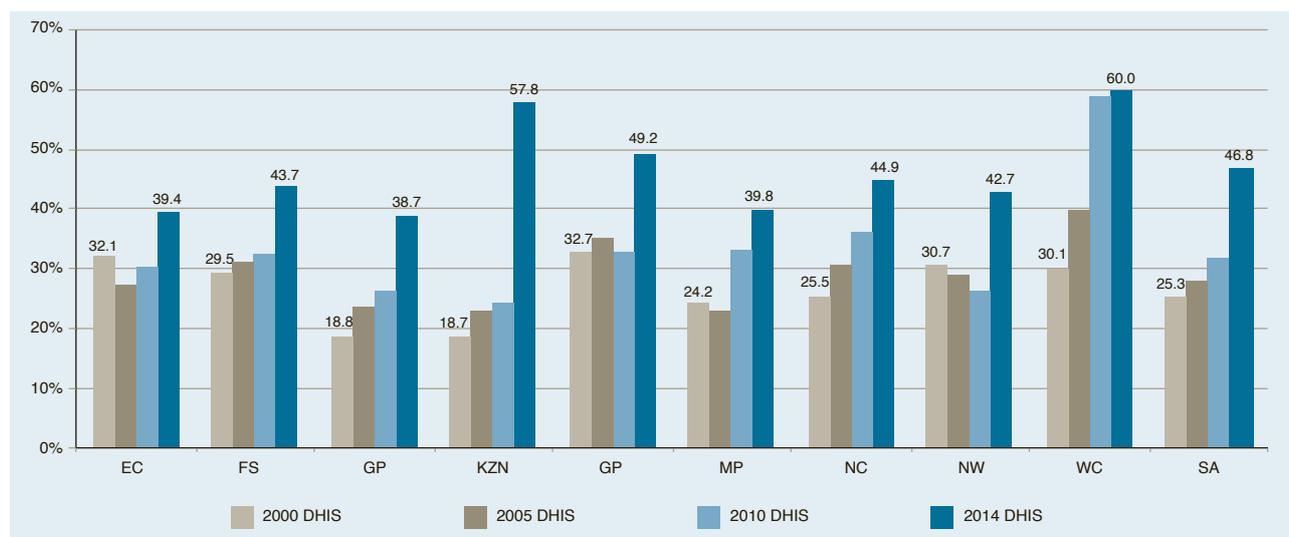
*Sexually active = Sex in the last four weeks

Note: The implant was not available in South Africa in 2003.

More up-to-date information on the CPR and patterns of contraceptive use is urgently needed in South Africa in order to understand the impact of recent policy and service delivery changes. Fortunately, data collection for the next SADHS will be initiated in 2016. To track progress on contraceptive services on a more current and routine basis, dispensing data are collected in health facilities. These data are collated at the national level in the District Health Information System (DHIS) and used to calculate a Couple Years of Protection

Rate (CYP). The CYP measures the level of protection from pregnancy over one year given the amount of contraceptives dispensed.¹⁸ The denominator is the total 'couple-years' in which there is an assumed risk of pregnancy at the national level. The numerator is the number of couple-years in which protection from pregnancy is assumed based on the number of contraceptives dispensed and a conversion factor which allows for standardisation of effectiveness duration across methods. The CYP allows for comparison of methods in terms of their

Figure 3: Couple-Years of Protection Rate for South Africa for financial years 2000, 2005, 2010 and 2014, by province



Source: Massyn et al., 2015.¹⁹

contributions to the total CYP; however, it is impossible to know how many or the proportion of individuals who have accepted a method. For these reasons, the CYP is considered an imperfect metric, but it is widely used and can be useful for comparing statistics within a particular country over time or for cross-country comparisons.

The DHIS database provides CYP information based on financial year DHIS data.¹⁹ Figure 3 indicates that for the financial year ending in 2000, the CYP for the country was 25.3%. Growth in CYP was slow and even declined in some provinces between 2000 and 2010; however, it increased for the country to 46.8% in 2014.^a A significant portion of the increase occurred in 2014 as a result of the introduction of the implant, which as a long-acting method, offers 2.5 couple-years of protection for each insertion (for Implanon-NXT) according to the internationally accepted conversion factor for this method.²⁰ It is worth noting that the official CYP data for South Africa represent method provision in the public sector only. It is generally accepted that 20% of the population receives health care in the private sector,²¹ and in the 2003 SADHS, 13% of women reported obtaining their contraceptive method there.¹⁶

Existing challenges

South Africa is arguably doing well with contraception considering its laws, policies and guidelines on service provision, and comparing its CPR with to that of other African nations. Indeed, almost all women in the country (93.4%) have heard of modern contraceptive methods, and close to three-quarters (70.5%) have ever used one (Figure 1). However, these figures mask problems with service delivery; equitable access; and correct, consistent, and continuous use of methods, especially among certain groups such as young or rural women.²²

'Unmet need for family planning' is used to measure progress on contraceptive access. The term is defined as the proportion of women, married or in a union, who are fecund and who do not want any more children or who want to postpone childbearing to beyond the next two years, but who are not currently using a contraceptive method.^{23,24} In South Africa, unmet need was estimated at 12.7% for 2010.¹⁷

Addressing unmet need is important, especially for countries like South Africa, given the important role of contraception in the armamentarium of HIV prevention strategies. However, some researchers have suggested that this indicator alone is insufficient for assessing progress with contraceptive access, in that it is a time-dependent, variable indicator and may not address unintended pregnancy among self-reported 'current' contraceptive users.²⁴ In fact, research has shown that in countries where the proportion of women using a contraceptive method greatly outweighs the proportion with unmet need, the greatest number of unintended pregnancies may actually come from current contraceptive users as a result of incorrect or inconsistent use.²⁴⁻²⁶ Some women who are late in refilling methods or who take a 'break' from use may be counted as continuous users in routine data collection or surveys, masking their risk of pregnancy.²⁷

In South Africa, Baumgartner et al.²⁸ found that among women in need of continuation of their injectable contraceptive in the Western Cape and Eastern Cape Provinces, 25% were between two and 12 weeks late for reinjection. Of those who were late, 2% in the Western Cape and 36% in the Eastern Cape were refused a reinjection by the nursing staff.²⁸ In Gauteng Province, in a cohort of 189 new injectable users, 78 (41.3%) discontinued use before one year.²⁹ They reported that they were "taking a break"; the mean length of the break was seven months during which no other contraceptive method was used.²⁹

^a South Africa has historically used conversion factors for the CYP that are slightly different from today's internationally harmonised conversion factors. The CYP could be higher if South Africa shifted to the international conversion factors.

Drug-drug interactions may also put current contraceptive users at risk of pregnancy due to reduced contraceptive efficacy. For example, a particular antibiotic may interfere with oral contraceptive efficacy.³⁰ Some epilepsy medications may also reduce hormonal contraceptive efficacy,³¹ and new research (discussed further hereafter) suggests that use of certain ARV, or TB drugs may also reduce the efficacy of some hormonal methods.

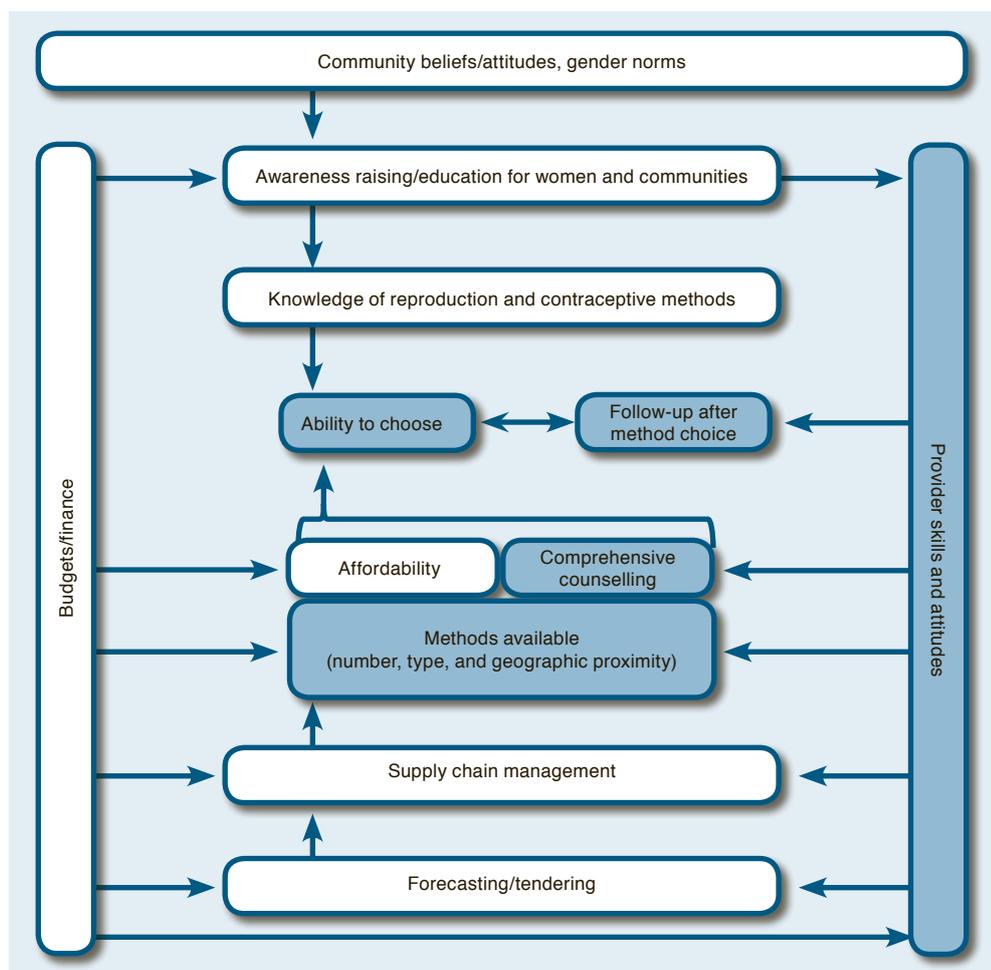
Understanding the gaps in South Africa in terms of contraceptive use and how to intervene requires a broad understanding of contraceptive delivery, uptake, and usage. Many women are already using contraception, but generally, use is limited to a few, relatively shorter-acting methods, such as the injectable, oral contraceptive pills, and condoms. Access to a range of methods, including information about them, is lacking for many women. Figure 4 offers a conceptual framework to bring together the many factors contributing to contraceptive use or non-use. It illustrates the importance of a strong health system, including financing for services and the pivotal role of healthcare providers, and the role of community-focused outreach and education in generating demand for services. The following sections refer to this figure and provide discussion on areas requiring special attention.

Method availability through forecasting, budgeting, and supply chain management

A multi-country study of global DHS data found that “perfect availability” of contraceptives would reduce method discontinuation and increase the CPR by 1–2 percentage points. This analysis concluded that, looking across countries, for every additional method “fully available”, the CPR increases by 5–8 percentage points.³³

Few methods are “fully available” in South Africa. Despite guidance from the CFP guidelines on what should be offered and where (Table 1), in practice, some higher-level facilities or special facilities, such as HIV or TB clinics, do not offer contraceptive services, and what is available in primary-level facilities varies. Requests for sterilisation, and sometimes also IUCD insertion, are often referred to higher-level facilities, and in some districts access to these services is extremely limited at any level.¹³ Finally, for some methods, the commodity may be in stock at the facility, but due to lack of clear messaging about drug–drug interactions or concerns about the appropriateness of some methods for particular women, the method may not be offered or discussed.

Figure 4: Understanding contraceptive supply and demand – A conceptual framework



Source: Shaded items represent indicators of service quality according to the framework put forward by Bruce.³²

Note: 'Providers' can be broadly interpreted as all healthcare providers involved in service delivery, including nurses, doctors, pharmacists, financial managers and administrators.

Budget allocations for provision of contraceptive services, like all sexual and reproductive health services, fall within the primary health care budget. This budget is allotted from the 'Provincial Equitable Share' provided to provinces as a lump sum meant to accommodate service delivery for all sectors, including health.^{34,35} Because the Provincial Equitable Share is not linked to a particular service or specific service targets, planning for and tracking expenditure on sexual and reproductive health services can be challenging. In contrast, HIV and TB services are supported through a separate fund, called the 'HIV and TB conditional grant'.³⁶ Although the conditional grant allows for greater accountability on HIV and TB, the separation of funds for HIV- and TB-related care and treatment complicates provision of integrated services, such as the provision of contraception within HIV care and treatment facilities.

The contraceptive method mix available in facilities is heavily dependent on systems for procurement and supply chain management, which are in turn influenced by healthcare providers, administrators and pharmacists. Commodities are purchased through tendering, which involves forecasting by provinces based on anticipated demand. Prospective provincial estimates are often based on historical ordering and dispensing records, which are unfortunately prone to data errors and misinterpretation in terms of their potential to represent future demand. Once the tender is in place, timely ordering from suppliers and distribution to facilities is another hurdle. Problems with supply chain management have been highlighted for HIV-related medications in the country;³⁷ however, these challenges affect most, if not all, services to some extent.

Forecasting and supply chain management for contraceptive services are uniquely complicated by the desire to provide women with multiple choices. Budgeting for choice is complicated by variations in method duration and the tendency of some women to stop early and/or switch between methods. It is further complicated if there is an intention to shift women's method preferences (at population level) and/or to increase usage overall or by particular groups. This shifting and scale-up are precisely what is called for in the CFP policy and guidelines. There is an expressed aim of increasing uptake of long-acting methods, such as the new implant, revitalising interest in the IUCD, improving dual protection and access to the female condom, and reducing dependency on progestogen-only injectables such as depot medroxyprogesterone acetate (DMPA or Depo) and norethisterone enanthate (Net-EN).¹³ Finally, assessing stock management failings for contraception also requires special attention. Globally, there are arguments that limited method choice should be considered as a "stock-out." For example, if fewer than three modern methods are available, a facility should be seen to have a stock-out problem requiring attention.³⁸

The pivotal role of the healthcare provider

Figure 4 illustrates the central role of method availability and the ability of women to choose between methods in contraceptive service delivery. It also highlights the influence of healthcare providers – nurses, doctors, pharmacists, financial managers and administrators working on service delivery – on access to services.

Healthcare providers at all levels essentially control access to services based on their influence on the purchasing and supply of methods. Nurses and doctors play a significant role in the availability and provision of contraceptives globally as a result of regulations in many settings that require women to see a nurse or doctor in order

to purchase or access contraceptive methods. In South Africa, nurses in primary health care services play a major role in contraceptive provision. Research from South Africa shows that nurses have strong preferences about which methods are appropriate for women – especially those who are HIV-positive, unmarried, and/or young.^{39,40}

Nurses can also influence method choice and/or continuation of methods – intentionally or unintentionally – through sub-standard or biased counselling. Almost all of the issues identified through research that are said to be barriers to contraceptive use or continuation could be addressed through improved counselling and support from healthcare providers. Misinformation about methods, health concerns, language challenges, and provider biases are significant barriers to initial uptake,⁴¹ and reasons for discontinuation among 'current' contraceptive users include desire for pregnancy, method failure and method side-effects.²⁷ Counselling on all of these issues could help to prepare women for use, to choose the methods that are best for them, and to assist them with method switching when necessary.

Improvements to counselling services must include consideration of the approach and environment in which counselling is provided. A brief face-to-face counselling session in a busy clinic may not be sufficient to convey all the information a woman needs on the reproductive cycle, return to fertility after method discontinuation, potential drug–drug interactions, the need for dual protection, etc. There is growing evidence for use of novel approaches and technologies such as interactive, Internet-based sources of information, text message reminders for renewal, pamphlets, etc. in improving women's understanding of how methods work and method uptake and continuation.^{42–44}

Innovation should be encouraged; however, face-to-face interactions between nurses and contraceptive clients will continue to be required. Healthcare workers in the public sector in South Africa are burdened by a scarcity of human and other resources and ever-increasing demands on their time. Efforts to improve access to contraceptive services – or any public sector services for that matter – must carefully consider the conditions in which healthcare workers operate and how those conditions impact on morale and service quality.

Access to services: accessibility, affordability and service quality

Service quality has been identified as a crucial aspect of contraceptive service provision. The most commonly used paradigm for assessing contraceptive service quality is the 'Bruce-Jain Framework'.^{32,45,46} It comprises several dimensions including: the range of contraceptive options available; women's ability to choose a method; comprehensive counselling on the methods; provider knowledge, skills and attitudes; and the opportunity for interaction and follow-up support after method choice.^{47,48} Service quality, as defined in the Bruce-Jain Framework, is represented by blue boxes in Figure 4. Extensive evaluations using this framework have shown that improving service quality is potentially the most important factor for increasing contraceptive uptake.^{49–52}

However, service quality, which speaks to user acceptability, is just one of the defining attributes of access to services. Access to health care must also include physical accessibility and financial

affordability.^{53–55} There are many documented problems with contraceptive service accessibility in South Africa. The CFP guidelines state that contraceptives should be available at all levels of care. However, many facilities do not offer the full method mix – sometimes even when the commodities are in stock – and some offer no contraceptives at all. Personnel shortages, lack of training on method provision, and lack of equipment are sometimes to blame. Counselling is often limited to one to two methods (if given at all), and stigma and/or discrimination by healthcare providers is commonplace. HIV-positive, unmarried, and young women are particularly at risk of discrimination by healthcare providers.^{39,40,56,57}

Given these barriers, women with the financial means may choose to access their contraceptive method in the private sector. For women who cannot afford private sector access, contraceptives, including long-acting and permanent methods, are offered free of charge in the public sector, but women may still incur costs. These include: the costs associated with searching for information about methods and where to obtain them; the time and travel costs associated with obtaining them; costs associated with managing side-effects associated with use; and psychological costs associated with not obtaining one's desired method or managing the stigma associated with use.^{58,59}

The user perspective

According to South African law, anyone aged 12 and older has the right to receive contraception without parental consent.⁶⁰ Unfortunately, this legal right to access services is not reflected in the rates of adolescent pregnancy in the country. This is in part because healthcare providers' opinions often differ from the law. Holt et al.⁴⁰ reported that many of the healthcare providers at three public health facilities in Soweto thought that young women should not have sex before marriage and therefore should not access contraceptives. When probed about what methods were most appropriate for young women if used, the majority of the providers responded that young women should use injectables. Pills were not seen to be an option due to the reported inability of young women to remember to take them every day, and IUCDs were also not recommended.⁴⁰ These beliefs are contrary to international recommendations which recommend long-acting, reversible methods such as the IUCD and implant as first-line methods for young women.^{61–63}

HIV-positive women also require special consideration – clinically and psychosocially – when considering access to contraception. Research from South Africa conducted before large-scale changes in ARV access showed that HIV-positive women had fertility desires similar to those of HIV-negative women; however, their ability to achieve their desired family size was mediated by fear of the risk of partner and child infection and perceived disapproval from society of childbearing while HIV-positive.⁶⁴ Today, ARVs are widely available, and South Africa's prevention of mother-to-child transmission of HIV (PMTCT) programme is considered highly successful.⁶⁵ However, access to fertility counselling and assisted reproductive technologies is still limited, especially in the public sector.

All women, regardless of HIV status or age, could benefit from additional information on contraception. Although challenging and not the ideal solution, some women can overcome barriers to access, particularly those posed by unhelpful or discriminatory

healthcare providers, if they have the information and agency to do so. The 2003 SADHS showed that educated women were more likely to be using a contraceptive method at the time of the survey,¹⁶ and qualitative research from Soweto revealed that tenacious, highly motivated young women can sometimes obtain contraceptive methods from disapproving healthcare providers despite the odds.³⁹ Demand-creation activities, such as awareness-raising campaigns and education on reproduction and contraception in schools, have been shown to be cost-effective strategies for increasing contraceptive uptake;⁵⁸ however, the importance of offering a high-quality service should not be underestimated.

Finally, women's access to contraceptive services must be considered within the larger social context. Despite progressive laws and policies, strong power differentials in heterosexual relationships and social and structural barriers to educational, economic and political advancement strongly disadvantage women.⁶⁶ South Africa's rates of interpersonal and gender-based violence are exceedingly high,⁶⁷ and attitudes about young women's sexuality are generally disapproving, with the dominant discourse presenting young mothers as promiscuous and representative of the degradation of cultural and social mores.^{40,68,69} All of these factors undoubtedly impact on women's ability to access services and their prioritisation of contraceptive access in terms of their day-to-day needs.

The implant in South Africa

Introduction of the implant in South Africa in 2014 was relatively late compared with other countries on the continent; however, it is an example of a step taken towards improving the quality of contraceptive services through expanding women's options and increasing access to long-acting reversible contraception, and raising awareness regarding method availability nationally. The implant is registered for use in over 100 countries globally, including countries in the Southern African region.⁷⁰ It consists of matchstick-sized rods filled with progestogen, which are inserted under the skin of a woman's upper arm. The implant is effective for three to five years depending on the implant type.⁷⁰ Both Jadelle and Implanon-NXT have been approved for use in South Africa, but distribution has focused on Implanon-NXT.

Throughout 2013 and early 2014, training manuals were developed and over 6 000 healthcare providers, mainly nurses, were trained on insertion of Implanon-NXT. Cascade of this training and training on implant removal is ongoing. In the same time period, supplies were procured, and distribution systems were readied and tested.⁷¹ To complement supply-side preparations for service delivery, in February 2014 the National Department of Health launched a grass-roots campaign to promote the release of the CFP guidelines and raise awareness on various issues including availability of the implant, the benefits of longer-acting methods, and the importance of condom use for dual protection against pregnancy and HIV.⁷² The availability of a new method, training of providers and demand creation resulted in swift uptake. Provincial preliminary reports show provision of 807 079 implants to women through December 2014.⁷¹

Interestingly, in parallel with the success of the campaign and distribution thereafter, introduction of the implant has highlighted existing challenges with South Africa's contraceptive service delivery. The implant is a temporary or 'reversible' method of contraception,

but unlike the pill and injections, which are also temporary, the implant requires that a woman see a healthcare provider to have it removed. This forces women to re-engage with the healthcare system if they are not satisfied with the method or if they have changed their mind about its use.

There has been growing concern about the number of women returning for early removal of the implant, some within a few months of insertion. Establishment of formal monitoring systems for the implant lagged behind roll-out of the method, which has posed a challenge in determining the true extent of removals. However, estimates and preliminary data collection from the provinces suggest that as of December 2014, 820 implants were removed, suggesting a possible 0.1% removal rate in the early part of the roll-out.⁷¹ More refined data collection and careful observation over time are needed. The removal rate is likely to have increased in 2015 as access to removal services increased; however, the rate for 2014 is lower than anecdotally reported in South Africa and compares favourably with removal rates from other countries. A study from the Netherlands showed that 8% of women who chose to use Implanon had discontinued its use within 12 months.⁷³ In a study in the US, 31% of women and adolescents who chose an implant discontinued using that method before 24 months,⁷⁴ and in a study in Australia, 47% of women discontinued the implant during a follow-up period of three years.⁷⁵

Despite South Africa's implant removal rate being both expected and in line with data from other contraceptive services internationally, the demand for removal spurred attention and negative press, – and has called into question the quality and safety of the method.⁷⁶ Concerns have also been raised in academic publications and reported by the media about the efficacy of the method for HIV-positive women taking ARVs.⁷⁶ Implants contain synthetic progesterone: either etonogestrel (Implanon, Implanon-NXT and Nexplanon) or levonorgestrel (Jadelle, Sino-implant). Efavirenz (EFV)-based anti-retroviral treatment (ART), which is the leading first-line treatment regimen for HIV-positive women in resource-limited settings,⁷⁵ stimulates metabolism of the synthetic progesterone released by the implant, thus potentially reducing blood concentrations in some women.^{78,79} Research conducted prior to the introduction of the implant in South Africa showed that women may respond differently to reduced etonogestrel or levonorgestrel concentrations; there were conflicting study results on the potential for the reductions caused by EFV to lead to increased risk of pregnancy.^{79–81}

Based on evidence available at the time, in October 2014, the National Department of Health released a circular to the provinces indicating that women taking EFV-based ART or certain epilepsy- and TB-related drugs (which work similarly to EFV in the body) should not be given the subdermal implant, and that women taking these medications who had already received the implant should be given the option of having the implant removed and taking up another method. Regrettably, the circular did not indicate that the implant was safe to continue using if a woman chose to do so and that, in fact, the method would still offer protection from pregnancy albeit with reduced efficacy.

Since then, newly published work has underscored the idea that the subdermal implant may still be a good option for some HIV-positive women taking EFV-based ART. Patel et al. conducted a retrospective, longitudinal cohort analysis based on data from roughly 25 000

HIV-positive women in Kenya.⁸² Women using the implant and EFV-based ART were three times more likely to become pregnant than women using nevirapine-based ART. However, the risk of pregnancy for women using all other forms of contraception – except for IUCDs or sterilisation – was higher than for women using the implant and EFV-based ART regimens. This is further supported by Pyra et al.⁸³ The authors combined data from seven African countries. They found decreased effectiveness among women using EFV-based ART and the implant; however, women using EFV-based ART and the implant still benefited from lower pregnancy risk than did women using EFV-based ART and other contraceptive methods.

This kind of situation – where technical, nuanced information needs to be filtered to the public through healthcare providers – is not new in the contraceptive field. There is an ongoing yet unanswered scientific debate regarding the potential for use of progestogen-only injectables (DMPA/Depo and Net-EN) to elevate women's risk of HIV acquisition.⁸⁴ To date, there is no consensus on this question. Research currently under way (the 'ECHO study') aims to answer this question directly. In the meantime, the World Health Organization has issued a cautionary statement advising women at risk of HIV to use dual protection.⁸⁵ This issue is discussed in the CFP guidelines, and is cited as one of the reasons for the aim of reducing the country's heavy reliance on injectable contraceptives. This issue, as well as the new research on the implant and ARVs, highlights the need for careful messaging on contraceptive use and ongoing training for and communication with healthcare providers who are expected to convey messages to the public.

Conclusions

South Africa's laws, policies and guidelines on contraceptive service provision in the public sector are progressive and comprehensive, and promote integrated, rights-based service delivery. Most women have heard of modern contraception and many are already using it. The CFP guidelines call for increased uptake of long-acting methods and reduced dependency on progestogen-only injectables.¹³

In this environment, achieving the SDGs and National Development Plan goals on universal access to sexual and reproductive health services and the FP2020 goals on scaling up contraceptive access specifically, will require careful consideration of existing service delivery and opportunities for incremental progress. Improvements should build on existing infrastructure, policies and service delivery successes.

HIV has been a game-changer for health care in South Africa. It has forced discussion on equitable access to care and demanded innovation in the context of limited resources. The National Department of Health has responded to the HIV epidemic and other health-related challenges with considered solutions, which will benefit the population as a whole. Today, the environment with regard to healthcare provision in South Africa is rapidly evolving. A plan for National Health Insurance (NHI) has recently been released and outlines a phased approach for bringing together the public and private sectors under a single-payer system.⁸⁶ Ongoing pilots for NHI have included public-private partnerships for delivery of contraception, to increase access by making affordable contraception available in more geographic locations. The NHI initiative also presents opportunities for the merging of quality control and data collection and management systems – potentially allowing a more

complete picture of access and uptake in the country. Primary health care re-engineering is also under way and could further increase access to contraception through community-based distribution via Ward-based Primary Health Care Outreach Teams, School Health Services, and District Clinical Specialist Teams.⁸⁷

Given this shifting landscape, goals for shifting and scale-up of contraceptive use in South Africa present unique challenges for the road ahead. Fortunately there is renewed attention on contraceptive services globally, and plenty of available evidence on effective and cost-effective strategies for intervention. Accountability at every stage – from budgeting for methods to dispensing to women – is critical. CYP and unmet need for family planning will be important to assess over time; however, women who report ‘current use’ of contraceptives will require as much support as women who may not be currently using a method, and certain key groups, such as unmarried women, young women and HIV-positive women, require special attention. All women will require counselling, education and supportive interactions with the healthcare system throughout the continuum of their reproductive lives – focusing on both conception and contraception – in order for South Africa to reap the benefits of improved contraceptive uptake.

Recommendations

The following are specific recommendations to meet the goals of the CFP guidelines and address South Africa’s commitment to FP2020 and achieving universal access to sexual and reproductive health, measured here through contraceptive access and uptake:

Policy implementation. financing

- Identify best practices for policy implementation. Draper et al. highlighted the need for “communication between national and provincial levels, the need for provincial structures to take responsibility for implementation, and capacity-building to enable policymakers and planners to develop, monitor and implement policy”.⁸⁸
- Consider changes to budgeting/financing for contraceptive services that would allow for improved tracking and greater accountability – possibly a conditional grant for sexual and reproductive health services.
- Improve forecasting and supply chain management for contraceptive commodities through use of available technologies and training for the personnel involved.⁸⁹

Access and method mix

- Emphasise integration of services and the availability of a mix of methods at all service levels.
- Consider limited method choice to be a form of stock-out. The Reproductive Health Supplies Coalition provides a list of indicators for measuring reproductive health commodity stock-outs.³⁸
- Ensure that all facilities offer long-acting reversible methods and that permanent methods are easily available by referral. These are cost-effective and least likely to be discontinued.^{74,90}
- Capitalise on existing and planned relationships and agreements with the private sector to improve service provision and monitoring.

Address the role of the healthcare provider and access to information

- Acknowledge the role of healthcare providers as “street-level bureaucrats”.⁹¹ Engage them from the point of policy development, ensuring buy-in before implementation.
- Recognise the role of healthcare personnel in data collection, budgeting and planning for services.
- Prioritise training on contraceptive counselling. High-quality counselling should include discussion of the availability of a range of methods, the potential for side-effects including how they may lessen over time, how to use each method correctly, and the option to switch methods if necessary.
- Develop and promote innovative approaches for information-sharing on reproduction and contraception, such as websites, social media, mobile phone applications, and interactive learning platforms.
- Provide healthcare workers with clear guidance on effective messaging for complicated, technical issues and the tools required to convey messages to diverse audiences.
- Recognise the severe scarcity of resources in the public sector. Strive to improve working conditions and improve throughput in the country’s clinical and nursing training institutions.
- Given existing resources and possible limitations on improving all health facilities overnight, consider the creation of ‘centres of excellence’ that could allow for focused development of expertise, establishment of best practice, and provision of comprehensive, high-quality, integrated sexual and reproductive health services.

Create demand while addressing societal barriers

- Deepen outreach and awareness-raising efforts for communities so that they address more than the availability of methods. Provide information on topics such as reproductive cycles, correct and consistent use of contraception, dual protection, and the advantages and disadvantages of long-acting reversible and permanent methods.
- Target key groups with ethical and appropriate information and services. Prevention of unintended pregnancy among HIV-positive women is part of UNAIDS’ four-pronged strategy for HIV prevention.⁹² However, it remains paramount that healthcare providers are trained to allow HIV-positive women (and men) to make their own choices with regard to contraception and childbearing, and that they are provided with the information they require both to conceive and prevent pregnancy safely.
- Address the social determinants of health – poverty, employment, gender dynamics, etc. – which may affect women’s ability to prioritise and seek contraceptive services.
- Engage men, acknowledging their role as potential barriers and facilitators to access.
- Educate communities on the rights of young and/or unmarried women to have healthy, satisfying sexual lives and to use contraception.

Research

- Engage the research community to determine the best ways to improve healthcare provider attitudes and counselling quality.
- Develop and test messages for providers and communities regarding complex technical information on contraception.
- Elicit women's input on when, where and how to engage them with regard to contraceptive use.
- Support continued exploration of the complex interactions between HIV, ARVs and other medications, including hormonal contraceptives.

Monitoring progress

- In addition to unmet need, the CPR and CYP, consider other indicators to measure progress over time, including:
 - Percentage of facilities offering a mixture of short-acting and long-acting modern contraceptive methods
 - Percentage of facilities offering a permanent method of family planning
 - Number of health providers trained in long-acting and permanent services
 - Percentage of facilities meeting minimum standards with regard to essential supplies and equipment to support provision of long-acting and permanent services
 - Percentage of facilities with appropriate staff to support quality long-acting and permanent services
 - Percentage of clients who receive high-quality, comprehensive counselling for long-acting and permanent services
 - Percentage of women and men aged 15 to 49 who had more than one sexual partner in the past 12 months reporting the use of a condom during their last sexual intercourse
 - Percentage of family planning clients who received HIV testing at the family planning service delivery point or who were referred for HIV testing
 - Percentage of female clients of reproductive age attending HIV-related service delivery points with unmet need for family planning.

More information on all of these indicators is available through MEASURE Evaluation's Family Planning and Reproductive Health Indicators Database.⁹³

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References

- 1 United Nations. The Millennium Development Goals Report 2015. New York: United Nations; 2015.
- 2 United Nations Statistics Division. Millennium Development Goals Indicators: The official United Nations site for the MDG indicators [Internet]. 2008 [cited 13 January 2016]. URL: <http://mdgs.un.org/unsd/mdg/host.aspx?Content=indicators/officialist.htm>
- 3 United Nations Department of Economic and Social Affairs. Sustainable Development Goals [Internet]. Sustainable Development Knowledge Platform. 2015 [cited 26 November 2015]. URL: <https://sustainabledevelopment.un.org/topics>
- 4 FP2020. What We Do [Internet]. 2016 [cited 5 February 2016]. URL: <http://www.familyplanning2020.org/microsite/about-us>
- 5 Austveg B. Perpetuating power: Some reasons why reproductive health has stalled. *Reprod Health Matters*. 2011;19(38):26–34.
- 6 Republic of South Africa. Constitution of the Republic of South Africa, No 108 of 1996. Pretoria: Government Printer; 1996.
- 7 National Planning Commission Republic of South Africa. Our future - make it work: Executive Summary. National Development Plan 2030. Pretoria: The Presidency, Republic of South Africa; 2013.
- 8 Republic of South Africa. National Health Act, 61 of 2003. Government Gazette, No. 26595. Cape Town: Government Printer; 2004.
- 9 South African Department of Social Development. National Adolescent Sexual and Reproductive Health and Rights Framework Strategy 2014–2019. Pretoria: South Africa; 2015.
- 10 South African National Department of Health. Strategic Plan for Maternal, Newborn, Child and Women's Health (MNCWH) and Nutrition in South Africa 2012–2016. Pretoria: South Africa; 2012.
- 11 South African National Department of Health. National Contraception Policy Guidelines. Pretoria, South Africa; 2001.
- 12 Burgard S. Factors associated with contraceptive use in late- and post-apartheid South Africa. *Stud Fam Plann*. 2004;35(2):91–104.
- 13 South African National Department of Health. National Contraception and Fertility Planning Policy and Service Delivery Guidelines. Pretoria, South Africa; 2012.
- 14 Hatcher R, Trussell J. Typical and Perfect Use Effectiveness of Contraceptive Methods: Seven approaches to decreasing unintended pregnancy [Internet]. 2014 [cited 12 February 2016]. URL: <http://www.contraceptivetechnology.org/wp-content/uploads/2014/09/LB-13-Handout-Unintended-Pregnancies-7-Approaches-9-4-14.pdf>
- 15 MEASURE Evaluation. Contraceptive Prevalence Rate [Internet]. [cited 6 January 2016]. URL: http://www.cpc.unc.edu/measure/prh/rh_indicators/specific/fp/cpr
- 16 South African National Department of Health, Medical Research Council, ORCMacro. South Africa Demographic and Health Survey 2003. Pretoria: National Department of Health; 2007.
- 17 Alkema L, Kantorova V, Menozzi C, Biddlecom A. National, regional, and global rates and trends in contraceptive prevalence and unmet need for family planning between 1990 and 2015: a systematic and comprehensive analysis. *Lancet*. 2013;381:1642–52.
- 18 Stover J, Bertrand JT, Shelton JD. Empirically based conversion factors calculating couple-years of protection. *Eval Rev*. 2000;24(1).
- 19 Massyn N, Peer N, Padarath A, Barron P, Day C, editors. District Health Barometer 2014/15. Durban: Health Systems Trust; October 2015.
- 20 United States Agency for International Development (USAID). Couple Years of Protection [Internet]. 2014 [cited 6 January 2016]. URL: <https://www.usaid.gov/what-we-do/global-health/family-planning/couple-years-protection-cyp>
- 21 Keeton C. Bridging the gap in South Africa. *Bull World Health Organ*. 2010 Nov 1;88:803–4.
- 22 Flanagan A, Lince N, Durao de Menezes I, Mdlopane L. Teen Pregnancy in South Africa: A Literature Review Examining Contributing Factors and Unique Interventions. Johannesburg: Ibis Reproductive Health; 2013.
- 23 MEASURE Evaluation. Unmet Need for Family Planning [Internet]. [cited 14 January 2016]. URL: http://www.cpc.unc.edu/measure/prh/rh_indicators/specific/fp/unmet-need-for-family-planning
- 24 Sedgh G, Hussain R, Bankole A, Singh S. Women with an unmet need for contraception in developing countries and their reasons for not using a method. Occasional Report No. 37. New York: Guttmacher Institute; 2007.
- 25 Singh S, Darroch JE, Vlassof M, Nadeau J. Adding It Up: The benefits of investing in sexual and reproductive health care. New York: Guttmacher Institute; 2003.
- 26 Trussell J. Contraceptive efficacy. In: Hatcher RA, et al., editors. *Contraceptive Technology*. 18th ed. New York: Ardent Media; 2004.
- 27 Castle S, Askew I. Contraceptive Discontinuation: Reasons, Challenges, and Solutions. New York: Population Council; 2015.
- 28 Baumgartner JN, Morroni C, Mlobeli RD, Otterness C, Myer L, Janowitz B, et al. Timeliness of contraceptive reinjections in South Africa and its relation to unintentional discontinuation. *Int Fam Plan Perspect*. 2007;33(2):66–74.
- 29 Beksinska ME, Rees HV, Smit J. Temporary discontinuation: A compliance issue in injectable users. *Contraception*. 2001;64(5):309–13.
- 30 Dickinson BD, Altman RD, Nielsen NH, Sterling ML. Drug interactions between oral contraceptives and antibiotics. *Obstet Gynecol*. 2001;98(5):853–60.
- 31 Patsalos PN, Perucca E. Clinically important drug interactions in epilepsy: interactions between antiepileptic drugs and other drugs. *Lancet Neurol*. 2003;2(8):473–81.
- 32 Bruce J. Fundamental elements of the quality of care - a simple framework. *Stud Fam Plann*. 1990;21(2):61–91.
- 33 Futures Institute. The impact of stock-outs on the use of modern contraception. Presentation at the International Conference on Family Planning. Ethiopia: 2013. URL: http://www.xcdsystem.com/ICFP2013/abstract/panels/78_3.pdf

- 34 Republic of South Africa. Division of Revenue Bill, Act 10 of 2014. Government Gazette Vol. 586, No. 37595. Cape Town: Government Printer; 2014.
- 35 Alm J, Martinez-Vazquez J. South Africa's Provincial Equitable Share: An assessment of issues and proposals for reform. International Studies Program, Working Paper 09-04. Atlanta, USA: Georgia State University, Andrew Young School of Policy Studies; 2009.
- 36 Guthrie T, Hickey-Tshangana A. Overview of the public finance system in South Africa: The budgeting and expenditure procedures. Cape Town: Centre for Economic Governance and AIDS in Africa; 2012.
- 37 Bateman C. Drug stock-outs: Inept supply-chain management and corruption. *S Afr Med J*. 2013 Sep;103(9):600–2.
- 38 Reproductive Health Supplies Coalition. Harmonized Suite of Indicators to Measure Stockouts and Availability of Contraceptives, version 1.0. Arlington: JSI Research and Training Institute; 2015.
- 39 Lince-Deroche N, Hargey A, Holt K, Shochet T. Accessing Sexual and Reproductive Health Information and Services: A Mixed Methods Study of Young Women's Needs and Experiences in Soweto, South Africa. *Afr J Reprod Heal*. 2015;19(1):73.
- 40 Holt K, Lince N, Hargey A, Struthers H, Nkala B, Mcintyre J, et al. Assessment of Service Availability and Health Care Workers' Opinions about Young Women's Sexual and Reproductive Health in Soweto, South Africa. *Afr J Reprod Health*. 2012;16(2):283–93.
- 41 Campbell M, Sahin-Hodoglugil NN, Potts M. Barriers to Fertility Regulation: A review of the literature. *Stud Fam Plann*. 2006 Jun;37(2):87–98.
- 42 Trent M, Thompson C, Tomaszewski K. Text messaging support for urban adolescents and young adults using injectable contraception: Outcomes of the DepoText pilot trial. *J Adolesc Heal*. 2015;57(1):100–6.
- 43 Lou C-H, Wang B, Shen Y, Gao E-S. Effects of a community-based sex education and reproductive health service program on contraceptive use of unmarried youths in Shanghai. *J Adolesc Heal*. 2004 May;34(5):433–40.
- 44 Pradhan A, Sparano D, Ananth C V. The influence of an audience response system on knowledge retention: An application to resident education. *Am J Obstet Gynecol*. 2005;193(5):1827–30.
- 45 Jain A, Bruce J, Kumar S. Quality of services programme efforts and fertility reduction. In: Phillips JF, Ross JA, editors. *Family planning programmes and fertility*. Oxford, England: Clarendon Press; 1992. p. 202–21.
- 46 Jain A, Bruce J, Mensch B. Setting standards of quality in family planning programs. *Stud Fam Plann*. 1992;23(6):392–5.
- 47 Mwaikambo L, Speizer IS, Schurmann A, Morgan G, Fikree F. What works in family planning interventions: a systematic review. *Stud Fam Plann*. 2011 Jun;42(2):67–82.
- 48 Miller K, Miller R, Askew I, Horn MC, Ndhlovu L. Clinic-Based Family Planning and Reproductive Health Services in Africa : Findings from situational analysis studies. New York: Population Council, Africa Operations Research and Technical Assistance Project; 1998.
- 49 Mensch B, Arends-Kuenning M, Jain A. The impact of the quality of family planning services on contraceptive use in Peru. *Stud Fam Plann*. 1996;27(2):59–75.
- 50 Koenig M, Hossain M, Whittaker M. The influence of quality of care upon contraceptive use in rural Bangladesh. *Stud Fam Plann*. 1997;28(4):278–89.
- 51 Mroz TA, Bollen KA, Speizer IS, Mancini DJ. Quality, Accessibility, and Contraceptive Use in Rural Tanzania. *Demography*. 1999;36(1):23–40.
- 52 Arends-Kuenning M, Kessy FL. The impact of demand factors, quality of care and access to facilities on contraceptive use in Tanzania. *J Biosoc Sci*. 2007;39:1–26.
- 53 Penchansky R, Thomas JW. The concept of access: definition and relationship to consumer satisfaction. *Med Care*. 1981 Feb;19(2):127–40.
- 54 Evans DB, Hsu J, Boerma T. Universal health coverage and universal access. *Bull World Health Organ*. 2013;91:546–546A.
- 55 Mcintyre D, Thiede M, Birch S. Access as a policy-relevant concept in low- and middle-income countries. *Heal Econ Policy Law*. 2009;4:179–93.
- 56 Ramkissoon A, Coovadia H, Hlazo J, Coutsooudis A, Mthembu P, Smit J. Options for HIV-positive women: women's health. In: Ijumba P, Padarath A, editors. *South African Health Review 2006*. Durban: Health Systems Trust; 2006.
- 57 Wood K, Jewkes R. Blood blockages and scolding nurses: barriers to adolescent contraceptive use in South Africa. *Reprod Health Matters*. 2006;14(27):109–18.
- 58 Matheny G. Family planning programs: getting the most for the money. *Int Fam Plan Perspect*. 2004 Sep;30(3):134–8.
- 59 Pritchett LH. Desired fertility and the impact of population studies. *Popul Dev Stud*. 1994;20(1):1–55.
- 60 Republic of South Africa. Children's Act, 38 of 2005. Government Gazette Vol. 492, No. 28944. Cape Town: Government Printer; 2006.
- 61 Republic of South Africa. Children's Amendment Act, 41 of 2007. Government Gazette Vol. 513 No. 30884. Cape Town: Government Printer; 2008.
- 62 American Congress of Obstetricians and Gynecologists. IUDs and Contraceptive Implants Safe for Teens [Internet]. 2012 [cited 16 March 2016]. URL: http://www.acog.org/About_ACOG/News_Room/News_Releases/2012/IUDs_and_Contraceptive_Implants_Safe_for_Teens
- 63 World Health Organization. Medical eligibility criteria for contraceptive use, Fifth edition. Geneva: World Health Organization; 2015.
- 64 Cooper D, Harries J, Myer L, Orner P, Bracken H, Zweigenthal V. "Life is still going on": reproductive intentions among HIV-positive women and men in South Africa. *Soc Sci Med*. 2007 Jul;65:274–83.
- 65 Barron P, Pillay Y, Doherty T, Sherman G, Jackson D, Bhardwaj S, et al. Eliminating mother-to-child HIV transmission in South Africa. *Bull World Heal Organ*. 2013;91:70–4.
- 66 Jewkes R, Morrell R. Gender and sexuality: emerging perspectives from the heterosexual epidemic in South Africa and implications for HIV risk and prevention. *J Int AIDS Soc*. 2010;13(6):1–11.
- 67 Jewkes R, Levin J, Penn-Kekana L. Risk factors for domestic violence: Findings from a South African cross-sectional study. *Soc Sci Med*. 2002;55(9):1603–17.
- 68 South African Press Association (SAPA). Zuma: Send teenage moms to Robben Island. Mail & Guardian. 11 March 2015.
- 69 Nicolson A. Babies for bling: how teenage pregnancy became emblematic of misspent youth in South Africa. Today's News, University of Cape Town. 14 January 2016. [Internet] [cited 16 March 2016]. URL: <http://www.uct.ac.za/dailynews/archives/?id=9525>

- 70 World Health Organization, Department of Reproductive Health and Research. WHO statement on progestogen-only implants. Geneva: World Health Organization; 2015.
- 71 South African National Department of Health. National Perspective: Subdermal Implant Roll-out Statistics. Meeting Report: The Contraceptive Implant in South Africa, 27 August 2015. Centurion, South Africa; 2015.
- 72 South African National Department of Health 2013/14. Department of Health Annual Report. Pretoria; National Department of Health; 2014.
- 73 Teunissen AM, Grimm B, Roumen FJME. Continuation rates of the subdermal contraceptive Implanon® and associated influencing factors. *Eur J Contracept Reprod Heal Care.* 2014;19:15–21.
- 74 O'Neil-Callahan M, Peipert JF, Zhao Q, Madden T, Secura G. Twenty-four-month continuation of reversible contraception. *Obstet Gynecol.* 2013;122(5):1083–91.
- 75 Weisberg E, Bateson D, McGeechan K, Mohapatra L. A three-year comparative study of continuation rates, bleeding patterns and satisfaction in Australian women using a subdermal contraceptive implant or progestogen releasing-intrauterine system. *Eur J Contracept Reprod Heal Care.* 2014;19(1):5–14.
- 76 Skosana I. Birth control implant needs a shot in the arm. *Mail & Guardian.* Johannesburg, South Africa; 22 May 2015.
- 77 World Health Organization. Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection: recommendations for a public health approach. Geneva: World Health Organization; 2013.
- 78 Vieira CS, Bahamondes M V, de Souza RM, Brito MB, Rocha Prandini TR, Amaral E, et al. Effect of Antiretroviral Therapy Including Lopinavir/Ritonavir or Efavirenz on Etonogestrel-Releasing Implant Pharmacokinetics in HIV-Positive Women. *J Acquir Immune Defic Syndr.* 2014;66(4):378–85.
- 79 Scarsi KK, Darin KM, Nakalema S, Back DJ, Byakika-Kibwika P, Else LJ, et al. Unintended Pregnancies Observed With Combined Use of the Levonorgestrel Contraceptive Implant and Efavirenz-based Antiretroviral Therapy: A Three-Arm Pharmacokinetic Evaluation Over 48 Weeks. *Clin Infect Dis.* 2016 Mar 15;62(6):675–82.
- 80 Perry SH, Swamy P, Preidis G a, Mwanyumba A, Motsa N, Sarero HN. Implementing the Jadelle implant for women living with HIV in a resource-limited setting in sub-Saharan Africa: concerns for drug interactions leading to unintended pregnancies. *AIDS.* 2014 Jan 2;28.
- 81 Kreitchmann R, Innocente AP, Preussler GMI. Safety and efficacy of contraceptive implants for HIV-infected women in Porto Alegre, Brazil. *Int J Gynecol Obstet.* 2012;117:81–9.
- 82 Patel RC, Onono M, Gandhi M, Blat C, Hagey J, Shade SB, et al. Pregnancy rates in HIV-positive women using contraceptives and efavirenz-based or nevirapine-based antiretroviral therapy in Kenya: a retrospective cohort study. *Lancet HIV.* 2015;3018(15):10–8.
- 83 Pyra M, Heffron R, Mugo NR, Nanda K, Thomas KK, Partners in Prevention HSV/HIV Transmission Study, et al. Effectiveness of contraception for HIV-infected women using antiretroviral therapy combined data from 3 longitudinal studies. Abstract MOPDB0103. In: 8th International AIDS Society Conference on HIV Pathogenesis, Treatment, and Prevention. Vancouver, Canada; 2015.
- 84 Polis CB, Phillips SJ, Curtis KM, Westreich DJ, Steyn PS, Raymond E, et al. Hormonal contraceptive methods and risk of HIV acquisition in women: a systematic review of epidemiological evidence. *Contraception.* 2014;90:360–90.
- 85 World Health Organization Department of Reproductive Health and Research. Hormonal contraception and HIV: Technical statement. Geneva: World Health Organization; 2012.
- 86 South African National Department of Health. National Health Insurance for South Africa: Towards universal health coverage (White Paper). Pretoria, National Department of Health; 2015.
- 87 Pillay Y, Barron P. The implementation of PHC re-engineering in South Africa . *Public Health Association of South Africa.* [Internet]. 2011 [cited 16 March 2016]. URL: <https://www.phasa.org.za/the-implementation-of-phc-re-engineering-in-south-africa/>
- 88 Draper CE, Lund C, Kleintjes S, Funk M, Omar M, Flisher AJ, et al. Mental health policy in South Africa: development process and content. *Health Policy Plan.* 2009;24(5):342–56.
- 89 Kumar D. Challenges facing Supply Chains in South Africa. KPMG South Africa Blog [Internet]. 2013 [cited 16 January 2016]. URL: <http://www.sablog.kpmg.co.za/2013/12/challenges-facing-supply-chains-south-africa/>
- 90 Trussell J, Hassan F, Lowin J, Law A, Filonenko A. Achieving cost-neutrality with long-acting reversible contraceptive methods. *Contraception.* 2015;9(1):49–56.
- 91 Walker L, Gilson L. “We are bitter but we are satisfied”: nurses as street-level bureaucrats in South Africa. *Soc Sci Med.* 59(6):1251–61.
- 92 World Health Organization Department of HIV/AIDS. Prevention of Mother-To-Child Transmission (PMTCT): Briefing Note. Geneva: World Health Organization; 2007.
- 93 MEASURE Evaluation. Family Planning and Reproductive Health Indicators Database [Internet]. [cited 2 January 2016]. URL: http://www.cpc.unc.edu/measure/prh/rh_indicators/indicator-summary