

PAPUA NEW GUINEA

ACTIONS FOR **SCALING UP LONG-ACTING REVERSIBLE CONTRACEPTION**



PAPUA NEW GUINEA

ACTIONS FOR SCALING UP LONG-ACTING REVERSIBLE CONTRACEPTION

© World Health Organization 2017

ISBN 978 92 9061 792 1

Some rights reserved. This work is available under the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 IGO licence (CC BY-NC-SA 3.0 IGO; <https://creativecommons.org/licenses/by-nc-sa/3.0/igo>).

Under the terms of this licence, you may copy, redistribute and adapt the work for non-commercial purposes, provided the work is appropriately cited, as indicated below. In any use of this work, there should be no suggestion that WHO endorses any specific organization, products or services. The use of the WHO logo is not permitted. If you adapt the work, then you must license your work under the same or equivalent Creative Commons licence. If you create a translation of this work, you should add the following disclaimer along with the suggested citation: "This translation was not created by the World Health Organization (WHO). WHO is not responsible for the content or accuracy of this translation. The original English edition shall be the binding and authentic edition". Any mediation relating to disputes arising under the licence shall be conducted in accordance with the mediation rules of the World Intellectual Property Organization (<http://www.wipo.int/amc/en/mediation/rules>).

Suggested citation. Papua New Guinea Actions for scaling up long-acting reversible contraception. World Health Organization Regional Office for the Western Pacific; 2017. Licence: CC BY-NC-SA 3.0 IGO.

Cataloguing-in-Publication (CIP) data. 1. Contraception. 2. Family planning services. 3. Papua New Guinea. I. World Health Organization Regional Office for the Western Pacific.

Sales, rights and licensing. To purchase WHO publications, see <http://apps.who.int/bookorders>. To submit requests for commercial use and queries on rights and licensing, see <http://www.who.int/about/licensing>. For WHO Western Pacific Regional Publications, request for permission to reproduce should be addressed to Publications Office, World Health Organization, Regional Office for the Western Pacific, P.O. Box 2932, 1000, Manila, Philippines, Fax. No. (632) 521-1036, email: wpropuballstaff@who.int

Third-party materials. If you wish to reuse material from this work that is attributed to a third party, such as tables, figures or images, it is your responsibility to determine whether permission is needed for that reuse and to obtain permission from the copyright holder. The risk of claims resulting from infringement of any third-party-owned component in the work rests solely with the user.

General disclaimers. The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement. The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by WHO in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters. All reasonable precautions have been taken by WHO to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either expressed or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall WHO be liable for damages arising from its use.

For inquiries and request for WHO Western Pacific Regional Publications, please contact the Publications Office, World Health Organization, Regional Office for the Western Pacific, P.O. Box 2932, 1000, Manila, Philippines, Fax. No. (632) 521-1036, email: wpropuballstaff@who.int

Contents

Executive summary	v
Introduction	1
Country context	2
Results	3
The general health-care delivery system in Papua New Guinea	3
Contraceptive coverage	4
Coverage and uptake of implants	6
National policies on family planning	6
Programme management and leadership	9
Procurement of family planning commodities	10
Health worker knowledge and skills	10
Reproductive health outcomes	11
Cost analysis	13
Recommendations and conclusion	17
Template for provincial capacity-building plan	19
Annexes	20
Annex 1. Contraceptive effectiveness	20
Annex 2. Methodological issues	21
Bibliography	23
Endnotes	25

Acknowledgements

The team would like to express its deepest appreciation to all those who have supported and contributed to the study. The contributions of many professionals in the National Department of Health and various urban health clinics have been instrumental in shaping this important study.

Special thanks are due to Dr William Lagani of the Family Health Unit in the National Department of Health for his leadership, wisdom and commitment to support and strengthen family planning in Papua New Guinea.

Thanks are also given to Mr Alessandro Iellamo who helped conceptualize and carry out the study, as well as draft the report.

We acknowledge the contribution of the other partners, including the United Nations Population Fund, Marie Stopes International, Suso Mamas, Port Moresby General Hospital, and the Rotary Australia health centres and clinics, as well as the numerous villages, for participating in, facilitating and supporting the process and for sharing their insights, views, suggestions and experiences, which were crucial.

Abbreviations

CPR	contraceptive prevalence rate
CYP	couple years protection
DHS	Demographic and Health Survey
FAQ	frequently asked questions
HEO	health extension officer
HIV	human immunodeficiency virus
IPPF	International Planned Parenthood Federation
IUD	intrauterine device
NDOH	National Department of Health
NHIS	National Health Information System
SDGs	Sustainable Development Goals
UNFPA	United Nations Population Fund
WHO	World Health Organization

Executive summary

Background

Among the Member States of the World Health Organization (WHO) Western Pacific Region, Papua New Guinea has one of the lowest contraceptive prevalence rates at 32.4%, among married women. Addressing the unmet need for family planning is critical to reach the United Nations Sustainable Development Goals (SDGs). Fewer unwanted pregnancies reduce maternal and child mortality, morbidity and malnutrition, and also improve employment opportunities for women, educational attainment and economic gains. Reversible contraceptive methods allow a woman to stop using the methods if and when she decides to have another baby. Long-acting methods are most effective and are cost-effective. Unintended pregnancies occur in two to eight per 1000 women per year using intrauterine devices (IUDs) and 0.5 per 1000 women using implants, versus 30 per 1000 women per year using progestin-only injectables, 80 per 1000 women using pills, and 150 per 1000 women using male condoms.

This study aims to address:

- What strategic actions can build upon the current family planning programme to accelerate the reduction of undesired pregnancies?
- Is scaling up long-acting reversible contraception, including implants, feasible nationwide?

A literature review, a cost analysis, and on-site semi-structured interviews with health workers, family planning programmers and nongovernmental organizations were conducted.

Results

Government policies support the availability and use of family planning services. However, detailed operational guidance documents do not exist.

Health workers acknowledged efforts by the government to promote long-acting reversible contraception. They report having received relevant training, but they desire support to increase confidence in inserting and removing implants and counselling skills to counter misinformation about implants. The limited reach of implant service, logistics and stock management, as well as myths and misconceptions, among health workers and the general population, were identified as issues that needed to be addressed.

On the basis of per unit cost, implants were the most expensive commodity (US\$ 8.50) and IUDs were the least expensive (US\$ 0.33). Per year of use, long-acting methods were the least expensive (US\$ 0.033 for IUDs and US\$ 1.70 for implants) while pills and progestin-only injectables were the most expensive (US\$ 3.96–4.32). To achieve a 50% contraceptive prevalence rate (CPR) with modern methods by 2020 through expanding long-acting methods (with implants increasing to 27.5% of CPR with modern methods, IUDs to 5% of CPR with modern methods and female sterilization to 5% of CPR with modern methods), the estimated annual government investment required for all modern methods between 2017 and 2020 will



be US\$ 1.5 million–2.0 million. This is about the same as in 2014 and 2015 (US\$ 1.7 million). These annual investments in long-acting reversible contraception will avert an estimated 100 000–200 000 unwanted pregnancies, 40 000–80 000 abortions and more than 100 maternal deaths per year. Averting these events will save the government an estimated US\$ 2 million in 2017 and US\$ 3 million or more in 2020 from direct health-care costs alone.

To achieve the above target, the following 12 actions are recommended:

1. Appoint a national family planning technical officer and develop terms of reference.
2. Finalize a procurement plan (2017–2020).
3. Revise procurement estimates.
4. Record the delivery and receipt of family planning commodities, including implants, and distribute those commodities.
5. Update the National Health Information System (NHIS) to include implant insertions.
6. Develop and roll out a capacity-building plan for each province.
7. Advocate: a) to parliamentarians to secure resources for family planning outreach services to reach every district; and b) to provincial and district health authorities to allocate budgets for implant services. Develop briefing materials.
8. Translate the family planning policy into actions and interventions to strengthen services in hospitals, clinics, primary care facilities, adolescent-friendly health facilities and clinics operated by nongovernmental organizations. Review the *Manual of family planning for doctors, health extension officers (HEOs) and nurses in Papua New Guinea*, second edition.
9. Develop a frequently asked questions (FAQ) leaflet on implants for health workers and community members, addressing typical questions and concerns.
10. Develop a communication and advocacy strategy with a media communication kit for national and local levels.
11. Review existing community support systems and modern family planning methods.
12. Hold quarterly Family Planning Working Group meetings¹ to address family planning issues from different supply and demand angles, including accelerated plans for increased coverage of implants.

The National Department of Health developed a five-year action plan to implement these 12 actions (Table 7). A template for a provincial capacity-building plan was also developed and is to be addressed by each province to implement the national five-year action plan.

1. It is an opportune time to review the terms of reference of the Family Planning Working Group.

Introduction

In September 2015, world leaders adopted the 17 Sustainable Development Goals (SDGs) that universally apply to all. Countries agreed to mobilize efforts to end all forms of poverty, fight inequalities and tackle climate change, while ensuring that no one is left behind. (1). SDG 3 Target 7, which aims for universal access to sexual and reproductive health-care services, recognizes the central role of improved family planning services (2). Global evidence shows that reducing the unmet need for birth control and raising contraceptive prevalence rates (CPRs) would have enormous benefits for maternal and child health. Fewer unwanted pregnancies contribute to the reduction of maternal and child mortality, morbidity and malnutrition (3,4,5,6,7). Fewer unwanted pregnancies also bring improved opportunities for women, higher educational attainment, economic gains for households and countries, and reduced pollution and use of natural resources (8,9).

In the World Health Organization (WHO) Western Pacific Region, Papua New Guinea has one of the lowest CPRs (32.4%) (10). By definition, CPR includes any married or in-union woman aged 15–49 using at least one method of contraception, regardless of it being modern or traditional. If those using traditional methods were included as an unmet need, the unmet need would increase. Further, if we want to cover both married and unmarried women with modern methods, the unmet need is even higher.

An estimated 15 million (90%) of 16.7 million undesired pregnancies occurring annually in 35 countries could have been prevented with the optimal use of modern methods of contraception. Of women who neither desired pregnancy nor used contraception, 37.3% cited the fear of side-effects and health concerns as the reason for non-use and 17.6% underestimated the risk of pregnancy. Additionally, most countries had high failure rates of contraceptives, probably due to overreliance on short-term methods (11).

Analysis of Demographic and Health Survey (DHS) data from 19 countries worldwide revealed that users stopping pills, injectables and condoms during the first 12 months of use ranged from 40–50%, as opposed to 13% of users for intrauterine devices (IUDs) (12). Thus, women not desiring to have a baby within the next two years should consider longer-acting methods.

Long-acting forms of reversible contraception, i.e. IUDs and implants, are effective for couples wishing to space pregnancies, as opposed to sterilization, which can only be considered once childbearing is completed. As commonly used, the rate of unintended pregnancies for IUDs and implants is 2–8 and 0.5 per 1000 women respectively, during the first year of use. This compares to 30 per 1000 women for progestin-only injectables, 80 per 1000 women for pills, and 150 per 1000 women for male condoms (see Annex 2) (13).

Making long-acting reversible contraception accessible in countries with a high prevalence of undesired pregnancies could dramatically improve the lives of millions of women, children and families. It could save governments significant budget expenditures by reducing the need to invest in expanding health care, education and other public services. It could also increase the gross domestic product and improve the health of the workforce.



Country context

Papua New Guinea has a population of about 7 million people, and it had a national growth rate of 2.83% between 2000 and 2011. Administratively, Papua New Guinea has 22 provinces, 87 districts and the National Capital District in four administrative regions. The population is mainly in rural areas (87.5%), while 318 000 people (4.5%) live in the capital of Port Moresby. Life expectancy at birth is 68.8 years (14). Infant and under-5 mortality are estimated at 45 and 57 per 1000 live births respectively (15). Maternal mortality is estimated to be the highest in the Region, at 215 per 100 000 live births (16). The CPR based on the 2006 Demographic Health Survey was 32% among married women. Modern methods were used by 24%. The usage of long-acting reversible contraception was only 0.4%.

The *United Nations Development Assistance Framework (2012–2015)* for Papua New Guinea recognized "the health sector has not progressed as expected". Maternal and child health was set as the principal interagency outcome in the Framework. One of the five outputs in this principal outcome was to increase access to and utilization of family planning. The *2014 annual progress report of the United Nations in Papua New Guinea* notes the growing government support to family planning services and commodities, with a current government investment of US\$ 2.5 million.

In February 2014, the National Department of Health (NDOH) with the support of the United Nations Population Fund (UNFPA) organized a national advocacy meeting with the main objectives to:

- promote family planning to address maternal mortality rates and unsustainable population growth in Papua New Guinea;
- advocate for ongoing family planning programmes within each province;
- support provincial planning for implementation of family planning programmes;
- provide provincial representatives with a platform to communicate directly with the NDOH and
- increase whole-of-government commitment to family planning as a strategy to respond to maternal and child mortality and population growth in Papua New Guinea.

Papua New Guinea has made important efforts to improve the access to and utilization of family planning services, with ongoing collaboration between government and nongovernmental organizations. This study aims to answer the following questions in Papua New Guinea:

- What strategic actions build upon current family planning programmes to accelerate reduction of undesired pregnancies?
- What is the feasibility of scaling up long-acting reversible contraception, including implants, nationwide to help reduce undesired pregnancies?

A desk review and semi-structured interview were conducted to understand the health delivery system, contraceptive coverage and uptake including implants, family planning policy, health workers' knowledge and skill, and reproductive health outcomes in Papua New Guinea. Cost analysis was conducted to identify the cost-effectiveness of different types of contraception and the financial feasibility of scaling up long-acting reversible contraception (see Annex 2).

Results

The general health-care delivery system in Papua New Guinea

The NDOH–WHO *Health service delivery profile* (2012) details health care in Papua New Guinea. Health care is mainly provided by the government, the Christian church and nongovernmental organizations. Funding sources are the government, donors and out-of-pocket expenses. The health-care delivery system is set up with one provincial hospital in each province, including Port Moresby General Hospital in the National Capital District, which is also the national referral hospital. Core clinical services and subspecialty clinical services are provided by the respective medical specialists and specialist nurses on-site. “These tertiary hospitals provide a wide range of clinical and public health services but often do not have sufficient resources,” according to the service delivery profile. “Port Moresby General Hospital serves a population larger than its capabilities.” The central government is responsible for the provincial hospitals, including the national referral hospital, one specialist psychiatric hospital and four regional hospitals.

The provincial and local governments run rural health services, including district and rural hospitals, urban clinics, health centres, health subcentres and aid posts. The government-subsidized church health services are an integral part of the national health system. They run more than half of health subcentres and many of them are located in hard-to-reach areas (Table 1). The NDOH–WHO *Health service delivery profile* (2012) states that “not-for-profit and organized under the Churches Medical Council, the church-run health facilities manage their own plans and staffing, but are highly subsidized with over 80% of the service costs financed by the government, without any formal contractual arrangement”.

Table 1. The number of health facilities per administrative level and type of organization

Level	Government	Christian churches	Nongovernmental organizations	Total
Provincial hospitals	20	2	None	22
District and rural hospitals	5	7	2	14
Urban clinics	48	10	11	69
Health centres	149	48	4	201
Health subcentres	158	263	7	428
Aid posts (open) 2008	2672	None	None	2672
Total	3052	330	24	3406

Source: NDOH and WHO, *Health service delivery profile*, Papua New Guinea; 2012.:

Currently, all hospitals, including those operated by Christian churches, are funded by the government. District and rural hospitals provide full basic health services including medical, surgical, obstetric, paediatric, trauma and 24-hour emergency care for both inpatients and outpatients. District hospitals cover a population of 40 000–300 000, depending on the availability and accessibility of other nearby health facilities. Urban health clinics provide



similar services to those of health centres and health subcentres, including management of chronic and acute conditions, basic surgical care, deliveries and paediatric care. They also function as intermediary referral points between aid posts and district hospitals. The government more commonly runs the larger health centres. Health centres serve populations of 5000–20000 while health subcentres serve smaller populations. Aid posts comprise more than 60% of all health facilities and deliver basic health care including mother and child care, as well as community-based health promotion. They are staffed by community health workers with two years of training. Aid posts are designed to cover a population group of about 1000 people each.

The NDOH reported ongoing decentralization of funding for the health sector. Based on the interviews, the decision of the government is that the annual budget be sent directly to each district with a population of between 10000 and 200000, thus bypassing the provincial level.² The NDOH further noted that the role of the provincial health departments needed to be reviewed and advocacy was needed with parliamentarians (district representatives) and other decision-makers to ensure sufficient budgets were allocated to support health sector programmes.

In addition to the government and churches, several nongovernmental organizations also operate clinics and health facilities in Papua New Guinea. For example, the National Ministry of Planning contracted and funded Marie Stopes International to provide contraceptive services, especially implants, to priority provinces in 2013. Marie Stopes International and other nongovernmental organizations have since supported the promotion, dissemination and insertion of implants in their clinics. As of 2015, it is estimated that a total of 80000 implants have been inserted in Papua New Guinea.

Contraceptive coverage

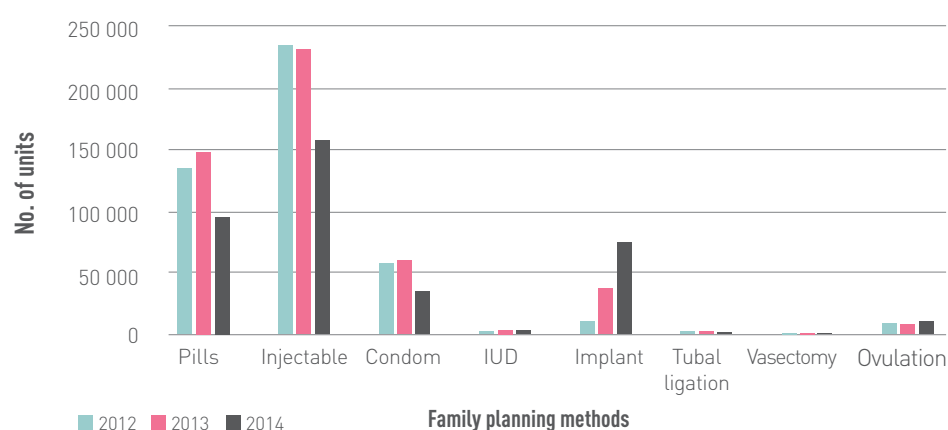
The last survey providing nationally representative data on contraceptive coverage in Papua New Guinea was the DHS conducted in 2006. According to the survey, Papua New Guinea had one of the lowest CPRs in the Western Pacific Region, at 32.4%, which included traditional methods. When considering modern methods only, the rate drops to 24%. The total fertility rate was 4.4 per woman. The use of IUDs was 0%, despite the fact that they had been available in Papua New Guinea since 1996 (Table 4). No population data are available on the prevalence rate of implants since these were introduced in 2011.

2. Twenty provinces, one autonomous region, plus the National Capital District.

Table 2. Family planning indicators among married women in Papua New Guinea in 2006 (most recent available data)

Indicator	Measure (in %)
Contraceptive prevalence rate	32.4
Pills	4.6
Injectable	9.1
Male condom	1.4
Female sterilization	8.6
IUD	0.0
Implant	NA

Papua New Guinea Sector Performance Review (SPAR) data suggest that increases in the prevalence rates of modern contraceptive methods have been minimal. Couple years of protection (CYP) decreased from above 80 per 1000 CYP in 2010 and 2011 to 70 per 1000 CYP, and most recently 43 per 1000 CYP (2013) (17). The National Health Information System (NHIS) shows that between 2012 and 2014, the uptake of modern methods decreased for all methods (short- and long-acting, reversible and permanent) except implants (Fig. 1). Three reasons are postulated for the decrease. First, government and nongovernmental organizations reports combined suggest that approximately 80 000 women have received implants, but these are not yet included in the NHIS. Second, the data may not be reliable because not all provinces meet the requirements for monthly submission of family planning reports. The NHIS data may not represent the true family planning service coverage for the country. Third, negative influence and pressure from the church and from community myths, as well as misconceptions, are common. The DHS planned for 2016–2017 will clarify current family planning use in Papua New Guinea.

Figure 1. Family planning service coverage, 2012–2014

Source: NHIS data and procurement data provided by the NDOH.

Coverage and uptake of implants

Implants were first introduced in Papua New Guinea by Rotary Australia International and Marie Stopes International in association with the DAK Foundation in 2011. Since 2012, Rotary Australia has procured 30 000 Sino-implants from Marie Stopes International in Port Moresby. Implants were provided to impoverished rural communities in the provinces of Milne Bay and West New Britain (18). Rotary Australia offered 100 Papua New Guinea kina (US\$ 38.50)³ per day as a monetary incentive to certified health workers in all facilities if they worked on one of their days off to insert implants. However, this incentive scheme, as well as insertions, stopped in 2014 due to funding constraints.

Since 2013, the National Ministry of Planning has contracted and funded Marie Stopes International to provide family planning services, including the promotion and distribution of implants. Based on the NDOH's procurement plan, around 35 000 implants were distributed in 2013 and 2014. Nongovernmental organizations report a higher number, reaching almost 50 000. Three nongovernmental organizations were promoting implants in more than 10 provinces in Papua New Guinea by 2015.

Two hospitals were visited by the study team. In Gerehu Hospital, 314 implants were inserted between January and October 2015 (19), which was beyond expectations, whilst Port Moresby General Hospitals' inserted implants increased from 536 in 2013 to 754 in 2014. The uncertainty of data and the lack of a consistent tracking system make it difficult to estimate uptake. Data on the total number of health facilities currently providing implants were not available.

Limited data are available on acceptability and continuation rates of implants in Papua New Guinea. A survey conducted among 860 women living in Madang and Milne Bay provinces, 12 months after they received implants in outreach activities, found that the majority (76%) did not experience any side-effects. Of the 24% who experienced side-effects, 87% reported irregular bleeding, although only 7% reported the bleeding to be bothersome. Almost all women (95%) were "very happy" with the implant and 97% still had the implant in place after 12 months. Only 18 out of 860 women decided to remove the implant, none because of side-effects (20).

National policies on family planning

Nine documents comprising policies, legislation, agreements, strategies, plans and protocols from 1902 to 2015 (Table 3) were retrieved from the NDOH to understand the family planning policy context in Papua New Guinea.

3. US\$ 1 = 2.595 Papua New Guinea kina (http://usd.fxexchangerate.com/pgk-2014_12_31-exchange-rates-history.html accessed 8 May 2016).

Table 3. Government documents pertaining to reproductive health and family planning

Title	Relevant aims
Criminal Code (1902) – National Abortion Policy	In 1902, the Criminal Code (Ordinance No. 7) reproduced the 1899 Criminal Code Act of Queensland, and was adopted as law in what was then the British New Guinea, and it remains in effect. It stipulates that people who unlawfully administer any means to a woman with intent of miscarriage are subject to up to 14 years in prison and the recipient up to seven years. However, the code allows abortion to save the life of a pregnant woman. In 1974, the Justice Department of the Government of Papua New Guinea expressed the opinion that preservation of life included preservation of the physical and mental health of the pregnant woman.
<i>Manual of family planning for doctors, health extension officers and nurses in Papua New Guinea</i> , second edition, 2008	This set of standards and references is a companion document for the National family planning guidelines. It provides practical guidance on the organization and management of family planning services, family planning commodities and technologies, and details each of the different family planning methods.
Ministerial Task Force on Maternal Health in Papua New Guinea (2009)	The task force recognizes that the health sector strategy should centre on reducing high-risk and unwanted pregnancies by increasing availability and accessibility of family planning information and services, and should ensure that individuals and couples have the information and services to plan the timing, number and spacing of pregnancies.
<i>National health plan 2011–2020</i>	<p>Key Result Area 5: Improve maternal health</p> <p>Objective 5.1 <i>Increase family planning coverage</i> Strategies</p> <p>5.1.1 Ensure every health facility has the capacity to offer family planning services at all times.</p> <p>5.1.2 Advocate for the advantages of having fewer and increased spacing of children.</p> <p>5.1.3 Extend the reach of the village health volunteers programme and community-based distribution systems.</p> <p>Objective 5.4 <i>Improve sexual and reproductive health for adolescents</i> Strategies</p> <p>5.4.1 Increase the knowledge of adolescents.</p> <p>5.4.2 Collaborate with schools to strengthen education of students.</p>

Table 3. (cont.)

Title	Relevant aims
National Health Service Standards (2011–2020)	Provides a blueprint for providing, safe quality health services as required by the <i>National health plan 2011–2020</i> to transform and improve the health system.
National Health Sector Gender Policy (2014)	The relevant objectives of the policy: to promote equal access for men and women, and use of health information and health services that are free from discrimination.
National Sexual Reproductive Health Policy (2014)	The policy states that women and girls and men and boys should have access to modern contraceptives every day in all health facilities free of charge; men, boys, women and girls should have equal access to quality sexual and reproductive health services; men and boys should be encouraged to engage actively in reproductive health; evidence-based research recommendation should form the basis for improvement of sexual and reproductive health services delivery; and the NDOH shall maintain central coordination and seek political commitment at all levels of government and development partners to implement this policy.
National Youth and Adolescent Health Policy (2014)	Policy objectives closely related to family planning are: to bring the health needs of young people and adolescents to the attention of government departments and agencies; to develop and coordinate research programmes on youth and adolescent health; and to provide quality integrated health services friendly to young people and adolescents that respond to their health needs and are delivered in a safe and supportive environment.
National Family Planning Policy (2014)	Four statements guide nationwide family planning services: 1) Family planning options should be promoted to stabilize population growth rates by attaining replacement fertility levels for optimal population and sustainable national development; 2) the health sector must make appropriate, quality client-focused family planning services affordable and accessible to all who need and want them, while maintaining proper client confidentiality; 3) the health sector must support couples and individuals to decide freely and responsibly on the number and spacing of their children, providing them with access to accurate information, education and counselling; and 4) the government must ensure the availability of well trained, supervised and motivated service providers for family planning.

The oldest policy related to family planning is the 1902 Criminal Code, which criminalizes abortion and remains in effect. Many groups have called for a review of this law, pointing to the growing number of unsafe abortions being reported nationwide. The 2006 DHS reflected a major deterioration in maternal and child care services, with an increase in maternal mortality from 370 per 100 000 live births (1996) to 733 per 100 000 live births (2006). This triggered the creation of a ministerial task force on maternal health that recognized the critical role of improved family planning services in the prevention of unwanted pregnancies and maternal mortality. Family planning was subsequently included in the *National health plan 2011–2020*.

In 2014, four new policies were passed to increase the availability and use of family planning services including the first National Family Planning Policy. The Policy calls for quality and affordable services to be made available and accessible in all public and private facilities through well trained, supervised and motivated health workers. Challenges remain in implementation of the policies, however, as operational guidance is not yet available on provision of postpartum contraception, promotion of long-acting methods following childbirth, increased training, implementation of social marketing activities, and outreach in communities, particularly those that are underserved.

Data collected from semi-structured interviews substantiate the need to strengthen implementation of the National Family Planning Policy. Whilst all respondents agreed that family planning methods should be made available to all women of reproductive age starting from 15 years of age, as stated in the National Policy, interviews revealed that promotion efforts in health facilities were sometimes limited to natural methods only. This was the case in one urban health clinic managed by the Catholic Church.

Programme management and leadership

In the semi-structured interviews, NDOH officers noted that as of October 2015, no dedicated officer was allocated to the family planning programme at the national level, though there were plans to fill the position. Prior to 2014, a Family Planning Officer post existed, but the officer moved to cover other positions within the NDOH. At the time of publication, one programme officer was covering family planning along with maternal health and safe motherhood. UNFPA funds two positions for the procurement, forecasting and stock management of family planning commodities, including implants. However, their terms of reference do not include programme management. While a new programme manager has been dedicated to adolescent health, the position does not include responsibilities for the family planning programme. The need for dedicated family planning support from the national level was highlighted in the focus group discussions, where health workers requested the creation of a national cadre of trainers and experts to support scale-up of family planning services.

At the provincial level, family health coordinators within the provincial health authorities are tasked with managing family planning programmes, in addition to safe motherhood, adolescent and newborn care, HIV, nutrition and immunization programmes.

Procurement of family planning commodities

The government invested an average of US\$ 2.5 million per year for procurement of selected commodities (pills, condoms, progestin-only injectables, and IUDs) in 2013 and 2014, integrated within the national budget. As of October 2015, there has been no multi-year forecast procurement plan for family planning commodities, with forecasting done on an annual basis using utilization data reported in the NHIS. The NHIS, however, does not include utilization of implants. During interviews, NDOH staff and health workers noted the need to include implants among the contraceptives reported in the NHIS, as current utilization data used might not necessarily reflect need. The NDOH noted, for example, that the 40 000 implants inserted between January 2015 to October 2015 in Papua New Guinea had actually been ordered for 2014. Using these data as a basis for forecasting therefore would not accurately reflect domestic demand for implants.

Other than the government, UNFPA supports procurement of family planning commodities. Since 2013, the organization has provided free reproductive health commodities, including implants, to the NDOH, Marie Stopes International and International Planned Parenthood Federation (IPPF), worth about US\$ 900 000 (18). UNFPA plans to provide free implants until 2020; a total of 100 000 implants were imported in 2015, which is an increase from 10 000 in 2012.

Interviews revealed issues with forecasting and availability of commodities at the Central Medical Store. According to the director, commodity stock levels were not available and implants had been out of stock at the Store since August 2015. Gerehu Hospital and Port Moresby General Hospital, which are supplied with commodities from the Central Medical Store, had stocks of implants at the time of the visit.

Health worker knowledge and skills

UNFPA provided funding to the NDOH and (since 2013) Marie Stopes International for training of health workers from public and private facilities on logistical management, provision and monitoring of family planning services – including implants. By the end of 2014, health workers in 10 provinces had been trained in family planning by Marie Stopes International. Ninety-eight (32%) of 306 health facilities (including provincial hospitals, urban clinics, district and rural hospitals and health centres) have at least one health worker trained in family planning. This was confirmed by hospital staff in Gerehu and Port Moresby General Hospitals who reported receiving training in provision of family planning services, including IUDs and implants. In the district of Port Moresby, however, health workers from only six of 23 (26%) health facilities have been trained in the insertion of implants. The District Health Office of Port Moresby is working with Marie Stopes International to increase training coverage.

All health workers interviewed highlighted the need for further training and support, particularly in the removal of implants and in family planning counselling. Health workers

reported feeling unprepared in dealing with myths on contraindications of implants, including beliefs that implants are gadgets for spying on people or that they are the “devil’s gadget” that must be removed immediately. Others noted that they did not know why mothers who had implants inserted later became pregnant. The case of a journalist who became pregnant in January 2015 whilst on the implant, and later wrote critical articles on the NDOH family planning programme and the failure of implants, was cited. The fear of getting pregnant influenced eight women to have implants removed at Gerehu Hospital. Health workers in other health facilities also confirmed that they have removed implants due to these misconceptions. No similar anecdotes related to IUD insertions have been heard, reportedly because IUDs are rarely used.

Health workers also recognized that they spent most of their time sharing information, rather than supporting women to choose the most appropriate method. Thus, they called for increased regular supportive supervision to improve health workers’ skills and address knowledge gaps with an emphasis on countering common myths and misconceptions.

During the semi-structured interviews, health workers also raised the issues of limited resources and logistical support to conduct outreach activities. While UNFPA is supporting a biweekly radio programme that aims to promote family planning services and methods, interviewed health workers called for a systematic and sustained advocacy and communication plan for communities, families and young people. Papua New Guinea has an existing cadre of village health volunteers, but no information was available on whether they had responsibilities on family planning. Most community outreach activities of public health facilities are conducted by the midwives when resources are available. Nongovernmental organizations have their own community volunteers who deliver their specific programmes. For example, Population Services International trained and supported a cadre of village health volunteers to serve hard-to-reach areas only for tuberculosis prevention and treatment. Rotary Australia Family Planning and Marie Stopes International have supported mobile clinics to increase access to family planning services without the aid of village health volunteers by moving their own health personnel from one village to the next.

Reproductive health outcomes

Data on reproductive health outcomes in *Papua New Guinea* suggest the need for increased coverage of family planning services, particularly long-acting reversible methods, namely implants.

The maternal mortality in *Papua New Guinea: The stories beyond the numbers* (2014) (21) presents a strong case in support of increased modern family planning methods, particularly implants. This was an analysis of 379 maternal mortality reporting forms from the maternal death surveillance and response system between 1991 and 2012. Health providers were asked to give their views on how deaths could have been avoided.

Among other things, the report found, “The death of 172 of the women (47% of the total reviewed death cases) could have been directly avoided by the provision of modern methods of family planning in situations such as previous Caesarean section, pregnancy less than two years apart, complication in previous pregnancy, adolescent pregnancy, unwanted pregnancy, rape” (Table 4).

Table 4. Remedial factors to avoid maternal deaths identified from 379 maternal mortality reporting formats submitted to the NDOH between 1991 and 2012

What could have been done to avoid the death?	Deaths that could have been prevented/ n (%)
Family planning	172 (47)
Antenatal period	157 (43)
- Counselling	147 (40)
- Education	132 (36)
- Care	
Transport	62 (17)
Supervised delivery	171 (46)
Better quality of care	200 (54)
Social support	
- Positive male influence	203 (55)
- Better community support	165 (45)
Maternity waiting homes	167 (45)

Due to low contraceptive prevalence rates, unintended pregnancies remain high in the country. In Port Moresby General Hospital, half (49.4%) of all pregnancies were found to be unintended (22). A survey in high schools found that half of female students began having sex at age 16–19 years and 10% before 16 years. More than half of their pregnancies were unplanned, and one third of those girls had a form of abortion (23).

Data suggest that increased uptake of implants has the potential to reduce unwanted pregnancies. In Sumkar district, an estimated 8100 implants were inserted as of 2013. One report estimated that if 6000 more women used modern contraceptives in Sumkar district over five years, the contraceptive prevalence of modern methods would increase from 36.8% to 65.5%. This corresponds to an average of 3120 fewer unintended pregnancies every year (24).

Cost analysis

To identify the cost-effectiveness of different types of contraception and determine the financial feasibility of scaling up long-acting reversible contraception, a cost analysis was conducted. An initial cost analysis looked at the cost incurred by the government and donors to procure commodities. Government costs include shipping the commodities only as far as Port Moresby. Implant cost is set at US\$ 8.50, as shared by UNFPA, while pills and IUDs remain below US\$ 1.00 per set of pills. However, per year of continuous use, IUDs remain the least expensive (US\$ 0.033), followed by implants (US\$ 1.70), and pills and progestin-only injectables the most expensive method (US\$ 3.96–4.32). IUDs and implants are also the most effective family planning methods.

Table 5. Cost for government to procure pills, IUDs and implants in Papua New Guinea

Method/commodity	Unit cost (for government, US\$)	Cost for year/user (in US\$)
Pills	0.33 per blister	3.96
Progestin-only injectables (w/syringe)	1.08 per vial	4.32
Implant (5 years)	8.50 per set	1.70
IUD (10 years) Copper T380A	0.33 per unit	0.033

Source: NDOH documentation.

The Papua New Guinea policy is free family planning services without user fees. All eight health facilities visited followed the policy. Clients still had to incur the cost of transportation and other potential logistical costs needed to reach the facility. Women had to travel to a health facility to obtain their oral contraceptive pills monthly, and every three months to receive progestin-only injectables. In contrast, implants and IUDs required rare visits unless they had specific concerns. Due to the geography of the country and distance from the households to facilities, transportation cost may impede access to basic health services, including family planning services.

The team conducted a costing exercise and estimated the investment necessary to achieve 50% CPR using modern methods, with a focus on the expansion of implants. Taking into account the country's resources and capacity, we selected the following method mix as an example for 2020: implants 55%, IUDs 10%, female sterilization 10%, pills 5% and progestin-only injectables 20%. We used the 2006 DHS and separately collected data from nongovernmental organizations as a baseline. Assuming no change in total demand from 2006 to 2020, the research team then estimated the annual demographic, health and economic impacts using Impact 2 (Version 3), Marie Stopes International (Table 6).

Because the annual cost of long-acting reversible contraception per user is less expensive than short-term methods, the estimated annual government investment required for all modern methods between 2017 and 2020 (US\$ 1.5 million–2.0 million) was found to change minimally compared with 2014–2015 (US\$ 1.7 million). The estimated investment cost in 2020 increases to US\$ 2 million due to the removal and reinsertion of implants after five years of use.



These annual investments in long-acting reversible contraception will avert an estimated 100 000–200 000 unwanted pregnancies, 40 000–80 000 abortions, and more than 100 maternal deaths per year. Averting these events will save the government an estimated US\$ 2 million in 2017 and US\$ 3 million or more in 2020 from direct health-care costs alone (Fig. 2).

Figure 2. Direct health-care costs prevented compared with annual government costs to purchase modern contraceptive methods, 2015–2020

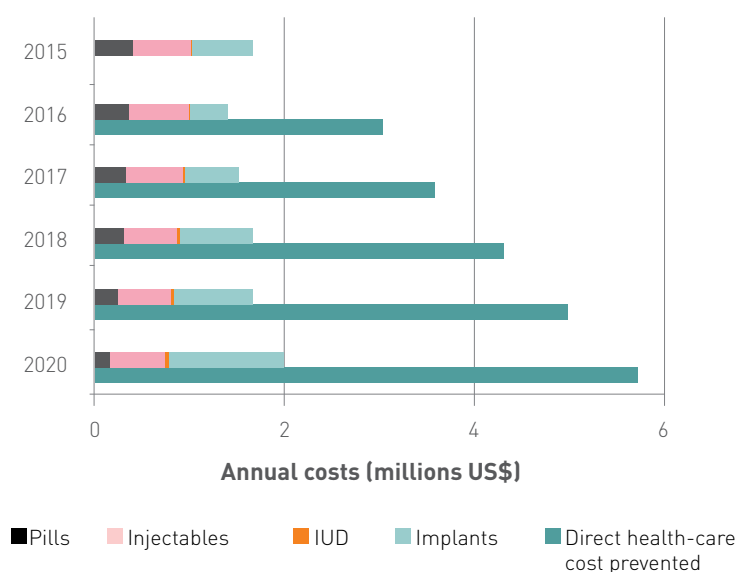


Table 6. Costing exercise to achieve 50% modern methods CPR with 55% implants in the method mix by 2020

Variables		2006	2014–2015 (1)	2016	2017	2018	2019	2020 (2)
Unmet need, modern method (%)		35.5	30.3	28.1	24.0	18.5	13.3	7.8
CPR with modern method (%)		22.3	27.5	29.7	33.8	39.3	44.5	50
Pills (daily, monthly)		4.6	7.2	6.5	5.8	4.8	3.7	2.5
Injectables		9.1	11.7	11.2	10.9	10.6	10.3	10.0
IUD		0.0	0.2	0.5	1.2	2.1	3.2	5.0
Implants		0.0	6.4	9.3	13.2	18.5	23.2	27.5
Female sterilization		8.6	2.0	2.2	2.6	3.3	4.1	5.0
Method mix (total 100%)								
Pills (daily, monthly)		20.6	26.3	21.9	17.1	12.3	8.4	5
Injectables		40.8	42.4	37.7	32.4	27.1	23.2	20
IUD		0	0.6	1.7	3.5	5.3	7.2	10
Implants		0	23.4	31.2	39.2	47.0	52.1	55
Female sterilization		38.6	7.3	7.5	7.8	8.3	9.1	10
Married women of reproductive age MWRA (15–49 years old who are married or in a union) (3)		1048 000	1243 000	1292 000	1316 000	1340 000	1363 000	1385 000
Number of women using modern contraceptive among married women of reproductive age	Total modern method users	233 704	342 000	383 755	444 370	526 555	606 300	692 500
Pills (daily, monthly)	Current users	48 143		90 000	83 925	75 850	64 775	50 700
	New users			-6 075	-8 075	-11 075	-14 075	-16 075
	Total users		90 000	83 925	75 850	64 775	50 700	34 625
	Number of commodity needs (4)	625 859	1 170 000	1 091 025	986 150	842 075	659 100	450 125
Injectables	Current users	95 351		145 000	144 700	143 900	142 600	140 800
	New users			-300	-800	-1 300	-1 800	-2 300
	Total users		145 000	144 700	143 900	142 600	140 800	138 500
	Number of commodity needs (5)	381 405	580 000	578 800	575 600	570 400	563 200	554 000
IUD (10 years)	Current users	0		1 680	5 620	13 130	23 650	36 690
	New users			5 000	10 000	15 000	20 000	32 560
	Total users (6)		2 000	6 680	15 620	28 130	43 650	69 250

Table 6. (cont.)

Variables		2006	2014–2015 (1)	2016	2017	2018	2019	2020 (2)
Implants (5 years)	Current users	0		69 600	104 300	152 500	215 750	275 900
	New users			50 000	70 000	95 000	100 000	104 975
	Replacement users			0	0	0	0	40 800
	Total users (7)		80 000	119 600	174 300	247 500	315 750	380 875
Female sterilization	Current users	90 210		25 000	28 850	34 700	43 550	55 400
	New users			3 850	5 850	8 850	11 850	13 850
	Total users		25 000	28 850	34 700	43 550	55 400	69 250
Annual investment – each method in US\$ per year								
Pills (daily, monthly)	206 534	386 100	360 038	325 397	277 885	217 503	148 541	
Injectables	384 456	626 400	625 104	621 648	616 032	608 256	598 320	
IUD	0	658	1 645	3 290	4 935	6 580	10 712	
Implants	0	680 000	425 000	595 000	807 500	850 000	1 239 088	
Female sterilization								
Total	590 990	1 693 158	1 411 787	1 545 335	1 706 352	1 682 339	1 996 661	
Annual impact								
Unwanted pregnancies averted			106 000	124 000	149 000	173 000	198 000	
Abortions averted		42 000	50 000	60 000	69 000	79 000	79 000	
Maternal deaths averted		119	134	154	171	187	187	
Direct health-care costs prevented (US\$)			3 093 000	3 628 000	4 355 000	5 054 000	5 797 000	

- (1) 2014 baseline family planning service coverage based on NHIS data and nongovernmental organization data. The CPR is based on health facility data submitted by provinces to NHIS. In reality, not all provinces meet the requirements for monthly submission of family planning reports, and therefore the CPR in this table may not represent the true CPR for the country. It is likely that provinces that do not submit family planning reports have lower contraceptive use than those that do.
- (2) Assumptions: no change of total demand for modern methods from 2006 to 2020.
- (3) Estimates and projections of the number of women aged 15–49 who are married or in a union: 2015 Revision (http://www.un.org/en/development/desa/population/theme/marriage-unions/marriage_estimates.shtml).
- (4) 13 pill cycles = 1 user
- (5) 4 injectables = 1 user
- (6) Cumulative continuation rates: year 1, 84%; year 2, 71%; year 3, 59%; year 4, 50%; year 5, 42%.
- (7) Cumulative continuation rates: year 1, 87%; year 2, 76%; year 3, 67%; year 4, 58%; year 5, 51%.

Recommendations and conclusion

The desk review revealed the low coverage and utilization of long-acting reversible contraception. The semi-structured interview identified the issues in family planning service provision and the health workers' knowledge, skill and perception. To achieve the target of 50% modern CPR with 55% implants in the method mix by 2020, the NDOH identified 12 actions and developed a five-year action plan to achieve those actions (Table 7). A template for a provincial capacity-building plan was also developed (Annex 1) for each province to fill in to implement the national five-year action plan.

Table 7. Five-year national action plan

GOAL: Achieve 50% CPR with modern family planning methods, mainly focusing on implants, by 2020.

Actions	Responsible/ supporting agency	2016	2017	2018	2019	2020
1. Family Planning Technical Officer (FPTO): appoint a national FPTO and develop terms of reference. [1]	NDOH WHO	√	√	√	√	√
2. Finalize procurement plan (2017–2020).	NDOH	√	√	√	√	√
3. Revise procurement estimates.	NDOH	√	√	√	√	√
4. Implant utilization data: record the delivery and receipt of family planning commodities, including implants, and distribute those commodities. [2]	NDOH	√	√	√	√	√
5. Implant records: update the National Health Information System (NHIS) to include implant insertions. [3]	NDOH	√	√	√	√	√
6. Capacity-building: develop and roll out capacity-building plans to each province (see template).	NDOH, WHO, UNFPA, Marie Stopes	√	√	√	√	√

(1) NDOH has advertised for FPTO and is awaiting the government process for post selection. Terms of reference include translation of family planning policy to programme implementation, assisting logistics procurement, distribution and monitoring, capacity-building of health staff, coordination with partners, and advocacy to relevant stakeholders.

(2) Including implants.

(3) Implant records are included in daily and monthly tally sheets and the reporting system at health-facility level. Starting in 2016 implants are now included in monthly consolidated reporting to NHIS.



Table 7. (cont.)

Actions	Responsible/ supporting agency	2016	2017	2018	2019	2020
7. Advocacy: a) to parliamentarians to secure resources for family planning outreach services to reach every district; and b) to provincial and district health authorities to allocate budgets for implant services. Develop briefing materials.	NDOH, WHO, UNFPA, Marie Stopes Safe Motherhood Alliance	√	√	√	√	√
8. Family planning policy to actions: a) Translate policy to actions and interventions to strengthen services in hospitals, clinics, and primary care facilities, adolescent-friendly health facilities and nongovernmental organization clinics. b) Review family planning manual second edition 2008. (4)	NDOH WHO	√	√	√	√	√
9. FAQ Leaflet on Implants: develop frequently asked questions (FAQ) for health workers and community members on typical questions and concerns. (5)	NDOH, WHO, Marie Stopes	√				
10. Develop a communication and advocacy strategy with a media communication kit for national and local levels.	NDOH, WHO, UNFPA, Marie Stopes	√	√	√	√	√
11. Review existing community support systems for modern family planning methods.	NDOH, WHO, UNFPA, Marie Stopes	√	√	√	√	√
12. Family Planning Working Group: Quarterly stakeholder meetings to address family planning issues from different supply and demand angles, including accelerated plans for increased implant coverage.	NDOH, WHO, UNFPA, Marie Stopes and others	√	√	√	√	√

(4) Manual of family planning for doctors, HEOs and nurses in Papua New Guinea, second edition, 2008.

(5) Typical concerns raised include “side-effects”, “unwanted effects” and “other concerns” regarding use of implants, including untimely request for removal.

Template for provincial capacity-building plan


TARGET: By end of 2017, 50% and by 2018, 100% of health facilities can insert implants.

Method: On-site counselling, insertions, recording and reporting with observed follow-up to reach all health facilities with implant services

PROVINCE NAME:	Number of health facilities	Total implants needed	Actions to build capacity	Responsible/ supporting agency	Timing to implement actions									
					2017				2018					
	1 st	2 nd	3 rd	4 th	1 st	2 nd	3 rd	4 th	1 st	2 nd	3 rd	4 th		

Annex 1. Contraceptive effectiveness

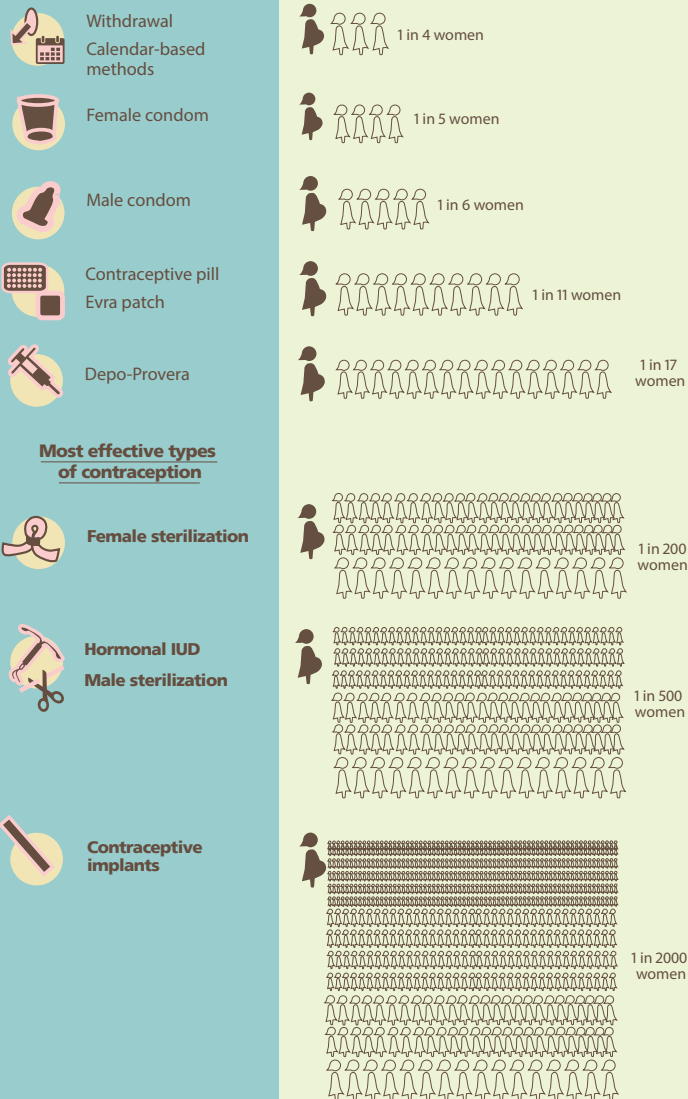
PREVENT UNWANTED PREGNANCY

Without protection,
85 in 100 women* will get pregnant
 (in a year) 

WHAT IS THE BEST WAY TO PROTECT YOUR FAMILY
 FROM UNWANTED PREGNANCY?

TYPE OF CONTRACEPTION

RISK OF GETTING PREGNANT** (in one year of use)



*Sexually active women who are 15 to 49 years of age

**Risk of an unintended pregnancy with typical use of the contraceptive

Source: Trussell J. Contraceptive efficacy. In: Hatcher RA, Trussell J, Nelson AL, Cates W, Kowal D, Policar M, editors. Contraceptive technology: twentieth revised edition. New York (NY): Ardent Media; 2011.

Annex 2. Methodological issues

Desk review

National policies, investment plans, strategies, priorities and statistics, regional WHO–UNFPA technical documents, global databases, and peer-reviewed and other published and official documents were searched. Government agencies and nongovernmental organizations were engaged to provide materials when Internet-based searches failed to identify and retrieve relevant documents.

Semi-structured interviews

Primary data were collected through semi-structured interviews to grasp existing efforts and best practices in relation to the promotion and utilization of long-acting reversible contraception, and to understand what would be required to accelerate the scaling up of implants. The interviewees were representatives from government and nongovernmental organizations, health workers and family planning programme officers at the national and subnational levels. Eight urban clinics in the capital of Port Moresby managed by Christian churches, nongovernmental organizations and the government were selected. Interviews also helped generate costing data on pills, progestin-only injectables, IUDs and implants. Verbal informed consent was obtained prior to interviews. Due to time constraints, it was not possible to include clinics at the provincial level.

Cost analysis

The procurement costs for four commodities – pills, progestin-only injectables, IUDs and implants – were retrieved from government procurement invoices for 2014. The unit cost for one blister of pills was multiplied by 12 months to estimate the cost for a user for a one-year period. For the progestin-only injectables, the cost for one vial was multiplied by four to estimate the cost for a user for a one-year period. For IUDs and implants, their total effectiveness period was considered as 10 years for IUDs and five years for implants. The yearly cost for these methods was computed by dividing the total cost by the total effectiveness period.

As family planning services and commodities are provided free in Papua New Guinea, no estimate was provided for the cost that a client has to bear to be able to access the services. On the other hand, for rural and urban clients, it is understood that clients have to incur costs related to transportation to/from the nearest health facility. These costs were not included in the analysis.

For the costing exercise, data from the Population Division in the Department of Economic and Social Affairs of the United Nations were used to estimate the number of women aged 15–49 years who may be married or in a union by 2020. We calculated the number of yearly needs of commodities as 13 pill cycles or four injectables per user. We applied the same cumulative continuation rates as Marie Stopes International for IUDs and implants.

The Impact 2 (Version 3) model, Marie Stopes International, 2015 was used to estimate the impact of the procured quantities of modern family planning methods. A full paper on methodology and assumptions used by the model can be found at <http://mariestopes.org/sites/default/files/Impact-2v3-Methodology-and-Assumptions.pdf>.

Data analysis

The primary and secondary data collected were coded based on the identified themes and variables important to providing an accurate country-level understanding of access and utilization of family planning methods and the feasibility of scaling up long-acting reversible contraception. The themes and variables were identified by the team based on the research questions and objectives. The themes and variables included: demographics; socioeconomic factors including community acceptance; current practices and utilization of family planning methods; national policies; current and planned investments in family planning; health worker knowledge and skills; and the availability of locally produced and imported contraceptive commodities. Data collected for each variable were entered into an Excel database and used to develop a comprehensive country profile and report on access to and use of family planning services and methods.

Funding, ethical issues and conflicts of interest

The study was supported by a WHO grant. The WHO Ethics Review Committee for the Western Pacific Region issued an ethical approval for the research on 16 April 2015. The researchers have reported no conflicts of interest.

Bibliography

- 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;381,11 May.
- Hayes G. Family planning in Papua New Guinea: current status and prospects for re-positioning family planning in the development agenda. Bangkok; 2010.
- Lesley L, O' Connor M. Barriers to family planning services in PNG: supply and demand. Report and recommendations; 2010.
- Marie Stopes International. Annual report, Papua New Guinea; 2014.
- Marie Stopes International. A study in increasing vasectomy uptake: understanding acceptability of vasectomy uptake amongst men in three regions of Papua New Guinea. Report prepared for Marie Stopes Papua New Guinea (MSPNG); 2015.
- Marie Stopes International. List of updated trained, service providers on family planning services; 2015.
- Marie Stopes Papua New Guinea. Reaching sustainable population. Report on activities for 2014. Submitted to the Department of National Planning and Monitoring and National Department of Health.
- National Department of Health. Family Planning Advocacy Meeting. Summary report; 26–27 February 2014.
- National Department of Health. Health Gender Policy; 2014.
- National Department of Health. Manual of family planning for doctors, HEOs and nurses in Papua New Guinea, second edition; 2008.
- National Department of Health. Memorandum of Understanding between the Department of National Planning and Monitoring and Marie Stopes International; 2015.
- National Department of Health. Ministerial Taskforce on Maternal Health in Papua New Guinea. Report; May 2009.
- National Department of Health. National Health Plan, 2011–2020.
- National Department of Health. Papua New Guinea, National Health Service Standards (2011–2020).
- National Department of Health. Sexual Reproductive Health Policy; 2014.
- National Department of Health. Youth and Adolescent Health Policy; 2014.
- National Department of Health. 51st Annual Medical Symposium, excerpts from papers presented. Port Moresby; 2015.
- Rotary International Australia. Letter to the Minister of Health. Papua New Guinea; 2015.
- UNFPA–ICOMP. Regional report on the consultation, Family planning in Asia and the Pacific: Bangkok; addressing the challenges. Bangkok; 8–10 December 2010.
- UNFPA Papua New Guinea. Procurement planning (<https://www.unfpa.org/sites/...pdf/Procurement Planning 2015.xls>, accessed October 2015).
- United Nations. Papua New Guinea, progress report; 2014.
- United Nations. United Nations Development Assistance Framework (UNDAF) 2012–2015. Papua New Guinea.

United Nations Commission on Life-saving Commodities for Women and Children. Report on contraceptive commodities for women; 2012.

United Nations, Department of Economic and Social Affairs, Population Division. Estimates and projections of the number of women aged 15-49 who are married or in a union: 2015 Revision. New York: United Nations; 2015.

United Nations Secretariat. Brief on the Papua New Guinea, Abortion policy. Population Policy Data Bank maintained by the Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat.

Western Highlands Provincial Health Authority. Memorandum of Understanding between Western Highlands Provincial Health Authority and Marie Stopes International; 2012.

WHO Regional Office for the Western Pacific. Regional framework for reproductive health. Manila; 2013.

World Bank. Reproductive health at a glance, Papua New Guinea; 2011.

Endnotes

1. The Sustainable Development Agenda [website], New York: United Nations; 2016 (<http://www.un.org/sustainable-development/development-agenda/>, accessed 10 January 2016).
2. “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”. (<http://www.un.org/sustainabledevelopment/health/>, accessed 10 January 2016).
3. Rutstein SO. Effects of preceding birth intervals on neonatal, infant and under-five years mortality and nutritional status in developing countries: evidence from the demographic and health surveys. *Int J Gynaecol Obstet.* 2005.
4. Greenspan A. Family planning’s benefits include improved child health and nutrition: new data from Bangladesh. *Asia Pac Pop Policy.* 1993;Sep(26):1–4.
5. Rafalimanana H, Westoff CF. Potential effects on fertility and child health and survival of birth-spacing preferences in sub-Saharan Africa. *Stud Fam Plann.* 2000;Jun;31(2):99–110.
6. Child Health Epidemiology Reference Group Small-for-Gestational-Age-Preterm Birth Working Group. The associations of birth intervals with small-for-gestational-age, preterm, and neonatal and infant mortality: a meta-analysis. *BMC Public Health.* 2013;13 Suppl 3:S3. doi:10.1186/1471-2458-13-S3-S3.
7. Kozuki N, Walker N. Exploring the association between short/long preceding birth intervals and child mortality: using reference birth interval children of the same mother as comparison. *BMC Public Health.* 2013;13 Suppl 3:S6. doi: 10.1186/1471-2458-13-S3-S6.
8. Canning D, Schultz TP. The economic consequences of reproductive health and family planning. *Lancet.* 14 Jul 2012;380(9837):165–71. doi:10.1016/S0140-6736(12)60827-7.
9. Sonfield A, Kost K, Gold RB, Finer LB. The public costs of births resulting from unintended pregnancies: national and state-level estimates. *Perspect Sex Reprod Health.* 2011; Jun;43(2):94–102. doi:10.1363/4309411.
10. Papua New Guinea. The Demographic and Health Survey 2006. National Statistical Office, Port Moresby, Papua New Guinea; 2009.
11. Bellizzi S, Sobel HL, Obara H, Temmerman M. Underuse of modern methods of contraception: underlying causes and consequent undesired pregnancies in 35 low- and middle-income countries. *Human Reproduction.* 2015. doi: 10.1093/humanrep/deu348.
12. WHO Causes and consequences of contraceptive discontinuation: evidence from 60 Demographic and Health Surveys. Egypt: WHO; 2012.
13. WHO Department of Reproductive Health and Research and Johns Hopkins Bloomberg School of Public Health/Center for Communication Programs, Knowledge for Health Project. Family planning: a global handbook for providers (2011 update). Baltimore and Geneva: CCP and WHO; 2011.

14. NDOH–WHO. Health service delivery profile, Papua New Guinea; 2012.
15. UNICEF, WHO, World Bank and the United Nations Population Division. Levels & trends in child mortality. Report. Estimates developed by the UN Inter-agency Group for Child Mortality Estimation; 2015.
16. WHO. Trends in maternal mortality: 1990 to 2015: estimates by WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division; 2015.
17. Papua New Guinea Sector Performance Review (SPAR) 2010, 2011, 2012 and 2013. Couple years of protection (CYP) is the estimated protection provided by contraceptive methods during a one-year period, based upon the volume of all contraceptives sold or distributed free of charge to clients during that period. The term CYP reflects distribution and is a way to estimate coverage and not actual use or impact. The CYP calculation provides an immediate indication of the volume of programme activity. CYP can also allow programmes to compare the contraceptive coverage provided by different family planning methods. (http://www.cpc.unc.edu/measure/prh/rh_indicators/specific/fp/cyp).
18. Interview with Project Manager, Rotary International supported pilot project “Spacim Pikinini Papua New Guinea”.
19. Gerehu Hospital family planning clinic records and interview with family planning clinic manager.
20. Sarika Gupta, Glen Mola, Philippa Ramsay, Greg Jenkins, John Bolgna, Sister Naterra Kirsten Black. An observational study evaluating the uptake, acceptability and continuation rates of contraceptive implants delivered via an outreach service model in rural Papua New Guinea (in press).
21. NDOH–WHO. The maternal mortality in Papua New Guinea: the stories beyond the numbers; 2014.
22. Sanga K, Mola G, Wattimena J, Justesen A, Black KI. Unintended pregnancy amongst women attending antenatal clinics at Port Moresby General Hospital. *Aust N Z J Obstet Gynaecol.* 2014;Aug;54(4):360–5. doi: 10.1111/ajo.12219.
23. M Magabe, Marie Stopes. Papua New Guinea. Knowledge, practice, and perceptions of family planning by women of childbearing age amongst high school and college students in the Southern Highlands province of Papua New Guinea.
24. Letter from Professor Glen Mola to Dr U Gupta. Re: Support for family planning by partnerships with Marie Stopes PNG and Rotary International ‘Spesim Pikinini’ project. 20 July 2015.

