

REPRODUCTIVE HEALTH



IN DEPTH TOPIC: YOUNG PEOPLE'S SEXUAL AND REPRODUCTIVE HEALTH

By Dr Judith Adams

Introduction

Having sex for the first time is a major milestone in life that almost everyone reaches. In New Zealand, around 37% of secondary school students have had sex by the age of 16 years and around 46% by the age of 17 or more.¹⁰¹ Becoming sexually active brings both risks and rewards. Policy makers are generally most concerned with the risks, particularly the risks of early unintended pregnancy and sexually transmitted infections and the associated costs to society. Good sexual health, however, is more than not contracting a sexually transmitted infection and not being involved in an unintended pregnancy. It has both individual and public health dimensions, as indicated by the following broad definition of sexual health, developed in the US:

*'Sexual health is a state of well-being in relation to sexuality across the life span that involves physical, emotional, mental, social, and spiritual dimensions. Sexual health is an intrinsic element of human health and is based on a positive, equitable, and respectful approach to sexuality, relationships, and reproduction, that is free of coercion, fear, discrimination, stigma, shame, and violence. It includes: the ability to understand the benefits, risks, and responsibilities of sexual behaviour; the prevention and care of disease and other adverse outcomes; and the possibility of fulfilling sexual relationships. Sexual health is impacted by socioeconomic and cultural contexts—including policies, practices, and services—that support healthy outcomes for individuals, families, and their communities.'*¹⁰²

Supporting young people to attain sexual health as defined above is clearly not something the health system can accomplish on its own, nevertheless there is an important role for the health system in helping young people to avoid unwanted pregnancy, providing care to young pregnant women, and preventing and treating sexually transmitted infections.

This in-depth topic considers ways of improving the sexual and reproductive health of New Zealand adolescents and young adults. It focuses on the prevention of unintended teenage pregnancy but also touches on the prevention of sexually transmitted infections. It does not deal with maternity services for pregnant teenagers or services for teenage parents because a previous in-depth topic in this series of reports (2012) was entitled *Services and Interventions for Women Experiencing Multiple Adversities in Pregnancy* and this included a substantial section on services for teenage parents.¹⁰³

It begins by summarising what is known about the sexual behaviour of young people in New Zealand. It then reviews sexuality education, sexual and reproductive health services for young people, and contraceptive options for young people (with a particular focus on long-acting reversible methods). It concludes with some recommendations for improving the sexual and reproductive health of New Zealand young people and preventing unintended teenage pregnancies.

This choice of areas for review was influenced by the 2013 report of the Health Committee (one of the select committees of the New Zealand Parliament) Inquiry into improving child health outcomes and preventing child abuse with a focus from preconception until three years of age¹⁰⁴. One of the major recommendations which came out of the inquiry was as follows:

'We recommend to the Government that it develop a co-ordinated cross-sectoral action plan with the objective of giving New Zealand world-leading, best-practice evidence-based sexuality and reproductive health education, contraception, sterilisation, termination, and sexual health services, distributed to cover the whole country. The plan should be developed within 12 to 18 months of this report being published, and be matched with appropriate, sustainable resourcing. The plan should also be monitored by trends in teenage pregnancy, sexually transmitted diseases, unplanned pregnancy, and terminations.'

It should be borne in mind that in developed countries teenage pregnancy (except in the youngest teenagers) is not so much a medical problem as a social problem.¹⁰⁵ Many of the adverse medical outcomes attributed to teenage pregnancy, such as prematurity and low birth weight, are probably mostly due to the poor socio-economic circumstances and associated risk-taking behaviours that predispose young women to early pregnancy.^{106,107} It should not be assumed that if women in the most deprived communities would only delay

their first birth by five years or ten years, then that alone would inevitably improve outcomes for them and their children.

The sexual health and behaviour of New Zealand's young people

The only recently published surveys of the sexual health and behaviour of New Zealand young people are the Youth 2000 series of surveys of secondary school students, conducted in 2001¹⁰⁸, 2007¹⁰⁹ and 2012¹¹⁰, and the 2009 Tertiary Student Health Survey.¹¹¹

Information from the Youth 2000 Survey Series

The 2012 survey found that, out of all 8,500 participating students, 24% reported that they had ever had sex and 19% that they were currently sexually active (these categories did not include sexual abuse).¹¹⁰ There were no significant differences between males and females. As could be expected, the proportions of students reporting having ever had sex and being currently sexually active increased with increasing age. Of students aged 17 years or older, 46% reported that they had ever had sex and 36% were currently sexually active.

Most students (93% of males and 92% of females) were attracted only to the opposite sex, while 4% of students were attracted to the same-sex or to both sexes and 4% were either not sure of their sexual attractions or were attracted to neither sex.¹¹⁰

Of the students who were sexually active, 58% reported always using contraception to prevent pregnancy. Forty-four percent had talked to their partner about preventing sexually transmitted infections and 46% reported always using a condom to protect against sexually transmitted infections. Seventeen percent of the students who were currently sexually active reported that they did not or only sometimes used condoms or other contraception. This proportion was greater among younger students and students living in high deprivation areas. Clark TC, 2013 #2087}

Comparing results from the 2000, 2007 and 2012 surveys shows that the percentage of students who always use contraception to prevent pregnancy and the percentage who always use condoms to prevent sexually transmitted infections have not changed over time.¹¹⁰ The percentage of students who reported ever having had sex was lower in 2012 (24%) than in 2001 (31%) and 2007 (36%) but this may have been because the 2012 survey question about having ever had sex explicitly told students not to count abuse or unwanted sexual experiences, whereas in 2007 and 2001 this was not stated.^{101,110}

Information from the 2009 Tertiary Student Health Survey

This survey involved 2,922 students aged 17 to 24 years from all eight New Zealand universities (50.6% of the 5,770 invited to participate).¹¹¹ Sixty-nine percent of both men and women reported having had sexual intercourse, and the median age at first sex was 16 for women and 17 for men. The median number of sexual partners ever was three for both men and women. The median number of partners in the last year was one although about 25% of students had three or more. Most students (66%) reported that the person they last had sex with was someone they were in a 'steady relationship' or were 'living together, engaged, or married' but 3% of women and 11% of men reported having 'just met' the person they last had sex with. Fifty-eight percent of men and 51% of women reported using a condom the last time they had sex. Those with a higher number of sexual partners in the last 12 months were less likely to report having used a condom at last sex (51% of those with one partner vs. 42% of those with nine or more partners).

Overall, 32% of respondents reported that they had been drinking alcohol the last time they had sex. Adverse sexual experiences (unsafe sex, regretted sex, experiencing unwanted sexual advances) as a result of a respondent's own or others' drinking were common.¹¹²

Of the women survey participants, 112 (5.8% of those who had ever had sex) reported having had an unintended pregnancy and 74% of these had resulted in a termination.

Around 95% of students reported sexual attraction to the opposite sex mainly. Men were more likely than women to report being exclusively heterosexual (90.8% vs. 83.2%). About 2% of both men and women reported attraction to both sexes equally and about 3% of men and 1% of women reported same sex attraction only or mainly.

Information from official and health services statistics

Some indirect information about the sexual health and behaviour of New Zealand's young people can be gained by looking at official statistics and data collected by health services. Information on rates of sexually transmitted infections in young people is analysed by The Institute of Environmental Science and Research (ESR) which

collects surveillance information on STIs from diagnostic laboratories and from sexual health and family planning clinics.¹¹³ The ESR has stated that laboratory information is the best indicator of disease incidence for chlamydia and gonorrhoea in most DHBs and that surveillance of genital herpes and genital warts is solely clinic based.¹¹³ The Abortion Supervisory Committee collects and analyses data on abortions performed in New Zealand.¹¹⁴

Teenage births in New Zealand

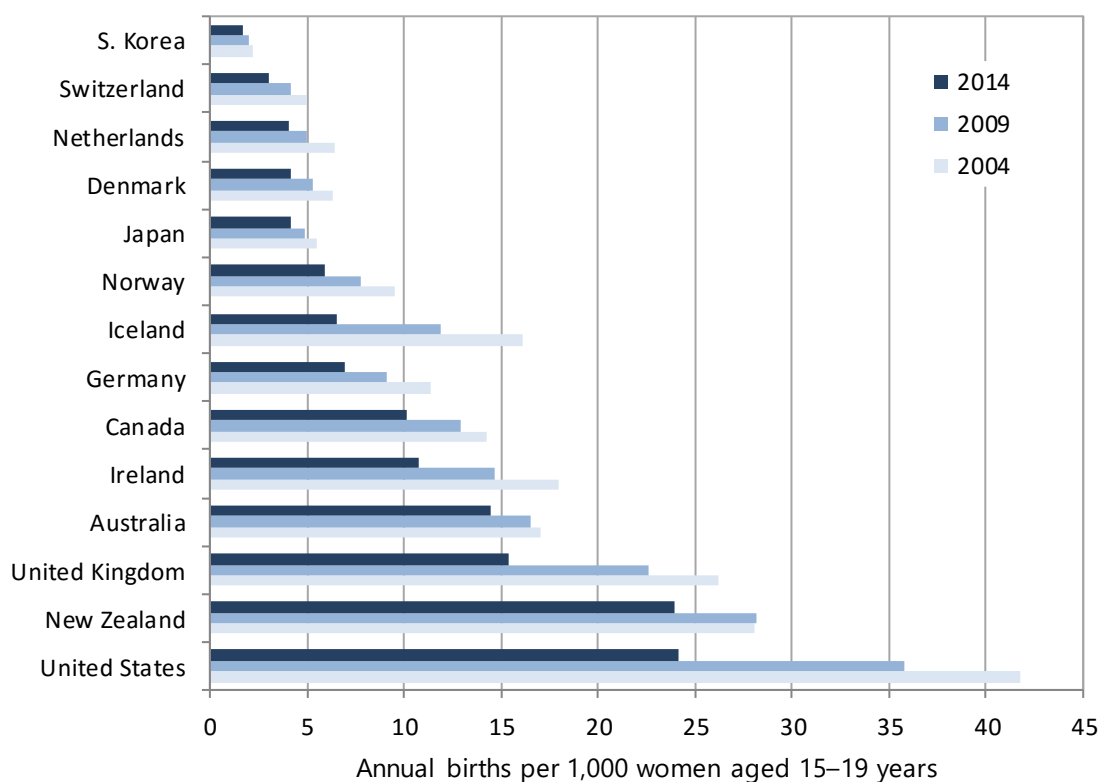
Information on trends in teenage births in New Zealand can be found in the ‘Births’ section beginning on **page 22** of this report. The New Zealand teenage birth rate in 2014 was 23.9 per 1,000 women aged 15–19 years.¹¹⁵ New Zealand’s teenage birth rate is declining and births to teenage mothers are increasingly concentrated in teenagers aged 18 and 19 years.¹¹⁶ In 2013, almost three quarters (71.6%) of all teenage births were to 18 and 19 year olds (up from 66.6% in 2006).¹¹⁶ Few teenagers have more than one birth as teenagers. Of the women who had a baby aged 15 years in 2008, only 2% had a second or subsequent birth before their 20th birthday.¹¹⁶

Māori have a higher rate of teenage births than the national rate (53.2 vs. 22.0 per 1,000 in 2013) but the Māori rate is declining at a similar rate to the national rate.¹¹⁶ Teenage birth rates are significantly higher than the national average in Northland and Gisborne, and significantly lower in metropolitan Auckland, Wellington and Canterbury, as well as in the rest of the South Island.¹¹⁶ Nationally there is a very strong correlation between the level of socioeconomic deprivation (NZDep score) and teenage birth rates and, in the regions with high teenage birth rates, a relatively large proportion of the teenage population live in high deprivation areas.¹¹⁷ Māori teenage birth rates are higher than European rates at all levels of deprivation, indicating that socioeconomic deprivation is not the sole reason for higher teenage birth rates among Māori, and that other factors, such as a cultural preference for early motherhood, may play a part.^{117,118}

International comparisons in teenage birth rates

As can be seen from **Figure 1**, New Zealand has a teenage birth rate that is high compared to other OECD countries, with the exception of the United States. Teenage birth rates have declined in all the countries shown in **Figure 1**, but not to the same degree.

Figure 1. Teenage birth rates in selected OECD countries 2005 to 2015



The World Bank. Adolescent fertility rate (births per 1,000 women ages 15-19). 2015 [cited November, 2015]; Available from: <http://data.worldbank.org/indicator/SP.ADO.TFRT>

Sexually transmitted infections in New Zealand young people

Chlamydia is the most commonly reported STI in New Zealand.¹¹³ This infection is often asymptomatic (in around 25% of male cases and 70% of female cases) but can have serious consequences if untreated, including pelvic inflammatory disease, ectopic pregnancy and both female and male infertility.¹¹³ In 2013, the ESR reported that 68% (19,327) of positive chlamydia cases were young people aged 15–24 years.¹¹³ National disease rates were 3,080 per 100,000 for 15–19 year olds and 2,981 per 100,000 for 20–24 year olds. There were marked geographic variations in young people's chlamydia rates. Lakes and Tairāwhiti DHBs had rates around twice the national rate. Rates for young females, but not young males, declined from 2009 to 2013 (by 27% in females aged 15–19 years and by 17% in females aged 20–24). Testing rates were 205 per 1,000 for 15–19 year olds and 298 per 1,000 for 20–24 year olds. Young women were around five times more likely to have tests than young men but the men's tests were more likely to be positive.

Gonorrhoea is also most commonly reported in young people. In 2013, 59% of positive cases were aged 15–24 years. National rates were 358 per 100,000 for 15–19 year olds and 277 per 100,000 for 20–24 year olds. From 2009 to 2013, there was a 43% increase in the rate of gonorrhoea in females in the 15–19 years age group (from 312 to 445 cases per 100,000) and a small increase in the rate for 15–19 year old males. Rates for young people in Tairāwhiti, Lakes and Hawke's Bay DHBs were much higher than the national rate.¹¹³

The number of cases of genital warts in young people has been decreasing since 2009, which is likely to be related to the introduction of HPV vaccination onto the routine immunisation schedule for girls aged 12 years from late 2008, together with a catch-up programme targeting girls born on or after 1 January 1990.^{58,113,119}

Abortions in young New Zealand women

In the year ended December 2014, 44% of all abortions were performed in women aged less than 25 years.¹²⁰ In 2014 1,758 women aged 15–19 years and 4,024 women aged 20–24 years had an abortion. These figures correspond to abortion rates of 11.5 per 1,000 for women aged 15–19 years and 25.2 per 1,000 for women aged 20–24 years.¹²⁰ Information on previous abortions and contraceptive use by age has not been reported for those who had abortions in 2014¹²⁰ but, in 2013, 12% of the 15–19 year olds and 32% of the 20–24 year olds who had an abortion had previously had one or more abortions.¹²¹ In 2013, Fifty-nine percent of the 15–19 year olds and 55% of the 20–24 year olds who had an abortion had not used contraception.¹²¹

Since 2007, there has been a steady decline in abortion rates for young women. The fall has been especially dramatic for 15–19 year olds (from 27 per 1,000 in 2007 to 11.5 per 1000 in 2014).¹²⁰ The Abortion Supervisory Committee attributed this to the licencing and funding of a long acting subcutaneous implant in August 2010.¹²¹

Sexuality education

Young people learn about relationships and sexuality in many ways: from parents and other family members, peers, their first sexual partner, teachers, health professionals, movies, television, radio, popular music, advertising, books, magazines and other print media, the internet, social media, video games and pornography.¹²² This section discusses only formal sexuality education, in other words, planned health promotion interventions intended to equip young people with the knowledge and skills that will make them more likely to attain physical, emotional, mental and social wellbeing in relation to their sexuality. It takes the standpoint that all young people have a fundamental right to the information and services necessary to maintain their sexual health. It has a focus on preventing sexually transmitted infections and unintended pregnancies, not because rates of unintended pregnancy or STIs are the only or the best indicators of a population's sexual health but because these indicators are relatively easy to quantify and commonly used as outcome measures in research studies, for assessing trends in sexual health, and for international comparisons.

Sexuality education in schools

Schools are in a special position to influence the wellbeing of adolescents since almost everyone attends school. The World Health Organization has recognised this and, in 1995, it launched the Global School Health Initiative to help improve the health of students, staff, parents and community members and increase the number of Health-Promoting Schools. Its publication *Family Life, Reproductive Health, and Population Education: Key elements of a Health-Promoting School*¹²³, states that: 'When schools do not address family life, reproductive health, and population issues, they miss an opportunity to positively affect students' education, quality of life and relationships, and ultimately the economy and productivity of nations'. It sets out a series of well-referenced arguments that make a case for family life, reproductive health, and population education and can be used to convince families, community members, and religious leaders that schools are able to address these issues in an appropriate and effective way that does not lead to promiscuity. It notes that adolescents who engage in one type of risky behaviour, such as unprotected sex, are more likely to engage in other risky behaviours such as tobacco

and drug use or violence, and so addressing one risky behaviour may have a positive influence on other risky behaviours.

Sexuality education in New Zealand schools

Sexuality education is one of seven key learning areas in the health and physical education section of *The New Zealand Curriculum* (the Ministry of Education's statement of official policy relating to teaching and learning in New Zealand schools).¹²⁴ Health education is the only part of a school's curriculum regarding which boards of trustees are legally required to consult with their school's community on how the school will implement the curriculum.¹²⁵ Under section 25AA of the Education Act 1989 (updated in 2001), the parent of a student enrolled at any State school may get their child excluded from tuition in specified parts of the health curriculum related to sexuality education.¹²⁶ All students study health and physical education from Years 1 to 10, but not all senior students choose to study health as one of their NCEA subjects.

The Ministry of Education has recently (in 2015) released new guidelines on sexuality education.¹²⁵ These suggest that in the junior primary years discussions about identity, personal health, body parts, and families are woven into learning throughout the year, but that in later years specific time is devoted to learning about sexuality. They state that the Education Review Office has found that schools with effective sexuality education programmes spend at least 12–15 hours per year on sexuality education, with significantly more time allocated for programmes for senior secondary students (in years 11 to 13)¹²⁷, and they recommend that all senior students engage in sexuality education, not just those studying health to achieve NCEA qualifications.

The new guidelines promote holistic and comprehensive sexuality education that not only equips students with the knowledge and skills to take care of their sexual and reproductive health, but also gives them opportunities to learn about, consider and discuss issues relating to relationships, gender, sexual identities, sexual orientation, sexual behaviour, consent and coercion, rights and responsibilities, societal attitudes and messages, sexual harassment, and pornography.¹²⁵ The guidelines stress the importance of a school-wide culture where diversity is valued and students feel supported, visible and safe, regardless of their sexual and gender identity.

The research literature on sexuality education for young people

Introduction

From a global perspective the AIDS pandemic has been the main impetus for improving sexuality education. In Western developed countries, however, prevention of teenage pregnancy is the main aim of sexuality education. There is a very substantial research literature devoted to the evaluation of educational interventions to improve adolescent sexual and reproductive health.

Programme content categorises sexuality education programmes as belonging to one of three broad types:¹²⁸

- **Abstinence-only** programmes promote abstinence as the only way to avoid adverse sexual health outcomes. Some stress abstinence until marriage. They generally include messages about the psychological and health benefits of abstinence and the dangers of sexual activity.¹²⁹ They do not include information on safer sex strategies or contraception. If they mention condoms and contraception it is only to highlight their failure rates.¹³⁰
- **Abstinence-plus** programmes have abstinence as their main message but also provide information on safer sex practices and contraception
- **Comprehensive** programmes are similar to abstinence-plus programmes but have a focus on safer sex practices and contraception, with the benefits of delaying sex being included in the information provided. Some also provide information on, or access to, contraceptive and sexual health services. Some are part of comprehensive youth development programmes.¹²⁹

Some background to research on sexuality education interventions

Evaluations of sexuality education programmes have used a variety of outcome measures to assess programmes' effectiveness: pregnancy rates, STI rates, self-reported behavioural outcomes (condom use, delayed sex or abstinence, number of sexual partners) and proxy measures (such as changes in sexual health knowledge, attitudes and intentions, and self-efficacy).¹²⁸ A study using pregnancy, birth or STI rates as outcome measures needs to be large and have long term follow-up to be likely to measure statistically significant results, and will therefore be expensive to carry out. This is probably the main reason why there have been relatively few studies that have used these outcome measures and most studies have relied on participants self-reporting outcomes.

The review *Emerging Answers 2007*¹³¹ explains this point in more detail (page 94): '*At least two important methodological problems stand in the way of using pregnancy and STI rates as outcome measures. First, regardless of how they are measured, pregnancy and STI rates are a very insensitive measure of programme*

impact. If a programme reduces the annual teen pregnancy rate by 20%, from 100 pregnancies per 1,000 to 80 per 1,000, the programme would be very successful. However, that decrease represents a difference of only 20 pregnancies per 1,000 (or two percentage points), so a very large sample size (more than 6,000) would be required to have a strong chance of finding that change to be statistically significant. The same problem applies to an even greater extent to birth rates, and it applies to STI rates whenever those rates are low in a population.'

Most studies of sexual health interventions for young people have been conducted in the US and a majority of the US studies targeted African Americans.¹³² A number of influential reviews have included only studies of prevention programmes that were conducted in the US.¹²⁹⁻¹³¹

It is worth remembering that health care in the US is characterised by a mix of public and private funding and that individual states have considerable autonomy. Teen pregnancy programmes tend to be commercial products (developed and researched with the help of funding from various sources including government, academic, charitable and faith-based organisations) that can be purchased by schools or healthcare providers.¹³³ The US Department of Health and Human Services, through the Office of Adolescent Health's Teen Pregnancy Program funds only evidence-based programs, that have been shown, in at least one program evaluation, to have a positive impact on preventing teen pregnancies, sexually transmitted infections, or sexual risk behaviours¹³⁴, therefore there is an incentive for programme developers to undertake robust evaluations of their programmes' efficacy (using RCTs or quasi-experimental methods) and publish the results of these evaluations in peer-reviewed academic journals.

It has been argued that evidence-based interventions tend to have a narrow focus on preventing pregnancy and STIs and that they do not take account of the broad context of adolescents' lives or the psychosocial and structural factors that shape the ways adolescents conduct their sexual lives.¹³⁵ Schalet et al.¹³⁵ state that there is extensive social and behavioural research documenting the influence of gender inequity, ideologies and stereotypes; sexual orientation; school and peer culture; poverty (both at the individual and neighbourhood level); racism and socio-political issues on adolescent sexual health and behaviour. They point out that, in the most disadvantaged communities, young women may feel that their life prospects are made no worse by an early pregnancy and young men may view sexual activity as a pathway to social status rather than an obstacle to socio-economic achievement. They suggest that sexuality education needs to recognise students' diverse life courses and family formations and create opportunities for them to discuss sexual agency and risk in the context of their broader life aspirations and the multiple factors that constrain those aspirations.

Kirby's 2007 review

In his comprehensive 2007 review for the US National Campaign to Prevent Teen and Unplanned Pregnancy, entitled *Emerging Answers 2007: Research Finding on Programs to Reduce Teen Pregnancy and Sexually Transmitted Diseases*¹³¹, Kirby described the programmes and approaches that have reduced teen sexual risk-taking and teen pregnancy or STIs in the US. He provided a list of programmes with strong evidence of impact and described the characteristics of effective sex and STI/HIV education programmes that contributed to their success. The review considered only primary prevention of teen pregnancy (not prevention of repeat pregnancies in teen mothers), and it did not consider the efficacy of the various contraceptive measures, nor same-sex aspects of STI and HIV prevention. Studies were eligible for inclusion in the review if they had been conducted in the US between 1990 and 2007; were focussed on teens aged 12 to 18 years; examined impacts on sexual behaviour, use of condoms or other contraceptives, combined measures of sexual risk, and pregnancy, birth or STI rates; had a reasonably strong experimental or quasi-experimental research design and a sample size of at least 100 teens; measured behaviour for a sufficient length of time; and used appropriate statistical analysis.

Of the 115 studies were included in the review, 56 measured the impact of curriculum-based sex and STI/HIV education programmes and 59 measured the effect of other types of programmes (such as clinic programmes, school-based health services, welfare reforms, and early childhood or youth development programmes). Seventy had an experimental design (they were RCTs) while 45 had a good quasi-experimental design (they compared a study group with a comparison group believed to be similar to the study group although participants were not randomly assigned to one or the other group). Eighty-three of the 115 studies measured outcomes for one year or more, 40 measured outcomes for two years or more, and 26 measured outcomes for three years or more. A large majority of the studies were underpowered and so, while they found intervention effects, these were often not statistically significant. Kirby stated that this produced a conservative bias which was probably quite large (in other words, programmes may be more effective than study results indicated).

The aim of educational interventions is to change the behaviour that leads to unintended pregnancy and STIs. Kirby stated that interventions to prevent pregnancy need to encourage both abstaining from sex (including

delaying first sex, returning to abstinence, and avoiding unwanted, unintended and unprotected sex) and effective use of contraception, while interventions for reducing STIs need to encourage abstaining from sex, limiting the number of sexual partners (especially concurrent partners), increasing the time between sexual partners, reducing the frequency of sex, using condoms, getting tested and treated for STIs, and vaccination against Hepatitis B and HPV. He noted that most US teen pregnancy prevention programmes address all the relevant behaviours (abstinence and use of contraception) but most STI prevention programmes do not as they tend to address only abstinence and condom use. He stated that some STI programmes place some (lesser) emphasis on STI testing and treatment but very few emphasise the importance of having few sexual partners and almost none mention avoiding concurrent partners (and having sex with people who have them), increasing the time between partners and the value of long-term committed and caring relationships.

In addition to addressing the behaviours that lead to unintended pregnancy and STIs, interventions may address the risk factors for risky sexual behaviour. Kirby stated that research has identified more than 500 factors that either increase or decrease the chances that teens will engage in risky sexual behaviour and that some are easier to modify than others. He stated that the factors most strongly related to sexual behaviour are teens' own sexual beliefs, values and attitudes, and that the risk and protective factors most easily changed by teen pregnancy/STI prevention programmes are the sexual ones: sexual knowledge and values, perception of peer norms, motivation and self-efficacy. He suggested that identifying groups of teens at high risk because of factors such as community and/or family disorganisation and disadvantage is useful (even though these risk factors may not be changeable in the short term) because high-risk teens can be targeted with more intensive and effective interventions.

Curriculum-based educational programmes

Kirby's review reported on studies of 56 curriculum-based programmes. Eight focussed on reducing teen pregnancy, 24 on preventing STIs/HIV, and 24 on both. Eight were abstinence programmes and the remaining 48 were comprehensive programmes which encouraged both abstinence and contraceptive use.

A substantial proportion of programmes significantly reduced one or more types of risky sexual behaviour and they did not increase sexual behaviour among young people, as has been feared. Most of the studies that measured pregnancy, birth rates or STI rates did not find statistically significant effects. As explained earlier, this may reflect the difficulties and expense of conducting studies that are adequately powered to detect statistically significant results. Twelve studies measured programme impact on self-reported pregnancy rates: nine found no significant results while two found a significant decrease, and one a significant increase. Four studies measured impact on birth rates: one found a significant decrease and three found no significant impact. Ten studies measured effects on STI rates: seven found no significant results; one found a significant increase in self-reported STIs, which may have been because the programme encouraged young people to be tested and treated; and two found significant decreases in STI rates based on laboratory tests.

The review examined abstinence and comprehensive programmes separately, although the author noted that programmes fell on a continuum and were not easy to categorise. The main findings were as follows.

- A number of abstinence programmes, including abstinence-until-marriage programmes, have been rigorously evaluated and found not to have any effect on delaying initiation of sex, age at first sex, return to abstinence, contraceptive or condom use or number of sexual partners. Abstinence programmes do not seem to have any negative effects and they do not appear to hasten or increase sexual activity or reduce condom or contraceptive use.
- In contrast, comprehensive programmes have shown strong evidence of positive effects on behaviour and no significant negative effects. Two-thirds of comprehensive programmes delayed initiation of sex, reduced frequency of sex, reduced number of sexual partners, increased condom use, increased contraceptive use, or reduced risky sexual behaviour. None hastened sexual initiation or increased the frequency of sex. Almost all had a positive impact on one or more factors affecting behaviour. They improved factors such as knowledge about the risks and consequences of pregnancy and STIs; attitudes and values related to having sex and using condoms or contraception; perceptions of peer norms about sex and contraception; confidence in ability to refuse unwanted sex, insist on condom or contraceptive use, or actually use condoms or contraception; intentions to avoid sex or use contraception; and communication with parents and other adults about sexual matters.
- Among the weaknesses of the research studies were: few described programmes adequately; none dealt with students engaging in same-sex behaviour; some had implementation problems; an unknown number had measurement problems; and many were inadequately powered and did not adjust for multiple tests of

significance or clustering. There may have been publication bias because studies with positive results are more likely to be published.

The characteristics of effective education programmes

Kirby identified 17 characteristics of effective sex and STI/HIV education programmes. He stated that most of the programmes with these 17 characteristics were effective; most effective programmes had most of the 17 characteristics; and programmes with these characteristics were more effective than those without. The 17 characteristics fell into three categories: those related to the process of developing the curriculum; those related to the overall design and teaching strategies of the curriculum itself; and those related to the process of implementing the curriculum. They are presented in **Table 1**. Kirby suggested that the first 13 characteristics can be used to select programmes likely to be effective, to adapt selected programmes to make them more effective, or to develop new programme curricula from scratch, and that the final four characteristics can be used as a guide for implementing effective curricula.

Table 1. The characteristics of effective curriculum-based programmes

The process of developing the curriculum
1. Involved multiple people with expertise in theory, research, and STI/HIV education to develop the curriculum 2. Assessed relevant needs and assets of the target group 3. Used a logic model approach that specified the health goals, the types of behaviour affecting those goals, the risk and protective factors affecting those types of behaviour, and activities to change those risk and protective factors 4. Designed activities consistent with community values and available resources (e.g. staff time, staff skills, facility space and supplies) 5. Pilot-tested the programme
The contents of the curriculum itself*
Curriculum goals and objectives 6. Focussed on clear health goals—the prevention of STI/HIV, pregnancy or both 7. Focussed narrowly on specific types of behaviour leading to those health goals (e.g. abstaining from sex or using condoms or other contraceptives), gave clear messages about these types of behaviour, and discussed situations that might lead to unwanted and/or unprotected sex and how to avoid them 8. Addressed sexual psychosocial risk and protective factors that affect sexual behaviour (e.g. knowledge, perceived risks, values, attitudes, perceived norms, and self-efficacy) and changed them Activities and teaching methods 9. Created a safe social environment for young people to participate 10. Included multiple activities to change each of the targeted risk and protective factors 11. Employed instructionally sound teaching methods that actively involved participants, that helped them personalise the information, and that were designed to change the targeted risk and protective factors 12. Employed activities, instructional methods, and behavioural messages that were appropriate to the teens' culture, developmental age and sexual experience 13. Covered topics in a logical sequence
The process of implementing the curriculum
14. Secured at least minimal support from appropriate authorities, such as departments of health, school districts, or community organisations 15. Selected educators with desired characteristics (whenever possible), trained them, and provided monitoring supervision and support 16. If needed, implemented activities to recruit and retain teens and overcome barriers to their involvement (e.g. publicised the programme, offered food or obtained consent) 17. Implemented virtually all activities with reasonable fidelity

Kirby D. 2007. Emerging answers 2007¹³¹ https://thenationalcampaign.org/sites/default/files/resource-primary-download/EA2007_full_0.pdf. * This section is based on a review of the curricula for 19 effective programmes, five of which were from outside the US.

Gender and power issues as part of sexuality education

To be able to protect their own sexual health, young women need to be empowered to see themselves as equal partners in their relationships, and as individuals capable of being active participants in society. In their 2014 review of sexuality education in the global context, Haberland and Rogow¹³⁶ stated that relatively few comprehensive sexuality education (CSE) programmes have historically emphasised gender and rights but that there is increasing evidence that an empowerment approach to CSE is particularly effective.

Comprehensive sex education that takes an empowerment approach uses curricula encompassing feminist theory – either explicitly or implicitly – which help students to understand how gender inequality is socially constructed and to reflect on and critique prevailing social norms (such as social expectations for boys to ‘score’

and the ‘double standard’).¹³⁶ The aim is that, as students develop more egalitarian attitudes and relationships, they will adopt different behaviour and, among other positive outcomes, have better sexual health outcomes.¹³⁶

Haberland and Rogow reviewed sexual risk reduction programmes that had been evaluated using pregnancy and STI rates and they stated that programmes that addressed issues of gender and power were more likely to show significant positive effects on health outcomes than those that did not.¹³⁷ Examples of successful gender-and-empowerment orientated programmes included HORIZONS, an HIV prevention intervention for young African-American women which reduced rates of chlamydial infection¹³⁸, and Stepping Stones, an HIV prevention programme which was associated with a 33% reduction in the incidence of Herpes simplex type 2 in a cluster-RCT conducted in South Africa.¹³⁹ The Stepping Stones trial found that the intervention also significantly reduced the proportions of men reporting intimate partner violence, transactional sex and problem drinking at 12 months.

The publication *It's All One Curriculum: Guidelines and Activities for a Unified Approach to Sexuality, Gender, HIV, and Human Rights Education*¹⁴⁰ provides valuable information on sexuality education that emphasises gender equality and human rights, and critical-thinking teaching methods. It was developed by a working group comprised of three international NGOs (Population Council, IPPF, and International Women's Health Coalition); one regional NGO (IPPF/Western Hemisphere Region); and three country-based NGOs (Girls Power Initiative/Nigeria, CREA/India, and Mexfam/Mexico).

The 2012 systematic reviews by Chin et al.

Chin et al. conducted systematic reviews for the US Guide to Community Preventive Services on two strategies for group-based behavioural interventions for adolescents to prevent or reduce the risk of adolescent pregnancy, HIV and STIs; one on comprehensive risk reduction interventions and one on abstinence education.^{129,130} (In the US until 2010, states could receive federal funding to implement only abstinence programmes that followed federal A-H guidelines. These guidelines stated that abstinence from sexual activity outside marriage is the expected standard for all school age children and that a mutually faithful monogamous relationship in context of marriage is the expected standard of human sexual activity.¹⁴¹)

The reviews assessed the effectiveness of the two strategies by determining how much they reduced sexual risk behaviours, pregnancy, HIV and other STIs, and increased protective sexual behaviours. To be eligible for inclusion in the review studies had to be published in English during 1988–2007 and evaluate an intervention delivered in US schools, community settings or both. Interventions for teen parents or HIV-infected adolescents were excluded.

For each strategy the reviewers conducted meta-analyses on seven key outcomes: current sexual activity; number of sex partners; frequency of unprotected sexual activity; use of protection (condoms and/or hormonal contraception); pregnancy; and STIs.

The effectiveness of comprehensive risk-reduction interventions

Chin et al.'s review of comprehensive risk reduction interventions included 66 studies, 62 of which provided data for the analyses. Twelve were considered to have good quality of execution and 50 to have fair quality. Sixty-one percent were RCTs and the rest were controlled before-and-after studies. Interventions were almost evenly split between school and community settings and between targeted and untargeted approaches. Percentages of recipients by school level were 35% middle school (10–14 years) and 65% high school (15–19 years). Intervention contact hours ranged from one to fifty-four, with a mean of 14.5 hours. Most interventions (80%) were delivered by an adult only, but 20% were delivered by an adult together with a peer. Most outcomes were self-reported although STIs were sometimes confirmed by laboratory testing.

All of the outcomes measured in the comprehensive risk reduction interventions showed effectiveness (**Table 2**). All the effects estimates, except for pregnancy rates, were statistically significant. (The risk ratio can be interpreted as the ratio of the risk of an outcome in the intervention group to the risk of the same outcome in the control group. A risk ratio of 0.75 indicates that those in the intervention group had 75% of the risk of those in the control group.¹⁴²)

The economic efficiency of comprehensive risk-reduction interventions

Chin et al.'s review identified ten comprehensive risk-reduction studies that included economic information. In six of the eight economic evaluations of individual interventions studies, costs per participant per year (in 2008 US dollars) ranged from \$66¹⁴³ to \$10,024¹⁴⁴ per person per year. The review authors stated that the wide variation was due to variability in programme content, number of participants and programme duration. The lowest cost was for a school-based programme involving curriculum-based education¹⁴³ while the most expensive programme was a multi-faceted youth development intervention that included family life, sex and

health education; career support; academic support; artistic expression; recreation; and physical and mental health referrals.¹⁴⁴ Six studies reported on economic benefits from intervention: six estimated healthcare costs averted and four estimated productivity costs.

Table 2. Effectiveness of comprehensive risk-reduction interventions, as indicated by meta-analysis results

Outcomes ¹	Number of studies	Number of study arms	Odds ratio (95% CI)	Estimated Risk Ratio
Sexual activity	38	54	0.84 (0.75–0.95)	0.88
Frequency of sexual activity	13	14	0.81 (0.72–0.90)	— ²
Number of sex partners	23	27	0.83 (0.74–0.93)	0.86
Unprotected sexual activity	22	28	0.70 (0.60–0.82)	0.75
Protection ³	38	50	1.39 (1.19–1.62)	1.13
Condoms ³	33	44	1.45 (1.20–1.74)	1.12
Oral contraceptives ³	9	10	1.29 (0.89–1.85)	1.22
Dual use ³	4	4	1.21 (0.70–2.12)	1.17
Pregnancy	9	11	0.88 (0.60–1.30)	0.89
STI	6	8	0.65 (0.47–0.90)	0.69
HIV	0	0	—	—

Chin et al. 2012¹³⁰ Notes: ¹All self-reported, except for STI which were either laboratory-confirmed or self-reported; ²Couldn't be calculated; ³Odds ratios > 1 for these outcomes indicate beneficial effects (i.e. that the intervention increased the outcome, as desired)

The review authors stated that, overall, most of the comprehensive risk-reduction studies that made a comprehensive assessment of the benefits of preventing pregnancy, STIs and HIV, and secondary benefits (such as educational attainment) found a positive economic value from investments in such interventions. They noted that there are other dimensions of positive behaviours affected by interventions (particularly youth development interventions) that are harder to quantify and value in monetary terms (such as reduced crime, better academic attainment and improved parenting skills).

The effectiveness of abstinence education

The review of abstinence education by Chin et al. included 23 studies, 21 of which were considered suitable for meta-analysis. Two of these had good quality of execution and nineteen had fair quality. Fewer than half were RCTs. Most outcomes were self-reported but STIs were sometimes confirmed by laboratory testing. Almost all participants were aged 10–14 years (only one study evaluated the intervention in older adolescents) and most were virgins at baseline. The interventions were mostly curriculum-based educational interventions focussed on preventing STIs/HIV and pregnancy which took place in school settings and were delivered by a trained adult.

The meta-analysis results indicated favourable effects on the primary outcomes of sexual activity and frequency of sexual activity but only the reduction in sexual activity was statistically significant. There were no effects found for the secondary effects of number of sex partners, unprotected sexual activity, and use of protection during sexual activity. The odds ratios for these outcomes were all close to one and not significant. There were marked differences between the RCTs and the non-RCTs. For sexual activity – the only outcome with a substantial number of data points from both types of studies – there was a significant difference in effect estimates: The RCTs had a non-significant odds ratio of 0.94, while the non-RCTs had a significant odds ratio of odds ratio 0.66. The RCTs had longer follow-up times (up to 6.5 years with a mean of 3.2 years) compared to the non-RCTs (a maximum follow-up of one year and a mean of 0.6 years). There was possible publication bias as the studies with small sample sizes (which would be more likely to produce significant results by chance) tended to have greater intervention effects than the larger studies. Overall, the findings from the review of abstinence education interventions were inconclusive.

The economic efficiency of abstinence education

The review authors noted that one expert had stated that, up until 2005, more than \$1.5 billion had been spent on abstinence education interventions in the US. They stated that the only available estimate for the cost of individual programmes is the reported cost of curricula which ranged from \$31 to \$646 for 21 curricula¹⁴⁵ (with an average of \$220, presumably per teacher copy of the curriculum ± materials such as videos and student resources, although this was not explicitly stated) and that the published information about abstinence programmes was insufficient for estimating either the economic benefit or cost-effectiveness of these programmes.

Potential harms of interventions

There is a concern that comprehensive risk-reduction interventions may encourage earlier initiation of sexual activity and greater sexual frequency of sexual activity. The findings of this review, however, indicated that comprehensive risk reduction interventions reduce both sexual activity and frequency of sexual activity in adolescents receiving such interventions. A similar concern is that abstinence education interventions make it more likely that teens will fail to use contraception if they do have sex. Most of the abstinence education studies that measured use of protection during sexual activity did not demonstrate any differences between intervention and comparison groups. Effects of abstinence interventions on consistent condom use could not be assessed as none of the abstinence education studies reported on this outcome.

Public health impact

Chin et al. stated that comprehensive risk-reduction interventions would be expected to not only to reduce sexual activity but also to increase behaviours that reduce the risks associated with sexual activity whereas abstinence education would be expected to only reduce sexual activity. They also stated that comprehensive risk reduction interventions would be expected to have a greater public health impact than abstinence education interventions even if both interventions had similar effects on sexual activity since, unlike abstinence education interventions, comprehensive risk-reduction interventions offer benefits both to adolescents who abstain from sexual activity and to those who are sexually active, and to both older and younger adolescents.

The Community Preventive Services Task Force recommendations

Based on the findings of the two systematic reviews, the US Community Preventive Services Task Force recommended group-based comprehensive risk-reduction delivered to adolescents to promote behaviours that prevent or reduce the risk of pregnancy, HIV, and other STIs.¹⁴⁶

Parent interventions

Several recent systematic reviews have examined studies of interventions with parents and/or families which aimed to improve parent-child communication about sex, improve adolescent sexual health, or both.¹⁴⁷⁻¹⁵¹ **Table 3** provides a brief summary of these reviews. In general, interventions with parents did improve parents' communication with adolescents about sexual matters, but there is limited evidence that they were effective in changing adolescents' sexual behaviour. There is considerable variation between parent programmes and in the outcome measures used by evaluation studies so it is difficult to determine which kinds of parent interventions are most effective in improving parent-child communication.

Sexual and reproductive health services for young people

In addition to having a good understanding of sexual and reproductive health issues, young people need access to sexual and reproductive health services. These services include the provision of counselling and advice on sexuality, sexual abuse, contraception, abortion and sexually transmitted infections; prescription of contraceptives of various kinds; pregnancy testing; referrals for abortions; and testing and treatment for sexually transmitted infections. Such services can be provided by GPs, youth health services (including school-based clinics, youth one-stop shops, and student health services at tertiary education institutions), family planning clinics and sexual health clinics. This section looks at issues related to sexual and reproductive health services for young people (other than prenatal and obstetric care for expectant mothers). In particular, it considers what is known about what makes services effective in improving adolescent health outcomes (such as rates of STIs and unintended pregnancy); what adolescents themselves have said about what they value in services; the provision of emergency contraception; and the use of long-acting reversible contraceptives by adolescents.

Table 3. Findings from recent systematic reviews of parent interventions to improve parent-child communication about sex, improve adolescent sexual health, or both

Author (date)	Number of studies included	Results for communication	Results for sexual behaviour
Gavin (2015). ^{147,152}	16 (all from US)	12 of 16 studies showed an increase in parent-child communication about sexual and reproductive health	4 of 7 studies reported reduced sexual risk behaviour 1 of 2 studies found a marginal impact on teen pregnancy
Santa Maria (2015) ¹⁴⁸	28 (all from US, by intention). Not all focused only on parent-child communication	Increased parent-child communication (meta-analysis of 11 controlled trials); increased parental comfort with communication (meta-analysis of 9 trials)	Insufficient evidence
Wight (2013) ¹⁴⁹	44 (25 RCTs), most from US (1 each from Mexico, S. Africa, Trinidad and Tobago, and Nicaragua). Parent intervention was often a component of a broader sexual health intervention	31 of 37 had a positive influence on parent-child interaction, one had a negative influence	11 of 21 had a positive influence on adolescent sexual behaviours; two had a negative influence
Akers (2011) ¹⁵⁰	12 (all from US, by intention)	Parents (almost invariably mothers) reported improvements in multiple communication domains. Effect sizes couldn't be calculated and studies' results couldn't be compared because the studies all used different measures to assess communication	Not assessed
Downing 2011 ¹⁵¹	17 (all from US) No relevant studies from other countries identified	Parent-based intervention had some positive effects on parent child communication but family-based interventions did not.	Inconsistent effects

Sexual and reproductive health services in New Zealand

In New Zealand, there are a number of providers of sexual and reproductive health services. Many offer free services to young people. Sexual health clinics are normally free for New Zealand residents.¹⁵³ They provide testing and treatment for STIs but do not usually provide contraception (other than condoms and the emergency contraceptive pill). Attending a family planning clinic is free to New Zealand residents aged under 22 years.¹⁵⁴ Family planning clinics provide a wide range of sexual and reproductive health services including contraception, STI testing and treatment, cervical smears, abortion counselling and referrals, and help with sexual dysfunction and gynaecological problems.¹⁵⁴ Many DHBs fund free sexual health services (including contraception) for young people who are enrolled with Primary Health Organisations (age limits vary and there may be a limit on the number of free visits per year). These services are often delivered in general practices, particularly in smaller towns. Youth One Stop Shops provide a range of free social and health services, including sexual and reproductive health services.¹⁵⁵

Most New Zealand high schools provide health services.¹⁵⁶ Most commonly these are provided by visiting health professionals, but some schools have on-site health professionals.¹⁵⁶ Because the government has specifically allocated funding for health services in low-decile schools, it is high decile schools and private and integrated schools that tend to have no health services beyond first aid provision.¹⁵⁶ (The Ministry of Education assigns each school a decile rating: the lower a school's decile, the higher the proportion of students that are from low socio-economic backgrounds.) There is wide variation between schools in the level of sexual health services provided by health professionals working in or visiting schools and this is generally related to boundaries set by principals and boards of trustees.¹⁵⁷

Barriers to service access

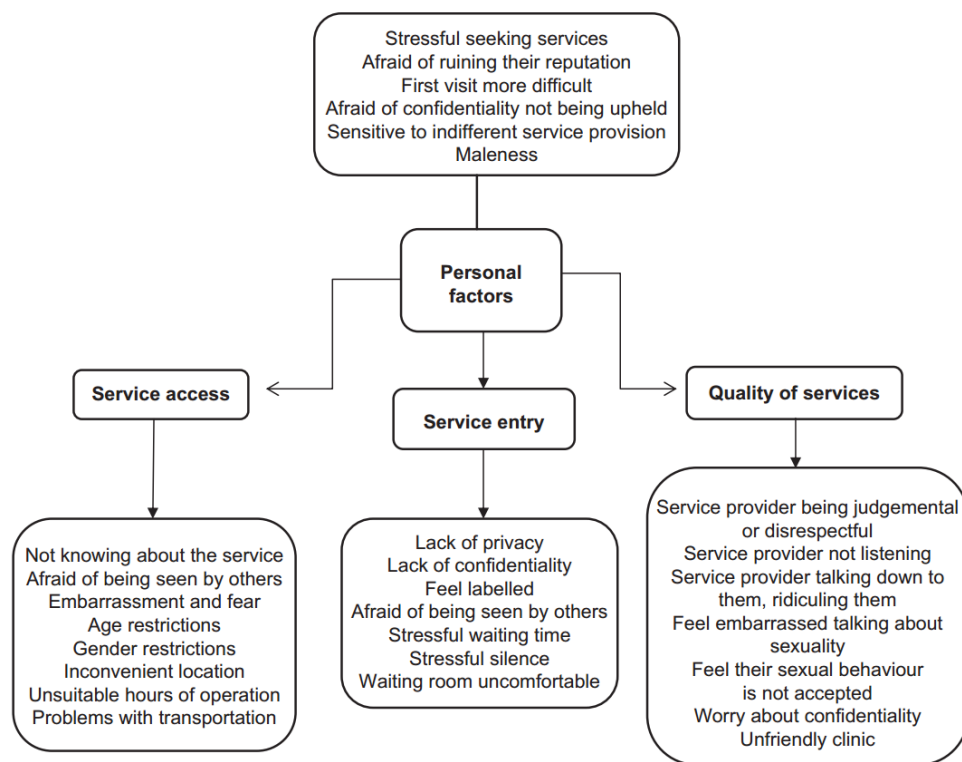
There are a number of barriers that can prevent a young person accessing services to meet their sexual and reproductive health needs or deter them from returning to a service. These barriers can exist at various levels: at the policy level (e.g. some counties have laws prohibiting the provision of contraception to under-age or

unmarried adolescents); the operational level (e.g. services having inconvenient operating hours, being too far away or too expensive); and the personal level (e.g. not recognising the signs of a health problem; not knowing what services are available; being too scared or embarrassed to phone or visit a service).¹⁵⁸

A recent review by Bender and Fulbright (2013) presented a content analysis of quantitative and qualitative studies (published between 2000 and 2010) dealing with barriers to access and utilisation of sexual and reproductive services, as perceived by 10 to 25 year olds.¹⁵⁹ It included 17 studies conducted in the Western world (12 from the UK, three from Canada and two from the US) and it aimed to answer the question: How do young people perceive the barriers to sexual and reproductive health services?

The review authors classified the barriers identified in the studies into four categories: service access (factors which might make it difficult for young people to go to services); service entry (factors related to a young person's experience from the time they entered the clinic until they received attention from a health practitioner); quality of services; and personal factors. They regarded personal factors as factors which had personal relevance to young people on a cognitive, affective or relational level, and which were related to their own integrity. They considered this to be a central category, and they presented the following classification of barriers (**Figure 2**)

Figure 2. A classification of youth perceptions of barriers to sexual and reproductive health services



Bender SS, Fulbright YK. 2013.¹⁵⁹

They reported that, although the 17 articles in their review identified different types of barriers to sexual and reproductive health clinics, they did not give any indication of the degree to which the barriers hindered young people accessing sexual and reproductive health clinics. Collectively, the articles reviewed indicated that it was the personal perceptions of young people (i.e. the personal factors) that were the most important. Privacy and confidentiality were extremely important: young people did not want anyone to find out they had visited a clinic.

Carroll et al.¹⁶⁰ investigated both barriers and facilitators to young people's use of school-based and school-linked sexual health services in a systematic review of studies that had explored the views and experiences of young people (aged 11 to 18 years). In total the review included 19 studies, 12 from the US and seven from the UK, none of which were included in Bender and Fulbright's review.

The authors undertook a thematic analysis of the studies and they reported that the principal themes that emerged were (in no particular order):

- awareness and need (students need to know of the existence of services and the reasons they might need to visit one)
- confidentiality and disclosure (students don't want anyone to find out they have visited a service, or to disclose their name, age and the reason for their visit to the receptionist if they can be overheard by others in the waiting room)
- staff attitudes (students value staff who make them feel comfortable and relaxed, and are friendly, supportive, helpful, welcoming, non-judgmental and caring)
- staff gender (students like to be able to choose the gender of the health practitioner they see); location (convenience is valued)
- visibility of service (students don't want to be seen entering a sexual health service, so discrete signage and integrating sexual health services with other health services is helpful)
- convenient opening hours (e.g. lunchtimes and after school)
- a pleasant physical environment; cost of services (free is preferred)
- availability of information, advice and contraception

Baxter et al.¹⁶¹ reviewed 59 papers reporting on UK studies examining views of service providers and young people concerning delivery of contraceptive services. Important themes they identified were:

- perceptions of particular services (e.g. family planning is for older couples; clinics are for girls)
- accessibility of services (young people generally prefer convenient locations although some will travel to more distant clinics to reduce the chance of meeting someone they know)
- opening hours (Saturdays and after school preferred)
- appointment systems (young people like to drop in, but they also don't like to wait long)
- embarrassment, anonymity and confidentiality (young people don't want to be seen at a clinic or called out by name; the use of numbers instead of names was suggested; the possibility of being recognised is a greater problem in smaller centres)
- pleasant clinic environment
- respectful and non-judgemental staff who are easy to talk to
- links between services (e.g. between school-based and other services)
- staff training.

What makes a service youth-friendly?

It is important that health service providers make services relevant and attractive to adolescents. The World Health Organization has stated that adolescent-friendly health services need to be accessible, equitable, acceptable appropriate, comprehensive, effective and efficient.¹⁶²

A recent systematic review by Brittain et al.¹⁶³ aimed to describe key characteristics of youth-friendly family-planning interventions and summarise the evidence regarding the effect of youth-friendly family planning services on reproductive health outcomes.

Thirteen studies discussed key characteristics of youth-friendly family-planning services: one from the perspectives of both providers and young people, nine from the perspectives of young people only, and four from the perspectives of providers only. The youth friendly characteristics identified were: (ordered according to the number of studies identifying the characteristic)

- Confidentiality: What is discussed between patient and provider will not be shared with anyone else without the patient's explicit consent (13 studies)
- Accessibility: Convenient location; low cost or free; access to transport; outreach; opening hours; short waiting times; both by appointment and 'drop in' visits available; pleasant atmosphere at entrance; offering a range of contraceptive options (11 studies)
- Provider interaction: Sufficient time is allowed to build a rapport between provider and patient; providers engaging in one-to-one vs. group education; providers being respectful and non-judgmental (11 studies)

- Integration: Providing family planning services in setting such as youth clubs, or in settings also providing other health services such as mental health services or comprehensive health services (7 studies: 4 of young peoples' and 3 of providers' perspectives)
- Specialised staff training: Staff have received training on communicating with young people about reproductive health (5 studies; 4 of young peoples' and 1 of providers' perspectives)
- Accommodating young people's preferred provider characteristics: for example being a particular gender, or type of practitioner, such as a doctor, nurse or social worker (4 studies of young people's views)
- Involvement of parents and/or families (4 studies: 2 of young peoples' and 2 of providers' views)
- Peer involvement: the use of peer health providers, peer educators, or peer support groups within the clinic (3 studies: 2 of young peoples' and 1 of providers' views)
- Cultural competence: providers and clinics have the behaviours, attitudes and policies to enable effective service provision in cross-cultural situations (1 provider study)

Do youth-friendly services produce better outcomes?

Brittain et al.¹⁶³ also identified six studies that examined the effects of youth-friendly family planning services on reproductive health outcomes. Study sample sizes ranged from 163 to 1,590 and the age of study participants from 12 to 24 years. There were two prospective cohort studies and one each of the following study types: pre-post with one study group, analysis of repeated population surveys, cross-sectional, and non-randomised trial.

Three studies examined impacts on long term outcomes (i.e. teen or unintended pregnancy rates and abortion rates). Two of these found that youth-friendly family planning service components were associated with statistically significant reductions in teen pregnancies while the third¹⁶⁴, an evaluation of a new contraceptive clinic for teens in Nottingham, UK for the years 1986 to 1992, found a statistically significant increase in pregnancy, birth and abortion rates.

Three studies examined impacts on medium-term outcomes and all found positive outcomes related to contraceptive use including increased odds of consistent use of birth control from first to last visit, increased odds of use of effective birth control, increased clinic utilisation (following an intervention at a Teen Clinic), and greater use of chosen contraceptive method at six and 12 month follow-up.

All three studies that examined short term impacts found significant effects, including increased positive ratings for aspects of the clinic experience, satisfaction with opening hours, and increased patient knowledge.

Overall, the review by Brittain et al.¹⁶³ found that there was limited evidence that youth-friendly family planning service improve reproductive health outcomes for young people because the body of evidence lacked rigorous study designs and had high risk for bias. The authors were unable to draw definitive conclusions because each study examined different youth-friendly services interventions, and each intervention employed different strategies to increase young people's access to services (e.g. hours to suit teenager's schedules or drop-in appointments) or improve quality of care (e.g. specialised staff training). They did, however, note the following characteristics of interventions that were associated with reduced teen pregnancy rates and improved use of contraceptives: clinic-based services with peer providers, follow-up phone calls, and outreach efforts, and services that emphasised in-depth counselling, education tailored to an adolescent's level of development, and provision of social support and reassurance. They also noted that another intervention that offered free services, tailored hours, peer group reproductive health discussion, and outreach in local schools was associated with increased use of services.

Emergency contraception

It is common for young people to have sex without using contraception.¹⁰¹ When young women seeking abortion are asked why they did not use contraception, common reasons given are that they were not planning to have sex, they were 'in the moment', and they had been drinking.¹⁶⁵⁻¹⁶⁷ Emergency contraception is the use of drugs (the 'morning after pill') or devices (the copper IUD) to prevent pregnancy after intercourse where no contraceptive method has been used or there has been a mishap in contraceptive use (such as a condom breaking or forgetting to take oral contraceptive pills).^{168,169}

The emergency contraceptive pill

The most widely used emergency contraceptive pill (ECP) is 1.5 mg levonorgestrel (LNG), taken either as a single dose or in two 0.75 mg doses roughly 12 hours apart.¹⁶⁸ (In New Zealand women are offered Postinor-1, a single-dose formulation which contains 1.5mg of levonorgestrel.¹⁷⁰) There has never been a placebo-controlled trial of the efficacy of the ECP, but efficacy has been estimated by comparing the number of observed vs. expected pregnancies in women given the ECP. Two influential World Health Organization studies have

indicated that LNG-ECP is highly effective. In the first study¹⁷¹, 11 out of 976 (1.1%) women became pregnant, when 76 (7.8%) would have been expected to, indicating an efficacy of 86%. In the second¹⁷², 44 out of 2712 (1.6%) women became pregnant when 216 (8%) would have been expected to, indicating an efficacy of 80%. (Efficacy is not the same as the percentage of women who do not get pregnant. The latter statistic is considerably greater than the efficacy because not all women would be expected to get pregnant following a single episode of sex, even if they used no contraception. In the two studies cited above the percentage of women who did not get pregnant was > 98%.)

The efficacy of LNG-ECP is reduced in women who have sex during the fertile window of their menstrual cycle (from five days before to one day after ovulation), and was found to be 60–68% in two other studies.¹⁷³

A 2012 Cochrane review¹⁷⁴ found that the one and two dose LNG regimens were of similar effectiveness, and that women who took LNG within 72 hours of intercourse were significantly less likely to get pregnant than those who took it after 72 hours. Side effects from LNG-ECP are generally tolerable, and include nausea, vomiting, heavier than normal menstrual bleeding, fatigue, diarrhoea, dizziness and breast tenderness.¹⁷⁵ Recently, there have been concerns that LNG-ECP is less effective in heavier women (those weighing more than 70 kg).¹⁷³ This has led to recommendations that heavier women should be offered a copper intra-uterine device instead of the ECP.^{173,176}

Emergency contraceptive pills can be purchased over-the-counter from pharmacies in many countries¹⁶⁸ including New Zealand (at a cost of \$30 to \$50¹⁷⁷). In New Zealand, at family planning clinics¹⁷⁸ and often at GPs (through funding from DHBs), the consultation and prescription is free for young people but there is normally a \$5 charge to fill the prescription at the pharmacy.¹⁷⁷ Some DHBs, including Nelson Marlborough¹⁷⁹ and Waikato¹⁸⁰ fund pharmacies to provide free emergency contraceptive pills, with or without a prescription.

Is advance provision of emergency contraceptive pills of benefit?

Emergency contraceptive pills are most effective if they are taken as soon as possible after unprotected sex.¹⁸¹ Providing women with a supply of emergency contraception to use as needed allows women rapid access to the medication when they need it. A Cochrane review¹⁸² summarised the evidence evaluating advance provision of emergency contraceptive pills, published up until November 2009. None of the 11 individual RCTs included in the review found significant effects on pregnancy rates, including the two studies that were adequately powered to detect such a difference. Results from pooled analyses also showed no significant differences between pregnancy rates in the advance provision and control groups. There was no evidence that advance provision had a negative impact on sexual and reproductive health behaviours and outcomes.

Copper IUDs for emergency contraception

The copper IUD is the most effective method of emergency contraception and the only emergency contraceptive method to provide on-going protection against pregnancy.^{174,183} Cleland et al. reviewed 42 studies published in English or Chinese (up until August 2011) with a defined population of women who presented for emergency contraception and were provided with an IUD, and in which the number of pregnancies was ascertained and loss to follow-up was clearly defined. Almost all reported on copper IUDs. Most studies (31 or 74%) followed the standard protocol of inserting the IUD within five days of unprotected intercourse. The pregnancy rate (after one outlier study was excluded) was 0.09%, indicating that the copper IUD is by far the most reliable emergency contraceptive option.

There have been a number of recent studies exploring the awareness of and interest in IUDs among women seeking emergency contraception. These have identified barriers to IUD use including cost, waiting time (patients cannot always get an IUD on the day they present for emergency contraception), low levels of awareness and understanding of IUDs among patients, and lack of provision by providers.¹⁸⁴⁻¹⁸⁷ Two US studies of adolescents and young women presenting to family planning clinics reported that, when counselled about IUDs for emergency contraception, 13%–15% of them would choose an IUD, and that more would do so if IUDs could be provided on the same day and at no cost.^{184,186}

Long-acting reversible contraception

The effectiveness of condoms and oral contraceptive pills in preventing pregnancy depend on correct and consistent use. Typical failure rates for the contraceptives commonly used by teens, such as condoms and the oral contraceptive pill, are much higher than failure rates for perfect use.¹⁸⁸ In contrast, the effectiveness of long acting reversible contraceptive (LARC) methods, which include copper intra-uterine devices, progestogen-only injectable contraceptives, progestogen-only intrauterine devices, and progestogen-only subdermal implants, does not depend on daily compliance.¹⁸⁸

Expert opinion is that LARC methods are generally under-utilised.¹⁸⁸ The American College of Obstetricians and Gynecologists has stated that, because LARCs have top-tier effectiveness, high rates of satisfaction and continuation, and no need for daily adherence, LARC methods should be first-line recommendations for all women and adolescents.¹⁸⁹ The UK's National Institute for Health and Care Excellence has stated that all currently available LARC methods are more cost effective than the combined oral contraceptive pill even at one year of use.¹⁹⁰

There is evidence, including evidence from a New Zealand study¹⁹¹ which explored attitudes to contraception, and particularly LARC, among young women seeking abortion, that, when they are provided with accurate information, and cost barriers are removed, young women view LARC methods favourably.¹⁹²

The contraceptive CHOICE Project was a prospective cohort study of 10,000 women in the St. Louis region of the US who were aged 14–45 years, wished to avoid pregnancy for at least one year and were initiating a new form of reversible contraception.¹⁹² Women recruited into the study were provided with contraceptive counselling and offered the contraceptive method of their choice at no cost for three years. Of the first 2,500 women enrolled, 63% were aged < 26 years. Of the 2,500 women, 67% chose long acting methods: 56% chose an intrauterine method (47% a levonorgestrel IUD and 9% a copper IUD) and 11% a subdermal implant. Although the study found statistically significant associations between demographic and behavioural factors and acceptance of LARCs, these associations were small and considered unlikely to be clinically meaningful. The study authors suggested that this indicated that LARC methods are acceptable to and wanted by a wide range of women seeking contraception.

Progestogen-only injectable contraceptives

Progestogen-only injectable contraceptives are slow release preparations. Depot medroxyprogesterone acetate (DMPA, trade name Depo-Provera®), which is given every 12 weeks, is the only progestogen-only injectable available in New Zealand.¹⁹³ It is very effective at preventing pregnancy. The estimated percentage of women experiencing an unintended pregnancy during the first year of use is 0.2%, while the percentage for typical use in the US has been estimated to be 6%.¹⁹⁴ The main factor in less than perfect use is failure to get repeat injections on time.

It is common for women to have irregular or prolonged bleeding in their first three to six months on DMPA. Amenorrhoea is common with longer DMPA use.^{188, 195, 196} There have been concerns about the effects of DMPA on bone mineral density (BMD), especially in young women who have not yet attained their peak bone mass. Cross-sectional studies have indicated that BMD in DMPA users is usually lower than that of non-users, but within one standard deviation.¹⁹⁷ Longitudinal studies have found that there is a greater decrease in BMD over time in DMPA users than non-users, but women gain BMD when they stop using DMPA.¹⁹⁷ A recent Cochrane review identified two studies providing moderate quality evidence of increased fracture risk for longer current use of DMPA users, plus two lower quality studies, one of which found and increased fracture risk while the other did not.¹⁹⁸ The review did not provide any data specifically on adolescents. The authors stated that adolescents are unlikely to have fractures related to skeletal fragility as these are rare in pre-menopausal women.

Progestogen-only subdermal implants

Contraceptive implants are inserted beneath the skin on the inside of the upper arm and slowly release progestogens into the circulation. There are two brands available in New Zealand: Jadelle®, which is fully subsidised and lasts for up to five years (2 rods, each containing 75mg levonorgestrel) and Implanon NXT® which costs around \$270 and lasts for up to three years (1 radio-opaque rod containing 68 mg etonorgestrel).^{177, 196, 199}

Implants are very effective at preventing pregnancy. Their forgettable nature is appealing to women.²⁰⁰ A 2007 Cochrane review reported on research comparing different implants in RCTs.²⁰¹ Follow-up data from these studies indicated that there were three pregnancies in 2307 women years with Jadelle® and none in 2068 women years with Implanon®, equating to pregnancy rates of 0.13 and 0 per 100 women years respectively. The most common side effect of implants is changes in bleeding patterns, including infrequent, frequent and/or prolonged bleeding, as well as amenorrhoea.²⁰² Bleeding disturbances, especially frequent and/or prolonged bleeding, are the most common reasons women discontinue implants prematurely.^{200, 202} A Scottish study which followed up 324 women who had chosen Implanon® in a community family planning clinic found that, of the 68 women who discontinued Implanon® within one year, 62 (91%) did so because of unwanted side effects, the most common being frequent and/or unpredictable bleeding (n=42, 62%).²⁰³

There are drugs which can be used to manage troublesome bleeding patterns^{204, 205} but these may not be acceptable to all women. One Dutch study found that most women with troublesome bleeding refused to accept additional medications and asked for the removal of the implant.²⁰²

Intrauterine devices

There are two types of intrauterine device (IUD) available in New Zealand: the copper IUD, which contains copper, and the levonorgestrel intrauterine system (LNG-IUS, brand names Mirena® and Jaydess®), which is a hormone-releasing IUD that slowly releases progestogen into the uterine cavity. Jaydess® (known as Skyla® in the US) is a newer LNG-IUS, which is slightly smaller than Mirena®, lasts for three years, and is promoted as being especially suitable for young women who have not had children. There are also small-sized frameless copper IUDs which may be especially suitable for nulliparous women with a small uterine cavity, but these are not available in New Zealand.²⁰⁶ Only the copper IUD is fully subsidised: young people need to pay around \$300 for Mirena® or Jaydess®, unless they meet Pharmac's strict criteria for heavy menstrual bleeding.²⁰⁷ (Family Planning charges \$340 for Mirena® and \$275 for Jaydess®.¹⁷⁷) Intrauterine devices are very effective at preventing pregnancy. Failure rates during the first year of use have been estimated to be 0.6% to 0.8% for copper IUDs and 0.2% for Mirena.¹⁹⁴

Copper IUDs may cause increased menstrual flow and painful menstruation whereas the LNG-IUS typically produces irregular bleeding or spotting in the first months of use followed by oligomenorrhoea or amenorrhoea after longer use.²⁰⁸ Unacceptable vaginal bleeding or pain is the most common reason for women requesting IUD removal.²⁰⁸ Barriers to increased use of IUDs by adolescents include lack of awareness, cost, and health provider reluctance to recommend IUDs to women who have not had children and who may have multiple partners (because of outdated worries about STI-induced pelvic inflammatory disease and subsequent infertility).^{209,210} The American College of Obstetricians and Gynecologists has stated that, although few studies have focussed exclusively on adolescents, current evidence suggests that the relative risk of pelvic inflammatory disease is increased only in the first 20 days after IUD insertion and then returns to baseline, while the absolute risk remains small, and that prompt treatment of chlamydia identified at the time of IUD insertion will make developing pelvic inflammatory disease unlikely.²¹⁰

Another concern is that insertion of an IUD is more difficult and/or painful in a woman who has not had children because the cervix is more tightly closed. Bayer et al.²¹¹ reported on a retrospective cohort study which compared the insertion and post-insertion experiences of 220 nulliparous and 87 parous teenagers (30 of who received their IUD post abortion). The mean age of study subjects was 18 years, range 15 to 19 years). The vast majority of study subjects (296 out of 307, 96%) had a successful IUD insertion on the first attempt; all of the 11 unsuccessful insertions were in nulliparous teens. Seven of the 11 had successful insertions on the second attempt and there were four failed insertions. Most of the study subjects having interval IUD insertion (i.e. not post abortion) received only ibuprofen or paracetamol and topical lidocaine gel or spray to the cervix for relief of insertion pain (269/277, 97%). (The 2015 Cochrane review on interventions for IUD insertion found that Lidocaine 2% gel, misoprostol, and most NSAIDs did not help reduce pain but that some lidocaine formulations, tramadol, and naproxen had some effect on reducing IUD insertion-related pain in specific groups.²¹²)

A prospective study of 109 nulliparous women, aged 18–30 years, who had an IUD placed at a student health clinic at Cornell University (88 LNG-IUS users and 21 Copper T 380A IUD users) and were followed up at one, six, 12 and 18 months after insertion reported high overall satisfaction.²¹³ At follow-up survey (after mean use of 13.4 months) 83% of women were 'happy' or 'very happy' with their IUD, with no differences in satisfaction between users of the two types of IUD. A majority of women (75%) reported that the insertion went 'very well' even though 78% rated insertion pain as moderate to severe. At 12 months, the continuation rate was 89%. Reasons for discontinuation were expulsion (3%), side effects (6%), lack of anticipated benefit (1%) and pregnancy (1%). Compared to users of the LNG-IUS, users of the Copper T 380A were more likely to have heavy menses (74% vs 2%, $p < 0.0001$) or moderate to severe cramping (68% vs 20%, $p = 0.0002$). During the study period, there were no uterine perforations and no diagnoses of pelvic inflammatory disease. The rate of failed insertions was 6.2%.

Conclusions

In New Zealand, the median age at which women have their first baby is around 28 years²¹⁴ yet the median age at which young people first have sex is around 17 years.¹¹⁰ It is therefore clear that, in our society, most people wish to have sex long before they wish to be a parent and that they need to be able to control their fertility through contraception and, as a last resort, through abortion (if that is what they want). Having several sexual partners over time is the norm^{111,215} and having sex with people who have had previous partners put a person at risk of contracting a sexually transmitted infection. There is a clear link between alcohol abuse and promiscuity and unprotected sex.^{112,216}

All over the developed world, governments are concerned about teenage pregnancy rates. There is considerable variation in teenage birth rates between developed countries and New Zealand's rate is high by OECD standards.¹¹⁵ Teenage birth rates are falling in New Zealand and in other developed countries.¹¹⁵ This suggests that broader global trends, such as greater educational opportunities for young women along with improved contraceptive technology (and access to it), are responsible for the decline rather than any particular national public policies.²¹⁷

Young people need comprehensive sexuality education at school to equip them with the skills and understandings to take care of their sexual health. Research indicates that the effective sexuality education addresses the risk and protective factors that are most easily changed by teen pregnancy/STI prevention programmes: sexual knowledge and values, perception of peer norms, motivation and self-efficacy. There is no evidence that providing young people with comprehensive sexuality education hastens their sexual debut or increases their sexual activity.

In addition to having a good understanding of sexual and reproductive health issues, young people need access to sexual and reproductive health services. It is important to minimise barriers that deter young people from accessing services. The greatest barriers are probably embarrassment and fear that confidentiality will not be maintained. Young people generally don't want it known that they have visited a sexual health service. Other barriers include inconvenient service locations or opening hours, transportation difficulties, and cost.

Research has identified a number of characteristics that make services youth-friendly: confidentiality, accessibility, respectful and non-judgmental staff, integration of sexual and reproductive services with other health services, specialised staff training, accommodating young people's preferred provider characteristics (such as wishing to see a provider of a particular gender), involvement of parents of families (where this is desired), peer involvement (for example having young staff or peer support groups), and cultural competence.

Highly effective contraceptive methods are available but awareness and utilisation of these methods, particularly long-acting reversible methods, is not as high as it could be. Since it is common for young people to have unprotected sex, it is important that all young people have access to emergency contraception. Some DHBs fund pharmacies to provide the emergency contraceptive pill free without a prescription. Although there is no high quality evidence that providing people with an advance supply of the emergency contraceptive pill reduces unintended pregnancies, common sense would suggest that this approach could be of benefit, particularly to teenagers in remote and rural areas. The copper IUD is the most effective form of emergency contraception, and it is especially recommended for heavier women among whom the emergency contraceptive pill is less effective.

Long acting reversible contraceptives (LARCs), including implants, the copper IUD and the levonorgestrel intrauterine system (Mirena® and Jaydess®) have very low failure rates and do not require daily compliance, characteristics that make them ideal for women determined to avoid pregnancy. There is a lack of awareness among health professionals and young people that intrauterine devices are suitable for women who have not had children and who may have multiple partners. Given the choice of having either a copper IUD or a levonorgestrel intrauterine system, a majority of women would likely choose a levonorgestrel intrauterine system because it reduces or eliminates menstrual bleeding whereas the copper IUD tends to increase it. In New Zealand this choice is denied to women who cannot afford to pay the high cost of levonorgestrel intrauterine system, since Pharmac funds only the copper IUD.

Providing young people with comprehensive sexuality education and free access to sexual health services will not be enough to eliminate sexually transmitted infections and unintended pregnancies in young people. Alcohol abuse is a major factor leading to unprotected and risky sexual behaviours so changing New Zealand's drinking culture is an important public health goal. When disadvantaged young women are empowered to see a future for themselves that includes completing their education and having a career that will allow them greater economic independence and greater ability to provide for any children they may eventually have, then they will be less likely to see early motherhood as their only path into adulthood, and less likely to be ambivalent about the possibility of pregnancy when they have sex.

BIRTHS

Introduction

New Zealand's teenage fertility rates are relatively high by OECD standards. In 2011, New Zealand's adolescent fertility rate was 22.1 per 1,000 women aged 15–19 years.¹⁴ In comparison, rates (per 1,000) were 35.0 in the US, 23.6 in the UK, 14.6 in Australia, 12.5 in Canada and 5.2 in the Netherlands.¹⁴ Teenage fertility rates are declining in New Zealand and in other developed countries.¹¹⁶ In New Zealand, the decline in fertility has been greatest for younger teenagers so that births to teenage mothers are increasingly occurring to older teenagers. Almost three-quarters (71.6%) of all teenage births in 2013 were to 18 and 19 year olds (up from 66.6% in 2006).¹¹⁶ Teenage fertility rates are considerably higher in areas of high socio-economic deprivation.¹¹⁷

Māori have long had higher teenage birth rates than non-Māori, but their rates are declining at a similar rate to those of non-Māori. The Māori teenage birth rate in 2013 was 53.1 births per 1,000, down from 72.2 per 1000 in 2000.¹¹⁶ Māori teenage birth rates are higher than European at all levels of socio-economic deprivation (NZDep2013).¹¹⁷

Research, both internationally and in New Zealand, suggests that the main factors responsible for declining teenage fertility rates are a decline in sexual activity among teenagers and increasing use of contraception.¹¹⁶ The abortion rate for women aged 15 to 19 years in New Zealand has declined, from a high of 26.7 per 1,000 in 2007 to 11.5 per 1,000 in 2013.²¹⁸ Data from the Christchurch Health and Development Study, which followed children born in 1997 from birth to age 25 years, suggested that teenage motherhood was associated with poorer mental health, education and economic outcomes at ages 21–25 years although the association with adverse mental health outcomes was no longer significant after controlling for confounding factors.²¹⁹ For many young parents, having a baby can be a turning point in their lives which increases their motivation to take responsibility for their future and raise their educational and employment aspirations. Coordinated social services which support teen parents into education, training and employment are critical to improving outcomes for teenage parents and their children.¹¹⁷

The following section reports on teenage birth rates using information from the Birth Registration Dataset. Policy documents and evidence-based reviews relevant to the support of teenage parents and their children are summarised at the end of this section.

Data sources and methods

Indicator

Teenage birth rates

Data sources

Numerator: Birth registration dataset (live births)

Denominator: Statistics NZ Estimated Resident Population (with linear extrapolation being used to calculate denominators between Census years)

Definition

Teenager is defined as a woman aged 10–19 years

Teenage birth rate: The number of live births per 1,000 women aged 15–19 years

Age-specific fertility rates: The number of live births per 1,000 women for a particular age group in a given year

Notes on interpretation

Unless specified otherwise, the denominator is out of women aged 15–19 years

In the analysis of total teenage pregnancy rates, miscarriage rates were estimated at 10% of induced abortions and 20% of live births using miscarriage methodology based on Dickson, N., et. al.²²⁰

The teenage birth rates presented here may vary slightly from previous years, as the Ministry of Health no longer provides stillbirth data in the Birth Registration Dataset due to concerns about data quality. Thus the current analysis is restricted to teenage live births (as compared to total teenage birth rates (including stillbirths) which were presented in previous years).

An overview of the strengths and limitations of the Birth Registration Dataset is provided in the Appendices.

National trends and distribution

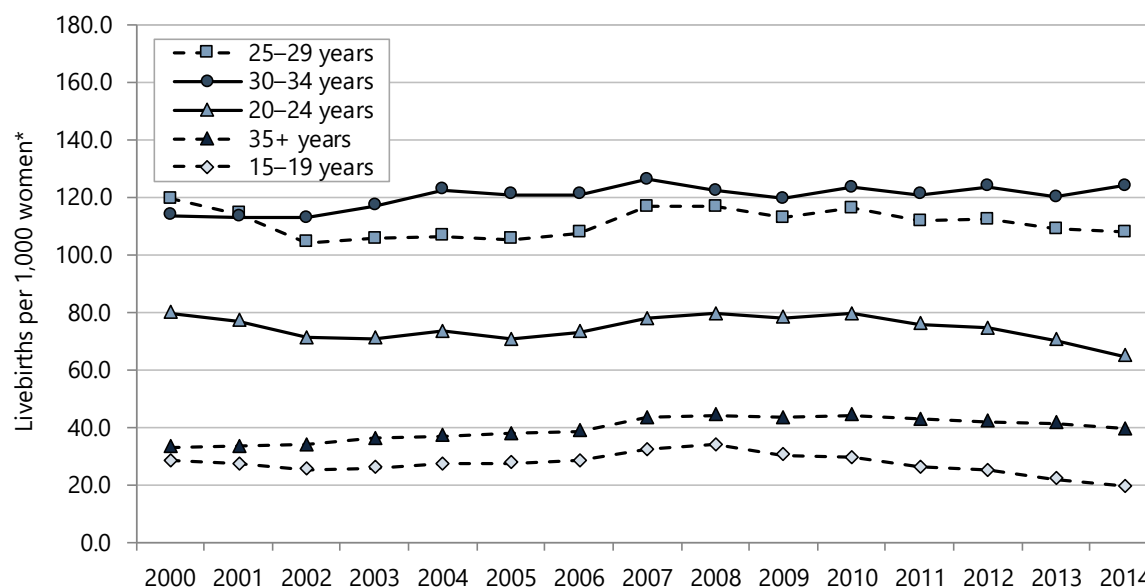
In 2000 the live birth rate varied by age from 28.1 per 1,000 15–19 year old women to 119.5 per 1,000 25–29 year olds. Rates were consistently lowest in 15–19 year olds and from 2002 were highest in 30–34 year olds.

From 2000 to 2014 there was an overall fall in birth rates for women aged 15–19 years, and also for 20–24 and 25–29 year olds, with more stable rates in other age groups (**Figure 3**).

Among women aged under 20 years the total birth rate fell from 70.7 per 1,000 in 2000 to 36.4 per 1,000 in 2014. Birth rates were consistently higher by each increasing year of age (**Figure 4**). Pregnancy outcomes for women aged 15–19 years showed an overall fall in pregnancy, live birth, termination and miscarriage rates from 2008 to 2014 (**Figure 5**).

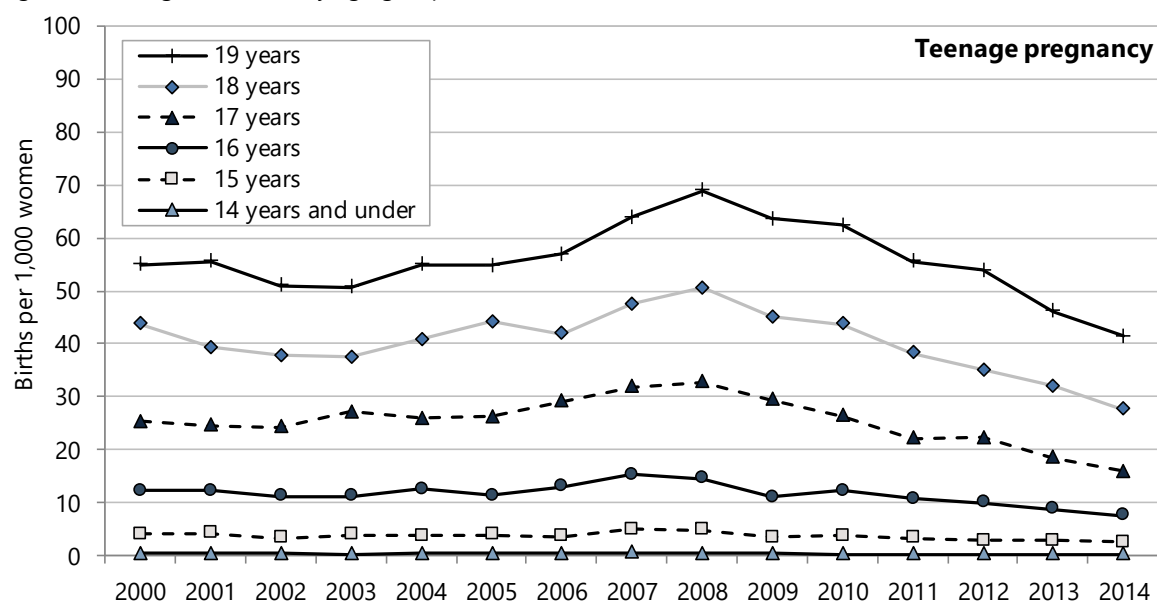
From 2000 to 2014 birth rates for 15–19 year old women declined overall in each ethnic group. Birth rates were consistently highest for Māori, followed by Pacific and European and consistently lowest for Asian/Indian (**Figure 6**).

Figure 3. Livebirths, by age group of women, New Zealand, 2000–2014



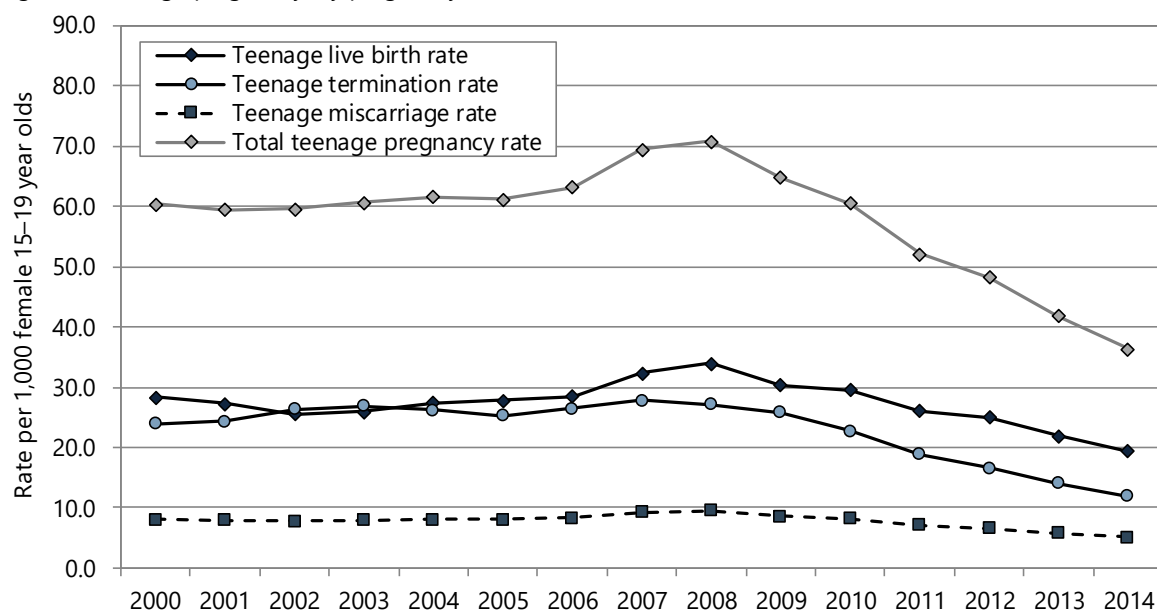
Numerator: Birth registration dataset; Denominator: Statistics NZ Estimated Resident Population; * Number of live births per 1,000 females of childbearing aged between 15–44 years

Figure 4. Teenage birth rate, by age group, New Zealand, 2000–2014



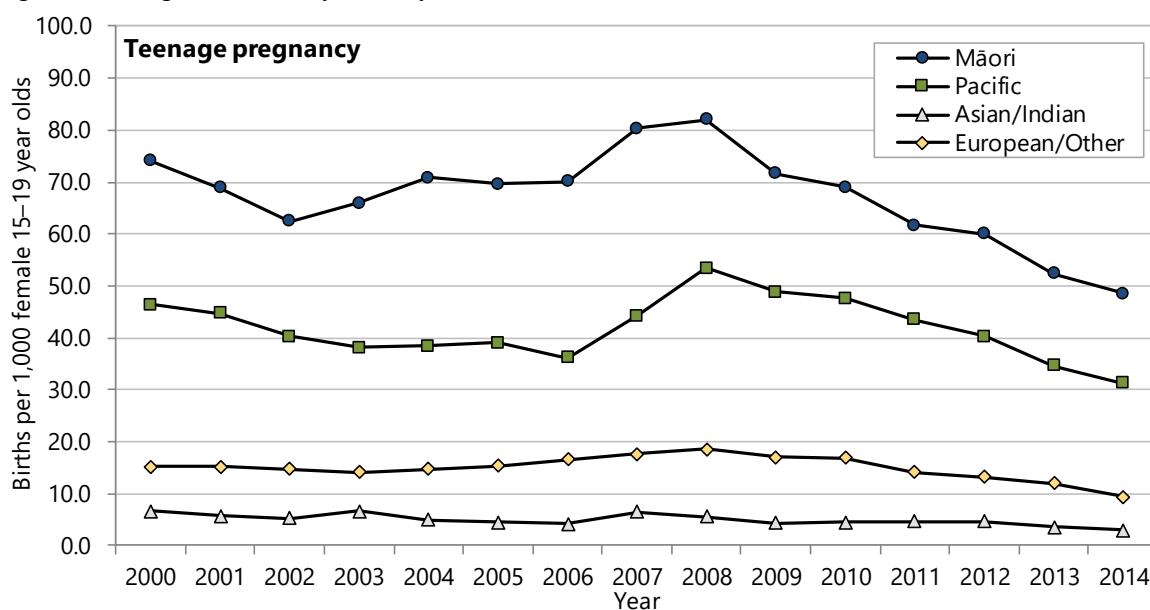
Numerator: Birth registration dataset (births registered to women aged under 20 years); Denominator: Statistics NZ Estimated Resident Population, female age range 10–19 years

Figure 5. Teenage pregnancy, by pregnancy outcome, New Zealand 2000–2014



Numerators: Birth registration dataset (live births); Abortion Supervisory Committee via Statistics New Zealand: Numerator age range 11–19; Denominator: Statistics NZ Estimated Resident Population (15–19 year old females); Miscarriages were estimated at 10% of terminations (induced abortions) and 20% of live births. Miscarriage methodology based on Dickson, N., et. al. (2000) Pregnancies among New Zealand teenagers: trends, current status and international comparisons. NZMJ (April 12) 155–159

Figure 6. Teenage birth rates by ethnicity, New Zealand 2000–2014



Numerator: Birth registration dataset (births registered to women aged under 20 years); Denominator: Statistics NZ Estimated Resident Population (15–19 year old females)

Distribution by demographic factors

Between 2010 and 2014 there was a strong social gradient in teenage live birth rates with a *significant increase* in rates between each quintile of NZDep2013 scores compared with the quintile below. Compared with European/Other, teenage birth rates were *significantly higher* for Māori and Pacific and *significantly lower* for Asian/Indian while MELAA rates were *not significantly different* (Table 4).

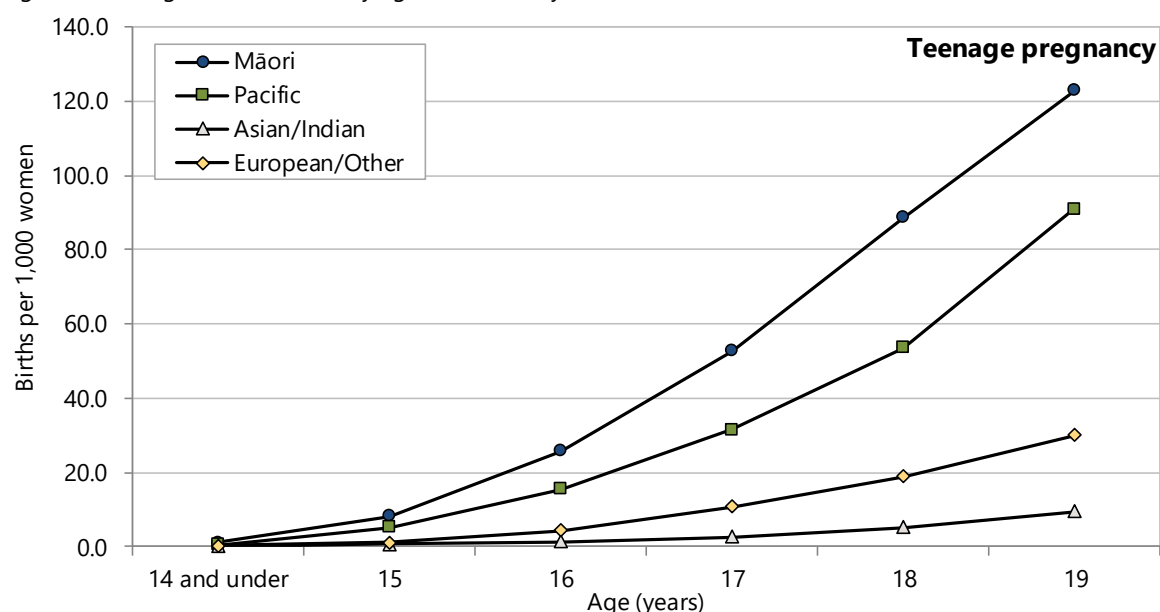
Table 4. Birth rates among 10–19 year olds, by demographic factor, New Zealand 2010–2014

Variable	Number: 2010–2014	Rate per 1,000 female 15–19 year olds	Rate ratio	95% CI
Teenage births				
New Zealand				
NZDep2013 Index of deprivation quintile				
Deciles 1–2	961	6.68	1.00	
Deciles 3–4	1,581	12.07	1.81	1.67–1.96
Deciles 5–6	2,495	17.75	2.66	2.47–2.86
Deciles 7–8	4,466	28.59	4.28	3.99–4.59
Deciles 9–10	9,085	47.51	7.11	6.66–7.60
Prioritised ethnicity				
Māori	9,813	58.31	4.45	4.31–4.59
Pacific	2,741	39.33	3.00	2.87–3.14
Asian/Indian	371	4.00	0.30	0.27–0.34
MELAA	117	12.87	0.98	0.82–1.18
European/Other	5,549	13.11	1.00	

Numerator: Birth registration dataset (births registered to women aged under 20 years); Denominator: Statistics NZ Estimated Resident Population (15–19 year old females); Rates are per 1,000 15–19 year old females, Ethnicity is level 1 prioritised; Decile is NZDep2013

The live birth rate was consistently highest for Māori, followed by Pacific, European and Asian/Indian at each year of age from 15–19 years (**Figure 7**).

Figure 7. Teenage live birth rate, by age and ethnicity, New Zealand 2010–2014



Numerator: Birth registration dataset (births registered to women aged under 20 years); Denominator: Statistics NZ Estimated Resident Population; Rate is per 1,000 age-specific female population; Ethnicity is level 1 prioritised

Distribution by region

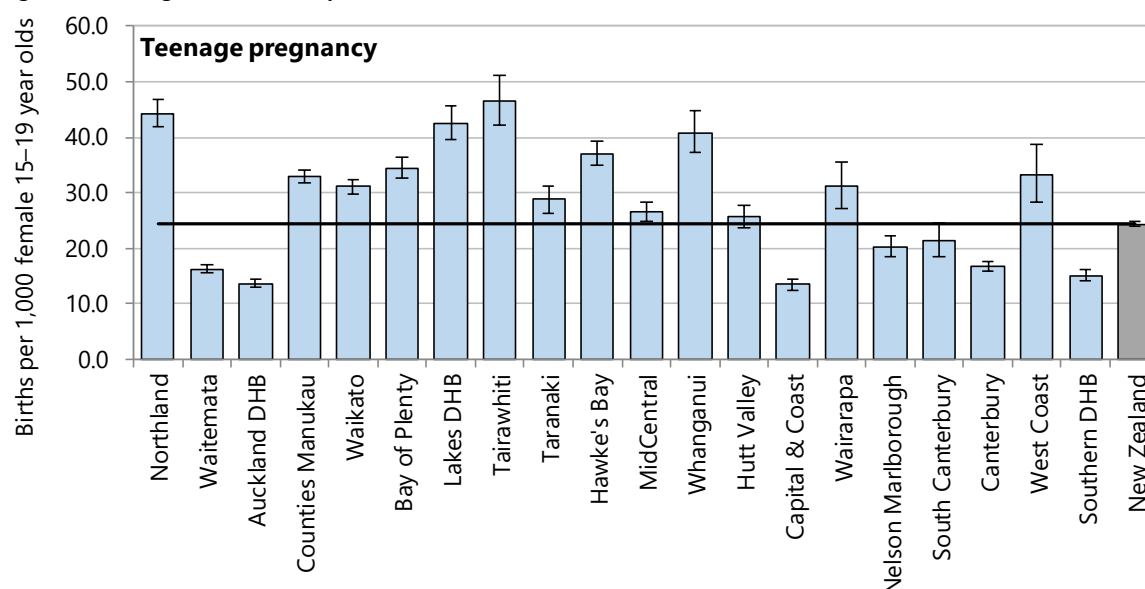
Teenage birth rates were *not significantly different* from the New Zealand rate in Hutt Valley and South Canterbury DHBs and were *significantly lower* in Waitemata, Auckland, Capital & Coast, Nelson Marlborough, Canterbury and Southern DHBs between 2010 and 2014. In the remaining 12 district health boards the teenage birth rates were *significantly higher* than the New Zealand rate (**Table 5, Figure 8**).

Table 5. Teenage birth rates, by district health board, New Zealand 2010–2014

DHB	Number: 2010–2014	Number: annual average	Rate per 1,000 female 15–19 year olds	Rate ratio	95% CI
Teenage births					
Northland	1,179	236	44.32	1.82	1.71–1.92
Waitemata	1,547	309	16.27	0.67	0.63–0.70
Auckland	1,050	210	13.69	0.56	0.53–0.60
Counties Manukau	3,156	631	32.89	1.35	1.30–1.40
Waikato	2,070	414	31.13	1.28	1.22–1.33
Bay of Plenty	1,161	232	34.49	1.41	1.33–1.50
Lakes	748	150	42.48	1.74	1.62–1.87
Tairāwhiti	394	79	46.51	1.91	1.73–2.10
Taranaki	514	103	28.80	1.18	1.08–1.29
Hawke's Bay	979	196	37.05	1.52	1.43–1.62
MidCentral	836	167	26.46	1.08	1.01–1.16
Whanganui	428	86	40.87	1.67	1.52–1.84
Hutt Valley	615	123	25.63	1.05	0.97–1.14
Capital & Coast	706	141	13.50	0.55	0.51–0.60
Wairarapa	203	41	31.16	1.28	1.11–1.46
Nelson Marlborough	416	83	20.31	0.83	0.76–0.92
South Canterbury	183	37	21.31	0.87	0.76–1.01
Canterbury	1,374	275	16.86	0.69	0.65–0.73
West Coast	157	31	33.20	1.36	1.17–1.59
Southern	872	174	15.08	0.62	0.58–0.66
New Zealand	18,620	3,724	24.40	1.00	

Numerator: Birth registration dataset (births registered to women aged under 20 years); Denominator: Statistics NZ Estimated Resident Population (15–19 year old females)

Figure 8. Teenage birth rates, by district health board, New Zealand 2010–2014



Numerator: Birth registration dataset (births registered to women aged under 20 years); Denominator: Statistics NZ Estimated Resident Population (15–19 year old females)

South Island region distribution and trends

Comparison with New Zealand

Between 2010 and 2014, teenage birth rates in the West Coast were *significantly higher* than the national rate, while rates were *significantly lower* in Nelson Marlborough, Canterbury, and Southern DHBs. Rates were *not significantly different* in South Canterbury (Table 6).

Table 6. Distribution of teenage births, South Island DHBs vs New Zealand 2010–2014

DHB	Number: 2010–2014	Number: annual average	Rate per 1,000 female 15–19 year olds	Rate ratio	95% CI
Teenage births					
Nelson Marlborough	416	83	20.31	0.83	0.76–0.92
South Canterbury	183	37	21.31	0.87	0.76–1.01
Canterbury	1,374	275	16.86	0.69	0.65–0.73
West Coast	157	31	33.20	1.36	1.17–1.59
Southern	872	174	15.08	0.62	0.58–0.66
New Zealand	18,620	3,724	24.40	1.00	

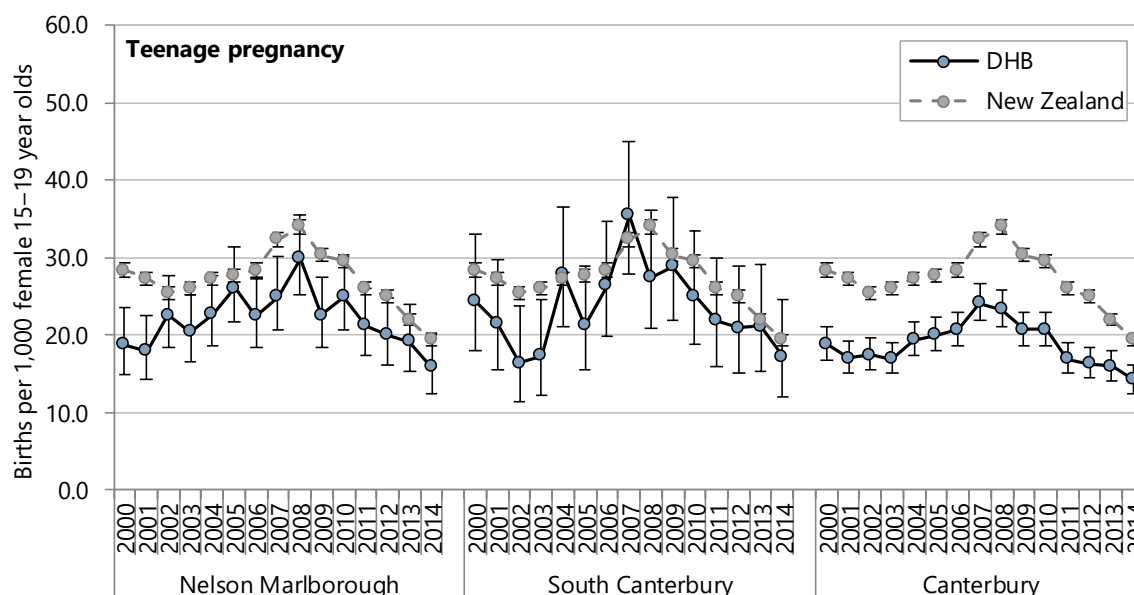
Numerator: Birth registration dataset; Denominator: Statistics NZ Estimated Resident Population (15–19 year old females)

Regional trends

In the South Island DHBs, with the exception of West Coast, teenage birth rates increased during the mid-2000s, reached their highest level in 2008, and declined steadily thereafter, whereas rates on the West Coast were more variable (Figure 9, Figure 10).

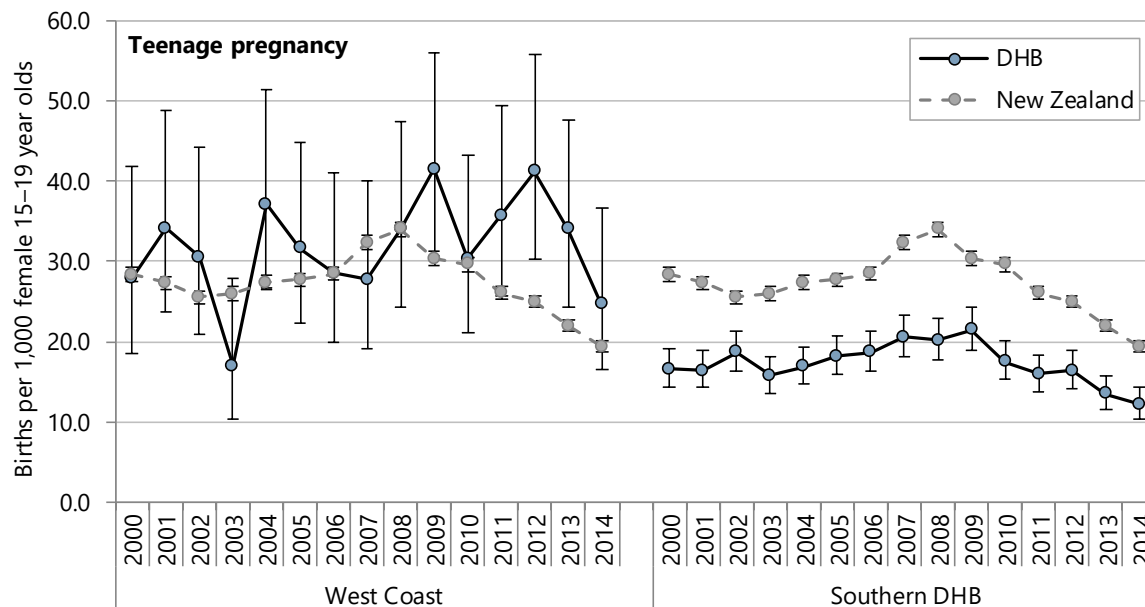
In Nelson Marlborough, Canterbury, and Southern DHBs, teenage birth rates declined for Māori during the period 2000 to 2014, while rates for Māori varied annually in the South Canterbury and West Coast DHBs. In all the South Island DHBs rates were consistently highest for Māori, and the lowest rates were those for European/Other (Figure 11, Figure 12).

Figure 9. Teenage birth rate, Nelson Marlborough, South Canterbury, and Canterbury DHBs vs New Zealand 2000–2014



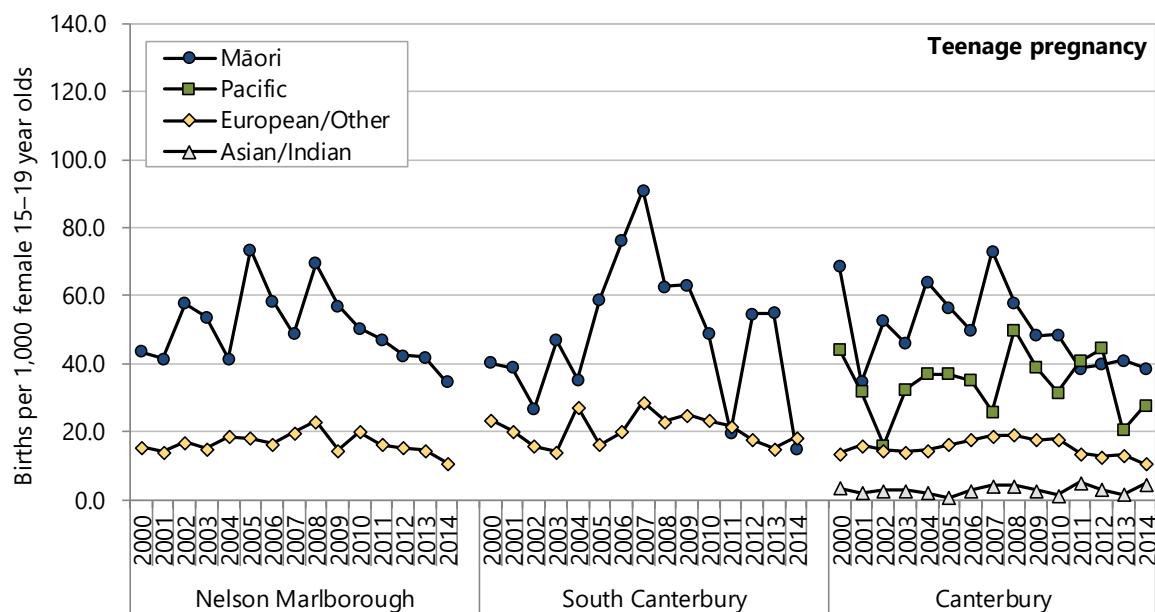
Numerator: registration dataset; Denominator: Statistics NZ Estimated Resident Population (15–19 year old females)

Figure 10. Teenage birth rate, West Coast and Southern DHBs vs New Zealand 2000–2014



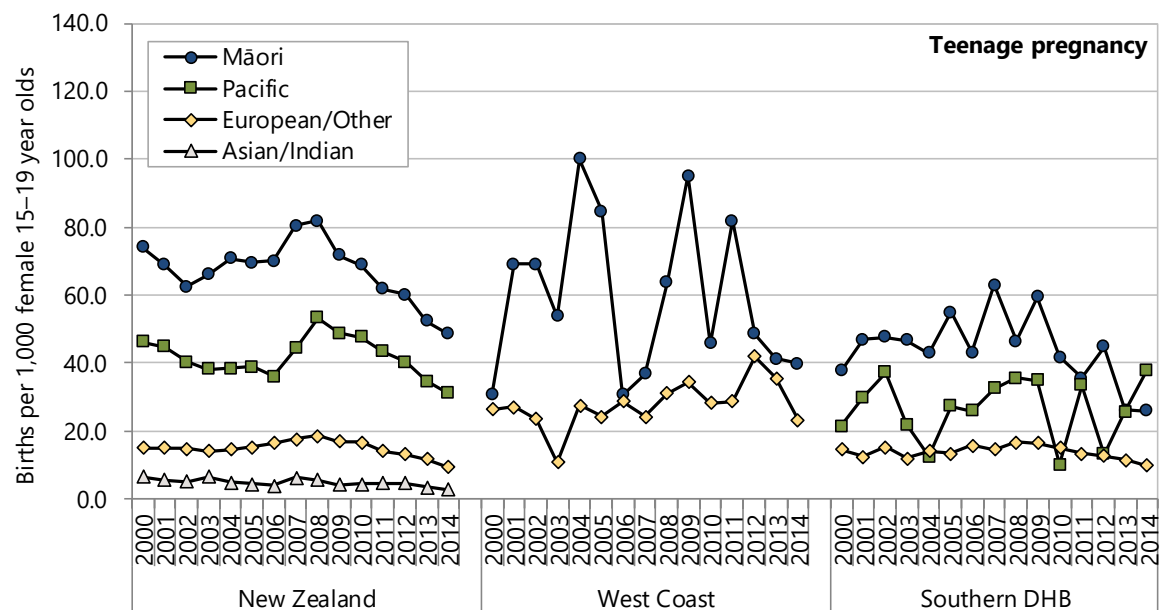
Numerator: registration dataset; Denominator: Statistics NZ Estimated Resident Population (15–19 year old females)

Figure 11. Teenage birth rate, by ethnicity, Nelson Marlborough, South Canterbury, and Canterbury DHBs 2000–2014



Numerator: registration dataset; Denominator: Statistics NZ Estimated Resident Population (15–19 year old females); Ethnicity is level 1 prioritised

Figure 12. Teenage birth rate, by ethnicity, West Coast and Southern DHBs 2000–2014



Numerator: registration dataset; Denominator: Statistics NZ Estimated Resident Population (15–19 year old females); Ethnicity is level 1 prioritised

Evidence for good practice for the support of teenage parents

Government policy and other documents

Ministry of Education. 2015. **Teen Parent Units**. <http://www.education.govt.nz/school/property/state-schools/school-facilities/teen-parent-units/>

This webpage provides information for schools that are considering establishing a teen parent unit (TPU) at their school. It explains the criteria that the Ministry of Education applies when deciding whether to allow a school to establish a teen parent unit. Additional information on becoming the host school for a Teen Parent Unit can be found on this page: <http://www.education.govt.nz/school/running-a-school/managing-the-network-of-schools/changing-your-school-structure/becoming-the-host-school-for-a-teen-parent-unit/>. A list of all the teen parent schools in New Zealand can be found on the following page, which also contains links to the Memorandum of Understanding between the Ministry and schools with a TPU, the Wellbeing Framework (which sets out the key outcomes and indicators of student success) and the Operational Guidelines (which outline the operational policy behind teen parent units). <http://alternativeeducation.tki.org.nz/Teen-Parent-Units>.

Social Policy Evaluation and Research Unit (SuPERU). 2014. **Effective Parenting Programmes: A review of the effectiveness of parenting programmes for parents of vulnerable children**. Wellington: Families Commission.

<http://www.socialserviceworkforce.org/system/files/resource/files/Effective-Parenting-Programmes-Report.pdf>

This review is not focussed on children of teen parents, but on vulnerable children at risk of maltreatment. It may be of interest, however, since teen parents and their children can belong to families grappling with a multitude of issues such as drug and alcohol use, family violence and maternal depression. The review considered international research on parenting programmes that had been evaluated using randomised controlled trials or other rigorous research designs with comparison groups. It also reviewed the evidence for the effectiveness of New Zealand programmes. It found that, internationally, few programmes have been shown to actually reduce child maltreatment, but many have been shown to produce positive changes in parenting, and in children's health and behaviour, and it could be argued that thereby they have reduced the risk of child maltreatment. It notes that there has been more research to support the effectiveness of parenting programmes to address children's behaviour problems than on programmes for parents of younger children (e.g. programmes to promote parent child attachment), and that younger, first-time parents are more likely to benefit from parenting programmes. Home-visiting and parenting education and support programmes have been shown to have small to moderate positive effects on children's health and development, and on parents' behaviours, attitudes and beliefs. New Zealand programmes are mostly based on overseas programmes and have not been rigorously evaluated so the review authors stated that it was difficult to make definitive judgements about their effectiveness. In their conclusions, the review authors stated that programme funders and providers need to determine the needs of their community and to match these with appropriate programmes, and that, while investing in evidence-based programmes is important, it must be recognised that such programmes are far from perfect and investment to innovate and improve on existing programmes is still needed.

Ministry of Social Development. 2013. **Services for Teen Parents and Their Children Practice Guidelines**.

<http://www.familyservices.govt.nz/working-with-us/funding-and-contracting/practice-guidelines/teen-parents-and-their-children-pg.html#July2013PracticeGuidelines3>

These July 2013 Guidelines apply to providers contracted to the Ministry of Social Development to deliver Services for Teen Parents and their Children, with contracts starting/renewing in July 2013 or later. The services are of three types: Teen Parent Intensive Case Workers, Support for Teen Fathers, and Volunteer Neighbourhood Support. The Guidelines set out the minimum standards for the delivery of these services for programmes funded by the Ministry of Social Development through Family and Community Services. They cover the target group the programme is designed to support, the services being contracted, and the outcomes to be achieved by the programme. They also provide good practice information and set out reporting requirements.

The following webpage lists the locations of Teen Parent Intensive Case Workers. <http://www.familyservices.govt.nz/working-with-us/programmes-services/early-intervention/teen-parent-initiatives.html>. The locations of the Volunteer Neighbourhood Support and Parenting Support for Teen Fathers initiatives are listed here: <http://www.familyservices.govt.nz/working-with-us/programmes-services/early-intervention/teen-parent-initiatives.html#VolunteerNeighbourhoodSupport3>.

Ministry of Social Development. 2010. **Supporting Teen Fathers: a resource for service providers**. Wellington: Ministry of Social Development. <http://www.msd.govt.nz/about-msd-and-our-work/publications-resources/planning-strategy/teen-fathers/index.html>

This publication was developed to support the delivery of services for teen fathers. It is organised in three parts: Part One discusses what is known about teen fathers in New Zealand, Part Two covers things to consider when working with teen fathers, and Part Three contains profiles of five providers currently delivering services to teen fathers in New Zealand. All of the parts include discussion of insights gained from the New Zealand and international research literature and lists of resources for each section. There is also a very comprehensive list of references at the end. The following webpage, entitled **What works best when supporting teen fathers**, provides an overview of the information contained in the above resource. <http://www.familyservices.govt.nz/working-with-us/programmes-services/early-intervention/teen-fathers/what-works-best.html>

International guidelines

National Collaborating Centre for Women's and Children's Health. 2010. **Pregnancy and complex social factors. A model for service provision for pregnant women with complex social factors**. London (UK): National Institute for Health and Clinical Excellence (NICE). <https://www.nice.org.uk/guidance/cg110>

These guidelines are based on a comprehensive review of the available evidence, and are complementary to the NICE guidance *Antenatal care: routine care for the healthy pregnant woman* <https://www.nice.org.uk/guidance/cg62>. Chapter 6 deals with service provision for young women under the age of 20. It outlines ways healthcare providers can encourage young women to use antenatal services (e.g. offering age-appropriate services, help with other social problems, transport to and from appointments, care in the community, and providing opportunities for the father to be involved). There are recommendations for service organisations including working in partnership with other agencies, providing antenatal care in a variety of settings (e.g. GP surgeries, children's centres and schools, offering antenatal education in peer groups at the same time and location as clinic appointments and providing a direct-line telephone number for a named midwife who provides the majority of antenatal care). There is also guidance on training for healthcare staff and providing suitable information to pregnant young women. The full guideline and its appendices, which contain the evidence tables for the included studies and details of the excluded studies, can be downloaded from:

<p>https://www.nice.org.uk/guidance/cg110/evidence.</p>
<p>Evidence-Based Medicine reviews</p>
<p>Hodgkinson S, Beers L, Southammakosane C, et al. 2014. Addressing the mental health needs of pregnant and parenting adolescents. Pediatrics, 133(1), 114-22. http://pediatrics.aappublications.org/content/133/1/114.long</p> <p>This report from the American Academy of Pediatrics provides an overview of the mental health challenges associated with teen parenthood, barriers that can often prevent teen mothers from seeking mental health services, and interventions for this population that can be incorporated into primary care services. It points out that practitioners providing primary care to teen parents' children are often the first person teen parents may share their emotional and behavioural concerns with and therefore these practitioners are in a unique position to facilitate and encourage teen parents' engagement with mental health treatment. It suggests that it may be easiest to engage teen mothers with mental health services when these are delivered in a primary care setting via a multidisciplinary team. It notes that the association of teen parenthood with increased risk of mental health problems is likely to be at least partly because teen mothers are disproportionately likely to be poor, Latina or African-American, live in low-income communities, be born to parents with low educational and employment attainment, have a history of child abuse, reside in chaotic home environments characterized by poor interpersonal relationships, and have limited social support networks.</p> <p>Lachance CR, Burrus BB, Scott AR. 2012. Building an evidence base to inform interventions for pregnant and parenting adolescents: a call for rigorous evaluation. Am J Public Health, 102(10), 1826-32. http://ajph.aphapublications.org/doi/abs/10.2105/AJPH.2012.300871?url_ver=Z39.88-2003&rft_id=ori%3Arid%3Aacrossref.org&rft_dat=cr_pub%3Dpubmed</p> <p>The authors of this review, two of whom worked with the Office of Adolescent Pregnancy Programs, in the Office of Population Affairs, US Department of Health and Human Services, reviewed the published literature to assess the evidence base for interventions for pregnant and parenting adolescents. They found that there was a dearth of rigorously evaluated programmes. They suggested that the lack of rigorous evaluations may be due to inadequate emphasis on and insufficient funding for evaluation, as well as to challenges encountered by programme evaluators working with this population. The authors identified 14 studies that met their quality criteria and had been conducted in the US: eight RCTs and six quasi-experimental studies (five of these were retrospective cohort studies). The studies mostly enrolled African Americans living in urban centres and aged 15–17 years, but four of the RCTs involved more racially and ethnically diverse populations. Interventions most commonly involved home visiting and case management, often in combination, together with other approaches such as support groups, parenting education and clinical care. The studies used various outcome measures. Repeat pregnancy was the only outcome that was assessed by a majority of the studies: six found significant positive effects, and three reported equivocal effects. Three studies measured variables related to educational progress: two reported conflicting results for attainment measures, and one found positive effects for attendance and dropout, but only during pregnancy and not in the postpartum year. All the remaining outcomes were examined by only one or two studies each and so the authors were unable to analyse programme effects across studies. The authors did not identify any evaluations of programmes serving adolescent fathers, and they stated that this population is clearly in need of intervention. They also stated that most of the studies had methodological shortcomings: many had small sample sizes and high or differential attrition, few had good descriptions of the services received by comparison groups, none reported standardised effects sizes and only some reported odds ratios or an effect as a percentage reduction. In their conclusions, the authors suggest that it is necessary to remember that although evaluation may seem costly in the short term, in the long term the benefits to society from the wellbeing of these adolescents and their children would far outweigh the short term costs.</p> <p>Pinzon JL, Jones VF, Blythe MJ, et al. 2012. Care of adolescent parents and their children. Pediatrics, 130(6), e1743-e56. http://pediatrics.aappublications.org/content/130/6/e1743.full</p> <p>This updated clinical report from the American Academy of Pediatrics reviews statistics on adolescent parenting in the US, and discusses the medical and psychosocial risks associated with adolescent pregnancy (for both the mother and the baby), the risk of repeat adolescent pregnancy, factors associated with better outcomes for adolescent mothers, fathers of infants born to adolescent mothers, neurodevelopmental considerations, and models of intervention for adolescent parents. It concludes with brief guidance for the paediatrician (who, in the US health system, may be a provider of primary care).</p> <p>Buston K, Parkes A, Thomson H, et al. 2012. Parenting interventions for male young offenders: a review of the evidence on what works. J Adolesc, 35(3), 731-42. http://www.sciencedirect.com/science/article/pii/S0140197111001308</p> <p>This paper reviews the evidence on the effectiveness of parenting interventions for young male offenders. It notes that there is a high rate of teenage fatherhood among incarcerated young male offenders (one in four in the UK). The authors identified 12 relevant evaluations: ten from the UK of programmes for incarcerated young offenders, and two from the US, of programmes for young parolees. None used experimental methods or included a comparison group. The evaluations suggested that participants liked the courses and found them useful, and that interventions may improve knowledge of, and attitudes to, parenting. The review authors suggested that future interventions should incorporate elements from promising programmes for young fathers in the community and older incarcerated fathers. They stated that future evaluations should collect data on longer-term behavioural parent and child outcomes and should use comparison groups and, ideally, randomization.</p> <p>Chrisler A, Moore K A. 2012. What works for disadvantaged and adolescent parent programs: Lessons from experimental evaluations of social programs and interventions. Washington, DC: Child Trends, http://www.childtrends.org/wp-content/uploads/2013/04/Child-Trends-2012_08_20_WW-ParentPrograms.pdf</p> <p>This fact sheet briefly reviews 20 evidence-based parenting programmes that aim to enhance parents' development and/or educate disadvantaged and teenage parents on effective parenting methods. All programmes were evaluated through random-assignment studies. Of the 11 programmes that measured child outcomes, eight programmes found at least one positive impact on a child outcome area. In addition, of the 19 programmes that measured parent outcomes, ten programmes found at least one positive impact on a parent outcome. There is a table which shows which programmes have been found not to work, which programmes have been found to work, and which programmes have had mixed effects, for various child and parent outcomes. The links in the table do not work, therefore to find details of the programmes it is necessary to search for the programmes by name in the alphabetical list on this page: http://www.childtrends.org/what-works/list-of-programs/ where there are links to a page for each programme on which there is a brief description of the programme and its evaluation, as well as links for further information and references.</p> <p>Ruedinger E, Cox JE. 2012. Adolescent childbearing: Consequences and interventions. Curr Opin Pediatr, 24(4), 446-52.</p> <p>This concise review reports on recent literature exploring the consequences of teenage childbearing and interventions to ameliorate these consequences. It provides an entry point into the literature on this topic. It notes that many of the negative consequences of adolescent</p>

childbearing, both for the adolescents and their children, are due to associated social and economic factors rather than to young maternal age alone. It suggests that increasing educational attainment, preventing repeat pregnancy and improving mother-child interactions can improve outcomes for mothers and their children. It states that home, community, school and clinic-based programmes are all viable models of service delivery to this population. It also states that programmes that are culturally sensitive and developmentally appropriate have demonstrated success. Further research on parenting interventions, with larger sample sizes and addressing multiple outcomes, is needed to permit comparisons between programmes. The role of the father and co-parenting is another avenue for future research.

Bronte-Tinkew J, Burkhauser M, Metz A J R. 2012. **Elements of promising practices in fatherhood programs: Evidence-based research findings on interventions for fathers.** *Fathering*, 10(1), 6–30.

http://www.mensstudies.info/OJS/index.php/FATHERING/article/view/341/pdf_157

This article reviews key evaluation findings from fatherhood programmes that have been rigorously evaluated (via a study using a random assignment design) in order to answer questions about "what works" in fatherhood programmes. The authors identified 12 rigorously evaluated fatherhood programmes. They identified 15 promising practices that were common to these programmes and which reflected different aspects of teaching and the particular context of interventions. They stated that, as yet there is no evidence to suggest which combination of these practices contributed to the overall success of these interventions, nor was there evidence that each intervention had to incorporate all of these practices in order to be successful. They stated that the 15 promising practices offer a starting point for designing and implementing fatherhood programmes that are grounded in a reliable evidence base.

Barlow J, Smailagic N, Bennett C, et al. 2011. **Individual and group based parenting programmes for improving psychosocial outcomes for teenage parents and their children.** *Cochrane Database of Systematic Reviews*, 2011(3).

<http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD002964.pub2/abstract>

This review evaluated the effectiveness of programmes for teenage parents in improving psychosocial outcomes for the parents and developmental outcomes in their children. It included eight RCTs with 513 participants. Across all the studies there were 47 different outcomes compared between intervention and control groups, and in 19 of these there were statistically significant differences, all in favour of the intervention group. The authors conducted nine meta-analyses, each of which used data from two studies (data from four different studies was used in the meta-analyses). Of the meta-analyses, four showed statistically significant findings in favour of the intervention. The outcomes improved by the interventions were: parent responsiveness to the child (standard mean difference (SMD) -0.91, 95% CI -1.52 to -0.30, $P=0.04$), infant responsiveness to mother at follow-up (SMD -0.65, 95% CI -1.25 to -0.06, $p=0.03$); and an overall measure of parent-child interactions post-intervention (SMD -0.71, 95% CI -1.31 to -0.11, $p=0.02$), and at follow-up (SMD -0.90, 95% CI -1.51 to -0.30, $p=0.004$). The authors concluded that, due to variations in the study populations, the interventions and the measures used, there were limits to the conclusions that could be drawn, however they considered that there was some evidence that parenting programmes may be effective in improving a number of aspects of parent-child interaction. They stated that more research is needed.

Other relevant publications

The Royal Australasian College of Physicians. 2015. **Position Statement: Sexual and Reproductive Health Care for Young People.** <http://www.racp.edu.au/docs/default-source/advocacy-library/pa-pos-sexual-and-reproductive-health-care-for-young-people.pdf?sfvrsn=4>

This position paper addresses the importance of sexuality and relationships education and sexual and reproductive health care for young people (adolescents and young adults between 12 and 24 years of age) in Australia and New Zealand. It includes recommendations for governments, health professionals and health services, and policies and legislative change. Recommendations are based on a review of relevant literature and an examination of key issues by the RACP Position Statement Working Party. There are short sections on young people, sexuality, sex and relationships; sexuality and relationships education; youth friendly sexual and reproductive healthcare; STI, HIV and viral hepatitis; contraception, termination and teenage pregnancy care; sexual abuse, sexual assault and intimate partner violence; sexual and reproductive health care for indigenous young people; young people who are same-sex attracted or gender diverse, and people with intersex variations; and young people with disabilities and long-term health conditions.

Myers A, Metzger N. 2014. **The importance of whānau, family in the lives of young parents.** Auckland: Thrive Teen Parent Support Trust.

<http://www.thrive.org.nz/sites/default/files/Young%20Parents%20Research%20Document%20HI%20RES%20final.pdf>

This research was commissioned by Thrive Teen Parent Support Trust. It aimed to identify the support needs of whānau and how the pregnancy and parenting sectors can strengthen whānau family support for pregnant teens, young parents, and their children. The research used qualitative methods and was based on interviews and focus groups conducted with 10 young parents (aged < 20) and eight whānau and family members including parents, siblings, aunts and close family friends. Recommendations arising from the research fell into three main areas: supporting whānau and families, supporting young parents, and developing young parent whānau-friendly communities.

Berlyn C, Wise S, Soriano G. 2008. **Engaging fathers in child and family services.** Canberra: Australian Government Department of Families, Housing, Community Services and Indigenous Affairs.

<https://www.dss.gov.au/sites/default/files/documents/op22.pdf>

This Australian study describes father participation in selected programmes and services that were part of the Australian Government's Stronger Families and Communities Strategy (SFCS) and identifies successful strategies for engaging with fathers. The research used a mixed methodology: a survey of SFCS programme managers on father involvement and in-depth fieldwork with a sample of selected services and programmes. The researchers had one-on-one interviews with service managers and facilitators and held focus groups with father participants. The main findings of the study were: fathers were involved with a diverse range of services across the SFCS, although they had a far lower level of participation than mothers; various sociocultural, services and other factors acted as barriers to fathers' access to services and vice versa; by their very nature, services that were most successful in engaging with fathers were specifically tailored for men and were exclusive to fathers. Strategies used by service providers included: introducing flexible hours of operation; employing male facilitators; developing father-specific services; marketing services to men in male spaces; using male-friendly language and advertisements; and creating service venues where men felt comfortable.

TERMINATIONS OF PREGNANCY

Introduction

All District Health Boards in New Zealand are required to provide publicly funded termination of pregnancy services, although some DHBs have chosen to sub-contract these services to other DHBs.²²¹ Under New Zealand law, grounds for termination of pregnancy include serious danger to the life or mental or physical health of the woman and fetal abnormality.²²² The vast majority of abortions are carried out on the grounds of danger to a woman's mental health (97.6% in 2014).¹²¹ Terminations of pregnancy have a very low rate of complications, but the rate of complications increases with gestational age so it is important that women have timely access to termination services and referral pathways are not unduly complicated.²²³ Terminations of pregnancy can be conducted either medically or surgically. Medical terminations are less invasive and can be conducted much earlier in pregnancy (up until nine weeks' gestation) than surgical terminations, but in 2013 only 10% of induced abortions were medical.¹²¹

The 2014 report of the Abortion Supervisory Committee¹²¹ contains New Zealand's latest abortion-related statistics. The Committee noted that there have been improvements in the provision of abortion services in provincial areas but expressed concern at the lack of a local abortion service for women living in South Auckland.¹²¹ Abortion rates in New Zealand have been falling steadily over recent years, from 20.1 per 1,000 (women aged 15–44 years) in 2007 to 15.4 per 1,000 in 2013, but they are still higher than those in some other developed countries, such as the Netherlands (which has a rate of around nine per 1,000).¹²¹

The Committee noted the particularly sharp decline in rates for 15–19 year olds, and suggested that this was partly attributable to the licensing and funding of a long acting subcutaneous implant (Jadelle®) in August 2010.¹²¹ Intra-uterine devices (IUDs) are another very effective form of long-acting reversible contraception and the American College of Obstetricians and Gynecologists states that IUDs are effective and safe in nulliparous adolescents.²¹⁰ Encouraging more effective use of contraception is key to reducing abortion rates as, among those having induced abortion in 2013, 54.7% had used no contraception and 25.4% had used condoms.¹²¹

The following section reviews terminations of pregnancy using information from the Abortion Supervisory Committee. Policy documents and evidence-based reviews which address the prevention unintended pregnancies are summarised at the end of this section.

Data sources and methods

Indicator

Legally induced terminations of pregnancy registered in New Zealand

Data sources

Abortion Supervisory Committee

Notes on interpretation

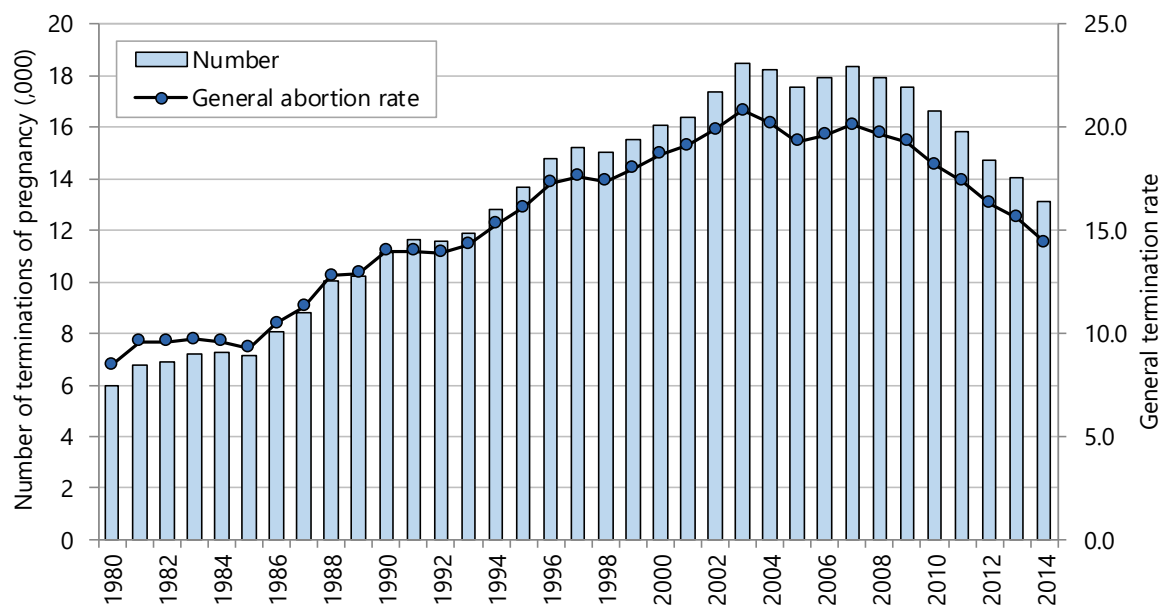
Note 1: In New Zealand, information on the domicile of women presenting for a termination of pregnancy has only been recorded by the Abortion Supervisory Committee since 2004, with an agreement existing between the Committee and Statistics NZ that the only geographical breakdown of termination data will be at regional council level. Thus information on terminations of pregnancy by DHB or NZDep Index decile is unavailable.

Note 2: In its reporting of terminations, Statistics NZ uses total response ethnicity, and thus women will appear in each ethnic group with which they identified (in both the numerator and denominator).

National trends and distribution

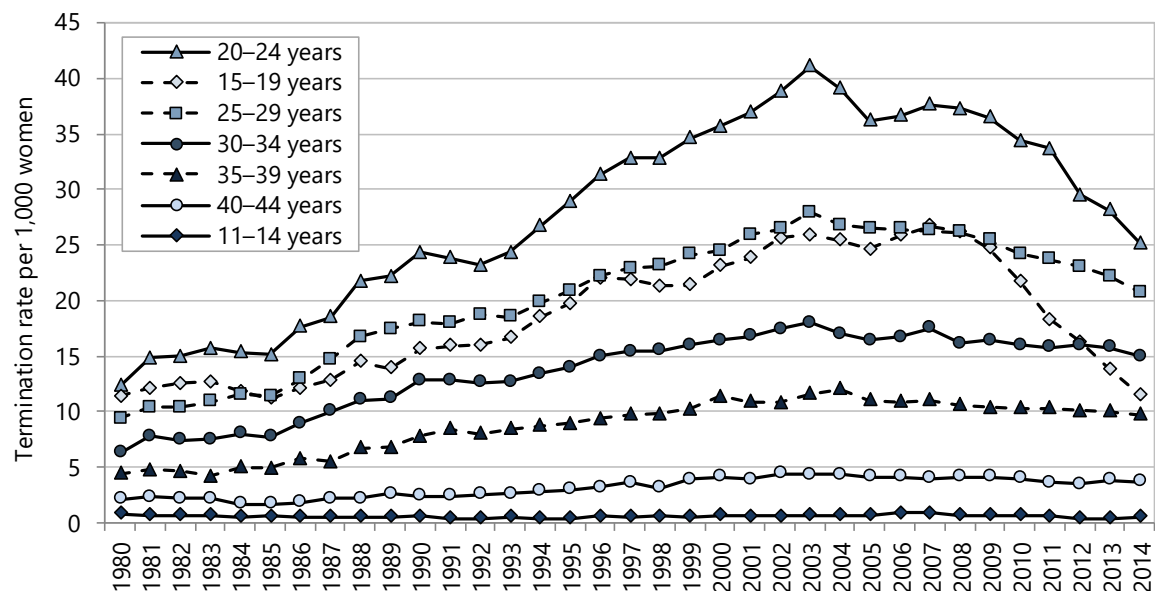
Termination of pregnancy rates rose from 1980 to 2002 and have since fallen overall particularly since 2007 (Figure 13). The decline for 15–19 year olds and 20–24 year olds was more marked than for other age groups (Figure 14).

Figure 13. Annual number and rate of terminations of pregnancy, New Zealand, 1980–2014



Abortion Supervisory Committee via Statistics New Zealand; General termination rate corresponds to abortions per 1,000 mean estimated number of women aged 15–44 years

Figure 14. Terminations of pregnancy, by age of woman, New Zealand 1980–2014

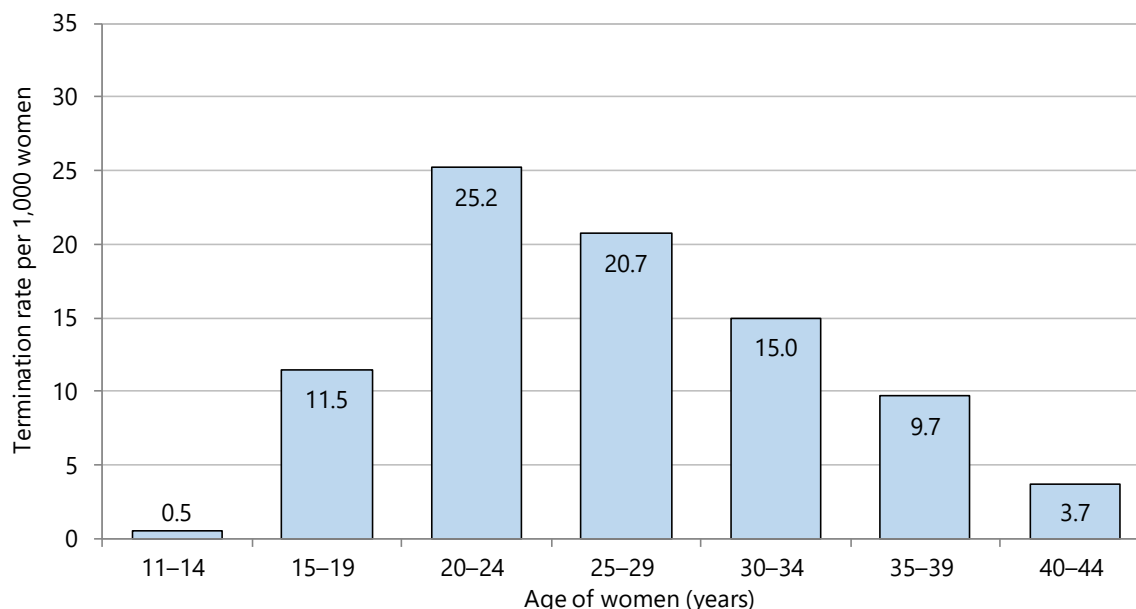


Abortion Supervisory Committee via Statistics New Zealand; Termination rate per 1,000 mean female estimated resident population in each age group

In 2014 termination of pregnancy rates were highest in women aged 20–24 years, followed by those aged 25–29 years, then those aged 30–34 years (**Figure 15**).

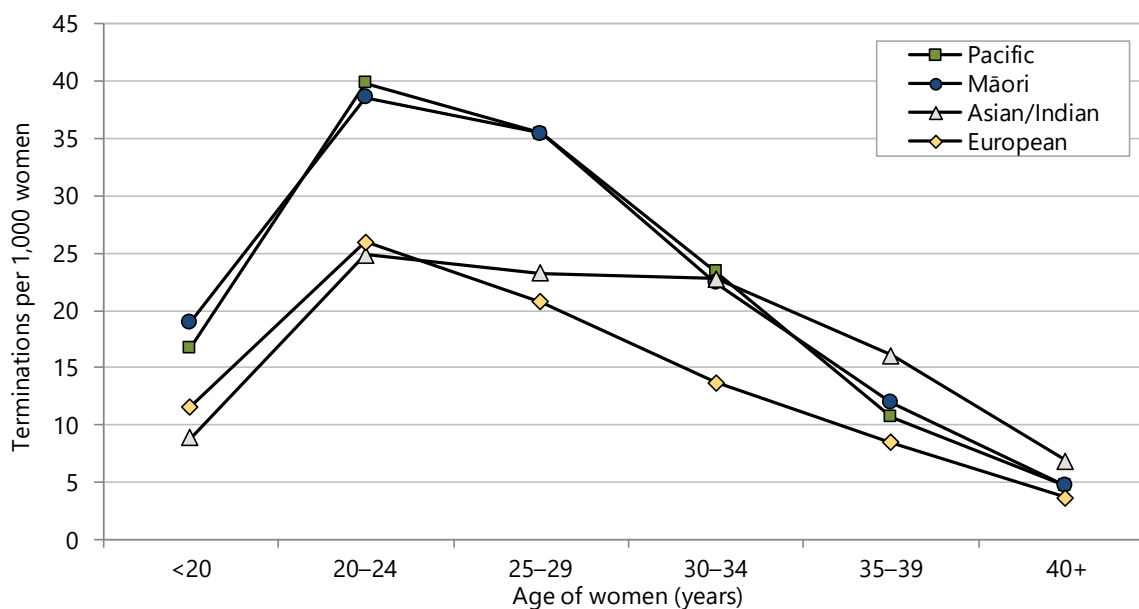
For women aged under 25 years, termination of pregnancy rates for Māori and Pacific women were higher than rates for European and Asian/Indian women in 2014 (**Figure 16**).

Figure 15. Terminations of pregnancy by age of women, New Zealand 2014



Abortion Supervisory Committee via Statistics New Zealand; Termination rate per 1,000 mean female estimated resident population in each age group

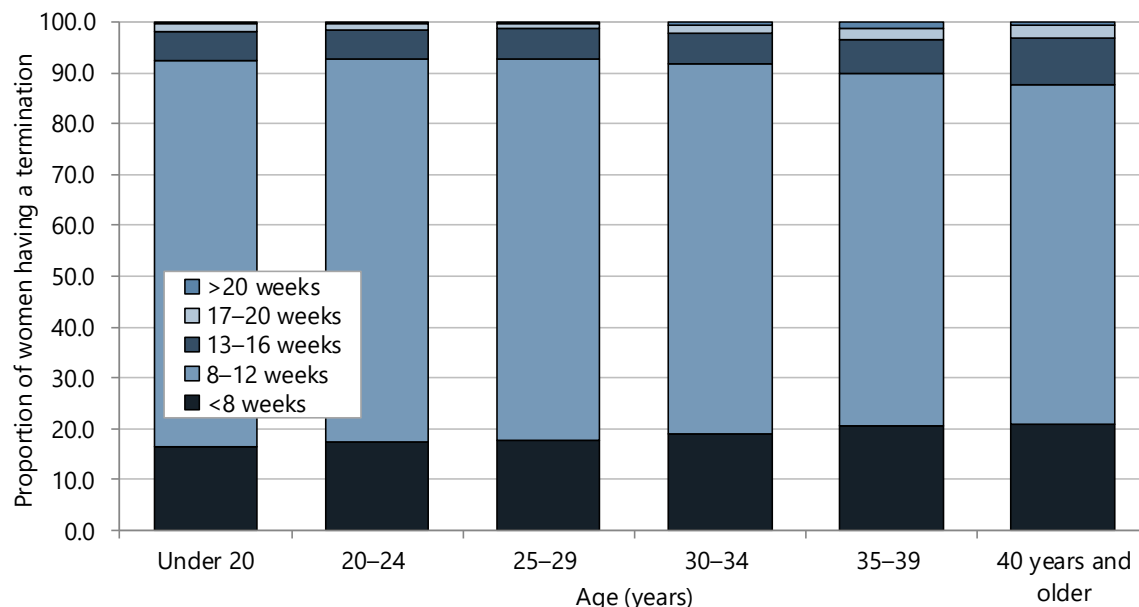
Figure 16. Termination of pregnancy rates, by ethnicity and age of women, New Zealand 2014



Source: Abortion Supervisory Committee via Statistics New Zealand; Denominator: Statistics NZ usually resident population (total response); Note: Ethnicity is total response; Denominator reproductive age range: 15–44 years

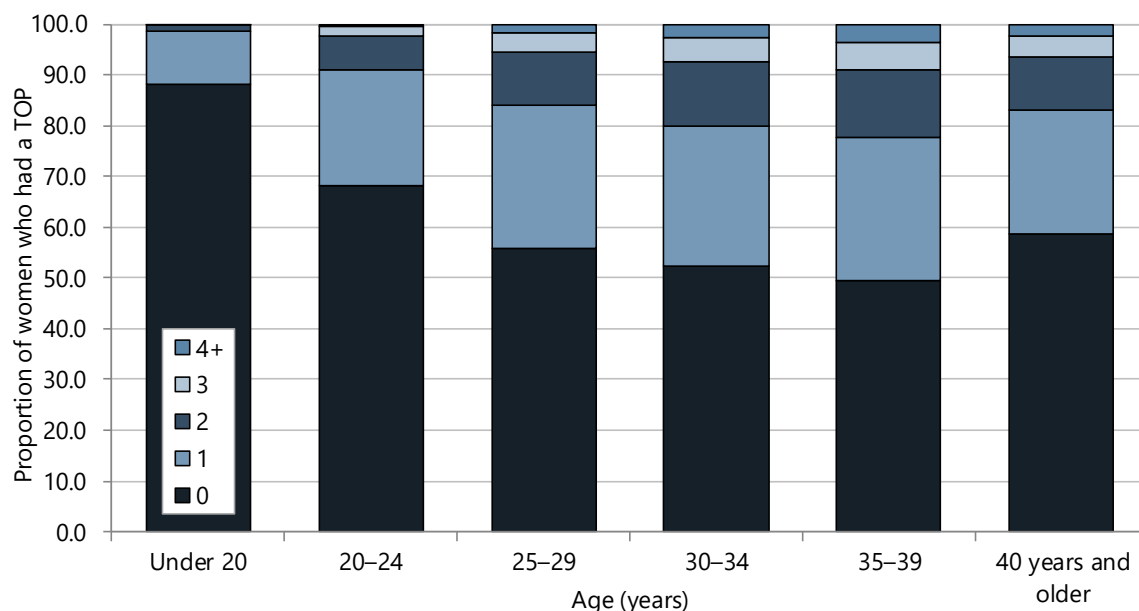
In 2014 the majority of terminations of pregnancy occurred between 8 and 12 weeks gestation, in all age groups. The next most frequent gestations were less than 8 weeks, followed by 13–16 weeks, with women aged 40+ years having a higher proportion of terminations at more than 12 weeks than those from other age groups (Figure 17). The proportion of women who had a history of previous termination increased with increasing age to 35–39 years (Figure 18).

Figure 17. Proportion of women who had a termination, by age and gestation at termination, New Zealand, 2013



Abortion Supervisory Committee 2014 annual report; TOP corresponds to termination of pregnancy (i.e. induced abortion)

Figure 18. Proportion of women who had a termination, by age and number of previous terminations, New Zealand 2013



Abortion Supervisory Committee 2014 Annual Report; TOP corresponds to termination of pregnancy (i.e. induced abortion)s

Distribution by region

Between 2010 and 2014 the number of terminations of pregnancy varied around the country (**Table 7**).

Table 7. Terminations of pregnancy, by regional council of residence, New Zealand 2010–2014

Regional council	Number of terminations				
	2010	2011	2012	2013	2014
Northland	529	532	474	450	431
Auckland	6,553	6,412	5,919	5,530	5,138
Waikato	1,429	1,318	1,307	1,214	1,046
Bay of Plenty	837	821	773	726	667
Gisborne	184	159	146	158	140
Hawke's Bay	523	534	496	455	413
Taranaki	360	342	296	323	272
Manawatu-Wanganui	813	729	696	614	601
Wellington	2,009	1,898	1,666	1,589	1,521
Tasman	116	122	124	103	108
Nelson	168	197	177	171	160
Marlborough	120	134	125	117	95
West Coast	100	91	94	87	88
Canterbury	1,906	1,645	1,544	1,620	1,628
Otago	652	590	610	604	552
Southland	231	272	257	272	249
New Zealand	16,630	15,863	14,745	14,073	13,137

Abortion Supervisory Committee Annual Reports via Statistics NZ

Evidence for good practice for the prevention of unintentional pregnancies

Ministry of Health publications
<p>Ministry of Health. 2003. Sexual and Reproductive Health: A resource book for New Zealand health care organisations. Wellington: Ministry of Health. http://www.health.govt.nz/publication/sexual-and-reproductive-health-resource-book-new-zealand-health-care-organisations</p> <p>This publication supports the Sexual and Reproductive Health Strategy and is designed to help DHBs and PHOs find ways of improving the uptake of effective contraception and safe sex practices in their populations. It notes that compared to some other developed countries, New Zealand has high rates of both abortions and teenage births. There is information on designing services, strategies for action, strategies for Māori, strategies for Pacific peoples, unintended and unwanted pregnancies, sexually transmitted infections, HIV and AIDS.</p>
Ministry of Education publications
<p>Ministry of Education. 2015. Sexuality education: A guide for principals, boards of trustees and teachers. Wellington: Ministry of Education. http://health.tki.org.nz/Teaching-in-HPE/Policy-guidelines/Sexuality-education-a-guide-for-principals-boards-of-trustees-and-teachers</p> <p>This guide is a revision of the 2002 guide of the same name. The overall aim of the revised guide is to support school boards, principals, and teachers to deliver effective, quality sexuality education programmes and, through them, to support the positive and holistic development and health of all students in New Zealand primary, intermediate, and secondary schools. It will also assist boards of trustees, principals, and teachers in all New Zealand state and state-integrated schools to comply with the requirements of the Education Act 1989 (as amended in 2001) to consult with the school community on the way in which the health curriculum should be implemented.</p>
Other government publications
<p>Families Commission. 2011. Teenage pregnancy and parenting: An overview. Wellington: Families Commission. http://www.superu.govt.nz/sites/default/files/teenage-pregnancy.pdf</p> <p>This report was produced in response to a Ministerial request that the Families Commission conduct research addressing two distinct questions:</p> <ul style="list-style-type: none"> • What are the reasons behind high rates of teenage parenthood amongst young teenagers in specific regions of New Zealand? • What would discourage second or repeat teenage pregnancies? <p>The report is divided into two sections. The first examines regional statistics for teenage pregnancy and parenthood. The second discusses how to prevent subsequent teenage births, by analysing the implications and motivations of first and subsequent pregnancies and by considering ways to strengthen support for teenage parents and prevent teenage pregnancies.</p>

Families Commission. 2010. Young people's relationships: **Supporting young people as they have their first relationship**. Issues Paper 02. Wellington: Families Commission. <http://www.superu.govt.nz/sites/default/files/young-peoples-relationships.pdf>

This is the report of a project which aimed to find out what support young people need as they have their first relationships. The project involved the Families Commission reviewing the limited literature and conducting focus groups and interviews with young people (77 participants), parents, grandparents and whānau (23 participants), youth workers (n= 14), school counsellors (n= 7) and social workers (n=3). Key messages that emerged from the study were:

- Young people learn about relationships by watching their parents, whānau and the adults around them
- Parents, whānau and other adults are key sources of support for young people
- Young people want to learn more about the emotional side of relationships through the school curriculum
- School support services may be under-resourced and need to be better connected with the young person's family and community services.

International Guidelines

Gavin L, Moskosky S, Carter M, et al. 2014. **Providing quality family planning services: Recommendations of CDC and the U.S. Office of Population Affairs**. MMWR Recomm Rep, 63(Rr-04), 1-54. <http://www.cdc.gov/mmwr/pdf/rr/rr6304.pdf>

This report provides recommendations developed collaboratively by CDC and the Office of Population Affairs (OPA) of the U.S. Department of Health and Human Services (HHS). It is intended for use by providers of family planning services. It provides recommendations for how to help prevent and achieve pregnancy, emphasizes offering a full range of contraceptive methods for persons seeking to prevent pregnancy, highlights the special needs of adolescent clients, and encourages the use of the family planning visit to provide selected preventive health services for women, in accordance with the recommendations for women issued by the Institute of Medicine and adopted by HHS.

National Institute for Health and Care Excellence. 2014. **Contraceptive services with a focus on young people up to the age of 25**. London: National Institute for Health and Care Excellence. <http://www.nice.org.uk/guidance/ph51>

The recommendations in the NICE guidance cover: Assessing local need and capacity to target services; Commissioning coordinated and comprehensive services; Providing contraceptive services for young people; Tailoring services for socially disadvantaged young people; Seeking consent and ensuring confidentiality; Providing contraceptive services after a pregnancy; Providing contraceptive services after an abortion; Providing condoms in addition to other methods of contraception; Communicating with young people; and Training and continuing professional development. The evidence used as the basis for the recommendations, and supporting documents, can be found in the appendices.

World Health Organization Regional Office for Europe. 2011. **Evidence for gender-responsive actions to prevent and manage adolescent pregnancy**. Copenhagen: WHO Regional Office for Europe.

http://www.euro.who.int/_data/assets/pdf_file/0008/158093/316637_WHO_brochure_226x226_5-AdolecentPregnancy.pdf?ua=1

This publication summarises current knowledge on what works in preventing and managing adolescent pregnancy. It takes the standpoint that young people's health is the responsibility of the whole society, and that interventions need to be gender responsive in order to be successful. It therefore looks at actions at various levels, such as cross-sector policies, families and communities' actions, and interventions by health systems and health services. It is intended to stimulate countries to further refine their national policies to make them more effective in contributing to the health and well-being of young people, and does not prescribe or recommend any particular course of action.

Clinical Effectiveness Unit. 2010. **Contraceptive Choices for Young People**. London: Faculty of Sexual and Reproductive Healthcare. <http://www.fsrh.org/pdfs/ceuGuidanceYoungPeople2010.pdf>

This British guideline is intended for use by health professionals providing contraceptive health services to young people. Recommendations are based available evidence and expert consensus opinion, and graded according to the level of evidence.

National Institute for Health and Care Excellence. 2007. **Prevention of sexually transmitted infections and under 18 conceptions**. London: National Institute for Health and Care Excellence. <http://www.nice.org.uk/guidance/ph3>

This guideline is intended for professionals working in sexual health services, including those working in contraceptive services, genito-urinary medicine, and school-based clinics. It provides guidance on one-to-one interventions to prevent sexually transmitted infections and under 18 conceptions. The evidence supporting the recommendations can be found at: <http://www.nice.org.uk/guidance/ph3/evidence>.

National Institute for Health and Care Excellence. **Long-acting reversible contraception (update)**. London: National Institute for Health and Care Excellence, 2005 <http://www.nice.org.uk/guidance/cg30>

This guideline offers best-practice advice for all women of reproductive age who may wish to regulate their fertility using long-acting reversible contraception (LARC) methods. It covers specific issues for the use of these methods during the menarche and before the menopause, and by particular groups, including women who are younger than 16 years, women who have HIV, and women who have learning or physical disabilities. The full guideline, which includes the supporting evidence, and a 2014 addendum which provides updated recommendation's relating to progestogen-only subdermal implants, can be found here: <http://www.nice.org.uk/Guidance/CG30/Evidence>.

Evidence-based medicine reviews

Brittain AW, Williams JR, Zapata LB, Pazol K, Romero LM, Weik TS. 2015. **Youth-Friendly Family Planning Services for Young People: A Systematic Review.** American journal of preventive medicine: 49(2 Suppl 1):S73-84. Epub 2015/07/21.

The aims of this review, which was conducted in 2011, were to summarise the effects of youth-friendly family planning services on reproductive health outcomes and to describe key characteristics of youth-friendly family planning interventions. Studies included in the review were published in English from January 1, 1985 through February 28, 2011 and were conducted in the US, Canada, Europe, Australia, or New Zealand. Earlier studies, those conducted in other countries, and those that focused exclusively on HIV or sexually transmitted diseases were excluded. The review team identified nineteen articles meeting their inclusion criteria. Six of these evaluated outcomes relevant to unintended pregnancy, contraceptive use, and knowledge or patient satisfaction. None of the six were RCTs. Risk of bias was rated high in four and moderate in two. Sample sizes ranged from 163 to 1,590. The other thirteen studies identified viewpoints on youth-friendly services. Most of the studies examining outcomes found positive effects (two of three for unintended pregnancy, three of three for contraceptive use, and three of three for knowledge or patient satisfaction). The studies that did not evaluate outcomes described nine key characteristics of youth-friendly family planning services. The review team concluded that there was limited evidence that youth-friendly services may improve reproductive health outcomes and they stated that they had identified service characteristics that might increase young people's receptivity to using these services. They also stated that although more rigorous studies are needed, the interventions and characteristics identified in their review should be considered in the development and evaluation of youth-friendly family planning interventions in clinical settings.

Brittain AW, Williams JR, Zapata LB, Moskosky SB, Weik TS. 2015. **Confidentiality in Family Planning Services for Young People: A Systematic Review.** American journal of preventive medicine: 49(2 Suppl 1):S85-92. Epub 2015/07/21.

Young people may be deterred from accessing family planning services if they fear that providers will not maintain confidentiality. This systematic review, conducted in 2011, summarises the evidence on the effect (as measured by reproductive health outcomes) of assuring confidentiality in family planning service to young people aged 10–24 years. Studies included in the review were published from January 1985 through February 2011 and were conducted in the US, Canada, Europe, Australia, or New Zealand. Earlier studies, those conducted in other countries, and those that focused exclusively on HIV or sexually transmitted diseases were excluded. The review authors identified nine studies meeting their criteria, four of which examined outcomes, including use of clinical services and intention to use services. The four outcomes studies were: one RCT, one pre-post study and two cross-sectional studies. Only the RCT was considered at low risk of bias. Sample sizes ranged from 53 to 1,715. Of the four outcome studies, three found a positive association between assurance of confidentiality and at least one outcomes of interest. Five studies provided information on the views of young people and these indicated that young people place a high value on confidentiality when receiving family planning services. The review authors concluded that there is limited research evidence examining whether confidentiality in family planning services for young people affects reproductive health outcomes and that, given the importance young people place on confidentiality, robust research in this area is needed. This review, and the one above, were used to inform the guideline: *Providing quality family planning services: Recommendations of CDC and the U.S. Office of Population Affairs* (see the International Guidelines above).

Cochrane Reviews on topics related to contraception

<http://www.cochranelibrary.com/topic/Gynaecology/Contraception/?per-page=100&stage=review>

The Cochrane collection contains many reviews on topics related to contraception. Only recent reviews of a more general nature and/or especially relevant to teenagers have been summarised below. The above link provides access to all the Cochrane reviews on contraception.

Krashin J, Tang JH, Mody S, Lopez LM. 2015. **Hormonal and intrauterine methods for contraception for women aged 25 years and younger.** Cochrane Database of Systematic Reviews (8).

<http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD009805.pub3/abstract>

The majority of women between the ages of 15 and 24 years wish to avoid pregnancy yet contraceptive failure rates are higher in young women than in older women. This review aimed to compare contraceptive failure (i.e. pregnancy) rates and continuation rates for hormonal and intrauterine contraception in women aged 25 years and younger. Five RCTs were included, involving a total of 1,503 women. Two studies compared different methods of intrauterine contraception (copper T308A IUD vs. the levonorgestrel intrauterine system with 20 µg/day initial release (LNG-IUS 20), 23 teenage participants; and LNG 12 vs. 16 µg/day initial release, 2884 women most of whom had borne children, and of whom 1130 were aged 18–25 years). Three studies compared a combined oral contraceptive (COC) with another hormonal method: COC vs. LNG-IUS 20, 200 women aged 18–25 years; COC vs. transdermal contraceptive patch 20 women aged 15–19 years; COC vs. vaginal ring 130 women aged 15–21 years. In the three trials comparing two different types of methods there were no differences between study arms for contraceptive efficacy or continuation. The study comparing COC vs. LNG-IUS 20 found that in the group assigned to COC a significantly higher proportion of women discontinued use for 'other personal reasons' compared to the group assigned to the LNG-IUS 20 (OR 0.27, 95% CI 0.09 to 0.85). The review authors stated that this finding may have little clinic relevance. The trial that compared LNG-IUS 12 vs LNG-IUS 16 found similar efficacy over one and three years. In the trials examining different LNG-IUS, continuation was at least 75% at six to 36 months. The review authors concluded that the overall quality the evidence was moderate to low and that the current evidence was insufficient to compare efficacy and continuation rates in women aged 25 years and younger.

Smith C, Gold J, Ngo TD, et al. 2015. **Mobile phone-based interventions for improving contraception use.** Cochrane Database of Systematic Reviews (6). <http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD011159.pub2/abstract>

Interventions delivered by mobile phone have been shown to be effective in non-contraceptive healthcare. This review aimed to assess the effects of mobile phone-based interventions for improving use of contraception. There were five RCTs that met the review's inclusion criteria. Three trials compared automated text messages vs. standard care for improving adherence to a specific method of contraception amongst existing or new contraception users. Two trials aimed to improve both uptake and adherence, to any effective method, in both users and non-users of contraception. No trials were at low risk of bias in all areas assessed. One US trial assessed an intervention comprising a range of uni-directional and interactive text messages and reported improved self-reported oral contraceptive (OC) continuation at six months (RR 1.19, 95% CI 1.05 to 1.35). One trial in Cambodia assessed an intervention involving automated interactive voice messages and phone counsellor support and found increased self-reported use of effective contraception at four months post abortion (RR 1.39, 95% CI 1.17 to 1.66). A US feasibility trial used reminder and healthy self-management text messages and reported a lower mean number of days between scheduled and completed attendance for the first but not subsequent Depo-Provera appointments using clinic records (mean difference (MD) –8.60 days, 95% CI –16.74 to –0.46). A small US trial found that simple text message OC reminders had no effect on missed

pills as assessed by electronic medication monitoring (MD 0.5 missed pills, 95% CI -1.08 to 2.08). An intervention in Israel found no effect on reported contraception use amongst users of isotretinoin (a drug used for acne) from an intervention that provided health information via text messages and mail. One trial assessed potential adverse effects of the intervention and reported no evidence of effects on road traffic accidents or domestic abuse. The review authors concluded that there was limited evidence that mobile phone interventions can improve use of contraception but the cost-effectiveness and long-term effects of such interventions remains unknown.

Goesling B, Colman S, Trenholm C, et al. 2014. **Programs to reduce teen pregnancy, sexually transmitted infections, and associated sexual risk behaviors: A systematic review.** The Journal of adolescent health: official publication of the Society for Adolescent Medicine. 54(5):499-507. Epub 2014/02/15.

This systematic review deals only with studies evaluating programmes conducted in the US. It is, however, based on a systematic review of the literature, published or released from 1989 through early 2011. Studies were deemed eligible for inclusion if they: examined the impacts of an intervention using quantitative data and statistical analysis and hypothesis testing (both RCTs and quasi-experimental studies were included); measured programme impacts in terms of at least one measure of pregnancy, sexually transmitted infections (STIs), or associated sexual risk behaviours; examined programmes intended to reduce rates of teen pregnancy, STIs, or associated sexual risk behaviours through any combination of educational, skill-building, and/or psychosocial intervention. In total, 88 studies were included, 87% of which were RCTs. Studies assessed a range of programmes delivered in diverse settings. Analysis of the studies' findings identified 31 programs with evidence of effectiveness. The review authors stated that there is no single recipe for success in improving adolescent sexual health outcomes, and no single programme model is right for every population and setting, therefore it is important to have a variety of programmes available for implementation. They noted that most of the evidence comes from small scale trials conducted in closely managed settings, often by the programme developers, and they suggested that in the real world programme efficacy is likely to be less.

Lopez LM, Stockton LL, Chen M, et al. 2014. **Behavioral interventions for improving dual-method contraceptive use.** Cochrane Database of Systematic Reviews (3).

<http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD010915.pub2/abstract>

Dual-method contraception is the use of condoms in addition to another modern method of contraception, such as oral contraceptives or an intra-uterine device. Dual protection can offer better protection against unintended pregnancy and sexually transmitted infections (STIs). This review examined comparative studies of behavioural interventions for improving use of dual method contraception. Studies were deemed eligible for inclusion if they were randomised or non-randomised studies that examined a behavioural intervention with an educational or counselling component to encourage or improve the use of dual methods and addressed the prevention of both pregnancy and STIs. The comparison could be another behavioural intervention to improve contraceptive use, usual care, other health education, or no intervention. The main outcome measure of interest was the investigator's assessment of consistent dual-method use or use at last sex and outcomes had to be measured at least three months after the behavioural intervention began. The review authors identified four studies meeting their criteria: three RCTs and a pilot study for one of the trials. The studies assessed diverse interventions: computer-delivered, individually tailored sessions; phone counselling added to clinic counselling; and case management plus a peer-leadership program. Only the latter study showed any significant effects. The intervention, which addressed multiple risks, showed an effect on contraceptive use. Compared to the control group, the intervention group were more likely to report consistent dual-method use: Relative risk (RR) at 12 months: 1.58 (95% CI 1.03 to 2.43) and RR at 24 months 1.36 (95% CI 1.01 to 1.85). The other two RCTs did not show any significant difference between the study groups in reported dual-method use or in test results for pregnancy or STIs at 12 or 24 months. In their conclusions, the review authors stated that they found few behavioural interventions for improving dual-method contraceptive use and little evidence of effectiveness. The multi-faceted intervention that showed some effect only had self-reported outcomes. The two trials that were more applicable to clinical settings did have objective outcome measures, but neither showed any effect. Although the included studies had adequate information on intervention fidelity and follow-up periods long enough for change to occur, the overall quality of the evidence was judged to be low because two trials had design limitations and two had high losses to follow up, as often occurs in contraceptive trials. The review authors stated that there is still a need for good quality studies of carefully designed and implemented programmes or services.

Halpern V, Raymond EG, Lopez LM. 2014. **Repeated use of pre- and postcoital hormonal contraception for prevention of pregnancy.** Cochrane Database of Systematic Reviews (9).

<http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD007595.pub3/abstract>

Regular use of post-coital contraception (the "morning after pill") is not currently recommended because it is less effective and has a higher incidence of side effects compared to other modern methods of contraception, but many women wish to use such a method. This review aimed to determine the effectiveness and safety of repeated use of pre- and post-coital hormonal contraception for pregnancy prevention. The review authors identified 22 relevant studies involving 12,400 women in total. Most studies were prospective non-randomised trials or case series. The results of these indicated that pericoital levonorgestrel (LNG) was reasonably efficacious and safe. The pooled Pearl Index (number of pregnancies per 100 woman-years) for the 0.75 mg dose of LNG was 5.4 (95% CI 4.1 to 7.0). The pooled Pearl Index for all doses of LNG was 5.0 (95% CI 4.4 to 5.6). Other hormonal drugs appeared promising but most had not been studied extensively. Menstrual irregularities were the most common side effects reported but there was no consistent evidence from the studies for a relationship between bleeding abnormalities and either frequency of pill intake or total dose of the drug. Non-menstrual side effects were reportedly mild and not tabulated in most studies. Most women liked the pericoital method despite frequent menstrual irregularities. The review authors noted that most studies were decades old and many had serious methodological issues, but they considered that the evidence was of moderate quality because of the large number of participants from diverse populations, the low pregnancy rates, and the consistent results across studies. They stated that there is still a need for rigorous research to confirm the efficacy and safety of pericoital use of LNG as a primary means of contraception among women with infrequent intercourse.

Halpern V, Lopez Lauren M, Grimes David A, et al. 2013. **Strategies to improve adherence and acceptability of hormonal methods of contraception.** Cochrane Database of Systematic Reviews (10).

<http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD004317.pub4/abstract>

Although hormonal contraceptive methods (birth control pills and injections) are theoretically very effective, in practice they are not as effective as they could be, partly because of difficulties in adherence to the contraceptive regimen (e.g. remembering to take pills) and low rates of long-term continuation. This review aimed to determine the effect of special counselling techniques to improve adherence to, and continuation of, hormonal methods of contraception. It included RCTs comparing an intensive counselling technique or other client-provider intervention to routine family planning counselling.

The review authors identified nine RCTs meeting their criteria. Five involved direct counselling and two of these also provided multiple telephone contacts. Four other trials provided intensive reminders, and two of these also provided health education information. Three trials showed some benefit from the intervention under investigation. In a counselling intervention, compared to women who had routine counselling, women who received repeated structured information about the injectable depot medroxyprogesterone acetate (DMPA) were less likely to discontinue the method by 12 months (odds ratio 0.27; 95% CI 0.16 to 0.44) and also less likely to discontinue due to menstrual disturbances (OR 0.20; 95% CI 0.11 to 0.37). Another trial showed a group receiving phone calls in addition to special counselling was more likely than the special-counselling alone group to report consistent use of oral contraceptives (OC) at three months (OR 1.41; 95% CI 1.06 to 1.87), though not at 12 months. There were no significant differences between the special counselling only group and the group receiving standard care for any outcomes. The third trial compared daily text-message reminders about OCs plus health information to standard care. Women in the text-message group were more likely than the standard-care group to continue OC use by six months (OR 1.54; 95% CI 1.14 to 2.10). The text-message group was also more likely to avoid an interruption in OC use longer than seven days (OR 1.53; 95% CI 1.13 to 2.07).

The review authors considered the evidence to be of moderate quality and noted that several trials had small sample sizes and most had high losses to follow up. They stated that good personal communication between clients and providers is generally considered to be important for successful use of hormonal contraception and that there is some evidence from RCTs that the use of oral contraceptive and injectables can be improved with enhanced counselling or intensive reminders plus health information. They suggested that a combination of intensive counselling and multiple contacts and reminders may help improve adherence to, and acceptability of, these contraceptive methods.

Okusanya BO, Oduwale O, Effa EE. 2014. **Immediate postabortal insertion of intrauterine devices.** Cochrane Database of Systematic Reviews (7). <http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD001777.pub4/abstract>

Immediate insertion of an IUD after an abortion can be advantageous as the pain of insertion may be less because the cervix is already open but there may be a higher risk that the device will be spontaneously expelled. This review aimed to assess the safety and efficacy of IUD insertion immediately after spontaneous or induced abortion. It included 12 RCTs, involving a total of 7,119 women, which either compared times for IUD insertion or compared different types of IUD. Five trials compared immediate to delayed insertion. One trial indicated that immediate insertion of the Copper 7 was associated with a higher risk of expulsion than delayed insertion (RR 11.98, 95% CI 1.61 to 89.35, 1 study, 259 participants, moderate quality evidence). Moderate quality evidence from three trials (878 participants) suggested that both use and expulsion of levonorgestrel-releasing intrauterine system or CuT380A were more likely for immediate compared to delayed insertion risk ratio (RR) 1.40 (95% CI 1.24 to 1.58) and RR 2.64 (95% CI 1.16 to 6.00) respectively. Another trial, which randomised women to receive either the levonorgestrel IUD or Nova T provided moderate quality evidence that discontinuation rates due to pregnancy were likely to be higher for women in the Nova T group. (MD 8.70, 95% CI 3.92 to 13.48; 438 participants). Seven trials examined immediate insertion only and compared different types of IUD. Meta-analysis of two multi-centre trials indicated that pregnancy was less likely for the TCu 220C versus the Lippes Loop (RR 0.43, 95% CI 0.24 to 0.75; 2 studies; 2257 participants) as was expulsion (RR 0.61, 95% CI 0.46 to 0.81; 2 studies; 2257 participants). Estimates for the TCu 220 versus the Copper 7 were RR 0.42 (95% CI 0.23 to 0.77; 2 studies, 2,274 participants) and RR 0.68, (95% CI 0.51 to 0.91); 2 studies, 2,274 participants), respectively. Another study, with 400 participants, indicated that adding copper sleeves to the Lippes Loop improved efficacy (RR 3.40, 95% CI 1.28 to 9.04) and reduced expulsion (RR 3.00, 95% CI 1.51 to 5.97).

The review authors concluded that there is moderate quality evidence that insertion of an IUD immediately after an abortion is both safe and practical but that expulsion rates appear to be higher than for delayed insertions. However, IUD use at six months post abortion is greater among women who had immediate insertion instead of delayed insertion.

Lopez LM, Tolley EE, Grimes DA, et al. 2013. **Theory-based interventions for contraception.** Cochrane Database of Systematic Reviews (8). <http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD007249.pub4/abstract>

Theories and models help to explain how behaviour change occurs. Most of the commonly theories and models in health behaviour are based on a social cognition approach. They include the Health Belief Model (HBM), Social Cognitive Theory (SCT), the Theory of Reasoned Action (TRA), the Theory of Planned Behaviour (TPB), and Protection Motivation Theory. Although theories and models have been used extensively in HIV-prevention research and in interventions for preventing sexually transmitted infections (STIs), educational interventions for contraception often have no stated theoretical base. This review assessed RCTs that tested a theoretical approach to inform contraceptive choice; encourage contraceptive use; or promote adherence to, or continuation of, a contraceptive regimen. Trials primarily related to HIV or STI prevention were excluded. Included trials had the following primary outcomes: pregnancy, contraceptive choice or use, and contraceptive adherence or continuation.

The review included 17 trials, three of which were new since the previous Cochrane review on this topic. Eight were rated as good quality. Eleven targeted adolescents. Twelve trials reported pregnancy and birth data and two of these had better results for a theory-based group. Twelve trials had data on birth control use (other than condoms) and six showed some positive effects of a theory-based intervention. Five out of 12 trials with data on condom use found a positive effect of a theory-based group. Almost all trials involved multiple sessions or contacts. Seven trials focussed on adolescents were based on SCT, of which five reported some effectiveness. Two other trials based on other social cognition models had some positive results with adolescents. The review authors suggested that family planning researchers and practitioners could adapt the effective interventions for their own use. They noted that most of the reviewed interventions focussed on teenagers and had group sessions.

Abdel-Aleem H, d'Arcangues C, Vogelsong KM, et al. 2013. **Treatment of vaginal bleeding irregularities induced by progestin only contraceptives.** Cochrane Database of Systematic Reviews (10). <http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD003449.pub5/abstract>

Progestin-only contraceptives are very effective but women often have irregular bleeding when using them. This review evaluated preventive and therapeutic approaches to normalise bleeding irregularities associated with the use of progestin-only contraceptives. It included 33 RCTs enrolling 3,677 participants. Two-thirds of these were assessed as having low to moderate risk of bias. The treatments investigated included estrogen, combinations of oral ethinyl estradiol and levonorgestrel (i.e. combined oral contraceptives), mifepristone (alone and combined with estrogen), various NSAIDs, tamoxifen, tranexamic acid, and doxycycline. The review authors concluded that some women may benefit from these interventions, particularly for cessation of current bleeding. They stated that several interventions appear promising for regulating bleeding but larger trials are needed to reproduce positive findings. They also stated that the findings of their review do not support the routine clinical use of any of the regimens included in the trials particularly for long term effect.

Lopez LM, Otterness C, Chen M, et al. 2013. **Behavioral interventions for improving condom use for dual protection.** Cochrane Database of Systematic Reviews (10).
<http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD010662.pub2/abstract>

When used correctly and consistently, condoms can provide protections against both pregnancy and sexually transmitted infections (STIs), including HIV. This review examined comparative studies of behaviour interventions for condom use that had used objective biological outcome measures (such as pregnancy or STI test results). Seven RCTs were identified as meeting the review's inclusion criteria. Six randomised clusters and one, individuals. Five studies provided data on pregnancy, either from pregnancy tests or national records of abortions and live births. Four trials assessed the incidence or prevalence of HIV and HSV-2 (Herpes simplex type 2). Three trials examined other STIs. The trials showed or reported no significant differences between study groups for pregnancy or HIV, but favourable effects were evident for some STIs. The review authors concluded that there was little clinical evidence for interventions promoting condom use for dual protection. They state that the overall quality of evidence was moderate to low and losses to follow up were high. They stated that there is a need for effective interventions to promote condom use for dual protection and that interventions need to be feasible for resource-limited settings and tested using valid and reliable outcome measures (not self-report).

The American College of Obstetricians and Gynecologists. 2012. **Committee opinion no. 539: adolescents and long-acting reversible contraception: implants and intrauterine devices.** Obstetrics and gynecology: 120(4):983-8. Epub 2012/09/22.

This publication states that increasing adolescent access to long-acting reversible contraception (LARC) is a clinical and public health opportunity for obstetrician gynaecologists and that, because LARCs have top-tier effectiveness, high rates of satisfaction and continuation, and no need for daily adherence, LARC methods should be first-line recommendations for all women and adolescents. It provides information on: sexual behaviour and contraceptive use among American adolescents; counselling, consent, confidentiality and cost; guidance for adolescent health care providers to address common misconceptions; and postabortal long acting reversible contraception.

Chin HB, Sipe TA, Elder R, et al. 2012. **The Effectiveness of Group-Based Comprehensive Risk-Reduction and Abstinence Education Interventions to Prevent or Reduce the Risk of Adolescent Pregnancy, Human Immunodeficiency Virus, and Sexually Transmitted Infections: Two Systematic Reviews for the Guide to Community Preventive Services.** American journal of preventive medicine: 42(3):272-94.

These systematic reviews were conducted to provide a basis for recommendations by the US Community Preventive Services Task Force, an independent non-federal body of experts in public health research, practice and policy. They synthesised scientific evidence on the effectiveness of two strategies for group-based behavioural interventions for adolescents: (1) comprehensive risk reduction and (2) abstinence education, on preventing pregnancy, HIV, and other STIs. The outcomes measures used to assess the effectiveness of the interventions were reductions in sexual risk behaviours, pregnancy, HIV and other STIs and increases in protective sexual behaviours. In the US, until 2010, states could receive federal funding only to implement abstinence education programmes that taught that people should abstain from sexual activity until marriage. The literature search identified 66 US-based studies of comprehensive risk reduction risk reduction and 23 studies of abstinence education that assessed the effects of group-based interventions that addressed the sexual behaviour of adolescents and these were included in the review. The review team conducted meta-analyses for each strategy on the seven key outcomes identified by the team: current sexual activity; frequency of sexual activity; number of sex partners; frequency of unprotected sexual activity; use of protection (condoms and/or hormonal contraception); pregnancy; and STIs. The results of these meta-analyses indicated that comprehensive risk reduction strategies had favourable effects for all of the outcomes reviewed. For abstinence education, education, the meta-analysis showed a small number of studies, with inconsistent findings across studies that varied by study design and follow-up time, leading to considerable uncertainty around effect estimates. The reviews authors concluded that group-based comprehensive risk reduction is an effective strategy to reduce adolescent pregnancy, HIV and STIs but that no conclusions could be drawn regarding the effectiveness or otherwise of group-based abstinence education.

The methods used for the above review are detailed in this paper:

Sipe TA, Chin HB, Elder R, Mercer SL, Chattopadhyay SK, Jacob V. 2012. **Methods for conducting community guide systematic reviews of evidence on effectiveness and economic efficiency of group-based behavioral interventions to prevent adolescent pregnancy, human immunodeficiency virus, and other sexually transmitted infections: comprehensive risk reduction and abstinence education.** American journal of preventive medicine. 42(3):295-303. Epub 2012/02/22.

A summary of the recommendations derived from the review is contained in the following paper:

Community Preventive Services Task Force. 2012. **Recommendations for Group-Based Behavioral Interventions to Prevent Adolescent Pregnancy, Human Immunodeficiency Virus, and Other Sexually Transmitted Infections: Comprehensive Risk Reduction and Abstinence Education.** American journal of preventive medicine: 42(3):304-7.

Tolli MV. 2012. **Effectiveness of peer education interventions for HIV prevention, adolescent pregnancy prevention and sexual health promotion for young people: a systematic review of European studies.** Health education research: 27(5):904-13. Epub 2012/05/30. <http://her.oxfordjournals.org/cgi/pmidlookup?view=long&pmid=22641791>

Peer education has been defined as 'the teaching or sharing of health information, values and behaviours by members of similar age or status'. Peer education has been used for sexual health interventions on the assumption that a young person's peer group has a strong influence on the way he or she behaves. This review aimed to appraise all studies that described and evaluated interventions designed to be implemented, in full or partially, by peer educators, and that had as an objective the prevention of HIV, the prevention of adolescent pregnancy and/or the promotion of sexual health in young people, aged between 10 and 24 years, and met the following criteria: they were conducted in European Union countries; they were RCTs, non-randomised controlled studies or studies using a before-and-after design; they evaluated at least one of the review's outcomes of interest; they compared an intervention to no intervention or standard practice; and they were available in English, German or Spanish. The review authors identified 17 publications, corresponding to five interventions that met their criteria. Three interventions were sex education programmes and two were HIV prevention programmes. One intervention evaluated unintended pregnancy using data for abortions and live births and found no statistically significant difference between the intervention and control groups in the proportion of girls who had one or more live births by age 20.5 years. One study evaluated STDs using self-report and found no statistically significant difference between the intervention and control group. Three studies evaluated condom use and none found statistically significant effects. One study assessed sexual experience and found a statistically significant increase in sexual experience in the intervention group. All studies assessed knowledge as an outcome but only one found a statistically significant effect. Three studies evaluated skills for communication and negotiation: one found a non-significant trend in favour of the

intervention group and two found non-significant differences. Three studies evaluated attitudes and one reported significant differences in favour of the intervention group. One study assessed intention to use a condom and found no statistically significant effects of the intervention. The review authors concluded that, overall, compared to standard practice or no intervention, there is no clear evidence for the effectiveness of peer education concerning HIV prevention, adolescent pregnancy prevention and sexual health promotion for young people in the countries of the European Union. They stated that further research is needed.

The CRD reviewed this review and found that its conclusions were likely to be reliable based on the evidence presented. The CRD summary can be found here: <http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0049936/>.

Cheng L, Che Y, Gülmezoglu AM. 2012. **Interventions for emergency contraception**. Cochrane Database of Systematic Reviews (8). <http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD001324.pub4/abstract>

Emergency contraception involves either taking a drug (the "morning after pill") or getting a copper intrauterine device (Cu-IUD) shortly after unprotected intercourse. This review aimed to determine which EC method is the most effective, safe and convenient way to prevent pregnancy after unprotected intercourse. It included 100 trials involving 55,666 women, both RCTs and controlled clinical trials. Eighty-six were conducted in China. The review's conclusions were as follows: "Intermediate-dose mifepristone (25-50 mg) was superior to levonorgestrel (LNG) and Yuzpe regimens. Mifepristone low dose (< 25 mg) may be more effective than LNG (0.75 mg two doses), but this was not conclusive. UPA may be more effective than LNG. LNG proved to be more effective than the Yuzpe regimen. The copper IUD was the most effective EC method and was the only EC method to provide ongoing contraception if left in situ." The findings of this review relating to drugs for emergency contraception are of limited relevance to women in New Zealand where levonorgestrel is the only drug used for emergency contraception. (Mifepristone is used in higher dose in terminations of pregnancy and induction of labour for expulsion of a dead fetus following fetal death in utero.)

Arrowsmith ME, Aicken CRH, Saxena S, et al. 2012. **Strategies for improving the acceptability and acceptance of the copper intrauterine device**. Cochrane Database of Systematic Reviews (3). <http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD008896.pub2/abstract>

Despite being highly effective (and reversible), IUDs are among the least commonly used methods of contraception. This review aimed to evaluate the effects of interventions intended to increase uptake of the copper IUD. It included nine studies involving 7690 women (seven RCTs and two controlled before and after studies) that reported IUD uptake following intervention. The review authors rated the quality of evidence moderate to low. Three studies on contraceptive counselling and referrals by community workers showed an increase in uptake of the IUD among intervention groups (Peto OR 2.00; 95% CI 1.40 to 2.85). Two studies on antenatal contraceptive counselling also favoured the intervention groups (Peto OR 2.33; 95% CI 1.39 to 3.91). One study on postnatal couple contraceptive counselling also showed an increase in IUD uptake compared to control (Peto OR 5.73; 95% CI 3.59 to 9.15). The results of one study evaluating postnatal home visits and two studies on enhanced post-abortion contraceptive counselling did not reach statistical significance. The review authors concluded that both community-based and antenatal contraceptive methods improved uptake of copper IUDs for contraception and they suggested that primary care practitioners could consider adopting these interventions. They also suggested that a cost-benefit analysis may be required to evaluate applicability.

Wakhisi AS, Allotey P, Dhillon N, Reidpath DD. 2011. **The Effectiveness of Social Marketing in Reduction of Teenage Pregnancies: A Review of Studies in Developed Countries**. Social Marketing Quarterly: 17(1):56-90.

This review aimed to determine the effectiveness of a social marketing approach in reduction of unintended teenage pregnancies. A social marketing intervention was defined as one which included the following six basic characteristics: consumer research, specific behaviour change goal, segmentation and targeting, marketing mix, exchange, and competition. Through a literature search for the years between 1990 and 2008 the review authors identified 12 studies meeting their criteria. Nine were RCTs and three were before-and-after studies. There was variation between studies in intervention effects across specified outcomes (reduction in unintended pregnancies, delayed sexual initiation, contraceptive use at last intercourse, knowledge of contraception and reproductive health, and self-efficacy to refuse unwanted sex). Nine of the 12 studies reported significant effects on at least one of the outcomes. Long term interventions tended to be more effective than short term ones for most outcomes. In most studies there was minimal impact of the intervention on male participants' sexual behaviour. The authors concluded that, overall, social marketing seems to be an effective approach for reducing teenage pregnancies and influencing behaviour change, but the evidence is limited to particular outcomes and context. They stated that there is a need for more primary studies specifically designed around social marketing principles for more robust evaluations. They also stated that the minimal impact of interventions on male participants' behaviour warrants further investigation.

Oringanje C, Meremikwu M, Eko H, et al. 2009. **Interventions for preventing unintended pregnancies among adolescents**. Cochrane Database of Systematic Reviews, 2009(4).

<http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD005215.pub2/abstract>

This review included 41 RCTs involving 95,662 adolescents in many different countries and assessing a wide variety of interventions. There were both individual and cluster-randomised trials. The results indicated that combination interventions involving both education and contraceptive provision were effective in lowering rates of adolescent pregnancy. The evidence on the effect of interventions on secondary outcomes (age at first intercourse, use of birth control methods, abortion rates, childbirth rates and sexually transmitted diseases) was inconclusive. The variability in study populations, types of interventions, and outcomes measured and also the paucity of trials comparing different interventions made it impossible to draw any conclusions about which type of intervention is most effective.

Other relevant publications

National Institute of Demographic and Economic Analysis, University of Waikato. 2015. **Current trends for teenage births in New Zealand**. Hamilton: National Institute of Demographic and Economic Analysis, University of Waikato.

http://www.superu.govt.nz/sites/default/files/Teen_Births_Report_0.pdf

This report outlines trends in teenage births in New Zealand and provides contextual information on age-related trends, ethnic trends, and international comparisons. This is followed by a discussion of the potential drivers of these trends, including direct drivers, such as contraceptive use and sexual activity, and also underlying drivers such as socio-economic circumstances, ethnic and cultural differences, and family characteristics. The report concludes by discussing the implications of these trends and offering suggestions for further research and action.

Clark TC, Crengle S, Sheridan J, et al. 2014. **Factors associated with consistent contraception and condom use among Māori secondary school students in New Zealand.** Journal of Paediatrics & Child Health, 50(4), 258-65.

This study used multivariate analysis to determine relationships between self-reported consistent contraception and condom use among all 2059 sexually active Māori participants in the 2007 New Zealand youth health and well-being survey of secondary school students. The results indicate that 40% of Māori students were currently sexually active; of these, 55.3% always used contraception, and 41.1% always used condoms. The following groups of students were less likely to use regular contraception: those with more than three sexual partners (males odds ratio (OR) 0.55, $P = 0.04$, females OR 0.35, $P = 0.04$) and females who were regular cigarette users (OR 0.52, $P = 0.02$). Students less likely to use condoms were 13- to 15-year-old females (OR for older students vs. younger students 1.95, $P < 0.01$) and females who enjoyed sex (vs. other female students OR 0.52, $P = 0.02$). Family connection was associated with increased use of condoms among males (OR 1.07, $P < 0.01$). The study authors stated that there is a need to improve the sexual health of Māori youth through reducing sexual risks, increasing opportunities for healthy youth development and family connectedness, and ensuring access to appropriate services.

Kaipuke Consultants Ltd. 2012. **Regional trends in teenage parenthood.**
<http://www.superu.govt.nz/sites/default/files/regional-trends-teenage-parenthood.pdf>

This report was written as a background report to the Families Commission research report: *Teen Pregnancy and Parenting: An overview* (above). It analyses regional variation in teenage births and parenthood in New Zealand. It begins with an overview of New Zealand fertility trends over the past 50 years. This is followed by an analysis of national and regional trends in teenage births by age, ethnicity and socio-economic status (NZDep). Finally, there is a detailed analysis of nine selected regions with the highest rates and numbers of teenage births.

Rose SB, Lawton BA. 2012. **Impact of long-acting reversible contraception on return for repeat abortion.** Am J Obstet Gynecol, 206(1), 37.e1-6

This paper reports on a New Zealand study which aimed to determine the relationship between likelihood of return for repeat abortion and choice of contraceptive method, in the 24 months after an abortion. The study followed on from an intervention study which ran over 10 weeks at a public hospital abortion clinic and was designed to promote use of long-acting reversible contraception (LARC) methods that included depot medroxyprogesterone acetate (DMPA), the levonorgestrel intrauterine system (LNG-IUS), and copper multiload Cu375 (Cu-IUD). The intervention increased the use of LARC methods from 45% at baseline to 61% during the intervention, with a 6-fold increase in the choice of the LNG-IUS, from 6% to 36%. The follow up study was a prospective cohort study involving review of hospital notes for 510 women aged 13 to 44 years. It found that women using long-acting reversible contraceptive (LARC) methods (intrauterine device [IUD] and depot medroxyprogesterone acetate) had significantly lower return rates for repeat abortion (6.45%; 95% CI 4.0 to 9.8) than non-LARC users, of whom 14.5% returned (95% CI 9.9 to 20.2). A Cox proportional hazard analysis indicated that, after controlling for demographic factors and previous pregnancy history, the post-abortion method choice was significantly related to the likelihood of returning for a repeat abortion ($P = .002$). Using the pill as a reference group for risk of repeat abortion, the IUD hazard ratio (HR) was 0.36 (95% CI, 0.17 to 0.77), the depot medroxyprogesterone acetate HR was 0.55 (95% CI, 0.21 to 1.45), and the HR for all other methods was 1.8 (95% CI, 0.83 to 3.92). The authors stated that their study provided strong support for promoting immediate post-abortion access to LARC methods (especially IUDs) to prevent repeat abortions.

Rose SB, Wei Z, Cooper AJ, et al. 2012. **Peri-Abortion Contraceptive Choices of Migrant Chinese Women: A Retrospective Review of Medical Records.** PLoS One, 7(6).

<http://www.plosone.org/article/fetchObject.action?uri=info:doi/10.1371/journal.pone.0040103&representation=PDF>

It has been reported that migrant Asian women in New Zealand have low levels of contraceptive use and high rates of abortion. Chinese are the largest group of migrant Asians in New Zealand. This study aimed to describe the contraceptive choices of Chinese women seeking abortion, to investigate relationships between method choice and demographic characteristics (including length of stay), and to determine whether Chinese women were over-represented among women attending abortion clinics. It involved a retrospective review of medical records at a public hospital abortion clinic. Records for 305 Chinese women were compared with previously collected data for 277 European and 128 Māori women. Correlates of contraceptive choice were explored via regression analysis. Census data was used to determine rates of clinic attendance for each ethnic group. Analysis results indicated that Chinese women were not over-represented among clinic attendees, and had rates of contraceptive non-use pre-abortion similar to those of other women. Chinese women had lower rates of oral contraceptive pill use pre-abortion than other ethnic groups, but post-abortion Chinese women's rates were similar to European women's (46.9%, 95% CI 41–52.7 and (43.7%, 95% CI 37.8–49.7, respectively). Post-abortion choice of an intrauterine device did not differ significantly between Chinese (28.9%, 95% CI 23.8–34.3) and Māori women (37%, 95% CI 28.4–45.7), but was higher than uptake of this method by European women (21.7%, 95% CI 17–27.0). Age, parity and previous abortion were significant predictors of post-abortion method choice by Chinese women ($p < 0.05$). The study authors concluded that, after counselling at the clinic, Chinese women chose post-abortion contraceptive methods that were more effective than those they had used previously. They stated that as the number of Chinese migrant women continues to increase, there is an urgent need for strategies to ensure that new arrivals are provided with appropriate information and advice about contraception and how to access it, so that they can avoid unplanned pregnancy.

Denny S, Robinson E, Lawler C, et al. 2012. **Association Between Availability and Quality of Health Services in Schools and Reproductive Health Outcomes Among Students: A Multilevel Observational Study.** Am J Public Health, 102(10), e14-20. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3490681/pdf/AJPH.2012.300775.pdf>

This paper reports on a New Zealand study which used a 2-stage random sampling design to gather nationally representative data from 917 students from 96 high schools (the Youth '07 survey). Students self-reported whether they were sexually active, how often they used condoms or contraceptives, and whether they had contributed to a pregnancy. School administrators completed questionnaires about their school-based health services, providing information on team-based services, doctor and nurse hours per week, and health screening. The study authors undertook data analysis using multi-level models controlling for individual variables, with schools treated as random effects. The results indicated that there was an inverse association between hours of nursing and doctor time and pregnancy involvement among sexually active students, with fewer pregnancies among students in schools with more than 10 hours of nursing and doctor time per 100 students. There was no association between doctor visits, team-based services, health screening, and reproductive health outcomes. The study authors concluded that school health services are associated with fewer pregnancies among students, but only when the availability of doctor and nursing time exceeds 10 hours per 100 students per week.

Denny S, Farrant B, Cosgriff J, et al. 2012. **Access to private and confidential health care among secondary school students in New Zealand.** J Adolesc Health, 51(3), 285-91.

This study aimed to determine the prevalence of health care utilisation and private and confidential health care among a nationally representative population of New Zealand high school students (the Youth '07 survey). A total of 9107 students from 96 high schools participated (a two-stage cluster sample). Questions in the survey asked students when and where they had accessed health care, if their health care provider had explained that their health care was confidential, and if they had been seen in private by their health care provider. The results indicated that, although 83% of students had accessed health care in the previous 12 months, only 27% of students reported receiving private and confidential health care. Students who had accessed health care from a school-based health centre (adjusted relative risk 1.54, 95% CI 1.42 to 1.66) or family planning/sexual health clinics (adjusted relative risk 2.1, 95% CI 1.9 to 2.26) were more likely to report receiving private and confidential health care compared with students who had not accessed health care from these settings. The study authors stated that, while most young people access health care from their family doctor or general practitioner's clinic, rates of private and confidential health care were low which suggests that opportunities to adequately explore and respond to important yet sensitive topics are compromised in primary care settings.

Pihama L. 2011. **Overview of Māori teen pregnancy.** Wellington: Indigenous Analysis Ltd., for the Families Commission. <http://www.superu.govt.nz/publication/overview-m%C4%81ori-teen-pregnancy>

This was prepared for the Families Commission by Leonie Pihama of Māori and Indigenous Analysis Ltd. and is a background literature review for the Families Commission research report: *Teenage Pregnancy and Parenting. An Overview* (above). It provides an overview of views relating to Māori teen pregnancy. The author noted that there has been little dedicated research that is specific to the issue of Māori and teen pregnancy and she states that Western research which has taken deficit-based approaches to the "problem" of teen pregnancy is of limited usefulness for understanding Māori teen pregnancy. She cites research reporting that teen parents themselves have recognised many positive outcomes from parenthood including: a sense of direction and purpose, positive life changes such as getting off drugs and alcohol, re-engaging with their families and with education, and the joy and satisfaction of motherhood.

Copland RJ, Denny SJ, Robinson EM, et al. 2011. **Self-reported pregnancy and access to primary health care among sexually experienced New Zealand high school students.** J Adolesc Health, 49(5), 518-24

This study used data from the Youth '07 survey to determine the prevalence of self-reported pregnancy among sexually experienced New Zealand high school students, and the association between teenage pregnancy and access to primary health care. The dataset included 2,620 year 9 through 13 students who reported ever having sexual intercourse and responded to a question about whether they had ever been pregnant or ever caused a pregnancy (1,217 females and 1,403 males). Analysis of the data indicated that, nationwide, 10.6% of sexually experienced high school students self-reported that they had been pregnant (11.6%) or caused a pregnancy (9.9%). Māori (15.3%) and Pacific Island (14.1%) students had the highest self-reported pregnancy rates. Foregone health care was reported by 24.2% of sexually experienced students. Students who self-reported pregnancy reported greater difficulty accessing health care (41.7% vs. 20.6%; odds ratio: 2.6); however, when they accessed care, the majority received confidential care (67.4%) as compared with pregnancy-inexperienced peers (51.6%). The most common reason for not accessing health care was concern about privacy. Other barriers included uncertainty about how to access care and lack of transportation (all p values < .05). The study authors concluded that self-reported pregnancy rates are high among sexually active New Zealand high school students and that there are ethnic disparities. They noted that being pregnant or causing a pregnancy is associated with difficulty accessing health care and they stated that further research is needed to identify the drivers of ethnic disparities and the nature of the cause-and-effect relationship between teenage pregnancy and access to health care.

Clark T, Robinson E, Crengle S, et al. 2006. **Contraceptive use by Māori youth in New Zealand: associated risk and protective factors.** N Z Med J, 119(1228), U1816. https://www.nzma.org.nz/_data/assets/pdf_file/0003/17859/Vol-119-No-1228-27-January-2006.pdf

This study used data from the Youth2000 survey in a multiple logistic regression model to identify risk and protective factors associated with consistent contraception use by sexually active Māori secondary school students. There were 2340 survey participants (out of 9570 randomly selected secondary school students) who reported that they were Māori, 52.9% of whom were male and 76.1% of whom were aged 15 years or younger. The results indicated that half of the Māori students had experienced sexual intercourse and a third were currently sexually active (33% males; 34% females). Most Māori youth who had ever had sex used condoms for contraception (82%) and most sexually active Māori youth reported consistent use of contraception (71% males; 70% females). Māori youth who used contraception consistently were more likely to report getting enough time with a parent (OR 1.50; 95% CI 1.05 to 2.14; p=0.03) and less likely to report weekly marijuana use (OR 0.53; 95% CI 0.37 to 0.76; p=0.0006). The study authors concluded that, although consistent use of condoms is a common self-reported contraceptive practice by many young Māori, this behaviour is not universal and, in view of the significant sexual and reproductive health disparities that exist for Māori youth, sexual and reproductive health programmes need to adopt a broader strategy which promotes protective factors such as strengthening youth-parent relationships and discourages risk factors such as substance misuse.

Websites

The National Campaign to Prevent Teen and Unplanned Pregnancy. <http://thenationalcampaign.org/>

This US website contains a wealth of information and data on teen pregnancy and how to prevent it. The database of research reports, publications, fact sheets, videos, podcasts, PowerPoints, and other materials is searchable here: <http://thenationalcampaign.org/search/resource/results>

Office of Adolescent Health, US Department of Health and Human Services. 2015. **Evidence-Based TPP Programs.** http://www.hhs.gov/ash/oah/oah-initiatives/tpp_program/db/

This web page provides a searchable database of evidence-based teen pregnancy prevention programmes identified by the US Department of Health and Human Services that have been shown, in at least one programme evaluation, to have a positive impact on preventing teen pregnancies, sexually transmitted infections, or sexual risk behaviours.

