

# Aboriginal adolescent sexual and reproductive health programs: a review of their effectiveness and cultural acceptability

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## 1. Executive Summary

The review was commissioned by the NSW Department of Health to provide advice on the most effective programs to prevent teenage pregnancies and improve the sexual health of Aboriginal adolescents in NSW. This is part of the National Health Partnership Agreement for Indigenous Early Childhood Development (Council of Australian Governments 2009). The review focuses on four areas:

1. What are the programs or approaches that are effective/ineffective in working in Aboriginal adolescent sexual and reproductive health?
2. What are the factors or design elements that are associated with effective/ineffective programs?
3. What data is there (if any) on the cultural acceptability of these (or other) approaches?
4. What are the knowledge, attitudes and preferences of Aboriginal adolescents about sexual and reproductive health services?

This review of the international literature found a lack of adequately evaluated international and national interventions in adolescent sexual and reproductive health, and there is no high level evidence about Aboriginal adolescents in this area. Much of the literature sourced was descriptive, comprising reports and case studies. No evidence was found about the socio-cultural aspects and the meaning of adolescence and teenage pregnancy in Aboriginal communities.

However, some program approaches associated with positive outcomes in sexual and reproductive health **may be applicable** to Aboriginal adolescents. Program approaches supported by high level evidence or promising evidence have been included in the boxed summaries below.

### Responses to Review Questions

**Review Question 1:** *What are the programs or approaches that are effective/ineffective in working in Aboriginal adolescent sexual and reproductive health?*

No high level evidence on programs for Aboriginal adolescents' sexual and reproductive health with positive health outcomes was found. This may well reflect a lack of evaluation and publication as much as program content and outcomes.

In the absence of high level evidence, the literature suggests a 'best practice' approach to programs implemented in Aboriginal communities comprising these features:

- Consultation;
- Involvement or ownership of research by communities;
- Coherence of aims, methods, results, and outcome measures or indicators; and
- Evaluation of the research process and outcomes.

This is in line with the expert opinion in the field. However, aspects of international and national work *may provide a basis* for program development and implementation in NSW.

*Broad program approaches associated with positive outcomes*

- School-based sex education (measured against knowledge, attitudes, delaying sexual activity and/or reducing pregnancy rates). There is some evidence that this was particularly effective when linked to access to contraceptive services
- Community based (such as family or youth centres/services) education, development and contraceptive services
- Development programs. Although the evidence base for this was small, programmes focusing on personal development (i.e. confidence, self esteem, negotiation skills and life aspirations), education and vocational development may increase contraceptive use and reduce pregnancy rates
- Partner notification as an effective means of detecting new infections (not adolescent specific)
- Small-group work interventions to reduce sexual risk behaviour (not adolescent specific)
- 'Abstinence plus' programs to reduce sexual risk behaviour
- Commencing sex education before the onset of sexual activity (somewhat less strong)

**Review Question 2:** *What are the factors or design elements that are associated with effective/ineffective programs?*

There has been very limited evaluation of any local programs and the results are presented as snapshots. The factors that appear to contribute to success fall into the domains of sound program planning and development: engaging and collaborating with stakeholders; undertaking planning and a needs assessment or formative research; tailoring the program to needs, context and capacity; allowing sufficient time for program implementation and for the development of measurable effects.

Factors that may contribute to ineffective programs and which may impact negatively on outcomes include: inappropriate language or communication style; insufficient exposure to target groups; lack of a relevant service network; lack of access to necessary services; and problems in translating a program from one context to another.

Characteristics of successful programs identified more broadly in the literature are listed below. The literature cautions on directly applying programs developed for a particular group to others in different cultural and socio-economic contexts. Successful programs need to be participation based and locally targeted.

### *Intervention qualities and principles*

- Long-term programs (shorter individual sessions conducted over a longer period of time)
- Application of theory based approaches to interventions with clear behavioural goals and outcomes
- Services and interventions based on assessed need and tailored to meet that need
- A focus on high-risk groups
- Ensuring interventions and services are accessible to young people
- Ensuring confidentiality of young people
- Developing and encouraging a culture which allows and promotes discussion of sex, sexuality and contraception
- Working collaboratively with different agencies to maximise the intervention effect

### *Content*

- Provide basic, accurate information
- Apply clear, unambiguous messages
- Developing behavioural and interpersonal skills, including self efficacy and communication
- Emphasising risk reduction

### *Delivery*

- Information, education, and skills development training should commence prior to sexual debut for greater benefit
- A focus on improving contraceptive use and at least one other behaviour is likely to prevent pregnancy and/or STI transmission
- Participatory, inclusive teaching methods
- Selection of staff with a commitment to the areas and content who are provided with professional support and development
- Using trained facilitators
- Using peers and community opinion leaders
- Multi-faceted, using a range of approaches

**Review Question 3:** *What data is there (if any) on the cultural acceptability of these (or other) approaches?*

There is little information about what constitutes a culturally acceptable sexual or reproductive health program for Aboriginal adolescents. However, recent consultations conducted with the general youth population, including Aboriginal youth, offer some valuable insights (see Appendix 1).

**Review Question 4:** *What are the knowledge, attitudes and preferences of Aboriginal adolescents about sexual and reproductive health services?*

No evidence of the knowledge, attitudes and preferences of Aboriginal adolescents was found. There is relatively little information about young people's knowledge, attitudes and preferences for these services, and less that is current. Young people appear to have varying levels of knowledge about service content and availability. There is a distinct thread about service preferences which relates to provider qualities (youth-friendly, respectful, professional, confidential, empathic), rather than service type or settings.

### Recommendations

The recommendations have been developed to address a number of domains, all of which may not be of direct relevance to the commissioning program. Additionally, the desire for further evidence is insatiable; decisions must be made on the basis of other factors including risk assessment (what level of evidence is acceptable, when do we delve more deeply), collaboration, other priorities and funding.

1. That NSW develops an Aboriginal adolescent sexual and reproductive health strategic plan:
  - a. Which recognises that adolescents are a target for a relatively short time and they are continually being replaced by new cohorts;
  - b. To build evidence in priority areas (for example, adolescent and community attitudes about teenage pregnancy and the reproductive and sexual health knowledge, attitudes and behaviour of young men)<sup>1</sup>;
  - c. To prioritise areas for pilot interventions based on clearly defined criteria (for example pregnancy or STI rates, service availability, community demand, partnership opportunities)<sup>2</sup>;
  - d. To determine how best to implement the range of interventions that have been found to deliver positive outcomes in other populations<sup>3</sup>;
  - e. That includes long and short-term programs which are evaluated to demonstrate long term outcomes;
  - f. To determine how or whether to develop Australian/Aboriginal/adolescent programs further, which have shown some promise with their target group; and
  - g. That understands the risks that have been identified in generalising programs to different target groups and actively responds to these.
2. That NSW Health develops an evaluation (process, outcome and impact) and monitoring framework<sup>4</sup> to apply to activities arising from the strategic plan and delivers longer term impact evaluation of activities as a priority.

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<sup>1</sup> See Appendix 4

<sup>2</sup> *ibid*

<sup>3</sup> *ibid*

<sup>4</sup> These terms are used to describe evaluation of the process and delivery of short and long term objectives over longer time periods. In the case of some interventions it may be many years (for example primary school education and delay of pregnancy until post-teen years)

3. That NSW Health develops a research agenda for adolescent Aboriginal sexual and reproductive health issues in partnership, and implements a series of projects in response to identified gaps and prioritised by the scope of the problems facing particular groups (for example attitudes to pregnancy, rates of pregnancy and STIs in sub-groups etc.) and opportunity for pragmatic responses (for example using programs that are established, building on existing services rather than developing new ones).
4. That NSW Health works with the Education Department to develop, modify, implement and evaluate pilot or *ongoing school based sexual and reproductive health programs* in urban and rural areas for primary and early secondary school students<sup>5</sup> and school linked programs (for example after school programs).
5. That NSW Health works with the health and community sectors and relevant youth and community government agencies to develop, modify, implement and evaluate pilot or *ongoing community and youth development programs* to address and modify behaviour that puts young Aboriginal people at risk of early pregnancy and STIs<sup>6</sup>.
6. That NSW Health develops a plan to identify and collaborate<sup>7</sup> with all relevant stakeholders to achieve a reduction in teenage pregnancy and STI rates<sup>8</sup>.

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<sup>5</sup> The evidence supports

- a) Commencing education and skills based programs to develop health literacy, negotiation, self assertion, confidence and communication skills prior to the initiation of sexual activity;
- b) Multi-faceted programs;
- c) Programs appropriate to gender, age and developmental levels;
- d) Engaging the school community (staff, administration, board/council etc.), parents and students; and
- e) Including broader content base (e.g. alcohol and drugs).

There is insufficient evidence to support or not recommend the involvement of parents in school based programs. This has been identified as a difficult area in international and Australian programs. Issues that will arise include school attendance, integration into the curriculum, policy development and support within the schools and commitment of staff, and training and support for teaching staff.

<sup>6</sup> Such programs would have qualities set out earlier (needs based, consultative, involving community); employ a range of interventions; address knowledge, attitudes and skills about relationships, communication, sexuality, cultural and peer expectations, STIs, pregnancy and contraception; and focus on personal development, educational and vocational development. Other interventions such as awareness campaigns, social marketing and peer education may also be considered and trialed.

<sup>7</sup> See Appendix 4

<sup>8</sup> And therefore have an impact on the social determinants that contribute to them.

## 2. Introduction

In response to the poor health outcomes of Aboriginal and Torres Strait Islander children in Australia and their lifelong impact, the Council of Australian Governments (COAG) have committed to a range of reforms. Under the National Partnership Agreement for Indigenous Early Childhood Development, Commonwealth, State and Territory governments will work to improve Indigenous child mortality by improving access to and effectiveness of 'antenatal care, teenage reproductive and sexual health services, child and maternal health services and integrated child and family services which focus on quality early learning, child care and parent and family support' (COAG 2009). A key component is to reduce pregnancy rates in young women and the rates of sexually transmissible infections (STIs) in young people. This review of the effectiveness and cultural acceptability of sexual and reproductive health programs for Aboriginal adolescents in NSW will inform the response.

The rates of teenage pregnancies and STIs in Aboriginal young people are much higher than non-Indigenous youth in Australia. Young mothers are more likely to have adverse pregnancy outcomes, setting the scene for disadvantage through life for their children. STIs are associated with long-term consequences of female and male infertility, chronic pelvic pain, adverse pregnancy outcomes, development of cancers and increased susceptibility to HIV infection.

There have been a range of direct and indirect responses to these issues across the education and primary, community and public health sectors, without broad or sustained impact. Nationally and internationally, the literature highlights the lack of evaluated interventions in adolescent sexual and reproductive health. Of those that have been evaluated, there are programs that have demonstrated effects in a range of populations or have shown promise. These programs share features that contribute to their success.

This review's purpose is to guide decisions about the most effective strategies for investment in sexual and reproductive health programs by NSW Health under the Indigenous Early Childhood Development National Partnership funding.

This review addresses four questions:

1. What are the programs or approaches that are effective or ineffective in working with Aboriginal adolescent sexual and reproductive health?
2. What are the factors or design elements that are associated with effective or ineffective programs?
3. What evidence is there of the cultural acceptability of these or other approaches?
4. What are the knowledge, attitudes and preferences of Aboriginal adolescents about sexual and reproductive health services?

Overall, there is no high level evidence for the effectiveness of preventive sexual and reproductive health programs for Australian Aboriginal adolescents. There is evidence internationally of effective programs which target young people and other populations; and there is data about encouraging approaches that are not supported by high level evidence. The setting for sexual and reproductive health prevention programs for Aboriginal adolescents in NSW is varied. The literature cautions on applying programs developed for a particular group to others in different cultural and socio-economic contexts. It also highlights the importance of the process of program development and implementation which can contribute to program

success and this is not transferrable. The review makes recommendations about program content and approaches which may have success with NSW Aboriginal adolescents and about the importance of program evaluation and building evidence of program effectiveness in this.

### 3. Background

This section provides a framework for the response to sexual and reproductive health issues in Australia for NSW Aboriginal adolescents. It is important to enable the issues to be quantified and qualified and to be clear where data is current or generalisable and where evidence must be sought, clarified or built. While there is considerable relevant data, many significant gaps have been unearthed and an incomplete and non-specific picture of these issues and their context is presented.

#### 3.1 Demographic and socio-economic issues

Australia's estimated population in 2009 was approximately 22,034,000 (ABS 2009). The Aboriginal and Torres Strait Islander population was estimated at 455,031 or 2.3% of the total (ABS 2006). The number of young people aged 15-24 years is approximately 2,704,276, or 13.6% of the population (ABS 2006b). The Indigenous population is younger than the total Australian population; its median age is 21 years compared with 36 years for the non-Indigenous population (AIHW 2005b). People aged 12-24 years comprise 26% of the Aboriginal and Torres Strait Islander population compared with 18% of all Australians. Of the Indigenous 12-24 year olds, 68% were aged 12-19 years (AIHW 2007). Approximately 40% of the Aboriginal and Torres Strait Islander population is aged younger than 15 years compared with 19% of the non-Indigenous population. This pattern of a proportionally younger Indigenous population will continue as a result of higher fertility rates and lower life expectancy. New South Wales (NSW) has 33% of the country's population; 2.1% are Aboriginal (29% of the national Aboriginal and Torres Strait Islander population) and 13.3% of NSW's total is aged 15-24 years (ABS 2006b). So we have a young population which is moving, or is soon to move, into the reproductive years.

The majority of Aboriginal and Torres Strait Islander people live outside the major cities (43% in regional areas and 26% in remote areas); this contrasts with the non-Indigenous population, 67% of whom live in the major cities (compared with 30% of Aboriginal and Torres Strait Islander people) (AIHW 2005a). The national pattern for Aboriginal and Torres Strait Islander 15-24 year olds is similar. However, in NSW, the Aboriginal population is relatively more urbanised, with 42% living in major cities, 51% in regional areas and 6% in remote areas. This geographical pattern has an adverse impact on access to and cost of a range of fundamental services.

Homelessness is more common in Aboriginal and Torres Strait Islander people than non-Indigenous people. Nine percent of the homeless population report being Aboriginal or Torres Strait Islander which is considerably higher than for other Australians. Young Aboriginal and Torres Strait Islander people are over-represented among Supported Accommodation Assistance Program (SAAP) clients. In 2005 19% of SAAP clients aged 12-24 were Indigenous; Aboriginal and Torres Strait Islander young people sought assistance at 8 times the rate of non-Indigenous females and for young men the rate was 4 times.

Aboriginal and Torres Strait Islander people are socio-economically disadvantaged compared with other Australians. There have been recent gains in workforce participation; however Aboriginal and Torres Strait Islander people still experience lower levels of employment and workforce participation and higher unemployment. In 2002, 64% of Aboriginal and Torres Strait Islander adults aged 18-64 years were in the workforce and 38% had mainstream employment; in comparison 79% of non-Indigenous people were in the workforce with 74% employed. Unemployment rates were 13% and 5% respectively (AIHW 2005b).

Gross household income in 2002 for Aboriginal and Torres Strait Islander people aged over 17 years was 59% of the corresponding income of non-Indigenous adults. Income was lower in regional and remote households (AIHW 2005b).

Educational attainment is linked to socio-economic status. The proportion of Aboriginal and Torres Strait Islander people who had completed year 12 in 2002 was 18%, and the proportion of adults who gained a non-school qualification increased to 32%. Although there have been gains, the level of educational attainment compares very poorly with non-Indigenous populations: 18% to 44% for year 12, and 32% to 57% for non-school qualification. As with household income, educational attainment decreases with increasing remoteness – 25% of Aboriginal and Torres Strait Islander people living in major cities completed year 12; this contrasts with 18% in regional areas and 14% in remote areas. Achievement of a non-school qualification shows a similar pattern (AIHW 2005b).

A 2007 study on the health and wellbeing of Australia's young people shows that health and wellbeing varied significantly according to socioeconomic status. Those from the most disadvantaged areas (Indigenous and non-Indigenous) were 'less likely to rate their health as excellent or very good, were more likely to lack social support and be victims of assault, had lower Year 12 completion rates and had death rates almost twice as high as the least disadvantaged areas' (AIHW 2007).

Other determinants contribute to the gulf in health and wellbeing between Indigenous and non-Indigenous Australians and include cultural, historic and environmental factors (AIHW 2005b). The cumulated and continuing effect of disruption to culture, family and community on health and wellbeing demonstrate this.

Young Aboriginal and Torres Strait Islander people, like their older counterparts, experience poorer health and wellbeing. They experience higher mortality rates, injury and disability, and live with higher rates of some chronic conditions. When surveyed they were more likely than non-Indigenous young people to report fair or poor health (AIHW 2007).

Data on young people and juvenile justice indicate that young Aboriginal and Torres Strait Islander people have very high rates of contact with the justice system. In 2005, the rate of imprisonment for Aboriginal and Torres Strait Islander people aged 18-24 years was 13 times that of non-Indigenous people, and Indigenous young people comprising 2% of the population (18-24 years) made up approximately one third of the prison population (18-24 years). Similarly, Aboriginal and Torres Strait Islander people aged 12-17 years had 13 times the level of juvenile justice supervision (AIHW 2007).

An area that was out of the scope of this review is communication, education and health promotion in populations of low literacy, low school attendance and high attrition and physical disabilities which impact on learning; consideration of and response to these issues, in partnership with the education sector is an important component of the overall response.

This data provides a picture of profound disadvantage for the Aboriginal and Torres Strait Islander population that has an enduring impact on health status; any response to health concerns must address this.

### 3.2 Adolescence

Adolescence is described as a period of rapid psychological and physical transition, where young people progress from being dependent children to independent adults. Social, economic and technological changes have had an impact on all Australians, and have added to the complexity of managing this period of transition experienced by many young people, their families and communities (AIHW 2007). Adolescence is variably defined by age. In this review, there is no one definition; adolescent, young person, youth are used interchangeably. Similarly the literature is not bound by such constraints, and therefore reports refer to young people of a wide age range. What the subjects appear to have in common overall is a vulnerability – or greater potential for vulnerability than those who are older.

Managing this vulnerability is another key feature of the transition. Young people looking beyond family to friends and wider influences may experiment, push boundaries and take risks that could impact on their immediate and longer term health and wellbeing. Patterns and levels of some risky behaviours differ between young men and young women, with prevalence often being higher among young men.

The concept of this transition period of adolescence is not a universally or historically recognised one, there is little information about the social and cultural responses in Aboriginal and Torres Strait Islander cultures, cultures themselves undergoing huge transitions, and the impact of socio-cultural change on this construct.

### 3.3 Sexual health issues

The major source of data on young Australians' sexual behaviour is the national secondary school survey. This comprehensive report provides useful information in this area and is the major source of information, though it must be remembered that it relates only to school students (Smith 2009). There is no data of a similar quality about young people outside the school system. Three percent of the survey sample was Aboriginal or Torres Strait Islander – representative in itself, small as a sub-population. There is no discussion of Aboriginal specific knowledge, behaviour or needs to guide this population and the survey findings may not be generalisable to Aboriginal youth in NSW. What is clear is that there is significant sexual activity occurring amongst all of Australia's young people, and the figures we have are probably an underestimate. A substantial proportion is not protected against pregnancy and infection, again underestimated.

Therefore, generally what we know of young Australians is that between 2002 and 2008:

- Over one quarter of year 10 students and just over half of year 12 students had experienced sexual intercourse;
- The proportion of all sexually active students increased from 35% to 40%;
- There was an increase the proportion of students with three or more sex partners in the last year from 20% to 30%;
- The proportion of young women reporting unwanted sex increased from 28% to 38%;
- Condom use remained unchanged (69% at first intercourse and 50% always in the past year);

- Fewer students in the 2008 survey reported using no contraception the last time they had sex;
- Use of the pill (37% vs. 50%) and morning after pill (4% vs. 8%) increased;
- There was a decrease in young women reporting a pregnancy 8% to 5% (and young men unchanged at 4%);
- Almost 10% of students surveyed reported their most recent sexual encounter was with someone of the same sex. For young men, the likelihood of having a same sex encounter at the most recent sexual experience increased from 2% to 8%;
- There was an increase in knowledge about STIs, and knowledge about HIV remains high;
- There was an increase in student confidence with respect to talking with their parents about sex and sexual health related matters; and
- Most students (88%) had sought information regarding sexual health. Students most commonly sought information from their mothers (56%), female friends (55%), the school sexual health program (49%) and pamphlets (44%). Despite not being used as frequently by students, doctors (39%) were the most trusted source of information on sexual health (Smith 2009).

### 3.4 Reproductive health issues

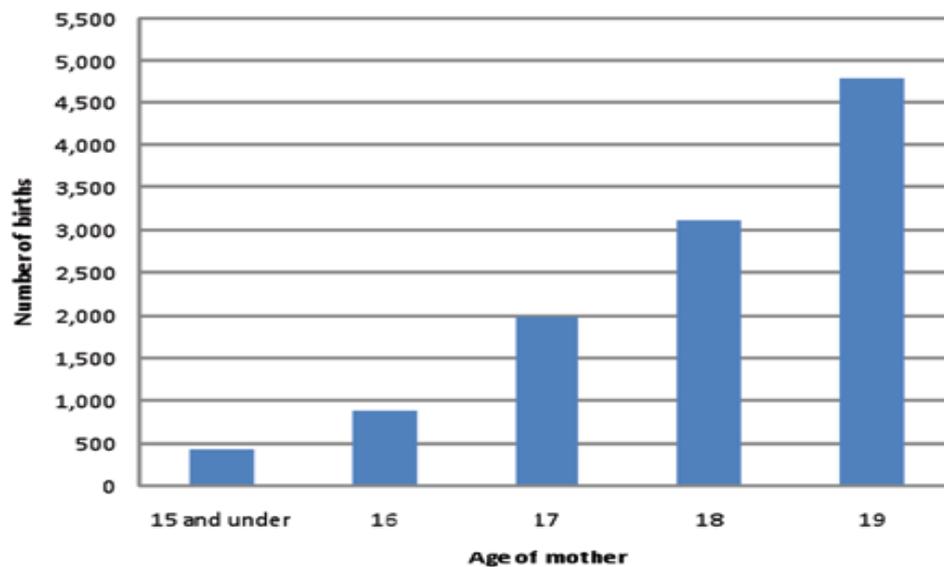
In Australia in 2006, there were approximately 282,000 births; in NSW there were nearly 93,000. Aboriginal and Torres Strait Islander women made up 3.7% of all mothers (although the data is incomplete) and in NSW 2,610 gave birth (Laws 2008).

The Australian teenage birth rate is 18 births/1,000 (ranked 20<sup>th</sup>). This is higher than the OECD average of 17 births/1,000. In 2002, Korea had the least births (2.7/1,000) and Mexico the most (51/1,000). The US had 43/1,000 and was ranked 28<sup>th</sup>, Canada, NZ, and the UK were ranked 25<sup>th</sup>, 26<sup>th</sup> and 27<sup>th</sup> respectively (AIHW 2009). Figure 1 below shows the distribution of births by maternal age to teenage mothers (in Muir 2009).

Aboriginal and Torres Strait Islander women give birth at a younger age than non-Indigenous women. In 2005, the fertility rate for Aboriginal and Torres Strait Islander teenage mothers (under 20 years) was more than four times the rate for all teenage women (69 babies/1000 women and 16 babies/1000 women respectively). In 2006, more than one in five (20.9%) Aboriginal or Torres Strait Islander mothers were teenagers, compared with 3.7% of non-Indigenous mothers. Most births to Aboriginal and Torres Strait Islander women occurred in the 20-24 year old age group compared with 30-34 years for all women (Laws 2008).

There are problems experienced with teenage pregnancies that are not as evident with older mothers. These included poorer health consequences and socio-economic outcomes. There is an increased risk of pre-term labour, delivery, and low birth weight all of which compromise infant and child health, and infant mortality. Teenage mothers, for example, are more likely to be victims of domestic violence and have lower educational attainment, interrupted education, fewer life aspirations and lower incomes (Muir 2009). There is little information, however, to assist an understanding of the socio-cultural background to early pregnancy in Aboriginal and Torres Strait Islander communities, or indeed other communities. There are historic precedents to early parenting, which has cultural legitimacy, particularly in the context of greatly shortened life expectancies. Children of teenage mothers are more likely to have poor health and to become teenage mothers themselves.

**Figure 1: Number of births to Australian teenagers 2006**



Source: ABS Births, Australia 2007 (in Muir 2009)

In 2004, the proportion of pre-term births and babies of low birth weight among Indigenous mothers was around twice that of non-Indigenous mothers (Laws 2008). Young mothers were more likely to smoke during pregnancy than mothers in other age groups (42% for those aged under 20 years and 30% for those aged 20–24 years compared with 17% for all ages in 2004) further contributing to poor maternal and infant health (AIHW 2007).

There is limited data on abortion in Australia, however extrapolation of SA data (where it is mandatorily collected), suggest that teenage pregnancy rates could be double the birth rates (Chan 2007). A similar pattern is seen in NZ, Canada and the US (Cheesbrough 2002). Literature searches failed to locate studies of abortion in Aboriginal teenagers in Australia.

Similarly, data is limited on contraceptive use of young women. From the National Aboriginal and Torres Strait Islander Health Survey (ABS 2006a), it is reported that condoms are most commonly used by all women (18-49 years) and young women (18-24 years), 21% and 25%, followed by the contraceptive pill, 16% and 14% respectively. No data were found regarding contraceptive use in females younger than 18 years. Applying a developmental model, an Australian study found that young people engage in risky behaviour because of a low perceived personal vulnerability to risk. For young women who terminated a pregnancy this low personal risk of pregnancy was combined with lower motivation to use contraception. The young women who continued their pregnancies demonstrated a lower commitment or ambivalence to remaining non-pregnant – rather than an intention to become pregnant. It concluded that pre-pregnancy intentions may reflect a) intentions or ambivalence to becoming pregnant, or b) lower commitment to contraceptive use (Skinner 2009). The circumstances surrounding young women's decision making to get pregnant – or not stop not getting pregnant – warrants further attention.

### 3.4 Sexually transmissible infections

Chlamydia, gonorrhoea, syphilis and trichomoniasis are the most common sexually transmissible infections (STIs) in Australia apart from genital warts, which is caused by

human papillomavirus and is now vaccine preventable. These four conditions are easily diagnosed and readily and effectively treated, in the most case by a single dose of antibiotic. If these frequently asymptomatic conditions are not diagnosed and treated, complications may result. These include pelvic inflammatory disease and consequent chronic pelvic pain, inflammation of the testes and epididymis, ectopic pregnancy and infertility (female and male) for chlamydia and gonorrhoea. Adverse pregnancy outcomes such as premature labour (trichomoniasis) and foetal death in utero (syphilis) may occur, as can neonatal problems such as conjunctivitis (chlamydia and gonorrhoea), pneumonitis (chlamydia) and congenital infections (syphilis). Untreated syphilis can lead to late infection of the nervous system, cardiovascular system and connective tissue. These conditions can cause personal and social discomfort, shame and fear and play a role in relationship breakdown and cultural dysfunction. Furthermore, untreated STIs have the potential to enhance the sexual transmissibility of HIV infection, which so far has remained a confined epidemic in Aboriginal and Torres Strait Islander communities.

The rates of STIs in Aboriginal and Torres Strait Islander populations are very high. Chlamydia was the most frequently notified infection nationally in 2008 with more than 58,000 cases. Data on Indigenous status is incomplete<sup>9</sup>, but it is estimated that the population rate for Aboriginal and Torres Strait Islander population is 1,131/100,000 and 271/100,000 for all notifications (National Centre for HIV Epidemiology and Clinical Research (NCHECR) 2009a). This is an infection of young people: 78% of diagnoses in the Aboriginal and Torres Strait Islander population and 80% in the non-Indigenous population were in people aged 15- 29 years. In 2008, chlamydia diagnoses were highest among Aboriginal and Torres Strait Islander women aged 15-19 years, (6,678/100,000); this was more than four times the rate among non-Indigenous women of the same age. It was followed by Aboriginal and Torres Strait Islander women aged 20-24 years at approximately 5,500/100,000. Although the rates of gonorrhoea are not as high as for chlamydia, the pattern is the same<sup>10</sup>. There were 7,662 cases notified nationally, 45% of cases in 3% of the population. Young Aboriginal and Torres Strait Islander women aged 15-19 years had the highest rates of gonorrhoea (approximately 3,500/100,000) followed by women 20-24 years at nearly 2,500/100,000. Non-Indigenous rates were 39/100,000 for males and females between 15-19 years (NCHECR 2009a).

Rates of infectious syphilis have shown a decrease in Aboriginal and Torres Strait Islander populations. Despite this, they are still higher than the national rates, and in 2008, young Indigenous women aged 15-19 years had the highest rate at 110/100,000. This is approximately 50 times more than the rate in the non-Indigenous population. There has been a recent increase in syphilis notifications in the non-Indigenous population, attributable to newly acquired infections in gay and other homosexually active men aged 30-39 years.

The report (NCHECR 2009a) also presents notification data on STIs in children younger than 16 years (the majority in 13-15 year olds). It points to the issues of high endemicity, of earlier sexual debut and increased population screening. Additional factors are use of non-validated nucleic acid testing in children and uncertainty about positive predictive value of such test results in the younger population and the nature of child sexual abuse. These factors make analysis problematic and raise the need for caution in ascribing such notifications to sexual abuse in the first instance.

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<sup>9</sup> Indigenous status is frequently not provided. Data is only reported on from jurisdictions where more Indigenous status is reported for more than 50% of notifications.

<sup>10</sup> Ibid

The number of new diagnoses of HIV in Australia continues to increase. It is primarily diagnosed in gay and homosexually active men. The population rates are the same in Aboriginal and Torres Strait Islander populations as the non-Indigenous populations. The proportion of homosexually acquired cases was lower (2004-2008) (54% vs 79%), but greater for heterosexually acquired cases (23% vs 13%) and those acquired through injecting drug use (22% vs 3%) indicating different epidemics requiring different responses (NCHECR 2009a). The median age for at diagnosis for Aboriginal and Torres Strait Islander populations and non-Indigenous populations was 33 years (NCHECR 2009b).

### 3.5 Framework for interventions for Aboriginal adolescents for sexual and reproductive health applicable to NSW

It is useful to briefly consider access to and delivery of interventions. Program delivery through primary and secondary schools is central to a preventive and educational intervention, indeed there is evidence for the positive benefits of day care for pre-schoolers on teenage pregnancy rates (Zoritch 2000). However, the problems of acquiring skills, achieving outcomes, school attendance and retention for Aboriginal and Torres Strait Islander populations have been documented (Muir 2009, Commonwealth of Australia 2008):

*'Mastery of literacy and numeracy skills is an essential prerequisite not only for academic success but also for everyday living. It remains an area where progress is very slow which is reflected in the outcomes achieved by Indigenous school students.'*

and

*'There is a direct link between improved educational outcomes and regular attendance and it remains an area where the differences between Indigenous and non-Indigenous outcomes are often stark. There was little change in the key attendance indicators in 2006, however there were significant improvements in the apparent retention rates of Indigenous secondary school students.'*

(Commonwealth of Australia 2008)

Additionally, the National Aboriginal and Torres Strait Islander Health Survey points to problems of access for younger people (Australian Bureau of Statistics 2006a). Compared with non-Indigenous young people, lower proportions of Indigenous young people accessed primary health care services, but more used tertiary health care services such as being admitted to hospital or visiting casualty/outpatients. Hospitalisation for pregnancy, childbirth and the puerperium was the commonest reason for young Aboriginal and Torres Strait Islander people from Queensland, Western Australia, South Australia and the Northern Territory.

The table below provides a summary of the agencies or service types young Aboriginal people may access (Table 1). It is by no means exhaustive, rather a frame for responses that may be developed by NSW Health.

**Table 1: Agency and service types for preventive sexual and reproductive health programs for Aboriginal adolescents in NSW**

School-based	<p>State schools              primary school              secondary school</p> <p>Private schools              primary school              secondary school</p> <p>Catholic schools              primary school              secondary school</p> <p>After-school programs          School nurse          Counsellor or welfare officer          Aboriginal education assistant</p>
Clinic based	<p>Aboriginal Community Controlled Health Organisations (range of clinical and non-clinical services)</p> <p>General practices (predominantly clinical services)</p> <p>State sexual health services (range of clinical and non-clinical services)</p> <p>State outreach and public health services (range of clinical and non-clinical services)</p> <p>State youth health services (range of clinical and non-clinical services)</p> <p>Family Planning services (range of clinical and non-clinical services)</p> <p>Accident and emergency (clinical)</p> <p>Primary, secondary and tertiary obstetric care (range of clinical and non-clinical services), undertaken in community health centres (or equivalent), primary practice (ACCHO and GP), specialist private practice and public and private hospitals</p> <p>Justice health services</p>
Community based	<p>School linked outreach, support services</p> <p>Community based organisation or area health service outreach</p> <p>Community based organisation health promotion programs</p> <ul style="list-style-type: none"> <li>- young people</li> <li>- young women</li> <li>- young mothers</li> <li>- young fathers</li> </ul> <p>Peer education</p>
Partnerships	<p>Collaboration between health and education, community and clinic based, government and non-government</p>

## 4. Methodology

The methodology drew from that set out in a 2004 technical report 'Research Gaps in Indigenous Sexual Health' (Morris 2004).

### 4.1 Scope of the Review

The scope of the review was to consider sexual and reproductive issues for Aboriginal adolescents, particularly in NSW. The emphasis was on pregnancy prevention and prevention of STIs through social and behavioural interventions, although clinical interventions were considered if they contained relevant social or behavioural aspects. Related matters, for example injecting drug use, vaccine preventable STIs, quality of sexual relationships, sexual violence or specific issues for same sex attracted youth, are not in scope. The review considered published reviews and reports from peer reviewed journals, government agency and consultant reports. Unpublished data sourced from professionals in the field were sought.

The Morris report (Morris 2004) defines different health interventions. These definitions are in a somewhat modified form in this review:

- Behavioural interventions: those that focus on reducing risk exposure through individual behaviour change
- Social interventions: those that seek to reduce risk exposure through community development activities, including those that aim to increase the social capital of participants and infrastructural development
- Clinical interventions with a social/cultural component: those where the main focus is on the organism responsible for the infection. Clinical interventions were included to the extent that they had social and behavioural components that were of interest (for example, engagement and access, partnerships or gender issues). Clinical effect was not assessed, rather the success or failure of the intervention in its socio-cultural context

### 4.2 Identification of literature

The main areas for the search were population of interest; intervention, intervention review and conditions. Key words applied initially were:

1. Population of interest: Aboriginal, Torres Strait Islander, Indigenous and adolescent, teenager, teenage
2. Health interventions: program, intervention, prevention, preventive, education, health promotion, behavioural, social, campaign, evaluation
3. Intervention review: systematic reviews, randomised controlled trials or quasi-randomised, prospective cohort studies (non-randomised) and descriptive studies
4. Conditions: pregnancy, contraception, abortion, reproductive health, sexual health, sexually transmissible infection, STI, HIV

Initial specific searches did not produce many results and consequently the population of interest was modified to include Maori and Canadian Aboriginal populations. Only documents published in English were considered.

Databases searched were: ABS Statistics, ATSIHealth (Informit), australia.gov.au, CINAHL (EBSCO), CINCH-Health (Informit), Clinical Evidence (BMJ), Cochrane Library, EMBASE (Ovid), FAMILY Plus (Informit), Medline 1996- (Ovid), PsycINFO 1985- (Ovid) and RURAL Health (Informit). Public search engines such as Google were used to locate programs to prevent pregnancy and STIs in young people nationally and internationally. The Indigenous Australian HealthInfoNet, Australian Clearinghouse for Youth Studies, International Planned Parenthood Federation, the Guttmacher Institute and Australian Institute of Health and Welfare were particularly useful.

The formal review process was further informed by searches of the reference lists from publications of interest. Grey literature and citations were reviewed. The grey literature included: conference presentations, project reports, government reports, policies and strategies, and health care organizational agency publications (WHO, UNICEF, CDC, Marie Stopes Australia etc). An initial assessment of each was made from the title and abstract.

### 4.3 Methods of assessment of documents

The classification used for reviewed studies and reports is based on levels of evidence to assess the level of methodological rigour and sources and levels of bias, and thus validity and generalisability. This classification has been applied in other Australian Aboriginal health publications (Couzos 1999, Morris 2004):

- Level 1 – Meta-analysis or systematic reviews of all relevant randomised controlled trials (RCT)
- Level 2 – Studies based on well designed randomised control trials
- Level 3 – Studies based on well designed cohort or case control analytical studies
- Level 4 – Studies based on opinions of respected authorities, clinical experience, descriptive studies, case reports and expert committees.

However, the search process found no RCT related to Aboriginal adolescent sexual and reproductive health programs. The vast majority of relevant findings were descriptive reports of demonstration or pilot projects; these are briefly listed or described. The decision to include these was based on content relevance and potential for application to the NSW context. Conclusions therefore are drawn from international studies, supplemented by the findings from other work that has not been rigorously evaluated, but nevertheless is of interest to policy makers and program developers.

Downing et al developed a system of evidence statements which has been modified for this review (Downing 2006):

- **Sufficient review-level evidence** – clear evidence/conclusions from at least one Level 1 review, with no conflicting evidence/conclusions between Level 1 reviews
- **Tentative review-level evidence** – tentative evidence/conclusions from Level 1 review; or conflicting conclusions from Category 1 reviews; or clear conclusions from at least one Level 2 review
- **Insufficient review-level evidence** – no evidence/conclusions from Level 1 reviews and only tentative evidence/conclusions from Level 2 reviews; or clear evidence/conclusions from Level 3 reviews

- **No review-level evidence** – no evidence/conclusions from Level 1, 2 or 3 reviews

#### 4.4 Limitations

Due to time limitations, systematic reviews, meta-analyses and papers with evaluated programs formed the backbone of the search. From there, information on other programs was sought. The majority of local programs were level 4 and are included because of what they contribute to the landscape in this area, being mindful of their flaws and understanding that they require further investigation. This review was broad, but not exhaustive, it offers an overview of health sector based programs; the exigencies of education sector programs (from primary through to vocational and university, rural and remote and special needs) are out of scope.

Finally, if this review has not found a particular intervention has evidence of support, it only indicates that the evidence has not been found – not that there is no evidence.

## 5. Results

This review considers literature about behavioural, social and clinical interventions that are directly or indirectly relevant to Aboriginal adolescent sexual and reproductive health; with the ultimate goal of prevention of adolescent pregnancy and sexually transmissible infections.

### 5.1 Programs for Aboriginal adolescents

Information is available on many programs that target Aboriginal adolescents locally, nationally and internationally. However much of this is descriptive with little evaluation and analysis. Those that have been evaluated generally consider process rather than short, intermediate and long-term outcomes such as knowledge, attitude or behaviour change (Kirby's mediating factors - Kirby 2007), development of skills, or decrease in STI or pregnancy rates. Additionally, those that have been evaluated rarely include the data, but are descriptive and frequently methodologically unsophisticated. Despite this, such evaluations can contribute to an understanding of development and implementation issues. These programs are frequently pilots; they are of interest because of their initial findings and subsequent work which may arise. They provide snapshots to be aware of, but are unlikely to be directly applicable to other settings.

#### 5.1.1 Sexual and reproductive health

##### **5.1.1.1 Mooditj**

The Mooditj Program was developed by Family Planning WA (FPWA) and has been implemented in rural and remote Western Australia for a number of years and more recently in the Northern Territory. Training has commenced in rural NSW. Its aims are to educate Aboriginal young people (11-14 years) in sexual health and life skills. It has been applied to school and out-of-school settings. The program runs for 10 weeks employing a range of techniques. It is delivered by trained leaders. Community involvement and capacity building is a feature. An impact evaluation conducted in 2008 concluded that the program was associated with a number of positive social and behavioural outcomes including increased school attendance, improved hygiene, increased knowledge of STIs and pregnancy, reported increased contraception use and increased attendance at clinics for sexual health services. Earlier process evaluations noted that it was enjoyed by young people (Powell 2008). *Success Stories in Indigenous Health* produced by Australians for Native Title and Reconciliation (ANTaR) showcases this program (ANTaR 2007).

##### **5.1.1.2 Snake Condom<sup>11</sup>**

This peer based campaign was developed collaboratively by the Victorian Aboriginal Community Controlled Health Organisation (VACCHO), Marie Stopes Australia and the Mildura Aboriginal Health Service. It targets Aboriginal young people and uses social marketing techniques of branding (the snake) and peer educators (snake charmers) who also sell the condoms. An evaluation of campaign recall showed high levels of immediate recall and understanding of the main and secondary messages (Gregory 2008). A case study reported increased condom use at last intercourse (by

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<sup>11</sup> <http://www.snakecondoms.org.au/index.php/cms/home>

20%) (results not available) (Rural Health Education Foundation, no date). It is reported that it will be implemented in other states.

#### **5.1.1.3 WA Aboriginal Sexual Health Campaign**

This state-wide campaign targeted Aboriginal young people aged 15-24 years in rural, remote and urban locations. Its key messages were condom use to prevent STIs and being tested for STIs. Posters and radio advertising were used. The preliminary evaluation showed limited success in reaching its target group, although the material itself, once encountered, had good acceptability (with the exception of a negative response to slang terms by an elder). It recommended improved distribution/access to campaign material and revision of the content to build on its strengths (Reddingius 2008).

#### **5.1.1.4 The Indigenous Peer Education Project**

This was developed by Sexual Health and Family Planning ACT. It aimed to recruit, train and support young Aboriginal people to become sexual health peer educators using an arts based strategy, to develop organisation partnerships to support them, and to use peer education to improve young people's access to health services. The evaluation demonstrated short term improvements in sexual health knowledge and peer educator skills. It did not aim to measure longer term effects for participants or educators (Mikhailovich 2005).

#### **5.1.1.5 Didgeridoo Project**

This program was developed and implemented in a New South Wales country town. It targeted Aboriginal youth and aimed to 'engage them in meaningful activities that were grounded in culture yet informed them about sexual health and drug and alcohol...'. It ran weekly workshops for 12 weeks and was supported by a range of community and health organisations. Links to school programs were unclear. The limited evaluation indicated there was a high level of satisfaction among participants sampled (N=12). They were able to identify two areas where they had learnt new information (NSW Department of Health 2007).

#### **5.1.1.6 Core of Life: Indigenous pre-parenting life education program**

This targets young Indigenous people aged 14-17 years who may be at risk of early pregnancy or parenting in rural and remote areas. It is based on a community development approach. Positive outcomes from the program have been reported at the community and service levels: improved communication and collaboration between agencies; development of locally responsive culturally appropriate life education tools; improved community awareness about pregnancy and parenting for young people; and increased capacity of young people to discuss reproductive health issues and make informed decisions (improved knowledge and understanding was an outcome) (Core of Life 2006).

#### **5.1.1.7 Other programs**

Other unevaluated sexual and reproductive health programs for Aboriginal young people identified include 'Dare to Dream', 'Good lovin' the 'Preconception Program' and 'the condom tree program'<sup>12</sup> from Western Australia, and the 'Photovoice Project' and 'Telling it like it is' from Victoria (Australian Indigenous HealthInfoNet). '2

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<sup>12</sup> Not youth specific

spirits', a Queensland program, focuses on the sexual health of Aboriginal and Torres Strait Islander gay men and sistagirls (Australian Indigenous HealthInfoNet). Nganampa Health's sexual health program includes people between 14-40 years and focuses on those between 14-29 years; the school based education component of the program has not been evaluated.

#### 5.1.2 Other health programs

These programs are included because they may have an impact on sexual or reproductive health outcomes, although that is not their primary focus and their approaches may be worth considering in the sexual and reproductive health field.

##### **5.1.2.1 Young Nungas Yarning Together**

The peer education training component of this South Australian program targeting young Aboriginal people (12-20 years) was evaluated in 2008 (Bentley 2008). The program's overall objectives were to prevent drug use by motivating Indigenous young people to play a role in avoiding drug use, provide them with knowledge and skills to avoid drug use, to develop their skills as peer educators with access to information, resources and support and to access accredited training. This component's outcomes were the training of 15 young people as peer educators (Certificate II in Community Services Work) and the development of a training DVD which applies as project-based learning approach.

##### **5.1.2.2 Ngaripirliga'ajirri: An Early Intervention Program on the Tiwi Islands**

This program which focuses on children aged 5-14 years, their parents and extended family has lead to improvements in school attendance, improved and sustained behaviour at school and at home and improved communication with family. It was adapted from the 'Exploring Together' program, a Victorian pre-school model, to the circumstances of Tiwi culture and its complex family structures. It is a targeted 10 week multi-group program based on developmental principles. Parents and children work in groups over the school term. Included in the program are child social skills training, parenting behaviour management training, and development of parent-child interaction (Robinson 2006).

##### **5.1.2.3. Panyappi**

Panyappi is an Indigenous youth mentoring service for inner city or suburban young people who experience multiple problems and are at risk of being a victim of crime or engaging in offending behaviour. The program aims to intervene in the development of offending behaviour by improving participants' attitudes, self knowledge and determination, and work with their families and other agencies involved in their wellbeing. Most participants are out-of-school experiencing social and emotional problems compounded by drug and alcohol use. Evaluation of the program indicated that there was self reported and independent evidence of the beneficial effects of the program. It employs a formal case management approach that is culturally and developmentally appropriate. Mentoring of clients provides support beyond the 'trouble' period and mentors are trained, supported and paid for their work. The engagement and collaboration of other agencies is also valued (beyond... 2004).

### 5.1.3 International sexual and reproductive health prevention programs for Indigenous adolescents

There are few publications that report on evaluated programs in this area. Banister presented the findings from a community based approach to Canadian Aboriginal girls' sexual health education through mentoring by older Aboriginal women. This program included knowledge and skills develop components using a variety of techniques. This qualitative account indicated that the process was beneficial for the young women and mentors and had a unifying effect across the community. It also reported that the participants improved their knowledge on sexual health issues and skills and resources for sexual decision making (Banister 2006).

The New Zealand Health Department funded a communication campaign in 2005 to encourage safe sexual health practices. The target population was young people aged 15-19 years, particularly focusing on Maori and Pacific youth. It comprised a consultation and development phase including concept testing. The campaign comprised a range of media: TV advertising, cinema, website, magazines, radio, outdoor promotion and resources. The evaluation found the campaign had short term outcomes of high recall of advertisements and content, which were largely acceptable. There was an increase in knowledge of STI prevention, but no impact on behaviour (use of or intention to use condoms) ('tns' report 2005).

## 5.2 Sexual and reproductive programs for adolescents

### 5.2.1 Australian programs

There were very few published evaluations of sexual or reproductive health prevention interventions for Australian adolescents (Aboriginal and non-Aboriginal).

#### **5.2.1.1 'Talking Sexual Health' and 'Catching on Everywhere'**

'Talking Sexual Health' is a national framework for a whole of school approach for secondary schools to the prevention of STIs and HIV (Ollis 2001). It has been developed through the Australian Research Centre for Sex, Health and Society (ARCSHS) with Commonwealth funding. It has been variably implemented across the country, but no evaluations of this important initiative have been located.

Additionally 'Catching on Everywhere' is an approach to sexuality education being applied in Australia. It builds on the Talking Sexual Health framework. The whole of school approach extends past the formal curriculum; essential components are consultation and working in partnership with parents, elders and the school community, accessing community resources, and involving students. Health promoting schools, a concept and practice adopted by many Australian schools, also apply this model. The evaluation concentrated on these areas rather than behavioural or biological outcomes. Findings from the evaluation of this approach include obstacles to program implementation such as lack of supporting policies, school leadership and staff attitudes. The process of involving parents was difficult and results were underwhelming – more so in secondary schools rather than special or primary schools. Curriculum development and teacher training were other areas identified in the evaluation that needed support for successful implementation (Dyson 2008).

### **5.2.1.2 'Tell me about it' NSW**

This community-based program in rural NSW aimed to increase the awareness of high school students of the reality of being a teenage parent and had the program presented by young parents. The program was well received by the year nine and ten students and there were improvements to their understanding of aspects of sex, relationships, contraception and pregnancy. The program also gained and maintained community support. Unintended consequences were the development of a young parents' support group and an improvement in their self-confidence and public speaking skills (Makin 2001).

### **5.2.1.3 'Baby think it over' WA**

This school based program targets adolescents in metropolitan areas. Its aims are to modify attitudes to early pregnancy and parenting and delay parenting and to increase awareness of appropriate health services for young people. It uses a virtual parent experience with an infant simulation model. This program received strong support from parents, schools and local GPs and will be expanded. The participants reported the desire to delay the average age of parenthood by one and a half years, they found their encounter with the GPs understandable and satisfactory (McCormack 2005). A similar program in the US found high acceptability, but no differences between the intervention and control groups on sexual behaviour, contraceptive use or intentions regarding parenting (Somers 2001).

### **5.2.1.4 Sexual Health and Relationships (share) Program**

This school based sexuality education program run by Sexual Health information and network South Australia (SHine SA) attracted a deal of controversy which may have affected aspects of implementation and outcomes. Its objective was to improve the sexual health, safety and well-being of young people by engaging students, parents, school staff and the school environment. It was evaluated with a mix of quantitative and qualitative methods. Results indicated that there was minimal increase in knowledge about sexual health issues and no change in behaviour, although two thirds of students were not sexually active, so the sample size and time period may not have detected any change. There was no improvement in responses to the meaning of sex, relationships and communication – additionally these responses were heavily gendered. Students reported greater confidence in discussing sexuality matters with their parents. Parents' engagement with and responses to the program were less evident. Teachers were overall satisfied with the training and support they received to implement the program, although were not well equipped to deal with the controversy that ensued. Staff also indicated that the school environment had changed to become more supportive and able to respond to diversity in their students. A lack of leadership or higher level program support was identified by teachers as a barrier to program implementation and success. The evaluation did not find evidence that the program caused harm to the students (Dyson 2006).

### **5.2.1.5 Making it Real**

This is an important piece of Australian work that should be considered in the development of any targeted STI prevention strategy (Keys 2008). Its objectives were to identify the best strategies in STI communication for marginalised young people including Aboriginal youth. There were general similarities in attitudes and preferences for STI strategies, particularly in medium and style of communication. There were gender based differences and differences related to educational levels. It was concluded that disadvantaged young people would benefit from a general campaign to raise awareness of STIs, and small-scale campaigns with target group

input would also benefit Aboriginal youth, those who are significantly economically and educationally disadvantaged, and youth from the Horn of Africa. Such campaigns require supplementary activities to provide information about STIs and health services.

### 5.2.2 International programs

Meta-analyses, systematic reviews, results from randomised controlled trials and program descriptions were sought in the international literature. Summaries from reviews and results from particular interventions are presented.

Speizer's review of the effectiveness of adolescent reproductive<sup>13</sup> health interventions in developing countries (Speizer 2003) showed improved knowledge and attitudes for 17/21 programs. Effect on behaviours was less marked with 4/11 programs demonstrating delayed age of first sex, 3/6 showing a reduction in number of sex partners, 6/10 demonstrating increasing contraception use and 1/3 showing increasing service use. The programs had different contents and delivery methods and follow-up periods, thus are not readily compared. The effect of mass media and social marketing campaigns was generally to improve knowledge, attitudes and behaviours. The small number of community based programs included youth development, and peer education and community education. They all showed benefits associated with the intervention, particularly improved knowledge and attitudes. Workplace programs described improved knowledge and attitudes. Health service based programs showed some positive outcomes, although for all these programs the results are generally positive but mixed.

DiCenso's systematic review of randomised controlled trials that aimed to reduce unintended pregnancies in adolescents concluded that there was no evidence to show that primary prevention strategies delay the initiation of sexual intercourse, improve contraceptive use, or reduce pregnancies in young women. The study also suggested there was an increase in pregnancy rates in the partners of males who had participated in abstinence only programs. The programs varied widely in theoretical framework, intervention type and follow-up period (DiCenso 2002).

A Cochrane review of RCTs of interventions to prevent unintended pregnancies among adolescents (Oringanje 2009) found that multi-faceted interventions with educational, skill building and contraceptive components lowered unintended pregnancy rates. It found little evidence of the effect of these components when offered singly. The evidence for secondary outcomes (initiation of sexual intercourse, use of contraception and STIs etc.) was limited and not conclusive. Conclusions about effectiveness of particular interventions were unable to be made because of diversity of study populations, settings, interventions and measured outcomes and the limited data comparing different intervention effects.

A review of evidence from the US, Canada, Australia and New Zealand on preventing and reducing teenage conceptions found that:

- Sexual education has been found to increase condom and contraceptive use among the sexually active;
- HIV prevention programs have been very effective in increasing condom use;

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<sup>13</sup> Included sexual health, STI/HIV prevention content as well

- Family planning outreach improves teenagers' access to contraceptive services;
- Intensive community-based education and contraceptive services have affected teenage conception rates;
- Raising the aspirations and social skills of pre- and early teen children has a beneficial effect on the later conception rate of that cohort;
- Pre-school programs which focus on skill and confidence building have a beneficial effect on teen pregnancy 10 years later;
- Addressing low aspirations and self-esteem while providing contraceptive information and services is effective in reducing teenage conception;
- Abstinence programs alone have not led to a delay in sexual initiation or a decrease in levels of sexual activity; and
- Sexual education does not increase sexual activity at an early age.

This review also presented evidence about the factors influencing teenage conceptions, with socio-economic backgrounds and educational aspirations being the most important:

- Disadvantaged socio-economic status, including high unemployment; higher female wages predict lower fertility across all ages;
- Young women with lower educational aspirations are more likely to engage in sexual risk behaviours. Lower education level of parents has an effect on the likelihood of teenage pregnancy;
- Family disruption may be associated with an increased likelihood of pregnancy;
- Increased condom availability as a result of HIV interventions may have led to an increase in condom use at first intercourse. Contraceptive use at first intercourse increases with the age of the woman and with consensual intercourse;
- Sex education has a positive impact on teenage pregnancy prevention;
- Less unintended pregnancy is likely where gender relationships are equal and there is discussion about relationships etc. within the couple; and
- Laws about sexual behaviour, religion and levels of welfare assistance appear to have little impact on teenage conception rates, and the evidence of media influence is inconclusive (Cheesbrough 2002).

Another review of evaluated experimental or quasi-experimental sexual risk reduction programs determined that four factors had a positive impact on program effectiveness. The programs were conducted in a variety of settings (schools, community, correctional services) and had different target groups. The most consistent impact was condom use and the least consistent effect was delayed initiation of sexual intercourse. The four factors were: focus on specific skills development; program duration and intensity; the program content (referring to reproducibility and generalisability and the possible effects of other school or community resources and programs); and the importance of training facilitators (Robin 2004).

Kirby's group looked at sexual education programs (addressing STIs and pregnancy) for young people internationally. It reviewed curriculum and group based programs and identified characteristics of effective programs and their impact on risk

behaviour, STIs and pregnancy and on the mediating factors for risk behaviours (71 factors identified). The seventeen characteristics of effective programs relate to:

1. The process of curriculum development:
  - a. Broad consultation
  - b. Needs assessment of target group
  - c. Application of a logic model approach to curriculum development
  - d. Design of activities consistent with resources and community values
  - e. Pilot testing
2. Curriculum content and methodologies:
  - a. Focus on clear goals
  - b. Focus on specific behaviours leading to goals
  - c. Address multiple sexual psychosocial risk and protective factors
  - d. Create a safe social environment
  - e. Provide multiple activities to modify the risk and protective factors
  - f. Employ sound teaching methods
  - g. Apply activities and techniques that are appropriate to developmental age, gender, culture and sexual experience
  - h. Cover topics in a logical sequence
3. Curriculum implementation:
  - a. Establish support from appropriate authorities
  - b. Select educators with desired characteristics (and attitudes) provide training, support, monitoring and supervision
  - c. Apply activities to recruit and retain young people in the program (as required)
  - d. Follow the curriculum as much as possible.

Overall, the 83 studies indicated the programs were more likely to have a positive than negative effect and demonstrated positive behaviours and outcomes (for example, condom use, sexual risk taking, pregnancy reduction, STI reduction). These effects were related to mediating factors of improved knowledge, values, attitudes, self-efficacy, awareness of risk and intentions to behave (Kirby 2007).

Card's review (Card 1999) on teen pregnancy prevention considered the socio-cultural context of the problem of teen pregnancy and presented an evaluation of the evidence, identified characteristics of effective programs, and discussed 11 'promising primary pregnancy prevention programs' and 15 'promising STI/HIV/AIDS prevention programs'. The programs were diverse in the target populations, their content and approaches. This paper endeavoured to provide an overview of what 'might work', rather than a rigorous analysis, and a process to follow to develop tailored programs.

### **5.2.2.1 School based sexuality<sup>14</sup> education**

The Second Chance Club is a secondary school based program for pregnant and parenting adolescents which was evaluated to determine repeat birth rate (Key 2001). The retrospective case controlled cohort study determined that after 3 years repeat births occurred in 37% of controls, but only 6% of participants. The program provided weekly meetings throughout the school year, focusing on parenting, career

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<sup>14</sup> This term includes sex education (SE), sexual and reproductive health education (SRHE), sexual health and relationship education (SHARE), sex and relationship education (SRE), and sexuality and reproductive health education.

planning, adolescent issues; case management; medical care and support; outreach and participation on school events.

A cluster randomised trial from the UK considered the effects of theoretically based teacher-led sex education compared with traditionally presented school based sex education (Wight 2002). It reported an increase in knowledge in the intervention group, but did not identify a difference in sexual activity or sexual risk behaviour at 2 years between the intervention and control groups. Difficulties with implementation were identified in the evaluation.

A randomised controlled trial (Kirby 2004) to evaluate the multi-faceted Safer Choices program demonstrated a decrease in one or more measures of sexual risk behaviour over a 31 month period. This was most marked with males, Hispanic youth, and youth who had unprotected intercourse (higher risk). The program commenced in year nine and continued for two years. Based on theories of social and behavioural change, it aimed to improve knowledge, attitudes, self-efficacy, skills, communication etc. It comprised five parts: school organisation, curriculum and staff development, peer resources and school environment, parent education and linkages between the school and the community (Coyle 1996).

A process evaluation of a Tanzanian school based sexual health education program with apparent improvements in risk behaviour presented inconsistent results and concern about the accuracy of self-reported survey data. This program was implemented in 62 primary schools (where pupil age is older) for three years. The curriculum was theory based and comprised teacher-led and peer-assisted components. Problems with knowledge and communication styles for both peer educators and teachers were identified (Plummer 2007).

### **5.2.2.2 Awareness campaigns and social marketing**

A six month social marketing campaign in the United States (US) targeted 15-25 year old women about knowledge of, attitudes towards and use of male and female condoms. It did not show any difference in outcome between women who were aware of the campaign and those who were unaware (Bull 2008).

Another US social marketing campaign, 'HIV. Live with it. Get Tested!', targeted young people in six cities for six months to have an HIV test. It used a marketing mix and developed a network of health service providers to encourage testing. The campaign materials were acceptable; however, some sites indicated they would have preferred to develop their own tailored to local currency and flavour. There were increased calls to a phone hotline temporally linked to radio advertisements and concentrated increase in HIV testing during 'Get Tested Week'. The campaign was not associated with an increase in diagnoses of young people with HIV (Futerman 2001).

The objective of a Zambian study targeting people aged 13-19 years was to encourage young people to adopt risk reduction behaviour to prevent STI and HIV. The program was designed by young people who were an integral part throughout its development and was a theoretically based multimedia campaign which used television, radio, music, posters and billboards. The initial phase ran for six months. The evaluation found positive correlations between campaign viewing and reduction of sexual risk behaviour, in particular condom use (Underwood 2006).

### **5.2.2.3 Group work**

Young women enrolled in a skills-based intervention in the US that comprised a single 250 minute session using a range of activities had more positive outcomes at 12 months than controls (no intervention) or those in the information-only arm. The areas of significant improvement were fewer episodes of unprotected intercourse, lower STI rates, lower reporting of multiple sex partners. Participants from both the information only and skills-based streams had higher knowledge levels about condom use and risk reduction; skills based participants had greater knowledge of how to use a condom (Jemmott 2005).

### **5.2.2.4 Peer education**

Stephenson et al conducted a cluster randomised trial with a 7 year follow-up to assess the effects of peer-led sex education compared with teacher-led sex education for 13-14 year old students. The 16-17 year old peer educators provided three one hour sessions including sexual and reproductive health information and communication skills development. Outcome measures were pregnancy and abortion rates by age 20 years and there was no difference between the two arms. The peer-led group had less likelihood of pregnancy before 18 years in contrast with the control group. It was reported that this program was popular with students (Stephenson 2008).

Evaluation of the West African Youth Initiative for reproductive health education was not straightforward, however some impact of peer education on knowledge, attitudes and behaviour were identified (Brieger 2001).

A review of 13 quasi-randomised and randomised studies of peer-led interventions for sexual health education for adolescents found improvements in knowledge, attitudes and intentions, but no evidence of improved outcomes related to condom use, reduced STIs and ever having sexual intercourse (Kim 2008).

### **5.2.2.5 Youth development**

The US Carrera Adolescent Pregnancy Prevention Program provides a comprehensive youth development program which includes reproductive health and targets socio-economically disadvantaged teenagers. Young people enter the program at 13-15 years; they participate for 3 years. The program is run after school for 3 hours/day at local community centres and provides 5 main activities: academic help, 'job club' family life and sex education, arts activities and sports activities. Mental health and general and sexual and reproductive medical care are also provided. A randomised controlled trial at 3 years demonstrated that female participants (vs control) were 40% less likely to have ever been pregnant, 50% less likely to have ever given birth, and twice as likely to be using injectable contraception. For male participants there was no effect on causing pregnancy or fathering a child. Other outcomes include 16% greater likelihood of work experience, some positive effect on educational outcomes, and no difference on substance use or measures of criminal behaviour (Philliber 2001).

However, when this program was applied in the UK, the outcomes were not as positive; in fact female participants had worse outcomes than controls in pregnancy and sexual behaviour. It was suggested that program outcomes may be improved if they are segregated by gender. The result highlights the issue of program replication and pitfalls that may be a consequence (Wiggins 2008).

### **5.2.2.6 Community based programs**

The importance of social connectedness and perceived social norms is identified as a factor in successful interventions and underpinned the development of a pilot program for brief friendship based HIV/STI prevention interventions (Dolcini 2008). This pilot used friendship networks of young people aged 14-23 years to engage others in the intervention. It was well accepted. Preliminary results showed positive changes in social norms, a reduction in sex partners, a high level of screening for STIs and an improvement in knowledge and perceived risk (this was not sustained). Unexpectedly consistent condom use declined at the three month follow-up.

The YUTHE program (Youth United Through Health Education), a community level, peer based urban program, targeted sexually experienced young people aged 12-22 years. The single 15 minute street- or venue-based encounter was designed to increase awareness of STIs and encourage non-invasive STI screening. Participants were more likely to know about STIs, testing and personal risk than the comparison group. They were also more likely to have had an STI screen in the previous six months. Although screening numbers did not increase, the pilot was feasible and acceptable to the target group (Boyer 2007).

### **5.2.2.7 Parent/adult/family outreach programs**

This Parent-Adolescent Relationship Education (PARE) program was presented as an after school program for middle schools students and parents in four gender-segregated weekly groups with 3 follow-up sessions. Two approaches were compared: interactive and traditional. The interactive program emphasised behavioural, cognitive and social learning, and communication and skills development. The interactive program was reported as being more effective in improving knowledge about STIs and pregnancy and for strengthening social and self controls to reduce the risk of pregnancy and STIs. There were no differences in self efficacy or parental communication between the groups (Lederman 2008).

### 5.2.3 Other adolescent health programs

The findings of large reviews of health promotion in schools corroborate the findings of work done in school based sexual and reproductive health promotion. A review of effective elements of school health promotion in different areas (substance use, sexual behaviour and nutrition) identified common elements. These were: use of theory; addressing social influences, especially social norms; cognitive-behavioural skills; training of facilitators; and multiple components of the programs. Parental involvement and a larger number of sessions were also suggestive of a positive effect (Peters 2009).

A World Health Organisation review of the effectiveness of the health promoting schools approach considered a range of areas (mental health, substance misuse, aggressive behaviour, healthy eating etc.). It found mental health programs that were of high intensity and long duration and involved the whole school were the most effective. Multifactorial programs for healthy eating and physical activity were also effective, particularly when associated with changes to the school environment. The evidence on peer education compared with teacher-led interventions was found to be mixed, but generally positive; it was well received by young people (Stewart-Brown 2006).

The effect of a school based drug prevention program (Project ALERT) on the sexual behaviour of students five and seven years after delivery was evaluated. Using a randomised cluster controlled design, analyses found that project ALERT participants

were less likely than controls to have unprotected sex because of drug use and sex with multiple partners. There was no difference in inconsistent condom use between the groups (Ellickson 2009).

### *5.3 Programs targeting other populations or issues*

#### *5.3.1 Aboriginal programs*

The NSW Aboriginal Sexual Health Promotion Program (Smith 1999) was evaluated by qualitative interviews of Aboriginal sexual health workers in the area. Many interventions had high acceptability and the relationship developed by workers with the community was generally valued. It identified particular problems with language (jargon), the development and provision of culturally appropriate resources, education frameworks (informal) and integrating sexual health into social and health broader contexts, unresolved difficulties in balancing the gender issues of providing sexual health education, the role and influence of elders and decision makers in the community, and ongoing problems of recruitment, retention, training and professional support.

#### *5.3.2 General population sexual and reproductive health*

A 2008 Cochrane review of the theoretical basis of contraceptive interventions concluded that interventions applied to STI/HIV prevention (based on a range of different theories) were more successful than those used for pregnancy prevention and recommended that reproductive health professionals develop programs based on the many available frameworks. They did not find a relationship between any particular theory, intervention type or target populations, but noted that Social Cognitive Theory was the most commonly applied (Lopez 2009).

Downing et al provided a 'review of reviews' for the prevention of STIs (Downing 2006) based on Ellis' papers (Ellis 2003, Ellis 2004). This paper related to all population groups; it was not adolescent specific. The update considered the evidence from interventions at individual, group, community and socio-political levels.

The features of effective interventions identified in this review are set out in Table 2. A summary of interventions, outcomes and supporting evidence for prevention of STIs is provided in Table 3. These conclusions are similar to those presented by adolescent researchers.

### *5.4 Other programs*

A Cochrane review on the impact of day care for pre-school children (Zoritch 2000) found that day care had many positive outcomes for children. Long-term follow-up showed increased employment, lower teenage pregnancy rates, higher socio-economic status and decreased criminal behaviour.

**Table 2: Features of effective interventions and supporting evidence for the prevention of STIs**

<b>Feature of intervention</b>	<b>Review level evidence</b>
Theory based interventions are more likely to be effective	Sufficient
Interventions that promote risk reduction are more likely to be effective than abstinence only interventions	Tentative
Effectiveness of school-based abstinence-only approaches	Insufficient
Interventions incorporating behavioural skills training are more likely to be effective	Sufficient
Interventions that include clear messages and basic, accurate information are more likely to reduce sexual risk behaviour	Sufficient
School-based interventions that use trained adult facilitators are more likely to be effective	Tentative
Extended delivery of an intervention is more likely to be effective	Tentative
Extended delivery using 'booster' sessions is more likely to be effective	Tentative
Interventions that use peers and community are effective at reducing sexual risk-taking behaviours	Tentative
Interventions that are targeted and tailored for specific populations, including formative research or needs assessment are more likely to be effective	Sufficient
Multi-component interventions are more likely to be effective than single component interventions	Sufficient
Effectiveness of multi-level interventions	Insufficient
Interventions to address inequalities in sexual health	Insufficient

**Table 3: Summary of interventions, outcomes and supporting evidence for prevention of STIs**

<b>Intervention</b>	<b>Outcome</b>	<b>Review level evidence</b>
<b>Individual level</b>		
Individual risk counselling	Reduction sex risk behaviour for clinic attendees	Tentative
Partner notification	Can detect new infections	Sufficient
Improved communication between parents and adolescents	Reduction sexual risk behaviour in adolescents	Insufficient
<b>Group level</b>		
Clinic based interventions	Reduction sexual risk behaviour in adolescents	Insufficient
Clinic based interventions using behavioural skills	Reduction sexual risk behaviour in clinic attendees	Tentative
Parental inclusion in clinical based interventions	Reduction sexual risk behaviour in students	Insufficient
Condom distribution in schools	Reduction sexual risk behaviour in students	Insufficient
Condom distribution in schools	Increased sexual activity of students	Insufficient
School based sex education	Reduction sexual risk behaviour in adolescents	Sufficient
School based sex education – commencing before onset of sexual activity	Reduction sexual risk behaviour in students	Tentative
Parental involvement in school based interventions	Reduction sexual risk behaviour in adolescents	Insufficient
Small group work involving skills building	Reduction sexual risk behaviour of all target groups	Sufficient
Detached education and outreach by health professionals including targeted condom distribution	Reduction sexual risk behaviour of high risk groups	Tentative
<b>Community level</b>		
Community level outreach	Reduction sexual risk behaviour	Insufficient
<b>Socio-political level</b>		
Legislative, policy, equality work or regulation	Not specified	Insufficient

## 6. Discussion

Plummer provides a very insightful comment on this area of preventive sexual and reproductive health activities:

Intentional sexual behaviour change can be an unwelcome, complex and long-term process, requiring great motivation on the part of individuals. When introducing an intervention into a context in which both implementers and participants have very limited educational levels and resources, basic standards of teaching and information must first be established before more complex and interactive work can be done (Plummer 2007).

### 6.1 The evidence

This review found no sexual and reproductive health preventive programs for Aboriginal adolescents in NSW that:

- Were successfully implemented and acceptable to participants, the community and researchers;
- Were theory based;
- Demonstrated positive short, intermediate and long term outcomes in the biological (pregnancy and STI rates), behavioural (delayed initiation of sexual intercourse, increased use of condoms and contraception etc), and social (parental and community involvement with and support of prevention programs etc) domains, and on mediating factors (knowledge, attitudes etc); and
- Had been soundly evaluated and successfully replicated in other similar target groups, or generalised, with modifications to different populations.

In the literature there is sufficient evidence of interventions that are effective with adolescents and which may be applicable to the Aboriginal adolescent population. However, much is descriptive or focused on process evaluation rather than population level outcomes. Additionally, comparison of these studies was difficult because of the range of interventions employed and outcomes that were measured. Like is not being compared with like. This was further hampered by the lack of detail in many studies or reports about key features of the interventions. Where the evidence base is not strong, it is important to consider those studies that have been successfully replicated or applied with modification elsewhere; again, there were few examples of such studies and, indeed, a warning note was sounded about the risks of thoughtless implementation (Robin 2004, Stanton 2005, Kirby 2007, Robinson 2008). The majority of studies were from the US; fewer were from Africa and elsewhere, with their own target populations, socio-cultural contexts and infrastructural issues. The differences between these areas and Aboriginal New South Wales in demographics, culture, and health and welfare systems are considerable.

There was discussion about approaches to programs implemented specifically in Australian Aboriginal and Torres Strait Islander populations and the important of particular approaches and characteristics. Willis et al (Willis 2005) found that many studies 'indicated community participation and approval as a key to any project's success, [but] very few studies provided any formal indicators of such community participation and approval'. As they state, though, '... the views of Indigenous community members on the appropriateness of an intervention is highly relevant to

appraising 'best practice'' (Willis 2005). Morris et al (Morris 2004) initiated this discussion and described best practice as including: a) 'consultation, involvement or ownership of research by communities, b) coherence of aims, methods, results and outcome measures or indicators and c) evaluation of the (research) process and outcomes'. They emphasise the importance of Indigenous involvement, consultation with elders, privacy, confidentiality and trust to the overall value and success of research.

A number of studies present the view that the application of the exclusive methodology of meta-analyses and systematic reviews may miss interventions of value which do not conform to their rigorous evaluation process, and there is useful and constructive information to be gained from less formally evaluated works (Willis 2005, Moore 2004, Swann 2003, Card 1999).

Notwithstanding the limitations of the evidence and the challenges of methodologies, there is considerable consensus in the literature about the characteristics and qualities of successful programs which are summarised below. Sexual and reproductive health programs are presented jointly.

## 6.2 Sexual and reproductive health interventions

### 6.2.1 Interventions

#### 6.2.1.1 Sufficient evidence of intervention effect

When considering specific interventions, although the evidence is mixed, there is sufficient evidence on the effectiveness of these interventions to prevent unintended teenage pregnancy (after Swann 2003, Kirby 2007):

- School-based sex education, (measured against knowledge, attitudes, delaying sexual activity and/or reducing pregnancy rates). There is some evidence that this was particularly effective when linked to access to contraceptive services (NHS Centre for Reviews and Dissemination 1997);
- Community based (such as family or youth centres/services) education, development and contraceptive services;
- Development programs – although the evidence base for this was small, reviews indicate that programmes focusing on personal development (programmes that support and teach confidence, self esteem, negotiation skills and life aspirations), education and vocational development may increase contraceptive use and reduce pregnancy rates;
- Partner notification as an effective means of detecting new infections (not adolescent specific);
- Small-group work interventions to reduce sexual risk behaviour (not adolescent specific); and
- 'Abstinence plus' programs to reduce sexual risk behaviour. However, there is no evidence that abstinence only programs reduce STI and pregnancy rates (Underhill 2008 - not adolescent specific). There is some evidence that the partners of young men who have attended abstinence only programs actually have higher pregnancy rates (DiCenso 2002).

### **6.2.1.2 Tentative evidence of intervention effect**

The evidence is tentative for the effectiveness of:

- Commencing sex education before the onset of sexual activity;
- Individual counselling as part of clinic-based sexual health promotion (not adolescent specific);
- Clinic-based interventions using behavioural skills in reducing sexual risk behaviour of clinic attendees (not adolescent specific); and
- Detached education and outreach work by professionals reducing sexual risk behaviour (not adolescent specific).

### **6.2.1.3 Insufficient evidence of intervention effect**

There is not sufficient review level evidence to support or discount the effectiveness of:

- Parent/adolescent communication;
- Clinic-based interventions aimed at adolescents to reduce sexual risk behaviour;
- Inclusion of parents in clinic-based interventions;
- School-based interventions linked to clinical services and/or the provision of condoms; and
- Parental involvement in school-based interventions to improve communication and thus reduce adolescent sexual risk behaviour.

The evidence neither refutes nor supports the effect of condom availability in schools and increased sexual activity.

## 6.2.2 Characteristics of effective interventions

Characteristics of effective interventions were then assessed. The evidence to support their impact is presented below (after Swann 2003, Kirby 2001, Kirby 2007, Speizer 2003, Oringanje 2009, Robin 2004, Card 1999):

### **6.2.2.1 Supported by evidence**

Overall, evidence supports interventions which have these characteristics (modified from Ellis 2004, Downing 2006 and Kirby 2007, Swann 2003, Oringanje 2009, Zoritch 2000):

- Are based on theoretical models, although there is no relation between effectiveness and the theory applied (Lopez 2009);
- Develop behavioural skills, including self efficacy;
- Provide basic, accurate information;
- Apply clear, unambiguous messages;
- Are targeted and tailored with respect to age, gender and cultural background;
- Are developed based on needs assessment or formative research;

- Are delivered over a longer period of time with session of shorter duration; and
- Have multiple components.

### **6.2.2.2 Tentative evidence**

Similarly, there is tentative evidence that programs are more likely to be effective when they:

- Commence before sexual debut, and even in pre-school if focusing on personal development;
- Emphasise risk reduction;
- Use a trained facilitator;
- Extend the period of the intervention program; and
- Use peers and community opinion leaders.

## **6.3 What is applicable in Australia?**

### **6.3.1 Awareness campaigns and social marketing**

There is evidence from Speizer's review in developing countries (Speizer 2003) and other trials (Underwood 2006) that awareness campaigns for adolescents can be effective in improving knowledge about sexual and reproductive health, but of themselves should not be looked at to facilitate behaviour change. This is not supported to a degree by findings from US studies (Bull 2008, Futterman 2001) which identified problems of recognition. Keys' work on disadvantaged youth in Victoria (Keys 2008) highlighted the acceptability of general awareness campaigns to this group and the preference for more targeted campaigns for minorities including Aboriginal young people. The limited evidence in Australia about the Snake condom campaign shows acceptability and high levels of immediate recall (Gregory 2008). In WA (Reddingius 2008), difficulties with recognition were also identified, so other outcomes could not be assessed.

### **6.3.2 School-based programs**

School based programs take many forms; their characteristics have been described earlier. There is widely accepted evidence of their efficacy, and at this stage it is probably worthwhile commenting on DiCenso's paper. The conclusion from DiCenso's systematic review of school based programs are widely reported; it concluded: 'Primary prevention strategies evaluated to date do not delay the initiation of sexual intercourse, improve use of birth control among young men and women, or reduce the number of pregnancies in young women'. That conclusion is qualified in that there was no evidence found to date. However, the paper concludes that: 'There is some evidence that prevention programmes may need to begin much earlier than they do... We need to investigate the social determinants of unintended pregnancy in adolescents through large longitudinal studies... We should carefully examine countries with low pregnancy rates among adolescents...' (DiCenso 2002).

Other commentators have noted that the methodology was extremely rigorous and excluded a large number of studies (Swann 2003, Kirby 2007). This has become a

controversial study because the abstract was seized on; it is probably best regarded as presenting an aspect of the evidence, rather than the definitive conclusion.

In Australia, we have a number of programs that are underway or have been implemented or are being developed. Results are mixed. The share program from SA (Dyson 2006) did not have an effect on student knowledge or behaviour; the impact of a campaign against this program while it was being run is not known. Process evaluation of 'Catching on Everywhere' highlighted the difficulties of introducing change into organisations (Dyson 2008). The Mooditj program, which is also run out-of-school, is reported to improve knowledge, attitudes and behaviours (Powell 2008). 'Safer Choices', a US school based program, was especially effective with males, Hispanics, and youth who engaged in unprotected sex in improving sexual risk taking, especially condom use (Kirby 2004). The 'Second Chance Club' (Key 2001) for students who are or have been pregnant described positive outcomes, although anecdotally there is not a strong culture of support for pregnant school students, so presumably considerable preliminary work would be required prior to developing such a program if continuation at school was a viable option for young women. The 'Baby think it over' program in WA (McCormack 2005) may be suitable to a broader context, although a similar program in the US had no evidence of effect (Somers 2001). The comprehensive early school program developed in the Tiwi Islands in the NT showed some benefits (Robinson 2008). Broader based programs such as this have benefits on many levels. Evidence of longer-term outcomes is of great interest. Parental roles have an association with teenage pregnancy, and more confident parenting may be protective.

Reviews indicate that the best chance of these interventions being successful in this setting is when they are multi-faceted and address skills development and aspirational goals. More research is required on school based clinics; the evidence in reviews was methodologically weak. They may be effective as one component of a program.

### 6.3.3 Youth programs

Youth development programs are varied in content, delivery and outcome, but they are cited as potentially effective interventions, even if they don't directly address sexual and reproductive health (Kirby 2007). In Australia, the Mooditj program (FPWA 2008), the Indigenous Peer Education Project from the ACT (Mikhailovich 2005), 'Young Nungas Talking' (Bentley 2008), and the Panyappi project (beyond... 2004) all show promise as programs that have potential to be adapted more widely. Similarly, the young Aboriginal women mentoring project from Canada (Banister 2006) and the Carrera pregnancy prevention program from the US (Philliber 2002) had success. Work is required in the Australian context.

### 6.3.4 Community programs

Community projects of potential interest are (again) the Snake Condom project (RHEF no date, Snake condoms website), the Didgeridoo project (NSW Health 2007), the Core of Life pregnancy program (Core of Life 2005). The friendship network community project (Dolcini 2008) presents an approach for harder-to-access urban young people which may be transferrable to other populations. These need to be developed consultatively, considering local needs, services and capacity.

### 6.3.5 Peer education programs

Peer education programs appear to be highly acceptable. The evidence for their effectiveness is mixed; however, the benefits may be more apparent in the educators themselves than the target population (Kim 2008, Stephenson 2008, Brieger 2001, Bentley 2008, Mikhailovich 2005). Further work is required.

### 6.3.6 Other approaches

Health promoting school approaches had some success in other health areas (drug and alcohol, driving, nutrition) and school based drug and alcohol programs have been associated with decreased pregnancy risk and risk taking behaviour in former students later some years later.

## 6.4 Implementation issues

The evidence from descriptions of Australian programs and their assessments demonstrates the 'strengths and weakness of the literature on (adolescent) Indigenous sexual (and reproductive) health interventions' (Morris 2004). The strength is in the presentation of what is culturally appropriate, the wide range of programs that have been developed. Weaknesses include a lack of background research to provide a context for interventions and the lack of evaluation documentation and reporting. In considering the Indigenous context these features are important: community consultation; collaborative development and tailoring of interventions; and considering multidisciplinary and interagency approaches.

Recurrent themes in process inadequacies include:

- Insufficient planning;
- Insufficient engagement with young people and/or their community and other stakeholders;
- No needs assessment;
- Not implemented for a sufficient time;
- Inadequacies with language;
- Insufficient penetration or exposure to target population;
- No ready links from programs to relevant services; and
- Difficulties transferring a successful program from one context to another.

## 6.5 Gaps in the literature

The majority of research to date has been conducted overseas, with and for different target groups and in different settings. Local evidence would help guide responses.

There is no baseline evidence for Aboriginal adolescents to help assess change. We know very little apart from what can be gleaned from descriptive studies about sexual and reproductive health literacy, attitudes or behaviour. We do not have evidence about successful interventions that result in behaviour change or change in pregnancy or STI rates. There is much evidence to support improving skills, particularly communication skills; the test of transferring such findings to people who traditionally have not been highly verbal, for whom there are frequently barriers to talking with the

opposite sex, and who are disabled by hearing loss and poor literacy, will be of interest. The appropriateness or transferability of promising overseas programs to Aboriginal Australia is not clear. There is no evidence about how to effect social change in this area, especially for Aboriginal communities, and the role of social connectedness and social 'norms' on behaviour, especially in communities under stress. There is also no evidence to guide approaches to differences between urban and rural/remote young people. There is a dearth of research into the meaning of gender issues, adolescence and teenage pregnancy in Aboriginal culture that would inform a response. We know little about abortion in Australian adolescents and nothing about abortion as an option for young Aboriginal women; there is no evidence about contraceptive use, preferences and decision-making. No information could be found on young Aboriginal men (and young men generally) regarding sexual literacy, attitudes and behaviour with respect to sex, sexuality, pregnancy and parenthood, and the social context that surrounds those areas. We know little about the affect of alcohol and drugs on young Aboriginal people's sexual behaviour. There is nothing to inform us on same sex attracted young people, or other particularly vulnerable sub-groups (for example those in juvenile justice, those out-of-school, young people with disabilities). There is insufficient evidence on evaluation of community participation and development. We don't know enough about the impact and use of the media and internet and how to harness them for benefit. And finally a gap that is common to much of health and is the bane of funders and programmers is the lack of cost benefit analyses to guide anything that has been presented above. It would seem that many programs do not, or do not have the capacity to, undertake the rigorous evaluations that would be part of such analyses.

## 7. Review questions

### 7.1 What are the programs or approaches that are effective/ineffective in working in Aboriginal adolescent sexual and reproductive health?

There have been no programs identified that demonstrated high level evidence to support positive outcomes in Aboriginal adolescent sexual and reproductive health.

Internationally there are evidence based effective approaches that could have promise with this target group; these are school-based programs, youth programs, community programs, community awareness and social marketing.

The evidence suggests that education should commence before sexual activity and that there should be a graduated, all of school, health promotion approach. School attendance and retention are recognised problems that would compromise the reach of a school program, so it is important to have other accessible programs available to complement them. There is also some suggestion that gender specific programs are conducted (at least in part) for stronger outcomes.

Youth programs can be set in youth specific services or part of other health and social services. There are a range of services nationally and internationally that are promising for Aboriginal adolescents and adolescent sub-groups. The focus should not solely be on sexual and reproductive health, but integrated with other issues to improve health literacy, confidence, communication, and life aspirations.

Community based programs have also demonstrated promise in both pregnancy and STI prevention. The characteristics associated with success include community engagement to assess need and tailor approaches, and collaboration and participation in development.

Community awareness and social marketing have had some measure of success. There is not an expectation that these will change behaviour, so it is important for them to effectively reach their target populations to communicate information in an accessible and appropriate manner. The data was mixed on the importance of socio-cultural matching. Access to relevant services is viewed as important.

No informed comment can be made about the potential impact of programs centred on adolescents and parents and family for sexual and reproductive health. Internationally, the results are mixed; nationally, engagement with parents is a challenge. Similarly, the evidence for the effectiveness of clinic-based programs is lacking although health professionals, especially doctors, are highly trusted as sources of reliable information.

Abstinence only programs have not demonstrated any effect on sexual and reproductive health literacy, attitudes or behaviour. Apart from this, there is no evidence to discount any approach; what is needed is evidence of effect.

The characteristics of effective programs presented here (from discussion):

- Are based on theoretical models, although there is no relation between effectiveness and the theory applied;
- Develop behavioural skills, including self efficacy;
- Provide basic, accurate information;

- Apply clear, unambiguous messages;
- Are targeted and tailored with respect to age, gender and cultural background;
- Are developed based on needs assessment or formative research;
- Are delivered over a longer period of time with session of shorter duration; and
- Have multiple components.

There is tentative evidence that these characteristics support effective programs (from discussion):

- Emphasis on risk reduction;
- Use of a trained facilitator;
- Extended period of the intervention program; and
- Use of peers and community opinion leaders.

Again, there is no high level evidence, but ensuring a 'best practice' approach to programs implemented in Aboriginal communities (Moore 2003) comprising consultation; involvement or ownership of research by communities; coherence of aims, methods, results, and outcome measures or indicators; and evaluation of the research process and outcomes is in line with the expert opinion in the field.

The literature shows that Indigenous involvement, consultation with elders, privacy, confidentiality and trust are vital to the overall value and success of research as perceived by Indigenous participants. Indigenous involvement in defining evaluation criteria and measures would enhance the possibility of collecting outcome data for health promotion interventions.

## *7.2 What are the factors or design elements that are associated with effective/ineffective programs?*

The limited and sometimes unstructured process evaluations highlight the following factors involved in effective programs:

- Engagement and collaboration with young people and/or their community and other stakeholders;
- Planning, needs assessment;
- Tailoring program to identified needs, context and capacity;
- Sufficient time for program to be implemented with opportunity to fine tune;
- Sufficient time to see measurable effects;
- Care with use of language, considering literacy in English, written literacy, sexual and reproductive health literacy, developmental, gender and social considerations;
- Insufficient penetration or exposure to target population;
- No ready links from programs to relevant services; and
- Difficulties transferring a successful program from one context to another.

Kenny provides a description of the impact of inadequate knowledge of and communication about services for young people in Western NSW among service providers (Kenny 1999). Kilcross provides a case study of the development of a rural adolescent health service, highlighting the importance of youth, youth service and community engagement and support (Kilcross 2006).

### *7.3 What evidence is there on the cultural acceptability of these (or other approaches)?*

Evidence of any quality is limited regarding cultural acceptability. There is data on acceptability of Australian programs – young people found aspects of the Mooditj, Snake Condom and other projects acceptable – but such responses are of limited use in program development. Consultations with Australian young people considering youth culture (Sorenson 2007, Keys 2008) indicate that they like being involved in programs and their development, enjoy having their communities involved, and accept the various formats of campaigns. Aboriginal males in one survey expressed a preference for smaller more targeted campaigns (Keys 2008). The recommendations are provided in Appendix 1. There are probably broad principles that may be culturally acceptable to most young people, or most young men or most young women, or most young Aboriginal people and may be suitable to be generalised, but the evidence suggests that needs based and tailored responses will provide a stronger product.

### *7.4 What are the knowledge, attitudes and preferences of Aboriginal adolescents about sexual and reproductive health services?*

There is a wide range of sexual and health services that may be available for young people, although this is not the case for those in regional or remote areas providing preventive and clinical services and both.

There was no available information that broadly reported on Aboriginal adolescents' knowledge or attitudes of either preventive or clinical sexual and reproductive health services.

The international literature is fulsome on clinical services where descriptive studies report on qualities of services such as: confidentiality and privacy; continuity of care; lack of racism; youth-friendliness but not necessarily youth specificity; service providers and support staff who are professional, empathic and respectful; ease of getting an appointment or seeing a provider; and minimal waiting times. Adolescents are more interested in provider qualities than service site or settings (Ginsburg 1997). One study indicated gender preference (same sex) was more important for young women than young men; both prefer a provider of the same gender when discussing personal matters (Kapphahn 1999). Another study on young American men found that obtaining sexual health care was very stressful because of shame, embarrassment, fear of stigma and loss of status, and concerns about providers, confidentiality and managing the health system (Lindberg 2006).

Youth services may provide an opportunity for personal development and educational and recreational activities; these findings were from the perspective of rural Australian Aboriginal youth (Mohajer 2009). Similarly, the AHMRC report on Aboriginal people with or at risk of blood borne viruses presents a number of case studies of programs for young men and women and both to support personal growth and skills against a background of improved personal health (AHMRC no date).

It must be noted that in responding to each of these questions, because there is limited evidence and no systematic reviews, single reports, case studies etc. generated more hypotheses and research questions, rather than resolving the issues.

## 8. References

NB all electronic references were accessed in September or October 2009.

- AH&MRC Consultancy Service in association with Mandala Consulting (no date available) *Increasing Access to Services in NSW for Aboriginal People at Risk of Contracting or Who Have Blood Borne Infections*.  
<http://www.ahmrc.org.au/Downloads/BBReport.pdf>
- Australian Bureau of Statistics homepage (2009)  
<http://www.abs.gov.au/websitedbs/D3310114.nsf/home/home?opendocument#from-banner=GT>
- Australian Bureau of Statistics (2006a) *National Aboriginal and Torres Strait Islander Health Survey: Australia 2004-05*. ABS Catalogue No. 4715.0. Canberra: Commonwealth of Australia.  
[http://www.ausstats.abs.gov.au/ausstats/subscriber.nsf/0/B1BCF4E6DD320A0BCA25714C001822BC/\\$File/47150\\_2004-05.pdf](http://www.ausstats.abs.gov.au/ausstats/subscriber.nsf/0/B1BCF4E6DD320A0BCA25714C001822BC/$File/47150_2004-05.pdf)
- Australian Bureau of Statistics (2006b) *Census data quickstats*.  
<http://www.censusdata.abs.gov.au/ABSNavigation/prenav/PopularAreas?ReadForm&prenavtabname=Popular%20Locations&type=popular&&navmapdisplayed=true&javascript=true&textversion=false&collection=Census&period=2006&producttype=QuickStats&method=Place%20of%20Usual%20Residence&productlabel=&breadcrumb=PL&topic=&>
- Australian Indigenous HealthInfoNet <http://www.healthinfonet.ecu.edu.au>
- Australian Institute of Health & Welfare (2005a) *Rural, Regional and Remote Health – Indicators of Health*. AIHW Cat. No. PHE 59 (Rural Health Series no. 5). Canberra: AIHW. <http://www.aihw.gov.au/publications/phe/rrr05/>
- Australian Institute of Health & Welfare (2005b) *The Health and Welfare of Australia's Aboriginal and Torres Strait Islander Peoples 2005*. ISSN 1441 2004; AIHW cat. no. IHW 14; ABS cat. no. 4704.0. Canberra: AIHW.  
<http://www.aihw.gov.au/publications/ihw/hwaatsip05/hwaatsip05.pdf>
- Australian Institute of Health and Welfare (2007) *Young Australians: Their Health and Wellbeing 2007*. Cat. no. PHE 87. Canberra: AIHW.  
<http://www.aihw.gov.au/publications/aus/yathaw07/yathaw07-c00.pdf>
- Australian Institute of Health and Welfare (2009) *A Picture of Australia's Children*. Cat. no. PHE 58. Canberra: AIHW. <http://www.aihw.gov.au/publications/phe/phe-112-10704/phe-112-10704.pdf>
- Australians for Native Title and Reconciliation (ANTaR) (2007) *Success Stories in Indigenous Health*. Sydney: ANTaR. [www.antar.org.au/success](http://www.antar.org.au/success)
- Banister EM, Begoray DL (2006) A community of practice approach for Aboriginal girls' sexual health education. *J Can Acad Child Adolesc Psychiatry* 15:4.  
<http://www.pubmedcentral.nih.gov/picrender.fcgi?artid=2277305&blobtype=pdf>
- Bentley M (2008) *Evaluation of the Peer Education Component of Young Nungas Yarning Together Program*. Adelaide: South Australian Community Research Unit, Flinders University. <http://som.flinders.edu.au/FUSA/SACHRU>
- beyond...(Kathleen Stacey & Associates) Pty Ltd (2004) *Panyappi Indigenous Youth Mentoring Program: External Evaluation Report*. Adelaide: Panyappi, Metropolitan Aboriginal Youth Team, SA Department of Human Services.

- Boyer CB, Sieverding J, Siller J, Gallaread A, Chang YJ (2007) Youth united through health education: Community-level, peer-led outreach to increase awareness and improve non-invasive sexually transmitted infection screening in urban African American youth. *J Adolesc Health* 40:499-505.
- Brieger WR, Delano GE, Lane CG, Oladepo A, Oyediran KA (2001) West African youth initiative: Outcome of a reproductive health education program. *J Adolesc Health* 29:436-46.
- Bull SS, Posner SF, Ortiz C, Beaty B, Benton K et al (2008) POWER for reproductive health: Results form a social marketing campaign promoting female and male condoms. *J Adolesc Health* 43:71-8.
- Card JJ (1999) Teen pregnancy prevention: Do any programs work? *Annu Rev Public Health* 20:257-85.
- Chan A, Scott J, Nguyen A-M, Sage L (2007) *Pregnancy Outcomes in South Australia 2006*. Adelaide: Pregnancy Outcome Unit, South Australian Department of Health.
- Cheesbrough S, Ingham R, Massey D (2002) *Reducing the Rates of Teenage Conception. A Review of the International Evidence from United States, Canada, Australia and New Zealand*. London: Health Development Authority. [http://www.nice.org.uk/nicemedia/documents/teenconcep\\_revise\\_v3.pdf](http://www.nice.org.uk/nicemedia/documents/teenconcep_revise_v3.pdf)
- Commonwealth of Australia (2008) *National Report to Parliament on Indigenous Education and Training 2006*. Canberra: Department of Education, Employment and Workplace Relations [http://www.dest.gov.au/NR/rdonlyres/C7CB8111-A9D3-4F54-9028-8484A3817089/24215/2006\\_NRPReportFINAL\\_WEB.pdf](http://www.dest.gov.au/NR/rdonlyres/C7CB8111-A9D3-4F54-9028-8484A3817089/24215/2006_NRPReportFINAL_WEB.pdf)
- Core of Life (2005) *Core of Life Indigenous Pre-Parenting Life Education Program*. Melbourne: Menzies Inc, Peninsula Health. [http://www.aifs.gov.au/cafca/ppp/profiles/itg\\_core\\_of\\_life.html](http://www.aifs.gov.au/cafca/ppp/profiles/itg_core_of_life.html); <http://www.coreoflife.org/>
- Council of Australian Governments (2009) *National Indigenous Reform Agreement (Indigenous Early Children Development)*. [http://www.coag.gov.au/intergov\\_agreements/federal\\_financial\\_relations/docs/IGA\\_FFR\\_ScheduleF\\_National\\_Indigenous\\_Reform\\_Agreement.pdf](http://www.coag.gov.au/intergov_agreements/federal_financial_relations/docs/IGA_FFR_ScheduleF_National_Indigenous_Reform_Agreement.pdf)
- Couzos S, Murray R (1999) *Aboriginal Primary Health Care: An Evidence-Based Approach*. Melbourne: Oxford University Press.
- Coyle K, Kirby D, Parcel G, Basen-Engquist K, Banspach S et al (1996) Safer Choices: A multi-component school-based HIV/STD and pregnancy prevention program for adolescents. *J Sch Health* 66:89-94.
- DiCenso A, Guyatt G, Willan A, Griffith L (2002) Interventions to reduce unintended pregnancies among adolescents: systematic review of randomised controlled trials. *BMJ* 324 (7351): 1426. <http://www.bmj.com/cgi/reprint/324/7351/1426>
- Dolcini MM, Harper GW, Boyer CB, Watson SE, Anderson M et al (2008) Preliminary findings on a brief friendship-based HIV/STI intervention for urban African American youth: Project ORE. *J Adolesc Health* 42:629-33.
- Donovan C, Mellanby AR, Jacobson LD, Taylor B, Tripp JH (1997) Teenagers' views on the general practice consultation and provision of contraception. The Adolescent Working Group. *Br J Gen Pract* 47(424):715-18.
- Downing J, Jones L, Cook PA, Bellis MA (2006) *Prevention of STIs: A Review of Reviews into the Effectiveness of Non-Clinical Interventions. Evidence Briefing Update*. Liverpool: Centre for Public Health. <http://www.nice.org.uk/media/ABC/87/STIEvidenceBriefingFinal.pdf>

- Dyson S, Fox C (2006) *An Evaluation of the Sexual Health and Relationships Education Project (Share) 2003-2005*. Melbourne: Australian Research Centre for Sex, Health and Society, Latrobe University.
- Dyson S (2008) *Catching on Everywhere: Sexuality Education Program Planning for Victorian Schools. Part 1 Program Planning: Concepts and Policy*. Melbourne: Victorian Department of Education and Early Childhood Development.  
<http://www.eduweb.vic.gov.au/edulibrary/public/teachlearn/student/coeverywherept1.pdf>
- Ellickson PL, McCaffey DF, Klein DJ (2009) Long-term effects of drug prevention on risky sexual behavior among young adults. *J Adolesc Health* 45:111-7.
- Ellis S, Barnett-Page E, Morgan A, Taylor L, Walters R et al (2003) *HIV Prevention: a Review of Reviews Assessing the Effectiveness of Interventions to Reduce the Risk of Sexual Transmission*. London: Health Development Agency.
- Ellis S, Grey A (2004) *Prevention of Sexually Transmitted Infections (STIs): a Review of Reviews into the Effectiveness of Non-Clinical Intervention*. London: Health Development Agency.
- Futterman DC, Peralta L, Rudy BJ, Wolfson S, Guttmacher S et al (2001) The ACCESS (Adolescents Connected to Care, Evaluation and Special Services) Project: Social marketing to promote HIV testing to adolescents, methods and first year results from a six city campaign. *J Adolesc Health* 29S:19-20.
- Ginsburg KR, Menapace AS, Slap GB (1997) Factors affecting the decision to seek health care: The voice of adolescents. *Pediatrics* 100: 922-30.
- Gregory P, Phillipson L, Barrie L, Jones SC, Validas A (2008) Evaluating the impact of the narrow cast marketing of 'Snake Condoms' to indigenous youth. In *Australian and New Zealand Marketing Academy Conference 2008: Shifting the Focus from Mainstream to Offbeat*; Spanjaard D, Denize S & Sharma N. Eds. Promaco Conventions Pty Ltd: Sydney NSW, Australia.  
<http://www.uow.edu.au/health/chi/projects/pdf-sm/snake-condom-campaign.pdf>
- Jemmott JB III, Jemmott LS, Braverman PK, Fong GT (2005) HIV/STI risk reduction interventions for African American and Latino adolescent girls at an adolescent medicine clinic: a randomised controlled trial. *Arch Pediatr Adolesc Med* 159:440-9.
- Kapphahn CJ (1999) Adolescent girls' and boys' preferences for provider gender and confidentiality in their health care. *J Adolesc Health* 25:131-42.
- Kenny P (1999) Aboriginal youth development: A community-based approach in Far West NSW. Paper presented at *5th National Rural Health Conference* Adelaide, South Australia, 14-17th March 1999.  
[http://nrha.ruralhealth.org.au/conferences/docs/PAPERS/5\\_aydev.pdf](http://nrha.ruralhealth.org.au/conferences/docs/PAPERS/5_aydev.pdf)
- Key JD, Barbosa GA, Owens VJ (2001) The Second Chance Club: Repeat adolescent pregnancy prevention with a school-based intervention. *J Adolesc Health* 28:167-9.
- Keys D, Rosenthal D, Williams H, Mallet S, Jordan L et al (2008) *Making it Real: Sexual Health Communication for Young People Living with Disadvantage*. Melbourne: Key Centre for Women's Health, University of Melbourne.  
[http://www.kcwh.unimelb.edu.au/\\_data/assets/pdf\\_file/0009/89838/MIR\\_report\\_Keys.pdf](http://www.kcwh.unimelb.edu.au/_data/assets/pdf_file/0009/89838/MIR_report_Keys.pdf)
- Killcross A (2006) The Port Augusta Adolescent Health Service. A Rural Community's Response to their Teenagers' Health Issues. Paper presented at *5th Australian*

and New Zealand Adolescent Health Conference Sydney, NSW, 13-15 November 2006.

[http://www.caah.chw.edu.au/conference/papers/paper\\_51.pdf](http://www.caah.chw.edu.au/conference/papers/paper_51.pdf)

- Kim CR, Free C (2008) Recent evaluations of the peer-led approach in adolescent sexual health education: A systematic review. *International Family Planning Perspectives* 34:89-96.
- Kirby D (2007) *Emerging Answers 2007: Research Findings on Programs to Reduce Teen Pregnancy and Sexually Transmitted Diseases*. Washington DC: National Campaign to Prevent Teen and Unplanned Pregnancy.
- Kirby DB, Baumler E, Coyle KK, Basen-Engquist K, Harrist R et al (2004) The 'Safer Choices' intervention: Its impact on the sexual behaviours of different subgroups of high school students. *J Adolesc Health* 35:442-52.
- Kirby DB, Laris BA, Roller LA (2007) Sex and HIV education programs: Their impact on sexual behaviours of young people throughout the world. *J Adolesc Health* 40:206-17.
- Laws PJ, Hilder L (2008) *Australia's Mothers and Babies 2006*. Perinatal Statistics Series no. 22. Cat. no. PER 46. Sydney: AIHW National Perinatal Statistics Unit.  
<http://www.npsu.unsw.edu.au/NPSUweb.nsf/page/Publications>
- Lederman RP, Chan W, Roberts-Gray C (2008) Parent-Adolescent Education (PARE): Program delivery to reduce risks for adolescent pregnancy and STDs. *Behavioral Med* 33:137-43.
- Lindberg C, Lewis-Spruill C, Crownover R (2006) Barriers to sexual and reproductive health care: urban male adolescents speak out. *Issues Compr Pediatr Nurs* 29:73-88.
- Lopez LM, Tolley EE, Grimes DA, Chen-Mok M (2009) Theory-based interventions for contraception. *Cochrane Database of Systematic Reviews* 2009, Issue 1. Art. No.: CD007249.
- Makin J, Butler S (2001) 'Tell Me About It' – a community-based project to reduce the rate of teen pregnancy in Wagga Wagga. Presented at the 6th National Rural Health Conference Canberra, Australian Capital Territory, 4-7 March 2001.  
[http://nrha.ruralhealth.org.au/conferences/docs/papers/6\\_F\\_4\\_4.pdf](http://nrha.ruralhealth.org.au/conferences/docs/papers/6_F_4_4.pdf)
- McCormack B, Sim MG (2005) Teen pregnancy. A program for awareness and health education *Aust Fam Phys* 34:17.
- Mikhailovich K, Arabena K (2005) Evaluating an indigenous sexual health peer project. *Health Prom J Aust* 2005 16:189-93.
- Morris K, Willis J, Anderson I, Croy S, McCall M (2004) *Research Gaps in Indigenous Sexual Health. Establishing Evidence Based Test Practice for Social and Behavioural Interventions: Technical Report*. Melbourne: Australian Research Centre in Sex, Health and Society, La Trobe University.  
[http://www.health.gov.au/internet/main/publishing.nsf/Content/18A345C1BAEA3008CA25732B00390E8C/\\$File/Research%20Gaps%20in%20Indigenous%20Sexual%20Health%20Technical%20Report%20Final.pdf](http://www.health.gov.au/internet/main/publishing.nsf/Content/18A345C1BAEA3008CA25732B00390E8C/$File/Research%20Gaps%20in%20Indigenous%20Sexual%20Health%20Technical%20Report%20Final.pdf)
- Muir K, Mullan K, Powell A, Flaxman S, Thompson D, Griffiths M (2009) *State of Australia's Young People: A Report on the Social, Economic, Health and Family Lives of Young People*. Sydney: Social Policy Research Centre, University of New South Wales.
- National Centre in HIV Epidemiology and Clinical Research (2009a) *Blood Borne Viral and Sexually Transmitted Infections in Aboriginal and Torres Strait Islander People: Surveillance and Evaluation Report 2009*. Sydney: National Centre in

- HIV Epidemiology and Clinical Research, University of New South Wales.  
[http://www.ncheocr.unsw.edu.au/ncheocrweb.nsf/resources/ATSI-SR/\\$file/ATSI-P-ASR-09.pdf](http://www.ncheocr.unsw.edu.au/ncheocrweb.nsf/resources/ATSI-SR/$file/ATSI-P-ASR-09.pdf)
- National Centre in HIV Epidemiology and Clinical Research (2009b) *HIV/AIDS, Viral Hepatitis and Sexually Transmissible Infections in Australia Annual Surveillance Report 2009*. Sydney: National Centre in HIV Epidemiology and Clinical Research, University of New South Wales.  
[http://www.ncheocr.unsw.edu.au/ncheocrweb.nsf/resources/SurvReports\\_3/\\$file/ASR2009-updated-2.pdf](http://www.ncheocr.unsw.edu.au/ncheocrweb.nsf/resources/SurvReports_3/$file/ASR2009-updated-2.pdf)
- NHS Centre for Reviews and Dissemination, University of York (1997) Preventing and reducing the adverse effects of unintended teenage pregnancies. *Effective Health Care* 3:1-12. <http://www.york.ac.uk/inst/crd/EHC/ehc31.pdf>
- NSW Health (2002) *Principles for Better Practice in Aboriginal Health Promotion: The Sydney Consensus Statement*. North Sydney: NSW Health.
- NSW Department of Health (2007) *Aboriginal Youth Sexual Health and Didgeridoo Project*. Greater Southern Area Health Service. <http://www.archi.net.au/e-library/awards/awards07/prevention/sexual-health>
- Ollis D, Mitchell M (2001) *Talking Sexual Health: A Teaching and Learning Resource for Secondary Schools*. Melbourne: Australian Research Centre for Sex, Health and Society, La Trobe University.  
<http://www.latrobe.edu.au/arcs/shs/assets/cleu/TSH%20CLSRMAT1.pdf>
- Oringanje C, Meremikwu MM, Eko H, Esu E, Meremikwu A et al (2009) Interventions for preventing unintended pregnancies among adolescents. *Cochrane Database of Systematic Reviews* 2009, Issue 4. Art CD005215.
- Peters LWH, Kok G, Ten Dam GTM, Buijs GJ, Paulussen TGWM (2009) Effective elements of school health promotion across behavioral domains: a systematic review of reviews. *BMC Public Health* 9:182.
- Philliber S, Kaye J, Herrling S (2001) *The National Evaluation of the Children's Aid Society Carrera-Model Program to Prevent Teen Pregnancy*. Accord, NY: Philliber Research Associates. [www.childrensaidsociety.org/media/general/cas-Teen\\_Pregnancy\\_Prevention.pdf](http://www.childrensaidsociety.org/media/general/cas-Teen_Pregnancy_Prevention.pdf)
- Philliber S, Kaye JW, Herrling S, West E (2002) Preventing pregnancy and improving health care access among teenagers: An evaluation of the Children's Aid Society - Carrera Model. *Perspect Sex Reprod Health* 34:244-51. [www.agi-usa.org/pubs/journals/3424402.pdf](http://www.agi-usa.org/pubs/journals/3424402.pdf)
- Plummer ML, Wight D, Obasi AIN, Wamoyi J, Mshana G et al (2007) A process evaluation of a school-based adolescent sexual health intervention in rural Tanzania: the MEMA kwa Vijana Programme. *Health Educ Res* 22:500-12.
- Powell F (2008) *Mooditj Impact Evaluation*. Report to FPWA Health Services. Queensland: Australian Health Promotion Association.  
<http://www.fpwa.org.au/educationtraining/pastprojects/mooditj/>
- Reddingius R (2008) *2007 Aboriginal Sexual Health Campaign focusing on STIs. Evaluation Report*. Perth: Western Australian Department of Health.
- Robin L, Dittus P, Whitaker D, Crosby R, Ethier K et al (2004) Behavioral interventions to reduce the incidence of HIV, STD and pregnancy among adolescents: A decade in review. *J Adolesc Health* 34:3-26.
- Robinson G, Tyler B (2006) *Ngaripiriga'ajirri: An Early Intervention Program on the Tiwi Islands, Final Evaluation Report*. Darwin: School for Social and Policy Research, Charles Darwin University. <http://www.cdu.edu.au/sspr/documents/Ngari.pdf>

- Robinson G, Tyler B (2008) Ngaripiriga'ajirri: The implementation of Exploring Together on the Tiwi Islands. *Australian e-Journal for the Advancement of Mental Health* 7:1. <http://www.auseinet.com/journal/vol7iss1/robinson.pdf>
- Rural Health Education Foundation (RHEF) (no date given) *Chlamydia: Combating the Epidemic - Case Studies. Snake Condom.* [http://www.rhef.com.au/programs/case-studies/?program\\_id=64](http://www.rhef.com.au/programs/case-studies/?program_id=64)
- Skinner SR, Smith J, Fenwick J, Hendriks J, Fyfe S et al (2009) Pregnancy and protection: Perceptions, attitudes and experiences of Australian female adolescents. *Women and Birth* 22:50-6.
- Smith A, Agius P, Mitchell A, Barrett C, Pitts M (2009) *Secondary Students and Sexual Health 2008*. Monograph Series No. 70, Melbourne: Australian Research Centre in Sex, Health & Society, La Trobe University.
- Smith G, Perry D, Cutmore M, Combo T (1999) *Aboriginal and Torres Strait Islander Sexual Health Promotion Initiatives in New South Wales*. Monograph 6/1999. Sydney: National Centre for HIV Social Research.
- Snake Condoms website <http://www.snakecondoms.org.au/index.php/cms/home>
- Somers C, Fahlmann M (2001) Effectiveness of the 'Baby Think It Over' teen pregnancy prevention program. *J Sch Health* 71:188-95.
- Sorenson A, Brown G (2007) *Report on the Sexual Health Education of Young People in WA*. Perth: WA Department of Health.
- Speizer IS, Magnani RJ, Colvin CE (2003) The effectiveness of adolescent reproductive health interventions in developing countries: A review of the evidence. *J Adolesc Health* 33: 324-48.
- Stanton B, Guo J, Cottrell L, Galbraith J, Li X et al (2005) The complex business of adapting effective interventions to new populations: an urban to rural transfer. *J Adolesc Health* 37:17-26.
- Stephenson J, Strange V, Allen E, Copas A, Johnson A et al (2008) The long term effects of a peer-led sex education programme (RIPPLE): A cluster randomised controlled trial in schools in England. *PLoS Medicine* 5:1579-90.
- Stewart-Brown S (2006) *What is the Evidence on School Health Promotion in Improving Health or Preventing Disease and Specifically What is the Effectiveness of the Health Promoting Schools Approach?* Health Evidence Network report. Copenhagen: WHO Regional Office for Europe.
- Swann C, Bowe K, McCormick G, Kosmin M (2003) *Teenage pregnancy and parenthood: A review of reviews (Evidence Briefing)*. London: Health Development Agency. [http://www.nice.org.uk/nicemedia/documents/teenpreg\\_evidence\\_briefing.pdf](http://www.nice.org.uk/nicemedia/documents/teenpreg_evidence_briefing.pdf)
- tns (2005) *Safer Sex Evaluation Summary*. Wellington, NZ: Ministry of Health. <http://www.moh.govt.nz/moh.nsf/pagesmh/3988?Open>
- Underhill K, Montgomery P, Operario D (2008) Abstinence-plus programs for HIV infection prevention in high income countries. *Cochrane Database of Systematic Reviews* 2008. Issue 1 Art no CD007006.
- Underwood C, Hachonda H, Serlemetsos E, Bharath-Kumar U (2006) Reducing the risk of HIV transmission among adolescents in Zambia: Psychosocial and behavioural correlates of viewing a risk-reduction media campaign. *J Adolesc Health* 38:e1-e13.

- Wiggins M, Bonnell C, Burchett H, Sawtell M, Austerberry H et al (2008) *Young People's Development Programme Evaluation: Final Report*. London: Social Science Research Unit, Institute of Education, University of London.
- Wight D, Raab GM, Henderson M, Abraham C, Buston K et al. (2002) Limits of teacher delivered sex education: interim behaviour outcomes from a randomised trial. *BMJ* 324:1430.
- Willis J, Anderson I, Morris K (2005) *Sexual Health Promotion for Aboriginal and Torres Strait Islander People. A Community Guide to Evidence-Based Best Practice in Social and Behavioural Interventions*. Melbourne: The Australian Research Centre in Sex, Health and Society, La Trobe University.  
[http://www.health.gov.au/internet/main/publishing.nsf/Content/3B4FA8ECFB88236ACA25732B00390E8B/\\$File/Sexual%20Health%20Promotion%20for%20ATSI%20People%20-%20A%20Community%20Guide%20to%20Best%20Practice.pdf](http://www.health.gov.au/internet/main/publishing.nsf/Content/3B4FA8ECFB88236ACA25732B00390E8B/$File/Sexual%20Health%20Promotion%20for%20ATSI%20People%20-%20A%20Community%20Guide%20to%20Best%20Practice.pdf)
- Zoritch B, Roberts I, Oakley A (2000) Day care for pre-school children. *Cochrane database of Systematic Reviews*. Issue 3 Art no CD000564.

## Appendix 1: Summary of Studies Included in Review

### Australian Aboriginal Adolescent Sexual and Reproductive Health

Author	Publication title	Level of evidence	Country	Target group and cultural reach	Method	Objective	Intervention	Outcomes	Applicability to NSW
Powell (2008)	Mooditj Impact Evaluation. Report to FPWA Health Services	Level 4	Australia (WA)	Aboriginal adolescents 11-14 years, in school and out-of-school settings	Impact evaluation	Its aims are to educate Aboriginal young people (11-14 years) in sexual health and life skills	Various, especially capacity building and community involvement	The program was associated with a number of positive social and behavioural outcomes including increased school attendance, improved hygiene, increased knowledge of STIs and pregnancy, reported increased contraception use and increased attendance at clinics for sexual health services. Earlier process evaluations noted that it was enjoyed by young people	For consideration
Gregory 2008	Evaluating the impact of the narrow cast marketing of 'Snake Condoms' to indigenous youth	Level 4	Australia (VIC)	Young Aboriginal people	Impact evaluation	To address STIs and pregnancy rates in Aboriginal and Torres Strait Islander young people	Peer based and social marketing	High levels of immediate recall and understanding of messages	For consideration
Reddinghuis (2008)	2007 Aboriginal Sexual Health Campaign focusing on STIs. Evaluation Report.	Level 4	Australia (WA)	Young Aboriginal people, 15-24 years	Impact evaluation	To prevent STIs and to be tested for STIs	awareness campaign, posters and radio advertising	Limited success in reaching target group; good acceptability with those who encountered it	For consideration
Mikhailovich (2005)	Evaluating an indigenous sexual health peer project	Level 4	Australia (ACT)	Young Aboriginal people	Impact evaluation	Recruit train and support young people to become sexual health peer educators, develop organisational partnerships, use peer education to improve young people's access to sexual health services	Youth development	Short term improvements in sexual health or skills knowledge and peer education	For consideration
NSW Dept Health (2007)	Didgeridoo project	Level 4	Australia (NSW)	Young Aboriginal people		Engage young people in activities that were grounded in culture, yet informed them about sexual health & drug & alcohol issues	weekly workshops	High level of satisfaction among participants	

<b>Author</b>	<b>Publication title</b>	<b>Level of evidence</b>	<b>Country</b>	<b>Target group and cultural reach</b>	<b>Method</b>	<b>Objective</b>	<b>Intervention</b>	<b>Outcomes</b>	<b>Applicability to NSW</b>
Core of Life (2006)	Core of Life Indigenous pre-parenting life education program	Level 4	Australia	Indigenous people aged 14-17 years in rural and remote areas			Community development approach	Improved collaboration between agencies, development local life education tools, improved knowledge and understanding of RH issues	For consideration

## Other Australian Aboriginal programs

Author	Publication title	Level of evidence	Country	Target group and cultural reach	Method	Objective	Intervention	Outcomes	Applicability to NSW
Bentley (2008)	Evaluation of the Peer Education component of Young Nungas Yarning Together program.	Level 4	Australia (SA)	Young Aboriginal people 12-20 years		Prevent drug use	Youth development, peer educator training	Training of 15 peer educators and development of a DVD to be used in training	Principles to be considered
Robinson et al (2006)	Ngaripirriga'ajirri: An Early Intervention Program on the Tiwi Islands, Final Evaluation Report	Level 4	Australia (NT)	Aboriginal children 5-14 years and their parents. Remote, traditional (in transition) community		To improve parenting and children's social-emotional learning	Various: multi-group program is a feature	Improvements in school attendance, improved and sustained behaviour at school and at home and improved communication with family	Principles of early intervention and implementation of this program are very relevant and worthy of consideration in NSW context
beyond... (2004)	Panyappi Indigenous Youth Mentoring Program: External evaluation report.	Level 4	Australia (SA)	Aboriginal young people with multiple problems in inner city or suburbs at risk of engaging in crime or being victim of crime		To improve attitudes, self knowledge and determination to work with agencies and family to improve well being.	Youth development, case management and mentoring	Self reported and independent evidence	For consideration

## Australian Adolescent Sexual and Reproductive Health

Author	Publication title	Level of evidence	Country	Target group and cultural reach	Method	Objective	Intervention	Outcomes	Applicability to NSW
Ollis (2001)	Talking Sexual Health: a teaching and learning resource for secondary schools. Implementing the national framework for education about STIs, HIV/AIDS and blood borne viruses in secondary schools	NA	Australia	Young people in Australian schools		To inform and support education authorities and whole school communities to implement education that reflects the complexity of issues related to STIs, HIV/AIDS and BBVs.	Five parts: 1. Taking a whole school approach – developing partnerships, 2. Acknowledging young people as sexual beings, 3. Acknowledging and catering for the diversity of all students, 4. Providing an appropriate and comprehensive curriculum context, 5. Acknowledging the professional development needs of the school community.	Not evaluated	Yes
Dyson (2008)	Catching on Everywhere: Sexuality education program planning for Victorian schools		Australia	Students, parents, schools, community			Health promoting schools	Barriers to implementation: policies, staff attitudes; difficulties engaging parents	Yes
Makin (2001)	Tell me about it'	Level 4	Australia (NSW)	High school students (year 9 and 10) at risk of pregnancy in rural town		To increase awareness of reality of being a teenage parent	Community based	Improvement in understanding of sex, relationships, contraception and pregnancy, community support and development of young parents' group	Yes
McCormack (2005)	Baby think it over'	Level 4	Australia (WA)	High school students in metropolitan areas		To modify attitudes to early pregnancy and parenting and delay parenting and to increase awareness of appropriate health services for young people	Group work, virtual model of baby, visit to GP	Desire to delay parenting age, useful encounter with GP	Possibly

Author	Publication title	Level of evidence	Country	Target group and cultural reach	Method	Objective	Intervention	Outcomes	Applicability to NSW
Dyson et al (2006)	An Evaluation of the Sexual Health and Relationships Education Project (Share) 2003-2005	Level 4	Australia (SA)	Students, parents, school staff and the school environment		To improve the sexual health, safety and well-being of young people		Minimal increase in knowledge about sexual health issues and no change in behaviour, no improvement in responses to the meaning of sex, relationships and communication, greater confidence in discussing sexuality matters with their parents, teachers were overall satisfied with the training and support	

## Australian Aboriginal Sexual and Reproductive Health

Author	Publication title	Level of evidence	Country	Target group and cultural reach	Method	Objective	Intervention	Outcomes	Applicability to NSW
Smith (1999)	Aboriginal and Torres Strait Islander Sexual Health Promotion Initiatives in New South Wales.	Level 4	Australia	Aboriginal and Torres Strait Islander sexual health promotion workers	Qualitative interviews	To determine effectiveness of program	Various	Identified difficulties with language, resource development, confidentiality and perception of gender issues , role of community, workforce issues	

## International Adolescent Sexual and Reproductive Health

Author	Publication title	Level of evidence	Country	Target group and cultural reach	Method	Objective	Intervention	Outcomes	Applicability to NSW
Speizer et al (2003)	The Effectiveness of Adolescent Reproductive Health Interventions in Developing Countries: A Review of the Evidence	Level 2	Developing countries	Adolescents	Review	To consider effectiveness of adolescent reproductive health interventions	Various : campaign, social marketing generally lead to improvement; Community based, youth development, community education and peer education led to improved knowledge and attitudes	Improved knowledge and attitudes 17/21; 4/11 showing delay in first intercourse, 3/6 reduction in number of partners; 6/10 increased contraceptive use	Consider
DiCenso (2002)	Interventions to reduce unintended pregnancies among adolescents: systematic review of randomised controlled trials	Level 1	Mostly US	Adolescents	Systematic review	To consider effectiveness of adolescent reproductive primary prevention strategies	Various	No evidence that primary prevention strategies delay sexual initiation, improve contraceptive use, reduce pregnancies. Abstinence only associated for young men with increased pregnancy in their partners	Very rigorous evaluation - suggestion that may have missed promising work
Oringanje et al (2009)	Interventions for preventing unintended pregnancies among adolescents	Level 1 systematic review				To consider effectiveness of programs to prevent unintended pregnancies in adolescents	Various	Multi-faceted programs with educational, skill building and contraceptive components lowered pregnancy rates. Little evidence of effect when offered singly	Yes

Author	Publication title	Level of evidence	Country	Target group and cultural reach	Method	Objective	Intervention	Outcomes	Applicability to NSW
Cheesborough (2002)	Reducing the rates of teenage conception. A review of the international evidence from United States, Canada, Australia and New Zealand	Level 1	US, Canada, Australia and New Zealand	Teenagers	Review	To consider evidence on preventing and reducing teenage conceptions	Various	1. Positive effect of sexual education 2. HIV prevention programs very effective in increasing condom use, 3. family planning outreach improves teenagers' access to contraceptive services, 4. intensive community-based education and contraceptive services have affected teenage conception rates, 5. raising the aspirations and social skills of pre- and early teen children has a beneficial effect on the later conception rate of that cohort, 6. pre-school programs which focus on skill and confidence building have a beneficial effect on teen pregnancy 10 years later, 7. addressing low aspirations and self-esteem while providing contraceptive information and services is effective in reducing teenage conception, 8. abstinence programs alone have not led to a delay in sexual initiation or a decrease in levels of sexual activity, 9. sexual education does not increase sexual activity at an early age.	Yes, especially findings on improving aspirations of young women and pregnancy and skills of children

Author	Publication title	Level of evidence	Country	Target group and cultural reach	Method	Objective	Intervention	Outcomes	Applicability to NSW
Robin L et al (2004)	Behavioural interventions to reduce incidence of HIV, STD and pregnancy among adolescents: A decade in review.	Level 2 - review	US	Young people	24 randomised control trials or quasi-experimental design with controls.	Evaluation of behavioural interventions to reduce sexual risk-taking in adolescents	Behavioural interventions	Most interventions were based on multiple theories, in 8 out of 12 studies, condom use was affected most, delayed initiation of sexual intercourse was least affected. Abstinence; reduced sexual activity or number of sexual partners; less risky sexual behaviours; reduced number of pregnancy or repeat pregnancy; or reduced STD prevalence.	
Kirby et al (2007)	Sex and HIV Education Programs: Their Impact on Sexual Behaviours of Young People Throughout the World	Level 1	US	Young people	Review	To determine the effects, if any, of curriculum-based sex & HIV education programs on sexual risk behaviours, STD & pregnancy rates, & mediating factors such as knowledge & attitudes that affect those behaviours.	curriculum and group based activities	Identified characteristics of effective programs and mediating factors	Yes
Card (1999)	Teen Pregnancy Prevention: Do Any Programs Work?	Level 3		Young people	Review	To review evidence on effective teenage pregnancy programs	Various	Identified characteristics of effective programs, recommended developing eclectic programs, building on strengths and improving evaluation	Yes
Key et al (2001)	The Second Chance Club: Repeat Adolescent Pregnancy Prevention With a School-Based Intervention	Level 3	US	Pregnant and parenting school students	Retrospective case controlled cohort study	To compare program effect to reduce subsequent pregnancies in students	Weekly meetings, range of interventions	6% of participants vs 37% controls had repeat births after 3 years	Yes
Wight (2001)	Limits of teacher delivered sex education: interim behaviour outcomes from a randomised trial	Level 3	UK	Secondary school students	Randomised cluster controlled trial	To compare 2 types of school education programs	Teacher led vs traditional programs	Increased knowledge in intervention group, no behaviour differences	

Author	Publication title	Level of evidence	Country	Target group and cultural reach	Method	Objective	Intervention	Outcomes	Applicability to NSW
Kirby et al (2004)	The 'Safer Choices' Intervention: Its Impact on the Sexual Behaviours of Different Subgroups of High School Students	Level 2	US	School students year 9 and 10	randomised controlled trial	To measure the relative impact of a school based HIV, STI and pregnancy prevention intervention on sexual risk-taking behaviours of different subgroups of students. schools	Randomised cluster controlled trial	Increase condom use, decrease number of partners with no condom, slight increase contraceptive use,	Yes
Plummer et al (2007)	A process evaluation of a school-based adolescent sexual health intervention in rural Tanzania: the MEMA kwa Vijana Programme	Level 4	Tanzania	Primary school students		Process evaluation of school S&RH education program	A a teacher-led and peer-assisted program based on the Social Learning Theory.	Mixed results, perhaps improved knowledge, inconsistency about self-reported results	Salutary
Bull et al (2008)	POWER for Reproductive Health: Results from a Social Marketing Campaign Promoting Female and Male Condoms	Level 3	US	15-25 year old women, urban		To determine effect of intervention on K, A and use of male and female condoms	Social marketing campaign	No difference between sample and control	Of interest
Futterman et al (2001)	The ACCESS (Adolescents Connected to Care, Evaluation and Special Services) Project: Social Marketing to Promote HIV Testing to Adolescents, Methods and First Year Results from a Six City Campaign	Level 4	US	Urban young people		To determine effect of intervention on young people having an HIV test	Social marketing campaign	No increase in testing, campaign materials acceptable.	Of interest

Author	Publication title	Level of evidence	Country	Target group and cultural reach	Method	Objective	Intervention	Outcomes	Applicability to NSW
Underwood et al (2006)	Reducing the risk of HIV transmission among adolescents in Zambia: Psychosocial and behavioural correlates of viewing a risk-reduction media campaign.	Level 4	Zambia	13-19 years old		To encourage young people to reduce risk of HIV and STI transmission	Social marketing campaign, strong youth input	Correlations between viewing campaign and reduction of sexual risk - especially condom use	Of interest
Jemmott et al (2005)	HIV/STI risk reduction interventions for African American and Latino adolescent girls at an adolescent medicine clinic: a randomised controlled trial	Level 3	US	Young women	3 arms: control, intervention, information only	To assess effect of skills based interventions on sexual risk behaviour and knowledge	Skills based group intervention	Improved knowledge, lower STIs, unprotected intercourse, fewer with multiple partners	Yes
Stephenson et al (2008)	The Long Term Effects of a Peer-Led Sex Education Programme (RIPPLE): A Cluster Randomised Controlled Trial in Schools in England.	Level 3	US	13-14 year school students	Randomised cluster with 7 year follow up comparing teacher led and peer led sex education	To assess effect of teacher-led and peer-led school sex education	Sexual and reproductive health and communication skills	At age 20 years, no difference between 2 arms, at age 18, peer led group had lower likelihood of pregnancy	Of interest
Kim et al (2008)	Recent Evaluations of the Peer-Led Approach In Adolescent Sexual Health Education: A Systematic Review.	Level 1	UK	Adolescents	Systematic review	To determine effect of peer-led sexual health education interventions	Peer-led sexual health education	Improvements in K, A and intentions, no evidence of improved condom use, ever had sex or reduced STI rates	Of interest
Philliber S et al (2001)	The National Evaluation of the Children's Aid Society Carrera-Model Program to Prevent Teen Pregnancy	Level 2	US	13-15 year olds	Randomised controlled trial at 3 years	To assess effectiveness of programs on pregnancy outcomes and educational and work activity	Comprehensive youth development project	Female 40% less likely than controls to have been pregnant, twice as likely to be using injectable contraception. No effect on males in fathering child. 16% increase in work experience.	

Author	Publication title	Level of evidence	Country	Target group and cultural reach	Method	Objective	Intervention	Outcomes	Applicability to NSW
Wiggins et al (2008)	Young People's Development Programme Evaluation: Final Report	Level 2	UK		Process and short and medium term impact	To assess effectiveness of programs on pregnancy outcomes and educational and work activity	Modified from Carrera	Poorer outcomes for young women in UK, pregnancy education and work experience	Yes, highlights issues of replication
Dolcini et al (2008)	Preliminary Findings on a Brief Friendship-Based HIV/STI Intervention for Urban African American Youth: Project ORE.	Level 3	US	14-23 year olds, urban African-American		Pilot of program to prevent HIV and STI	Friendship based HIV/STI prevention network - community based	Reduction in sex partners, improved K (not sustained); decline in condom use at 3months	
Boyer et al (2008)	Youth United Through Health Education: Community-Level, Peer-Led Outreach to Increase Awareness and Improve Noninvasive Sexually Transmitted Infection Screening in Urban African American Youth.	Level 3	US	12-22 year olds, urban African-American		Pilot of program to encourage STI screening	Community level, peer based, street based	Intervention arm increased knowledge	May have application
Lederman et al (2008)	Parent-Adolescent Education (PARE): Program Delivery to Reduce Risks for Adolescent Pregnancy and STDs	Level 3	US	Middle school students and parents	Comparison of traditional program and interactive program	To compare effectiveness of 2 interventions	After school program. Interactive emphasised behavioural, cognitive and social learning, communication and skills development.	Interactive group had greater knowledge and improved skills in preventing pregnancy.	

## International Sexual and Reproductive Health

Author	Publication title	Level of evidence	Country	Target group and cultural reach	Method	Objective	Intervention	Outcomes	Evaluation	Applicability to NSW
Lopez et al (2009)	Theory-based interventions for contraception.	Level 1		General population	Systematic review	To review effectiveness of contraception interventions based on theory	Variety	Interventions applying STI/HIV principles were more effective no single theory was identified		
Downing et al (2005)	Prevention of STIs: a review of reviews into the effectiveness of non-clinical interventions. Evidence briefing update.	Level 1		General population	Systematic review	Identify & synthesise review-level material to highlight 'what works' to prevent or reduce sexual risks and promote sexual health	Variety	Most reviews analysed only intermediate health outcomes (e.g. behaviour) as opposed to health promotion outcomes (e.g. knowledge or skills), These were features of effective interventions: - The use of theoretical models, - Use of behavioural skills training, - Provision of basic, accurate information through clear, unambiguous messages including self-efficacy - Use of targeted and tailored interventions (in terms of age, gender, culture, etc.), making use of needs assessment or formative research		Consider interventions for adults and adolescents - findings of evidence based approach are of value to NSW

## Other International Adolescent Preventive Health Programs

Author	Publication title	Level of evidence	Country	Target group and cultural reach	Method	Objective	Intervention	Outcomes	Evaluation	Applicability to NSW
Stewart-Brown et al(2006)	What is the evidence on school health promotion in improving health or preventing disease and specifically what is the effectiveness of the health promoting schools approach?	Level 1		School students	Systematic review	Review the effectiveness of the health promoting schools approach over a range of areas	Variety	Aspects were associated with effective outcomes: multi-factorial, high intensity, longer duration, peer education.		
Peters et al (2009)	Effective elements of school health promotion across behavioural domains: a systematic review of reviews	Level 1		School students	Systematic review	Review effect of aspects of school health promotion including sexual behaviour and drug use	Variety	Characters associated with effectiveness included: use of theory, addressing social norms, cognitive behaviour skills, multi-component programs		
Ellickson et al (2009)	Long-Term Effects of Drug Prevention on Risky Sexual Behavior Among Young Adults.	Level 2	US	School students	Randomised cluster controlled with 5 and 7 year follow-up	To evaluate effect of drug program on sexual behaviour of participants after many years	School based drug prevention	Participants less likely to have unprotected sex because of drug or alcohol use or sex with multiple partners		

## Other Programs

Author	Publication title	Level of evidence	Country	Target group and cultural reach	Method	Objective	Intervention	Outcomes	Evaluation	Applicability to NSW
Zoritch et al (2000)	Day care for pre-school children	Level 1		Pre-school students	Systematic review	To determine impact of day-care on long-term outcomes of children	Variety	Long-term follow-up showed lower teenage pregnancy rates, increased employment, decreased criminality		

## Appendix 2: Summary of Youth Consultations in WA and Victoria

### 1. Summary of Recommendations (WA)

(From 'Report on the Sexual Health Education of Young People in WA: A Youth Consultation' – Sorenson A 2007)

The report's recommendations are presented in the context of a broader Health Promoting Schools Framework and community partnerships approach and a commitment to youth friendly and relevant educational processes. They are included in this review as a summary of recent, Australian, youth specific background research.

#### *Peer networks, friends and location*

- Promote opportunities to use peer based education and influence models. This includes peer based initiatives to influence young people within school based programs, in informal and out of school settings and through new media and technologies such as the Internet

#### *Youth friendly and relevant sexual health education*

- Ensure the provision of training and policy development for schools and agencies concerning youth friendly approaches to sexual health education, including issues of trust, confidentiality and credibility, to equip young people with socially relevant skills
- Support the building of partnerships between schools and youth health services
- Improve training, development and ongoing support for schools to ensure teachers are implementing comprehensive and age appropriate sexual health education confidently throughout all years of schooling
- Ensure sexual health education is identified as a core component of school health promoting obligations
- Enhance support for professional development of youth services staff in the implementation of effective, evidence based, interactive and youth friendly sexual health and relationship programs and services
- Increase resources to evaluate the effectiveness of different modes of outreach programs and services targeting out of school or marginalised young people

#### *Family learning and influence*

- Increase resources to develop effective and achievable ways to engage parents and increase their capacity to support comprehensive sexual health education within a Health Promoting Schools Framework

#### *Media and the Internet*

- Support curriculum that increases young people's skills in assessing accuracy and quality of information and images presented in the media, including the Internet

#### *Rites of passage events, parties, and alcohol*

- Promote the inclusion of context and relationship issues within alcohol, drug and sexual health education such as: assertiveness; planning healthy behaviour;

relationship conflict; sexual assault and consent; social and peer influence; and looking after and supporting peers

- Promote the development and evaluation of outreach initiatives to young people conducted during major celebrations and determine their effectiveness and how complementary they are to school based programs
- Promote education programs that respond to the linkages between sex and alcohol and drugs in the context of young people's lives

## 2. Summary of findings (Victoria)

(From 'Making it Real: Sexual Health Communication for Young People Living with Disadvantage' Keys 2008)

A total of 11 focus groups were held with 112 young people, including homeless young people, young mothers, Aboriginal young people, same sex attracted, transgender and intersex young people (SSATI), incarcerated youth, Horn of Africa young men and Somali young women, regional youth and secondary school students. Focus groups consisted of group discussions and evaluations of a range of sample sexual health promotion pamphlets.

The findings demonstrated important commonalities between the groups.

### *Health seeking behaviours:*

- With the exception of SSATI youth, young people are reluctant sexual health information seekers
- Information seeking is more likely to occur after risky sexual experiences or the appearance of symptoms, rather than as a preventative strategy
- Lack of interest, stigma and denial of risk discourage and hinder information seeking
- Any financial cost is a deterrent to health seeking behaviour
- Young people in regional towns note a shortage of sexual health services and information for young people which discourages health information seeking

### *Message:*

- Young people differentiated between awareness raising messages and detailed health information. They stated that communication strategies needed to reflect these different purposes. They acknowledged clear differences in broad based big picture sexual health information and more specific sexual health information that may be communicated to them on a one to one basis
- There is a strong need to reduce the stigma associated with STIs
- Short, simple messages are preferred in unsolicited information
- Many young people are unaware that males can catch Chlamydia and think awareness of this fact needs to be increased
- Most young people rated a broad range of information about STIs (symptoms, treatment, etc.) as very or quite important for young people
- There were few differences between young men and women in the relative importance they allocated to types of information young people need.
- Many young people think scare tactics are necessary to reach some individuals but a small majority think scare tactics increase stigma and can scare people into inaction.

### *Medium:*

- Targeting a captive audience is key to an effective strategy, therefore using 'opportunistic advertising' is considered the most effective approach for raising awareness
- The preferred communication strategies for raising awareness and providing short sharp messages about Chlamydia are television advertisements and posters
- The preferred sources of detailed health information are people not technology: – help lines, school sex education and doctors
- Young people continue to value and trust the expertise of health workers and doctors and think it is appropriate for them to raise STIs as an issue for discussion
- Young people trust information that is endorsed by government or doctors
- It is important to work with the community to reach Aboriginal youth
- New technologies are not popular as sources of information
- The internet was identified as a medium for awareness raising/delivering short sharp messages but not favoured as a site for obtaining detailed sexual health information, other than by SSATI young people
- Using text messaging via mobile phones was rejected as an acceptable method, other than by those in the SSATI group
- Pamphlets are only of interest to those who have an STI diagnosis or are concerned they may have contracted an STI

### *Style:*

- Over-dramatised' advertisements are not credible
- Young people (except Aboriginal youth) prefer peers or actors who can convincingly portray people 'like us', rather than celebrities, in mass media campaigns
- Television advertisements that present realistic and emotionally engaging scenarios are highly favoured
- Preference for the use of humour or a serious approach is an individual predilection
- Young people prefer messages to be conveyed by images, with minimal text
- Simple language that does not attempt to be 'too cool' is preferred
- Aboriginal and African youth were attracted to material that contained images, symbols or language associated with their cultural backgrounds

## **2.1 Summary of Recommendations (Victoria)**

### *Overarching recommendations:*

1. Communication strategies should comprise:
  - a. A broad mass media awareness raising campaign; and
  - b. A range of strategies to disseminate more detailed health information.
2. Large-scale culturally and ethnically inclusive health promotion campaigns should be prioritised given the considerable similarities between marginalised groups of young

people. Small-scale targeted campaigns, developed with input from relevant young people, would benefit Aboriginal youth, young people from the Horn of Africa and those who are significantly economically/educationally disadvantaged.

3. Health education campaigns need to address as a priority the belief that young women are the prime carriers of STIs, and the predominant myth that Chlamydia is a 'women's disease'.
4. Communication strategies for detailed STI information should utilise trusted sources of sexual health information, such as health professionals, rather than less trusted, and possibly trustworthy, media such as the internet.
5. Services where young people can obtain free sexual health information, testing and treatment should be identified and widely publicised.
6. New STI campaigns should be developed with the assistance of young people, including young people from marginalised groups.
7. Educationally disadvantaged adolescents, particularly males, should be targeted with messages that decrease the stigma of STIs and address issues of respect, blame and scapegoating.

#### *Awareness raising campaign:*

1. Develop a widespread awareness campaign to reach all young people through television and cinema advertising, posters, billboards, banner style advertisements on social networking websites, shopping docketts and other 'opportunistic' advertising locations. This campaign should deliver simple information about STIs, including Chlamydia.
2. The awareness raising campaign should utilise a range of styles to engage diverse young people. Messages should be short and simple. Images should be used and text kept to a minimum. Materials should be bright and engaging and employ catchy slogans.
3. Awareness raising materials should include humorous and serious elements, as different approaches were effective with different individuals.
4. Advertisements should present a realistic portrayal of STIs that young people can relate to and not overdramatise the health effects or social consequences. This would include the juxtaposition of dramatic negative health consequences with positive outcomes.

#### *Comprehensive STI information*

1. Comprehensive STI information should be presented in a more serious style than awareness raising material and be endorsed by government and/or medical authorities to indicate that it is from a valid, trustworthy source.
2. Young people want to access people rather than technology when seeking more detailed information. The awareness raising campaign should direct young people to sources such as doctors and other health workers, help lines or other trusted sources of information.
3. Help lines should be answered by a person, not a recorded message, should be free and should have the information to refer young callers to appropriate health services. Help lines should advise people of free services where available and any potential costs related to testing or treatment should be communicated in advance.

4. Consideration should be given to providing more comprehensive school-based sexual health education in late primary school (years five and six) and throughout secondary school.
5. Doctors and other health professionals should be encouraged to be proactive in discussing STIs with young people when consulting about related health issues. Up skilling of health providers and patient access need to be addressed.
6. Pamphlets and downloaded information sheets are appropriate media for young people seeking or requiring comprehensive STI information and should be integrated into health service consultations rather than merely left for young people to collect.

### Appendix 3: Sydney Consensus Statement on Principles for Better Practice in Aboriginal Health Promotion (2002)

This was produced as a stand-alone document based on the national consultation workshop deliberations and subsequent comment (NSW Health 2002).

These principles are:

- Aboriginal health promotion should acknowledge Aboriginal cultural influences and the historical, social and cultural context of communities – *health promotion initiatives need to sensitively acknowledge, affirm and reflect the values of Aboriginal culture sensitively within and between communities. Initiatives that neglect the effects of history and the social environment of Aboriginal people will have limited success.*
- Aboriginal health promotion practice should be based on available evidence – *evidence can come from a wide range of sources. Qualitative as well [as] quantitative evidence can inform practice. Decisions about the evidence on which to base practice should take account of the strengths, limitations and gaps in the available evidence.*
- Effective Aboriginal health promotion practice means building the capacities of the community, government, service systems, organisations and the workforce, ensuring equitable resource allocation (flexible purchaser-provider arrangements) cultural security and respect in the workplace – *examples of building and strengthening capacities through effective practice could be where others agree to participate in or take on programs; where individuals, units or even government departments have greater ability to work together to solve problems; or where a process is established for routinely improving practice.*
- Aboriginal health promotion should ensure ongoing community involvement and consultation – *Aboriginal health promotion initiatives need to have community input at all levels of program planning, implementation and evaluation. Support from the broader community and within the wider health system will impact on effective and sustainable practice.*
- The practical application of Aboriginal self-determination principles is fundamental in all Aboriginal health promotion planning – *Aboriginal people are best placed to work consistently in partnership with relevant organisations on interventions that build community ownership and respond to the needs and motivations of the community with cultural understanding and sensitivity.*
- Aboriginal health promotion adheres to the holistic definition of health and acknowledges that primary health care in Aboriginal communities incorporates Aboriginal health promotion – *a coordinated and proactive approach to primary health care that includes early intervention and prevention strategies will promote improved Aboriginal health and wellbeing.*
- The establishment of effective partnerships is required to address many of the determinants of health – *many of the determinants of health are beyond the direct influence of the health sector alone. Different collaborations and partnership approaches are likely to be prerequisites for effective action to address these determinants.*
- Aboriginal health promotion programs should aim to be sustainable and transferable – *sustainable programs will be planned and organised to incorporate rigorous evaluation throughout and be responsive to the outcomes of that evaluation. Programs that are multi-faceted and include effective evaluation and*

*sustainability strategies will also improve the design of future programs. Involving stakeholders, in particular those who have supported similar initiatives, can positively influence the transferability of programs. Providing formal and/or informal training of people whose skills and interest will be retained can create a broader base of advocacy.*

- *Aboriginal health promotion should demonstrate transparency of operations and accountability – visible decision-making policies and practices that are based on a sound rationale will have the capacity to take into account the complex and changing nature of Aboriginal health promotion.*

## Appendix 4: Evidence Building

### 1. Evidence building

While there is good evidence internationally for effective programs, many local programs stimulate more research questions than they resolve. Effective transferability of programs must be based on an understanding of qualities of the 'donor' population and the 'recipient' population to ensure compatibility. The review is not able to provide recommendations of which intervention to implement for a particular population to deliver these changes within a particular period. Rather, based on the review findings, approaches are recommended and particular areas of need or importance are prioritised.

The following areas are identified as a priority for building a local evidence base:

- Socio-cultural context and meaning of pregnancy, what are the elements of the problem and for whom?;
- Socio-cultural context of sexual behaviour, adolescence and STIs;
- Male sexual and reproductive health literacy, attitudes and behaviour;
- Young people in justice and tailored interventions;
- Contraceptive – patterns of use, reasons for use/non-use;
- Service access and delivery, considering integration, collaboration, mainstreaming particularly; accessing 'hard-to-access': more socio-economically disadvantaged, those in rural and remote areas, those with 'co-morbidities': social, mental health etc.;
- School based curricula, pre-school and child care based curricula;
- Earlier interventions – partnerships, form, implementation and measuring outcomes;
- Program evaluation;
- Theoretical (psycho-social-educational) models – what works with Aboriginal young people?; and
- Baseline data sexual and reproductive health issues for this population – and the older population.

### 2. Process issues

It is clear from the review that the following components are important to the development and implementation of interventions and contribute to effective outcomes:

- Needs assessment and planning;
- Community role: gate-keepers, brokers and participants;
- Young people's role: consultation, collaboration and feedback. Roles as participants and service providers;
- Organisational roles, planning, collaboration and coordination of effort and development of partnerships;
- Service providers – training, support;

- Risk management: understanding of issues facing Aboriginal people and communities, and the wider community with the introduction and continuation of new programs; and
- Consideration of theoretical models to underpin program form.

### 3. Collaboration

The review identifies the importance of collaboration across and within many sectors at a range of levels. There are opportunities for and benefits of addressing these issues using a multi-disciplinary, multi-component approach. For example:

- Establishing interdepartmental youth working parties/ advisory committees (Health, Education, Corrections, Early Childhood, Employment and Training);
- Developing and strengthening local youth networks regionally (not necessarily defined by the Area Health Service) of program developers and service providers; and
- Develop a similar process at the local level with local agencies.

### 4. Evaluation process

The development of effective and sustainable evaluation processes is very important and not an obvious feature of Australia's health programs. Access to evaluation findings is also important; a process to support this in this sector would be very useful. Cost effectiveness analyses are a part of this and would appear to be a long way off – but should be considered in the design of any intervention evaluation.