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Supplement



## Adolescent health



**Substance use in adolescents:  
if you don't ask, they won't tell**

**STIs in adolescents and  
young adults: prevention and  
screening**

**Vaccination for adolescents**



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# Substance use in adolescents

## If you don't ask, they won't tell

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**Adolescents presenting with substance use is increasingly commonplace. Fortunately, GPs are equally well placed to manage substance use with early intervention offering the greatest opportunity for positive behaviour change into adulthood. Effective approaches to prevention and intervention should be strengths-based with concurrent aims of increasing knowledge and motivation, reducing risk of further harm and building resilience. Engaging the adolescent is crucial and success depends on tailoring brief interventions that are evidence-based, age appropriate and where possible, involve the family and community.**

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**C**annabis is the most commonly used illicit drug in Australia; tobacco smoking the leading cause of preventable death; and alcohol the most common primary drug of concern, accounting for most drug-related hospital episodes in 2018.<sup>1</sup> Equally concerning are the rising number of deaths due to methamphetamine and other stimulant use and the risk of overdose related to opioids, benzodiazepines and prescription medications.<sup>1</sup> These are sombre statistics that tell a story of a burgeoning health crisis marked by early initiation, easy access, increasing risk-taking behaviours and polysubstance use.

The good news is that rates of tobacco smoking, regular cannabis use and drinking alcohol at harmful levels are dropping among adolescents and young people in Australia.<sup>2</sup> Effective public health measures and a national strategy of harm minimisation for tobacco, alcohol and other drugs have demonstrated early successes across the board. However, the treatment models used over the past two decades have focused on adult substance use and addiction. Only recently have efforts shifted to investing in adolescents from a developmental science perspective, with the knowledge that early intervention in this group (aged 10 to 19 years) during a period of rapid growth, learning and adaptation will shape their long-term health trajectory. Dahl et al, in their review of adolescent health interventions, describe the distinctive attributes of learning, development and maturation during adolescence that 'support acquisition of the culturally embodied knowledge, skills and self-regulating capacities needed to become independent and integrate into adult society'.<sup>3</sup>

It is within this developmental context that GPs are aptly positioned to intervene early. The key message for primary care providers is to ask adolescents about their substance use and engage them early in treatment. Our own discomfort, lack of familiarity with or preconceptions of substances should not be a barrier to patients receiving appropriate care. To that end, it

is important that clinicians appreciate what substances young people commonly use and how they work, that is, both their intended and unintended side effects. Box 1 provides useful drug and alcohol resources for healthcare providers.

### Assessment

Substance use is a spectrum that varies with an individual's level of use and the dysfunction they experience as a result of their use. The use of alcohol and other drugs ranges from experimenting and social use (e.g. in social situations, weekends) to substance abuse, when the drug's effects seriously interfere with health or occupational and social functioning. Continued use of psychoactive substances can lead to chemical dependency or addiction, with the inability to control use despite harmful consequences, maladaptive patterns of behaviour and features of tolerance and/or withdrawal.

Intervention is integral to elicit behavioural change. Primary intervention aims to prevent or delay the onset of alcohol and other substance use, and can take place outside of GP practices, including at school, hospitals and through community youth health services. Secondary intervention focuses on reducing problems early in the substance use spectrum and averting progression to possible substance dependence.

### Setting the scene

Experimenting with alcohol and other drugs is commonplace during adolescence.<sup>1</sup> Being conscious of this and using clear, open and nonjudgemental communication will improve your engagement with young people when talking about substance use. It is best practice to see the adolescent on their own and to establish confidentiality early in your consultation, except in exceptional circumstances such as disclosure of intention to self-harm or harm others. It may take several visits with the young person to earn their trust and, provided that they are safe, this is recommended. Parents and/or carers may present with concerns about the adolescent's substance use. Consent to disclose information to parents/carers should be sought, unless the adolescent identifies risk of self-harm or harm to others, in which case safety planning must be developed. Building a therapeutic alliance from the start will confer positive results later and give young people the confidence to seek counsel with other sensitive health needs.

### History and screening

Bridging questions are often helpful before launching into a focused drug and alcohol history, and the HEADSSS (Home, Education, Activities, Drugs, Suicidality, Sex and Safety) assessment is a good place to start.<sup>4</sup> Ask individually about each substance group starting with tobacco, alcohol and cannabis, and progressing to drugs that are less commonly used such as

## 1. YOUTH DRUG AND ALCOHOL RESOURCES FOR HEALTHCARE PROVIDERS

- **Australian Drug Foundation (ADF):** the premier website for specific drug and alcohol information with helpful resources and downloadable factsheets (<https://adf.org.au/drug-facts/>)
- **Dovetail:** provides clinical advice and professional support to workers, services and communities across Queensland who engage with young people affected by alcohol and drug use ([www.dovetail.org.au/](http://www.dovetail.org.au/))
- **Headspace:** Australia's national youth mental health foundation ([www.headspace.org.au](http://www.headspace.org.au))
- **"KidsQuit" Smoking Cessation Brief Interventions:** an interactive and educational tool, developed by The Children's Hospital at Westmead, to provide professionals with simple strategies for advising adolescents, parents and carers about smoking cessation and reducing exposure to secondhand smoke (<https://kidshealth.schn.health.nsw.gov.au/kidsquit-smoking-cessation-brief-interventions>)
- **Alcohol and Drug Information Service (ADIS):** a 24-hour support line with counsellors available to provide information, referrals and crisis counselling. Tel: 1800 250 015, web chat available Monday to Friday 8.30am–5pm (<https://yourroom.health.nsw.gov.au/getting-help/Pages/adis.aspx>)
- **Hello Sunday Morning:** an online resource and community for young adults to help change drinking behaviours and includes the free 'Daybreak' app (<https://hellosundaymorning.org/>)
- **Youth Support and Advocacy Service (YSAS):** provides online resources for healthcare professionals including a Youth/Parent/Out-of-home care alcohol and other drugs tool box and learning hub ([ysas.org.au/for-professionals-1](http://ysas.org.au/for-professionals-1))
- **Alcohol and Drug Withdrawal Guidelines:** (<https://www.turningpoint.org.au/treatment/clinicians/withdrawal-guidelines>)
- **NSW Health Drug and Alcohol Withdrawal Clinical Practice Guidelines:** ([https://www1.health.nsw.gov.au/pds/pages/doc.aspx?dn=GL2008\\_011](https://www1.health.nsw.gov.au/pds/pages/doc.aspx?dn=GL2008_011))

### Interactive websites for young people

- **NSW Your Room:** a user-friendly drug and alcohol website with plenty of helpful resources (<https://yourroom.health.nsw.gov.au>)
- **Your Choice:** a binge drinking support program with AUDIT-C questionnaire ([www.yourchoiceonline.com.au](http://www.yourchoiceonline.com.au))
- **Moodgym:** an interactive, self-help resource that helps users prevent and manage symptoms of depression and anxiety (<https://moodgym.com.au>)

**2. DRUG AND ALCOHOL SCREENING TOOLS**

- **Car, Relax, Alone, Forget, Friends, Trouble (CRAFT) 2.0:** Validated screening tool with high sensitivity and specificity for alcohol and substance misuse in adolescents.<sup>5</sup> This tool is easy for GPs to administer, covers substance use generally and is recommended by the American Academy of Paediatrics (<https://craftt.org/>)
- **Hooked on Nicotine Checklist (HONC):** 10-item instrument used to determine the onset and strength of tobacco dependence (<https://cancercontrol.cancer.gov/brp/tcrb/measures-guide/hooked-on-nicotine-checklist>)
- **Alcohol Use Disorders Identification Test (AUDIT):** 10-item instrument developed by the WHO to detect harmful drinking behaviours ([www.dacas.org.au/sites/default/files/inline-files/AUDIT-interview-version.pdf](http://www.dacas.org.au/sites/default/files/inline-files/AUDIT-interview-version.pdf))
- **Cannabis Use Disorder Identification Test – Revised (CUDIT-R):** 8-item measure to screen for cannabis use disorder (<https://insight.qld.edu.au/shop/the-cannabis-use-disorder-identification-test-revised-cudit-r-insight-2019>)
- **Severity of Dependence Scale (SDS) and Readiness Rulers Screening Tool:** Questionnaire that provides a score indicating the severity of dependence for cannabis, amphetamines and benzodiazepines (<https://insight.qld.edu.au/shop/severity-of-dependence-scale-sds-and-readiness-rulers-screening-tool>)

amphetamines (speed, base, ice and ecstasy), cocaine, opiates, benzodiazepines, over the counter medications, inhalants and hallucinogens (such as LSD; lysergic acid diethylamide) and ketamine. More young Australians are experimenting with vaping (approximately 5% of 18 to 24 year-olds) with increasing rates of first-time use seen in nonsmokers.<sup>1</sup> From our experience, this figure is likely under-reported and we recommend that healthcare providers routinely ask about vaping, including the type of device used (e.g. e-cigarette, tank, pipe) and the content of the e-liquid or ‘juice’ (e.g. nicotine, tetrahydrocannabinol, cannabinoid). Ascertain their pattern of use (e.g. daily, socially, on weekends), the age of onset and regular use, how they access drugs and quantify the amount consumed at any given time. Finally, ask the young person about when they last used and whether they have experienced symptoms of withdrawal or tolerance.

Several screening tools have been validated to identify harmful consumption of drugs and alcohol in adolescents and include the AUDIT (Alcohol Use Disorders Identification Test), CRAFT (Car, Relax, Alone Forget, Friends, Trouble) and HONC (Hooked on Nicotine Checklist) screening tools (Box 2).<sup>5</sup> These tools are administered via interview or are self-reported (e.g. in the waiting room of your practice) and will help to distinguish between social, problematic and dependent patterns of substance use.

**3. RISK ASSESSMENT FOR ADOLESCENT SUBSTANCE USE**

Consider the following in your work-up of adolescents with moderate to severe substance use:

- Medical complications of the substance used
- Nutritional assessment
- Immunisation status
- Risks of intravenous drug use including thrombophlebitis, skin abscesses, septicæmia, infective endocarditis and blood-borne viruses (hepatitis B, C and HIV)
- Sexual health and sexually transmitted infection screening
- Mental health including screening for anxiety, depression, suicidal risk factors and early psychosis
- Family relationships and living situation
- Educational achievement including issues such as attention deficit hyperactivity disorder and specific learning difficulties
- Forensic history
- Assessment of harms associated including sexual assault, motor vehicle accidents, trauma, violence or aggression

**Mental health**

It will be of no surprise to the readership that many young people who present with problematic substance use have comorbid mental health issues. Although GPs are adept at managing mental health in the community, it is particularly important to recognise the complex interplay between psychiatric disorders, substance use and access to both prescription and illicit drugs. Young people with neurodevelopmental disorders such as attention deficit hyperactivity disorder, oppositional defiant disorder, conduct disorder and mood disorder have a higher risk of problematic substance use and disproportionately present to youth drug and alcohol services.<sup>6</sup> Although outside the scope of this review, addressing specific management of these comorbidities will improve outcomes, and referral to community mental health and paediatric services for assessment and intervention is recommended.

**Risk assessment**

A comprehensive assessment including risk assessment (Box 3) should be performed for all adolescents and young adults presenting with substance use. Vulnerable young people, including those who are homeless or in out-of-home care; in the criminal justice system; victims of violence, child abuse or neglect; or those not engaging in work or education are particularly prone to substance use. When assessing the patient, consider age of first substance use, ease of access, parental supervision, safety of the young person and harms associated with specific substances.

Adolescents who are in out-of-home care, or case managed

#### 4. THE 5A'S APPROACH TO SMOKING CESSATION<sup>8</sup>

The 5A's provide health professionals with a framework for structuring smoking cessation support, but can also be applied to other forms of substance use. The key features are:

- **Ask** adolescents regularly if they smoke and/or vape and document this information. Use the Hooked on Nicotine Checklist (HONC) (Box 2)
- **Advise** smokers to quit in a clear and unambiguous way, taking into account the young person's developmental stage
- **Assess** the adolescent smoker's needs and stage of change. Nicotine dependence should also be assessed. Complete a thorough risk assessment (Box 2) to help develop a comprehensive treatment plan
- **Assist** all smokers to quit. This may be a through combination of pharmacological therapy (e.g. nicotine patch), motivational interviewing, written information and referral to local smoking cessation services
- **Arrange** follow-up visits to provide ongoing support and brief intervention

by social services, nongovernment organisations or other youth agencies, add a further degree of complexity when trying to co-ordinate their care. Fostering interagency collaboration is crucial to ensure that the needs of the adolescent are met and treatment plans are followed. Missed appointments, unfilled prescriptions and frequent presentations to acute mental health and emergency services should raise concern. Additionally, some adolescents engage in risky or criminal activity, including unwanted or unsafe sexual activities associated with substance use. GPs and other healthcare providers are mandatory reporters for child protection concerns and need to be acutely aware of the child-at-risk reporting framework and the local guidance for the state or territory in which they practise.

#### Treatment principles

Adolescence is an opportune time for early intervention for issues related to alcohol and other substance use. The goals of assessment are to identify the harms and comorbidities associated with substance use and to formulate a treatment plan that is unique to the needs of the adolescent. Provision of evidence-based behavioural interventions, addressing child protection concerns and delivering care in a trauma informed manner are key treatment principles that GPs are well-equipped to perform.

#### Brief interventions

Brief interventions offer GPs the most value in influencing positive behaviour change and reducing harmful use.<sup>7</sup> When successfully applied, a brief intervention is opportunistic, revisited at every contact and consists of informal counselling and drug psycho-education. It is most appropriate early in substance use to reduce

#### 5. THE FRAMES MODEL FOR RISKY OR HARMFUL ALCOHOL CONSUMPTION<sup>9</sup>

- **Feedback of personal risks:** inform the young person of their AUDIT score. Many adolescents may be surprised that they are drinking at hazardous levels and highlighting risks can be a powerful motivator for change
- **Responsibility:** stress that the decision to change drinking patterns is their choice, but that supports are available. Engage the family or other caregivers if appropriate
- **Advice:** offer clear and succinct advice using language that is developmentally appropriate. Outline safe drinking levels and risks of continued harmful consumption
- **Menu:** offer several strategies to change drinking behaviour. These include alternating alcoholic drinks with soft drinks, switching to low alcohol content drinks, goal setting (e.g. regular alcohol-free days), engaging in alternative activities to drinking and identifying high-risk situations for heavy drinking and creating a management plan
- **Empathy:** adopt a warm, reflective, and collaborative approach in order to build a therapeutic alliance with your patient
- **Self-efficacy:** support the young person's ability to change. Focus on positive steps taken including engaging with services and communicate a sense of optimism, not helplessness

harmful consumption but can also be applied later to achieve harm reduction for individuals who are chronically using or drug dependent. Examples of brief interventions that are easy to follow include the 5A's (ask, advise, assess, assist, arrange) approach (Box 4) and FRAMES (feedback of personal risk/impairment, responsibility, advice, menu, empathy, self-efficacy) (Box 5) model, and although specific to tobacco and alcohol, respectively, can be applied generally to other substances.<sup>8,9</sup>

#### Motivational interviewing/Motivational enhancement therapy

Motivational interviewing and enhancement therapy models are based on the assumption that ambivalence about substance use (and change) is normal and can be resolved by working with the person's intrinsic motivations and values.<sup>10</sup> A significant part of drug and alcohol assessment and intervention is understanding where the adolescent sits with regard to wanting to change their drug use (Box 6)<sup>11</sup> and adopting an empathetic yet directive counselling style to provide conditions under which change can occur. We are mindful that the effect of this intervention is somewhat influenced by the developmental age of the adolescent and their capacity to make changes, particularly if there are issues related to substance use in their family and community. Younger adolescents are more likely to require additional supportive social and family systems (including parental/carer supervision) to assist with making changes.

## 6. THE STAGES OF CHANGE MODEL OF DRUG/SUBSTANCE USE<sup>11</sup>

- **Precontemplation:** the adolescent does not recognise that alcohol or drug use is a problem and is not ready to change. They will usually focus on the positive aspects of their drug use
- **Contemplation:** the adolescent is ambivalent or unsure about substance use and is thinking about making some change. This group is particularly amenable to motivational interviewing
- **Action:** adolescents in this group are ready for change. They may have already taken some action to change their behaviours. This is when the risk of relapse is highest
- **Maintenance:** this group of adolescents has ceased their alcohol or drug use and are maintaining the change
- **Relapse:** the adolescent has returned to substance use. It is important to treat this as part of the process of change rather than as failure. Relapse is common in the natural history of substance use

### Harm minimisation

It is important to consider the actual harms associated with the use of a particular drug and how these harms can be reduced for the individual and society. This can include individual and physical harms (such as overdose, accident or injury associated with substance use) and impact on our society (such as increased criminal activity associated with substance use). A harm minimisation approach does not insist on abstinence as the only objective of treatment but on reducing the risks associated with substance use. Some examples of harm minimisation include educating young people on strategies to reduce harms from alcohol consumption, party safe campaigns and needle exchange programs to reduce risk of harms associated with intravenous drug use.

### Individual cognitive behavioural therapy

Cognitive behavioural therapy is an evidence-based treatment approach for young people who present with substance use.<sup>12</sup> Referral to psychosocial services that offer cognitive behavioural therapy and/or online modules (Box 1) will generally focus on emotion regulation and impulse control and entail the following:

- relaxation techniques
- anxiety management
- managing cravings
- relapse prevention
- counselling
- substituting substance use with healthier options
- spiritual fulfilment.

### Family therapy

Family therapy has proven efficacy for adolescents with substance use problems by focusing on close relationships and validating the experience of all family members. Involving parents in treatment

## 7. PRACTICE POINTS

- Assessment is key – use validated screening tools to ascertain patterns of substance use and motivation for change
- Engage the young person – build a therapeutic alliance based on trust, confidentiality and shared decision-making
- Act now – adolescence is an opportune time for intervention to prevent or delay the onset of alcohol and other substance use
- Promote self-management – encourage active participation with treatment goals and empower the young person to keep themselves and their peers safe
- Identify and address comorbidities including mental health issues such as anxiety and depression
- Make every contact count – brief interventions can reduce harmful consumption and help maintain behaviour change

indirectly assists the adolescent by addressing parental concerns, influencing parenting style, building capacity and breaking unhealthy patterns of communication and interactions.<sup>13</sup>

### Pharmacotherapy

Pharmacotherapy refers to the use of medications in substance abuse treatment in addition to other therapies mentioned. More commonly, medications are used to manage comorbid mental health issues, for the short-term alleviation of withdrawal symptoms and for patients at the more severe end of the substance use spectrum. Examples include nicotine replacement therapy for young people who are nicotine dependent, or medications such as acamprostate for chronic alcohol abuse. Our experience suggests that adolescents are more likely to benefit from pharmacological treatments when used adjunctively with individual and family interventions, and starting therapy is often a case-by-case decision. Medication to assist with withdrawal symptoms for the short term may be considered.

### Tertiary intervention

Tertiary intervention strategies are aimed at achieving abstinence and reducing harm for young people at the severe end of the substance use spectrum. This intensive intervention requires referral to youth drug and alcohol services and adopts an assertive case management approach. Residential rehabilitation falls under this category and programs are specifically targeted to assist with breaking the cycle of drug use, re-engaging the young person in school, education or employment and promoting healthy social supports.

### Conclusion

Investing in adolescents offers the greatest opportunity for positive behaviour change and successful attainment in

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adulthood. To do this well, we need to recognise the distinct developmental changes of adolescence, when this occurs and how their changing social roles and identity affect their learning and behaviours. The issue of substance use by adolescence is no different – ask the question, understand the problem and target treatments that are tailored to their needs (Box 7). Prevention and early intervention for adolescents with substance use offers the best chance to intercept that pivotal inflection point, when habits are formed and behaviours can change. **MT**

## References

1. Australian Institute of Health and Welfare (AIHW). Alcohol, tobacco & other drugs in Australia. AIHA 2020; Cat. No. PHE 221. Available online at: <https://www.aihw.gov.au/reports/alcohol/alcohol-tobacco-other-drugs-australia> (accessed August 2020).
2. Guerin N, White V. ASSAD 2017 Statistics & Trends: Australian secondary students' use of tobacco, alcohol, over-the-counter drugs, and illicit substances. Second Edition. Cancer Council Victoria 2020. Available online at: [www.health.gov.au/resources/publications/secondary-school-students-use-of-tobacco-alcohol-and-other-drugs-in-2017](http://www.health.gov.au/resources/publications/secondary-school-students-use-of-tobacco-alcohol-and-other-drugs-in-2017) (accessed August 2020).
3. Dahl RE, Allen NB, Wilbrecht L, Ballonoff Suleiman A. Importance of investing in adolescence from a developmental science perspective. *Nature* 2018; 554: 441-450.
4. Contemporary Paediatrics. HEEADSSS 3.0: The psychosocial interview for adolescents updated for a new century fueled by media. Contemporary Paediatrics 2014. Available online at: [www.contemporarypediatrics.com/view/heedsss-30-psychosocial-interview-adolescents-updated-new-century-fueled-media](http://www.contemporarypediatrics.com/view/heedsss-30-psychosocial-interview-adolescents-updated-new-century-fueled-media) (accessed August 2020).
5. Knight JR, Sherritt L, Shrier LA, Harris SK, Chang G. Validity of the CRAFFT substance abuse screening test among adolescent clinic patients. *Pediatr Adolesc Med* 2002; 156: 607-614.
6. Phillips NL, Milne B, Silsbury C, et al. Addressing adolescent substance use in a paediatric health-care setting. *J Paediatr Child Health* 2014; 50: 726-731.
7. Babor TF, McRee BG, Kassebaum PA, Grimaldi PL, Ahmed K, Bray J. Screening, Brief Intervention, and Referral to Treatment (SBIRT): toward a public health approach to the management of substance abuse. *Subst Abuse* 2007; 28: 7-30.
8. Australian Government Department of Health. Smoking cessation guidelines for Australian general practice: desktop guidelines and patient education materials. 2004. Available online at: [www1.health.gov.au/internet/main/publishing.nsf/Content/phd-pub-tobacco-smoking-cessation-flip-cnt](http://www1.health.gov.au/internet/main/publishing.nsf/Content/phd-pub-tobacco-smoking-cessation-flip-cnt) (accessed August 2020).
9. Bien TH, Miller WR, Tonigan JS. Brief interventions for alcohol problems: a review. *Addiction* 1993; 88: 315-335.
10. Britt E, Hudson SM, Blampied NM. Motivational interviewing in health settings: a review. *Patient Educ Couns* 2004; 53: 147-155.
11. Prochaska JO, Norcross JC. Stages of change. *Psychother Theor Res Pract Train* 2001; 38: 443-448.
12. Tanner-Smith EW, Wilson SJ, Lipsey MW. The comparative effectiveness of outpatient treatment for adolescent substance abuse: a meta-analysis. *J Subst Abuse Treat* 2013; 44: 145-158.
13. Das JK, Salam RA, Arshad A, Finkelstein Y, Bhutta ZA. Interventions for adolescent substance abuse: an overview of systematic reviews. *J Adolesc Health* 2016; 59(4S): S61-S75.

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# STIs in adolescents and young adults

## Prevention and screening

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**Initiation of intimate sexual behaviours is natural during the course of adolescent development. GPs are well placed to promote sexual health among adolescent and young adult patients, which includes sexually transmissible infection prevention and screening.**

First experiences of sexual arousal, emerging interest in sexuality and initiation of intimate sexual behaviours with others are natural and common during the course of adolescent development. GPs are well placed to offer assessment, anticipatory guidance and preventive care advice about a range of health behaviours, which begin during the second decade of life. It is appropriate for GPs to explore adolescent and young adult patients' interest in, and experiences of, partnered sexual behaviour, within the context of a confidential consultation.



Throughout this article we will use the expression 'adolescents and young adults' to refer to those aged 15 to 24 years to reflect sexually transmissible infections (STIs) epidemiology in this age bracket. The median age of first vaginal intercourse in Australia is just under 17 years, and notification rates for notifiable STIs increase exponentially from the age of 15 years, reflecting the commencement of sexual activity.<sup>1,2</sup> The WHO defines adolescents as those aged 10 to 19 years, and youth as those aged 10 to 25 years.<sup>3</sup>

STIs among sexually active adolescents and young adults are relatively common, and usually asymptomatic. In Australia, chlamydia is the only STI with a high enough prevalence to warrant universal, opportunistic screening in sexually active adolescents and young adults. However, some populations of adolescents and young adults are at increased risk of other STIs such as gonorrhoea and syphilis. Offering chlamydia testing should be incorporated into routine clinical practice with sexually active adolescent and young adult patients, while a more detailed sexual history will help direct further STI screening and advice. We will not discuss HIV or blood-borne virus epidemiology or presentations in this article but will include a summary of screening guidelines.

### STI epidemiology and clinical presentations in adolescents and young adults in Australia

#### Chlamydia

Chlamydia is the most commonly diagnosed STI in adolescents and young adults and its prevalence in the Australian population is approximately 5.0% for women under 25 years and 3.9% for men under 29 years.<sup>4</sup> Notification rates of chlamydia infection are also highest in the 15- to 29-year age groups.<sup>2</sup> *Chlamydia trachomatis* is a Gram-negative bacterium that can cause cervicitis, urethritis and proctitis. Transmission can occur

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**1. RESOURCES ON STIS FOR GPs AND YOUNG PEOPLE**

**For GPs**

**Australian STI management guidelines**  
<http://sti.guidelines.org.au/populations-and-situations/young-people>

**Adolescent Health GP Resource Kit**  
<https://www.health.nsw.gov.au/kidsfamilies/youth/Pages/gp-resource-kit.aspx>

**Australasian Society for HIV, Viral Hepatitis and Sexual Health Medicine**  
<https://ashm.org.au>

**NSW STI Programs Unit STI-HIV Testing Tool**  
<https://stipu.nsw.gov.au/wp-content/uploads/STI-HIV-Testing-Tool-online-version-2.pdf>

**Rix S, Sammut D, Varma R. Sexual health risk assessment in adolescents and young people.** *Med Today* 2019; 20(2): 28-34.<sup>14</sup>

**For young people**

**Family Planning NSW Under 25s**  
<https://www.fpnsw.org.au/health-information/individuals/under-25s>

**PlaySafe**  
<https://playsafe.health.nsw.gov.au/>

through all unprotected oral, vaginal and anal sex, as well as non-penetrative genital to genital contact and the sharing of sex toys.

Chlamydia infections are frequently asymptomatic: 50% of men and 75% of women will have no symptoms.<sup>5</sup> Symptoms of chlamydia infection include dysuria, urethral discharge, vaginal discharge and vaginal bleeding. Infections can also affect the eye, anus and, less commonly, the pharynx. Women with untreated chlamydia are at increased risk of pelvic inflammatory disease (PID) and this risk increases with recurrent infection. PID may in turn lead to tubal infertility. Although the overall risk of infertility as a result of chlamydia infection is less than 1%, young women who have tested positive for chlamydia have a 70% greater risk

of infertility than those who have tested negative.<sup>6</sup> Other complications of untreated chlamydia infection include reactive arthritis, increased rates of ectopic pregnancy and chronic pelvic pain and epididymo-orchitis. Chlamydia increases the risk of contracting other STIs through inflammation and mucosal damage.<sup>7</sup>

**Gonorrhoea**

Gonorrhoea is much less common than chlamydia. The absolute infection risk for asymptomatic people younger than 29 years old is approximately 0.5%, with higher rates in men who have sex with men and Aboriginal and Torres Strait Island people.<sup>8</sup> Incidence rates for gonorrhoea are three times higher for men than for women and six times higher in the Aboriginal and Torres Strait Islander community compared with non-Indigenous people. However, there has been a substantial increase in gonorrhoea notifications among non-Indigenous women in recent years.<sup>9</sup> Gonorrhoea is caused by the Gram-negative bacterium *Neisseria gonorrhoeae* and is transmitted through vaginal, oral and anal sex.

Up to 80% of women and between 10 and 15% of men will be asymptomatic with infection, particularly with pharyngeal and rectal infection.<sup>5</sup> Symptomatic infection with gonorrhoea can present with urethral discharge, dysuria, vaginal discharge, dyspareunia, anorectal irritation or conjunctivitis. Complications of gonorrhoea infection include epididymo-orchitis, PID and disseminated disease including macular rash and septic arthritis.

**Genital herpes**

Genital herpes can cause significant psychosexual morbidity for young people. An initial herpes simplex virus (HSV) episode can result in extensive painful anogenital ulcerations and, although severe complications are uncommon, young people can experience significant distress resulting from

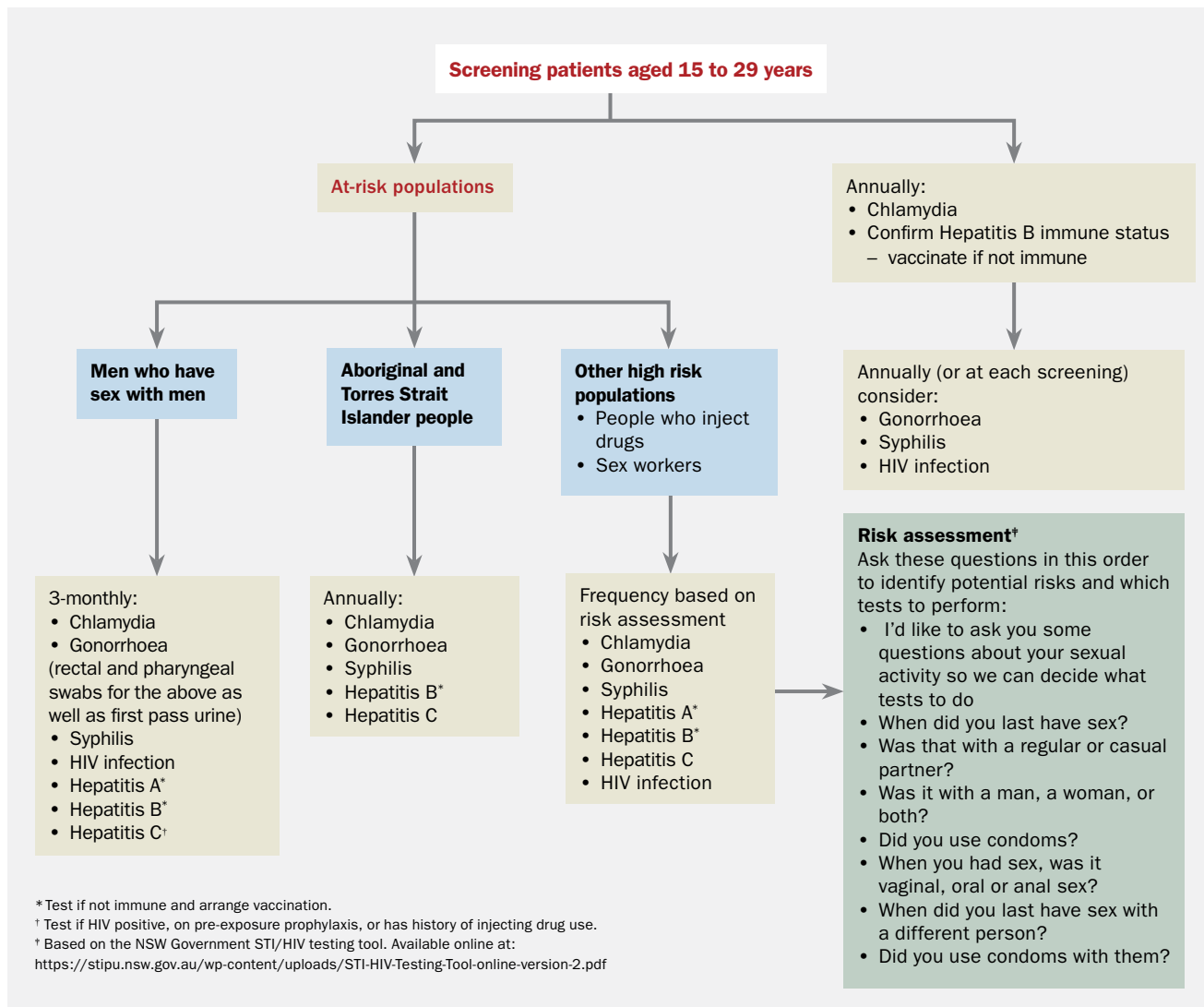
perceived social stigma and a lack of knowledge around the ramifications of infection and transmission. Although infection with HSV1 or HSV2 virus can often occur without symptoms, across the Australian population seroprevalence for HSV1 is 76% and for HSV2 12%.<sup>10</sup> In adolescents and young adults presenting with genital herpes, health education should be offered with prompt treatment and an offer of follow up review to address concerns.

**Genital warts**

Genital warts are caused by the human papillomavirus (HPV), usually HPV types 6 and 11, which are among the types targeted by the quadrivalent and nonavalent HPV vaccines. HPV vaccination was incorporated into the National Immunisation Schedule in Australia for girls aged 12 to 13 years in 2007 and boys of the same age in 2013. Five years after the introduction of the girls' vaccine in 2007, there was a reduction in genital warts presentations to sexual health clinics for Australian born women and heterosexual men under the age of 21 of 93% and 82%, respectively.<sup>11</sup> With increasing HPV vaccination rates, the rates of genital warts in adolescents and young adults are likely to continue to decline.

**Syphilis**

Syphilis is caused by infection with the spirochaete bacterium *Treponema pallidum* and has been increasing in prevalence among men who have sex with men and remote Aboriginal and Torres Strait Islander communities.<sup>9</sup> Syphilis is transmitted through skin to skin contact during unprotected vaginal, oral or anal sex and is highly contagious when an open sore (chancre) is present. Up to 50% of presentations will be asymptomatic.<sup>5</sup> In primary syphilis, a patient may present with genital ulcers, which may be painful or painless, and enlarged non-tender inguinal lymph nodes, whereas patients with secondary syphilis may



**Figure.** STI screening for adolescents and young people aged 15 to 29 years.<sup>13</sup>

present with fever, malaise, headache, lymphadenopathy and rash. Latent syphilis can occur at any stage after infection when no symptoms are present. Complications of syphilis include neurological, ocular and cardiovascular involvement.

### Approach to the STI prevention and screening consultation in adolescents and young adults

One of the key goals of consultations with adolescents and young adults is to engage them in a trusting relationship. Adolescents and many young adults are

neither fully dependent on parents and carers for managing their health care nor adults with experience of talking about private issues with healthcare providers or navigating a complex healthcare system. Thus, engaging adolescent and young adult patients can take longer than a standard consultation, but is worth pursuing because of the importance of preventive health care in this age group.<sup>12</sup>

Best practice in consulting with adolescent and young adult patients involves, in most circumstances, spending some time alone with them. This is

best negotiated before or at the very beginning of a consultation. Explaining confidentiality and its boundaries is also an essential part of best practice and all GPs are encouraged to familiarise themselves with these.<sup>13</sup>

As with any medical procedure or treatment, it is important to seek informed consent when screening for STIs. This is not an onerous process, and includes explaining procedures for treatment, partner notification and re-testing should a test be positive. Patients should be reassured that notification of STIs is

## 2. SCREENING AND TESTING GUIDELINES FOR SEXUALLY TRANSMISSIBLE INFECTIONS (STIs)<sup>5</sup>

- All young people aged 15 to 29 years should be offered routine screening for chlamydia at least every 12 months via self-collected first pass urine (at any time of day) or vaginal swab, or clinically collected endocervical swab
- Gonorrhoea screening can be offered in high risk populations including men who have sex with men and Aboriginal and Torres Strait Islander people. In Australia, since 2012 most pathology laboratories have included a dual testing protocol for chlamydia and gonorrhoea regardless of what test is ordered
- Serology screening for syphilis and HIV is recommended for men who have sex with men and Aboriginal and Torres Strait Islander people
- If hepatitis B immune status is uncertain, a vaccination history and/or serological testing should be undertaken. It is also opportune to check the patient's human papillomavirus vaccination history
- There is no recommendation for genital herpes screening using herpes simplex virus (HSV) 1 and HSV2 serology given the high rates of asymptomatic seroprevalence in the community. If active ulcers are present, then ulcers should be swabbed for HSV1/HSV2 PCR testing
- *Mycoplasma genitalium* is an emerging STI and testing guidelines do not support asymptomatic screening. When presenting with symptoms including cervicitis, dysuria, urethral or vaginal discharge or abnormal bleeding, *M. genitalium* infection should be considered and tested for only in symptomatic patients

confidential and related to public health surveillance.

### Medicolegal considerations

Medicolegal concerns sometimes arise when consulting with adolescents under the age of 18 years in relation to consent to medical treatment, and under the age of 16 years (or 17 years in Tasmania and SA) in relation to the age of consent, confidentiality and mandatory reporting. More detail can be found among the list of resources (Box 1).<sup>14</sup>

There are some important medicolegal considerations that GPs should be aware of when in consultation with adolescent and young adult patients.<sup>13,15</sup> The mature minor principle applies in all Australian jurisdictions in relation to consent to medical treatment. If a GP considers an adolescent under the age of 18 to be a competent minor, then parent or guardian consent is not required for the great majority of medical treatments, including STI testing and treatment. There is no lower age limit.

Disclosure of sexual activity by an

adolescent who is under the age of consent to have sex does not require mandatory reporting unless they are considered at risk of significant harm (such as nonconsensual sex, abuse, or concern about a substantial age or power difference between the adolescent and their sexual partner). Adolescent patients need to be reassured that discussions about their sexual activity or sexuality more broadly will be kept confidential unless an exemption applies.

Considerations about privacy of health information are also important. In relation to STI testing and treatment, when an adolescent turns 14 years of age, their parent or guardian can no longer access their Medicare or My Health Record information unless the adolescent explicitly grants this to them. Ask the patient if they are comfortable with STI pathology results being uploaded to My Health Record and if not, indicate this on the pathology request form. Request bulk billing from pathology providers and ensure that bills and results are not

posted to the family home, unless previously discussed with the adolescent or young adult. Discuss the adolescent or young adult's preferred method of communication for notification of results and reminders (e.g. SMS, phone call, email). Ensure that contact information is up-to-date to avoid inadvertently breaching confidentiality.

### STI assessment, testing and screening

It is important to note the difference between STI testing and screening. If a young person has symptoms where an STI is among the differential diagnoses, then testing must be guided by the clinical picture as described above. Screening refers to the testing of asymptomatic individuals and should be guided by current guidelines (Figure).<sup>13</sup> Current STI screening and testing guidelines are outlined in Box 2.<sup>5</sup>

*Mycoplasma genitalium* is an emerging STI; however, testing remains controversial in some situations. GPs should be aware of the following when assessing patients for *M. genitalium* infection.<sup>4,5</sup>

- **Men.** In men, a first void urine specimen appears more sensitive than a urethral swab. A urine specimen for *M. genitalium* testing should be collected in all men with nongonococcal urethritis.
- **Women.** In women, a vaginal swab is the most sensitive specimen, but first void urine or cervical swabs can be used. Women who present with cervicitis or PID should be tested for *M. genitalium*. Testing is generally not recommended for women with vaginal discharge or abnormal bleeding, unless they have concomitant cervicitis or PID.
- **Men who have sex with men.** Asymptomatic rectal infection is common in men who have sex with men. Studies are conflicting around the association between *M. genitalium* and proctitis, although cases of proctitis in which

### 3. PRACTICE POINTS

- Initiation of partnered sexual behaviour usually begins in the second decade of life
- Adolescents and young adults expect GPs to provide advice about sexually transmissible infections (STIs), but may not spontaneously raise the issue during a consultation
- Being comfortable taking a sexual history and discussing STIs with adolescents and young adults is a core skill of general practice
- Good preventive healthcare includes appropriate STI screening
- STI screening, testing and management need to be guided by epidemiology, risk assessment and current treatment guidelines

*M. genitalium* is the sole pathogen detected have been reported.

- **Asymptomatic people.** Sexual contacts of people with *M. genitalium*, particularly those in a continuing relationship with an infected partner, should be offered testing. Men who have sex with men require urine and anorectal swabs. Throat swabs are unnecessary as pharyngeal infection is rare (1%).<sup>5</sup> Screening other asymptomatic individuals for *M. genitalium* is currently not recommended.

GPs are encouraged to broaden the discussion about STI screening and explore the adolescent or young adult's sexual and reproductive health.<sup>14</sup> This might take place over a few consultations. Young patients can be given general information about contraception and condoms, and invited to discuss sexuality and relationship concerns or issues if or when they wish. Australian secondary students learn about condoms and STI prevention; however, GPs can still use the opportunity in a confidential consultation to explore access to and

affordability of condoms, as well as issues and challenges that adolescents and young adults have in negotiating condom use. Although this article focuses on STIs and not HIV, it is pertinent to discuss PrEP with adolescents and young adults who might be at risk of HIV (mostly men who have sex with men). GPs can also direct young patients to appropriate online resources (Box 1).

### Conclusion

Adolescents and young adults have the right to sexual health and confidential medical care. STI prevention and screening are an important aspect of primary and preventive health care in this population. GPs who engage young patients in a trusting relationship can have a positive impact on an adolescent and young adult's sexual health. Key practice points to approaching STI screening and testing in adolescents and adults are summarised in Box 3.

MT

### References

1. Rissel C, Heywood W, de Visser RO, et al. First vaginal intercourse and oral sex among a representative sample of Australian adults. *The Second Australian Study of Health and Relationships*. *Sex Health* 2014; 11: 406-415.
2. Department of Health. National Notifiable Diseases Surveillance System. Available online at: <http://www9.health.gov.au/cda/source/cda-index.cfm> (accessed October 2020).
3. World Health Organization (WHO). Health for the world's adolescents: a second chance in the second decade. WHO 2014, WHO/FWC/MCA/14.05. Available online at: [https://apps.who.int/adolescent/second-decade/files/1612\\_MNCAH\\_HWA\\_Executive\\_Summary.pdf](https://apps.who.int/adolescent/second-decade/files/1612_MNCAH_HWA_Executive_Summary.pdf) (accessed October 2020).
4. Lewis D, Newton DC, Guy RJ, et al. The prevalence of chlamydia trachomatis infection in Australia: a systematic review and meta-analysis. *BMC Infect Dis* 2012; 12: 113.
5. Australasian Sexual Health Alliance (ASHA). Australian STI management guidelines for use in general practice. ASHA; 2017. Available online

at: <http://sti.guidelines.org.au/> (accessed October 2020).

6. den Heijer CDJ, Hoebe CJPA, Driessen JHM, et al. Chlamydia trachomatis and the risk of pelvic inflammatory disease, ectopic pregnancy, and female infertility: a retrospective cohort study among primary care patients. *Clin Infect Dis* 2019; 69: 1517-1525.
7. Hocking J, Fairley C. Need for screening for genital chlamydia trachomatis infection in Australia. *Aust N Z J Public Health* 2003; 27: 80-81.
8. The Royal Australian College of General Practitioners. Guidelines for preventive activities in general practice. 9th ed. East Melbourne, Vic: RACGP, 2016.
9. Kirby Institute. HIV, viral hepatitis and sexually transmissible infections in Australia: annual surveillance report 2018. Sydney: Kirby Institute, UNSW Sydney; 2018.
10. Cunningham AL, Taylor R, Taylor J, Marks C, Shaw J, Mindel A. Prevalence of infection with herpes simplex virus types 1 and 2 in Australia: a nationwide population based survey. *Sex Transm Infect* 2006; 82: 164-168.
11. Ali H, Donovan B, Wand H, et al. Genital warts in young Australians five years into national human papillomavirus vaccination programme: national surveillance data. *BMJ* 2013; 346: f2032.
12. Sanci L, Chondros P, Sawyer S, et al. Responding to young people's health risks in primary care: a cluster randomised trial of training clinicians in screening and motivational interviewing. *PLOS ONE* 2015; 10: e0137581.
13. Chown P, Kang M, Sanci L, Newnham V, Bennett DL. Adolescent health: enhancing the skills of general practitioners in caring for young people from culturally diverse backgrounds, GP resource kit. 2nd Ed. Sydney; NSW Centre for the Advancement of Adolescent Health and Transcultural Mental Health Centre, 2016.
14. Rix S, Sammut D, Varma R. Sexual health risk assessment in adolescents and young people. *Med Today* 2019; 20(2): 28-34.
15. Bird S. Consent to medical treatment: the mature minor. *Aust Fam Physician* 2011; 40: 159-160.

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# Vaccination for adolescents

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GPs are often unaware of their important role in supporting adolescent vaccination, which primarily occurs through the school-based vaccination program. Ensuring vaccinations are up to date and missed doses are completed should be considered a standard preventive health activity for the adolescent patient in general practice.

Australia has achieved high rates of childhood vaccination, with substantial increases over the past 20 years.<sup>1,2</sup> Much of this success can be attributed to the commitment of general practitioners and the effective strategies they have implemented. Vaccination of adolescents has become increasingly important, especially since the introduction of the national human papillomavirus (HPV) vaccination program, which has had a substantial impact on HPV-related disease, and other vaccines relevant to this age group. These have included the pertussis booster (diphtheria-tetanus-acellular pertussis [dTpa] vaccine), meningococcal ACWY and B vaccines and influenza vaccine for vulnerable groups (Table 1).<sup>3</sup> Equally high rates of vaccination need to be achieved in adolescents as in young children.



As vaccination of adolescents primarily occurs through the school-based vaccination program, GPs may not see themselves as playing an important role. However, working alongside the school program, GPs are crucial in achieving the same high coverage that is seen in early childhood vaccination programs. GPs can ensure all adolescent patients in their practice are up to date with their vaccinations and provide any that have been missed in the school program. Disruption to student attendance at school from closures or restrictions during the COVID-19 pandemic may have interrupted vaccination initiation or completion, especially when more than one vaccine dose is required.<sup>4</sup> Although GPs have always had a vital role in providing vaccinations to adolescents with anxiety or special needs, as well as those who are Aboriginal or Torres Strait Islander, culturally and linguistically diverse, homeless or do not regularly attend school, reviewing all adolescents' vaccination status in general practice has never been more timely.

## School-based vaccination and vaccination coverage

The Australian National Immunisation Program (NIP) funds vaccination across the lifespan, with vaccines listed in the schedule provided free for target groups. Unlike other populations, adolescents are primarily vaccinated en masse at school after parental consent is obtained.<sup>5</sup> School-based vaccination has proven to be an effective and cost-efficient means to promote relatively high vaccination coverage for adolescents.<sup>6-9</sup> In 2017, when the Australian quadrivalent HPV vaccine schedule required three doses, 80.2% of girls aged 15 years and 75.9% of boys aged 15 years received a full course of the vaccine.<sup>2</sup> Of Aboriginal and Torres Strait Islander girls and boys aged 15 years who received the first dose, 79% and 77%, respectively, completed the three doses, compared with 91% and 90% of non-Indigenous girls and boys, respectively.<sup>2</sup> Data are not yet

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**TABLE 1. RECOMMENDED ADOLESCENT VACCINATIONS IN AUSTRALIA<sup>3\*</sup>**

Group	Vaccine	Number of doses	Funded by NIP?
Year 7 Year 8 (SA only) (or age-equivalent)	Human papillomavirus (9vHPV)	<ul style="list-style-type: none"> <li>Two doses at least 6 months apart</li> <li>Three doses if aged &gt;15 years or medically at risk</li> </ul>	Yes
	Diphtheria–tetanus–acellular pertussis (dTpa)	<ul style="list-style-type: none"> <li>One dose</li> </ul>	Yes
Year 10 (or age-equivalent)	Meningococcal ACWY	<ul style="list-style-type: none"> <li>One dose</li> </ul>	Yes <sup>§</sup>
Healthy adolescents aged 15 to 19 years	Meningococcal B	<ul style="list-style-type: none"> <li>This group can receive either meningococcal B vaccine:               <ul style="list-style-type: none"> <li>two doses of recombinant multicomponent meningococcal serogroup B vaccine (MenB-MC; Bexsero, GlaxoSmithKline) with 8 weeks between doses,<sup>†</sup> or</li> <li>two doses of recombinant lipidated factor H binding protein meningococcal serogroup B vaccine (MenB-fHBP; Trumenba, Pfizer Australia) with 6 months between doses</li> </ul> </li> <li>There is no preference for either MenB-MC or MenB-fHBP for people aged ≥10 years who wish to receive a meningococcal B vaccine</li> <li>MenB-MC and MenB-fHBP are not interchangeable; the same vaccine should be used for both doses</li> </ul>	No
<b>Additional vaccines for Aboriginal and Torres Strait Islander and medically at-risk adolescents</b>			
All Aboriginal and Torres Strait Islander adolescents	Infl enza	<ul style="list-style-type: none"> <li>One dose annually</li> </ul>	Yes
Aboriginal and Torres Strait Islander adolescents aged 10 to 19 years	Meningococcal B	<ul style="list-style-type: none"> <li>A course of meningococcal B vaccine is strongly recommended for this group</li> <li>The dose schedule depends on the specific meningococcal B vaccine and the person's age when starting the vaccine course</li> <li>People aged ≥10 years can receive either meningococcal B vaccine:               <ul style="list-style-type: none"> <li>two doses of MenB-MC, with 8 weeks between doses,<sup>†</sup> or</li> <li>two doses of MenB-fHBP, with 6 months between doses</li> </ul> </li> <li>There is no preference for either MenB-MC or MenB-fHBP for people aged ≥10 years</li> <li>MenB-MC and MenB-fHBP are not interchangeable; the same vaccine should be used for both doses</li> </ul>	No
Adolescents with a medical risk factor	Infl enza	<ul style="list-style-type: none"> <li>Annual influenza vaccination is strongly recommended for adolescents with medical conditions associated with an increased risk of influenza disease and severe outcomes<sup>†</sup></li> </ul>	Yes

Abbreviations: 9vHPV = nonavalent HPV; NIP = National Immunisation Program; SA = South Australia.

\* Recommendations are taken from the *Australian Immunisation Handbook*.<sup>3</sup> State and territory immunisation programs may vary and should also be checked.

<sup>†</sup> See: List. Specified medical conditions associated with increased risk of influenza disease and severe outcomes, <https://immunisationhandbook.health.gov.au/resources/handbook-tables/list-specified-medical-conditions-associated-with-increased-risk-of-0.3>

<sup>†</sup> This is the most up-to-date advice from the *Australian Immunisation Handbook* (updated 2020). The Product Information for Bexsero states that adolescents from the age of 11 years at the start of the vaccine course should receive two doses, with an interval of at least one month between doses (<https://www.ebs.tga.gov.au/ebs/picmi/picmirepository.nsf/pdf?OpenAgent&id=CP-2013-PI-02131-1&d=202103111016933>).

<sup>§</sup> Meningococcal B vaccine is state-funded in South Australia for Year 10 students.

available on coverage of the two-dose nonavalent HPV vaccine (implemented from 2018 for adolescents aged 14 years or younger at the first dose) or dTpa and meningococcal ACWY vaccines.

It is important to provide catch-up

vaccinations to low-coverage groups, particularly Aboriginal and Torres Strait Islander adolescents, given their lower vaccination completion rates and longer time to completion.<sup>2,10</sup> As Aboriginal and Torres Strait Islander women have twice

the incidence and four times the mortality rate of cervical cancer as other Australian women, recommending HPV vaccination to Aboriginal and Torres Strait Islander adolescents represents an opportunity to reduce this health disparity.<sup>2,11,12</sup>

Although school programs aimed at adolescents generally result in relatively high vaccination uptake, coverage for adolescent vaccinations remains more than 10 percentage points lower than that achieved for childhood vaccinations.<sup>1</sup> Ideally, vaccination coverage rates in adolescence should be higher; for example, the WHO has called for coverage of 90% to achieve elimination of cervical cancer.<sup>13</sup> GPs are an important part of the solution for achieving this goal (Box).

## Role of GPs in adolescent vaccination

### Addressing missed opportunities for vaccination in general practice

Missed vaccination opportunities during consultations in healthcare settings are a major concern during both childhood and adolescence. Adolescents who have missed vaccinations offered in the school program because of school absence or other reasons are usually provided with a letter and recommendation to visit a GP or council clinic to catch up on the vaccine doses missed. Given the decline in frequency of visits to GPs in adolescence compared with childhood, this often does not eventuate.<sup>14</sup> Young people aged 15 to 25 years have the lowest proportion of face-to-face time spent with GPs in Australia.<sup>15</sup>

Unlike in some countries, such as the United States, where reimbursements are provided for preventive primary care visits in adolescence, during which HEEDSSS (home environment, education/employment, eating habits, activities, drugs, sex/sexuality, suicide/depression and safety) screening and vaccinations routinely take place, there is no Medicare rebate for GP preventive health care visits for adolescents and young adults in Australia.<sup>16,17</sup> This means that GPs need to actively consider assessing immunisation status of adolescents attending their practice for other reasons and opportunistically vaccinate them when it is clear they have missed a vaccine dose in the school program (Table 2). Adolescence is also an

opportune time to ensure catch-up of missed doses of childhood vaccines.<sup>3,18</sup>

### Providing a strong recommendation

GPs also play a key role in facilitating adolescent vaccination through the school program, with multiple studies showing that a recommendation from a healthcare provider is the most important driver to increase vaccination uptake.<sup>19,20</sup> Parental vaccination decision-making on behalf of adolescents is influenced by physician recommendation, government recommendation, perceived benefits of the vaccine and concerns about side effects and vaccine safety.<sup>19,21-23</sup> Social determinants of health, including socioeconomic status and ethnicity, and factors relating to patient engagement have also been found to influence vaccination uptake, although to a lesser extent in school-based programs.<sup>24,25</sup> Parental barriers to adolescent vaccination include not receiving a provider's recommendation, lack of information about vaccination, concerns about timing of vaccination (e.g. adolescent's age for HPV vaccination) and misconceptions about efficacy and safety.

...coverage for adolescent vaccinations remains more than 10 percentage points lower than that achieved for childhood vaccinations.

### Offering vaccines as a package

It is important to present adolescent vaccinations that may have been missed as a 'package'.<sup>26</sup> If more than one vaccination has been missed, more than one should be offered at the same time. If an appointment is made to complete the course on another day, there is increased risk of non-completion. For example, emphasising cancer prevention benefits and discussing HPV vaccination at the same time as recommending dTpa vaccination is more likely to result in higher uptake of both vaccinations.

## SUMMARY POINTS

- GPs have an important partnership role in supporting school-based vaccination of adolescents
- Catch-up vaccination should be opportunistically undertaken when adolescents present for any routine health issue
- Catch-up vaccination should also be achieved through auditing patient records and issuing reminders, as is routine practice for childhood vaccination
- A tailored approach is required when vaccinating adolescents in primary care
- Parental vaccine decision-making for adolescents is most strongly influenced by doctor recommendation

### Promoting vaccine health literacy among adolescents and their parents

GPs have a unique opportunity to overcome health and vaccine literacy deficits among adolescents and parents. Parents' health literacy is positively correlated with adolescent health literacy and health.<sup>27</sup> Providing recommendations and education to parents and adolescents about vaccination as a prevention strategy to reduce disease burden and promote health and wellbeing is crucial. Challenges may include different cultural and religious beliefs, low literacy generally, misinformation and inequities, such as reduced access to health services and diminished ability to seek help with the vaccine decision-making process.<sup>24</sup> These factors should be considered when dealing with parent and adolescent queries and concerns about vaccines; well-designed resources, such as the Sharing Knowledge About Immunisation 'Is the HPV vaccine really safe?' factsheet, can be used to support conversations.<sup>28</sup>

Research has identified several challenges that providers face in discussing vaccination with adolescents and their parents: discomfort with talking about sexual behaviour (e.g. with HPV vaccination), lack of time or incentive for patient

**TABLE 2. RECOMMENDING ADOLESCENT VACCINATIONS IN A CLINICAL SETTING**

Barrier or facilitator	Recommended practice
Cost	<ul style="list-style-type: none"> <li>• Bulk bill to reduce cost</li> </ul>
Youth-friendly environment	<ul style="list-style-type: none"> <li>• Have opening hours after school and on weekends</li> <li>• Make plain language vaccination resources available</li> <li>• Display age-appropriate posters</li> <li>• Have signs of diversity (e.g. gender, sexuality, ethnic/cultural background) visible</li> <li>• Make practice accessible to those with diverse abilities</li> <li>• Have friendly reception staff</li> </ul>
Opportunistic recommendation	<ul style="list-style-type: none"> <li>• Recommend missed vaccinations for adolescents when they present for any routine health issue</li> <li>• Integrate vaccination recommendation into HEEADSSS screening</li> <li>• Check for missed childhood vaccinations and implement catch-up plan if required</li> </ul>
Strength of recommendation	<ul style="list-style-type: none"> <li>• Equally emphasise the importance of each vaccination</li> </ul>
Urgency of recommendation	<ul style="list-style-type: none"> <li>• Recommend same-day vaccination</li> </ul>
Timeliness of recommendation	<ul style="list-style-type: none"> <li>• Deliver recommendation for HPV and dTpa vaccinations by age of 12–13 years</li> <li>• Deliver recommendation for meningococcal ACWY vaccination by age of 14–16 years</li> <li>• Deliver recommendations for appropriate vaccinations for vulnerable groups</li> </ul>
Universal recommendation	<ul style="list-style-type: none"> <li>• Deliver recommendations to all adolescents, not just those perceived to be at risk</li> </ul>
Adolescent groups vulnerable to underimmunisation (e.g. Aboriginal and Torres Strait Islanders, refugees, those with additional needs)	<ul style="list-style-type: none"> <li>• Routinely ask patients whether they are Aboriginal and/or Torres Strait Islander, as there are additional vaccinations recommended and freely available for these patients</li> <li>• Ensure availability of appropriate resources (e.g. culturally appropriate, plain language, in a diverse range of languages) to assist with patient vaccination decision-making</li> <li>• Be aware that certain groups may have different vaccination requirements based on risk status</li> </ul>
Prevention message	<ul style="list-style-type: none"> <li>• Emphasise disease prevention for each vaccination (e.g. cancer prevention for HPV vaccination)</li> </ul>
Adolescent experience	<ul style="list-style-type: none"> <li>• Gain assent of adolescent (and consent from parent)</li> <li>• Ensure the adolescent understands the importance of being vaccinated</li> <li>• Manage needle-related anxiety using distraction</li> </ul>
Multiple vaccinations due	<ul style="list-style-type: none"> <li>• Recommend administration of vaccinations as a ‘package’ at the same time and in the same way</li> </ul>
Systematic reporting practices	<ul style="list-style-type: none"> <li>• Ensure vaccinations are reported to the AIR to reduce the impact of lag on vaccination status</li> </ul>
Monitoring adverse events after consultation	<ul style="list-style-type: none"> <li>• Undertake 15-minute observation directly after vaccination</li> <li>• Check for adverse events via text message within 24 hours after vaccination</li> </ul>

Abbreviations: AIR = Australian Immunisation Register; dTpa = diphtheria-tetanus-acellular pertussis; HEEADSSS = home environment, education/employment, eating habits, activities, drugs, sex/sexuality, suicide/depression and safety; HPV = human papillomavirus.

education, and lack of a system that issues reminders about vaccine status and whether multiple doses are required.<sup>29,30</sup> Overcoming these barriers, such as by using automated systems for reminders, can directly affect adolescent vaccination uptake.

**Overcoming incomplete vaccination of adolescents**  
**Assessing vaccination history of all adolescents in the practice**

Young people aged 10 to 19 years require an assessment of their immunisation history to ascertain any missing childhood

or adolescent vaccinations and to develop a catch-up schedule. The vaccination records of all adolescent patients in the practice can be reviewed by checking their records in the Australian Immunisation Register (AIR), including checking that any previous vaccines were administered



in the recommended dosing intervals and at the correct age.<sup>18</sup> Appointments should be scheduled to complete vaccinations for patients who are clearly behind on the schedule.

### Assessing vaccination history of adolescents presenting to the practice as new patients

An adolescent presenting to the practice as a new patient for any reason should be asked about vaccination, ideally when undertaking a HEEADSSS assessment, but any time is appropriate. As parents and adolescents may not have accurate records or knowledge of vaccination status, GPs can identify whether vaccinations are up to date using Health Professional Online Services ([www.servicesaustralia.gov.au/organisations/health-professionals/services/medicare/hpos](http://www.servicesaustralia.gov.au/organisations/health-professionals/services/medicare/hpos)) or by calling the AIR enquiries line (1800 653 809).<sup>3</sup>

If a vaccination may have been administered but is not recorded on the AIR, the relevant immunisation provider for that vaccine should be contacted.<sup>3</sup> If doses cannot be confirmed because of incomplete documentation, it should be assumed that those doses have not been administered. Serological testing is not routinely recommended.<sup>18</sup> There are no risks associated with additional doses of vaccines when they have already been received, apart from a possible increase in local adverse events with frequent doses of dTpa-containing vaccines.<sup>18</sup> All vaccine doses administered should be reported to the AIR, and data will need to be entered directly if the general practice software does not automatically report vaccinations.

Missing out or being late for vaccinations listed in the NIP may have financial ramifications for families who will be unable to receive their appropriate childcare and Family Tax Benefit payments on time.

### Communicating with adolescents and parents about vaccination

Trust can be built with adolescents and parents through open and respectful communication, underpinned by

evidence-based information on vaccination risks and benefits. At the same time, it is important that clear recommendations to vaccinate are provided and that opportunities to vaccinate are not missed. Regardless of the reason for a consultation, when there are vaccinations outstanding, using language such as 'I recommend you receive these vaccinations today', rather than 'What would you like to do about these vaccinations?', can influence parent and adolescent decision-making.<sup>26</sup>

Given that policies in the education environment mean that parents usually provide consent for vaccination of adolescents under 18 years of age in the school vaccination program, there are ethical considerations in balancing emerging adolescent autonomy and their desire to also be involved in vaccine decision-making.<sup>31</sup> All states and territories have medical consent policies that recognise the competency of mature minors. This means that adolescents under the age of 18 years are able to provide their own consent to vaccination if they are assessed as Gillick competent by the practitioner. Generally, healthy adolescents aged at least 14 years have capacity to consent to a low-risk intervention, such as vaccination.<sup>32</sup>

Adolescents do not always make connections between their behaviour (e.g. sexual activity or smoking) and their current or future health outcomes, and they can experience difficulty assessing the quality of health information, which they most frequently access online. Nuanced messaging targeted at specific age groups may be required, recognising that different barriers may exist to receiving HPV vaccination for a younger adolescent compared with barriers to receiving meningococcal ACWY vaccination for an older adolescent.

Younger adolescents are less able to moderate their needle-related fear and anxiety because of incomplete cognitive maturation. Vasovagal syncope is the most common severe adverse event experienced with vaccination in adolescence.<sup>33</sup> Needle-related anxiety can affect

an adolescent's choice of whether to have a vaccine, despite parental consent. Using youth-friendly language and resources to explain vaccination benefits and side effects can promote adolescent vaccination literacy and facilitate discussion with parents and involvement in vaccination decision-making, as well as helping to mitigate needle-related anxiety. The WHO has produced an excellent resource to assist vaccination providers in managing this anxiety.<sup>34</sup> Explanations of exactly what will happen and what the needle will feel like, along with appropriate distraction methods, can also assist younger adolescents to cope with needle-related anxiety.<sup>35</sup> Communicating successes achieved through vaccination programs can assist in counteracting concerns about vaccine efficacy and safety and mitigate vaccine hesitancy.

### Conclusion

GPs are key players in parents' and adolescents' decisions to have vaccinations. They can opportunistically prioritise vaccination during routine consultations and ensure the adolescent is up to date with the vaccination schedule recommended in the NIP. The partnership between GPs and the school-based vaccination program is important for achieving high vaccination uptake in adolescence. We need to eliminate the long-standing health inequity experienced by adolescents due to lower vaccination coverage compared with that in early childhood. GPs are also key to improving uptake in marginalised adolescent populations with persisting low vaccination coverage. **MT**

### References

1. Australian Government Department of Health. Current coverage data tables for all children. Available online at: <https://www.health.gov.au/health-topics/immunisation/childhood-immunisation-coverage/current-coverage-data-tables-for-all-children> (accessed January 2021).
2. Hull B, Hendry A, Dey A, Brotherton JML, Macartney K, Beard F. Annual immunisation coverage report 2017. *Commun Dis Intell* (2018) 2019 Nov 18; 43.

3. Australian Technical Advisory Group on Immunisation (ATAGI). Australian immunisation handbook. Canberra: Australian Government Department of Health; 2018. Available online at: <https://immunisationhandbook.health.gov.au> (accessed January 2021).
4. Australian Health Protection Principal Committee. Australian Health Protection Principal Committee (AHPCC) advice to National Cabinet on 25 March 2020: a statement from the Australian Health Protection Principal Committee about school immunisation programs and dental services. Available online at: <https://www.health.gov.au/news/australian-health-protection-principal-committee-ahppcc-advice-to-national-cabinet-on-25-march-2020> (accessed January 2021).
5. Davies C, Skinner SR, Stoney T, et al. 'Is it like one of those infectious kind of things?': the importance of educating young people about HPV and HPV vaccination at school. *Sex Educ* 2017; 17: 256-275.
6. Paul P, Fabio A. Literature review of HPV vaccine delivery strategies: considerations for school- and non-school based immunization program. *Vaccine* 2014; 32: 320-326.
7. Skinner SR, Cooper Robbins SC. Voluntary school-based human papillomavirus vaccination: an efficient and acceptable model for achieving high vaccine coverage in adolescents. *J Adolesc Health* 2010; 47: 215-218.
8. Patel C, Brotherton JML, Pillsbury A, et al. The impact of 10 years of human papillomavirus (HPV) vaccination in Australia: what additional disease burden will a nonavalent vaccine prevent? *Euro Surveill* 2018; 23: 1700737.
9. Feldstein LR, Fox G, Shfer A, Conklin LM, Ward K. School-based delivery of routinely recommended vaccines and opportunities to check vaccination status at school, a global summary, 2008–2017. *Vaccine* 2020; 38: 680-689.
10. Brotherton JM, Davies C, IPVS Policy Committee. IPVS policy statement. Equity in cervical cancer prevention: for all and not just for some. *Papillomavirus Res* 2020; 9: 100192.
11. Lawton B, Heffernan M, Wurtak G, et al. IPVS policy statement addressing the burden of HPV disease for Indigenous peoples. *Papillomavirus Res* 2020; 9: 100191.
12. Brotherton JML, Winch KL, Chappell G, et al. HPV vaccination coverage and course completion rates for Indigenous Australian adolescents, 2015. *Med J Aust* 2019; 211: 31-36.
13. World Health Organization. To eliminate cervical cancer in the next 100 years, implementing an effective strategy is critical. 4 February 2020. Available online at: <https://www.who.int/news/item/04-02-2020-to-eliminate-cervical-cancer-in-the-next-100-years> (accessed January 2021).
14. Cummings M, Kang M. Youth health services: improving access to primary care. *Aust Fam Physician* 2012; 41: 339-341.
15. Garland S, Skinner SR, Brotherton JML. Adolescent and young adult HPV vaccination in Australia: achievements and challenges. *Prev Med* 2011; 53 Suppl 1: S29-S35.
16. Sawyer SM. Psychosocial assessments after COVID-19. *J Adolesc Health* 2021 Jan 8; S1054-139X(20)30836-3 [online ahead of print].
17. Goldenring J, Rosen DS. Getting into adolescent heads: an essential update. *Contemp Pediatr* 2004; 21: 64-90.
18. Australian Technical Advisory Group on Immunisation (ATAGI). National Immunisation Program. Free catch-up vaccines for all individuals aged 10 to 19 years: factsheet for vaccination providers. Available online at: <https://www.health.gov.au/sites/default/files/free-catch-up-vaccines-for-10-to-19-year-olds-fact-sheet-free-catch-up-vaccines-for-10-to-19-years-fact-sheet.pdf> (accessed January 2021).
19. Newman PA, Logie CH, Lacombe-Duncan A, et al. Parents' uptake of human papillomavirus vaccines for their children: a systematic review and meta-analysis of observational studies. *BMJ Open* 2018; 8: e019206.
20. Gilkey MB, Calob WA, Moss JL, Shah PD, Marciniak MW, Brewer NT. Provider communication and HPV vaccination: the impact of recommendation quality. *Vaccine* 2016; 34: 1187-1192.
21. Robbins SC, Bernard D, McCaffery K, Brotherton JML, Skinner SR. "I just signed": factors influencing decision-making for school-based HPV vaccination of adolescent girls. *Health Psychol* 2010; 29: 618-625.
22. Burgess T, Braunack-Mayer A, Tooher R, et al. Optimizing intersectoral collaboration between health and education: the Health Bridges study. *J Public Health (Oxf)* 2016; 38: e430-e437.
23. Netfa F, Tashani M, Booy R, King C, Rashid H, Skinner SR. Knowledge, attitudes and perceptions of immigrant parents towards human papillomavirus (HPV) vaccination: a systematic review. *Trop Med Infect Dis* 2020; 5(2): 58.
24. Blagden S, Hungerford D, Limmer M. Meningococcal vaccination in primary care amongst adolescents in North West England: an ecological study investigating associations with general practice characteristics. *J Public Health (Oxf)* 2019; 41: 149-157.
25. Barbaro B, Brotherton JML. Assessing HPV vaccine coverage in Australia by geography and socioeconomic status: are we protecting those most at risk? *Aust N Z J Public Health* 2014; 38: 419-423.
26. Azzari C, Diez-Domingo J, Eisenstein E, et al. Experts' opinion for improving global adolescent vaccination rates: a call to action. *Eur J Pediatr* 2020; 179: 547-553.
27. Bröder J, Okan O, Bauer U, et al. Health literacy in childhood and youth: a systematic review of definitions and models. *BMC Public Health* 2017; 17: 361.
28. Chad N, Leask J. Is the HPV vaccine really safe? Sydney: Sharing Knowledge About Immunisation (SKAI), National Centre for Immunisation Research and Surveillance; 2020. Available online at: <https://www.health.gov.au/sites/default/files/documents/2020/10/is-the-hpv-vaccine-really-safe-fact-sheet-is-the-hpv-vaccine-really-safe-fact-sheet.pdf> (accessed January 2021).
29. Espinosa CM, Marshall G, Woods CR, et al. Missed opportunities for human papillomavirus vaccine initiation in an insured adolescent female population. *J Pediatric Infect Dis Soc* 2017; 6: 360-365.
30. Davies C, Robinson KH, Metcalf A, et al. Australians of diverse sexual orientations and gender identities. In: Dune T, McLeod K, Williams R, eds. *Culture, diversity and health in Australia: towards culturally safe health care*. Sydney: Allen and Unwin; 2021.
31. Skinner SR, Davies C, Marino J, Botfield J, Lewis L. Sexual health of adolescent girls. In: Ussher JM, Chrisler JC, Perz J, eds. *Routledge international handbook of women's sexual and reproductive health*. New York: Routledge; 2020. p. 393-411.
32. Corporate Governance and Risk Management, NSW Health. Section 8: Minors. In: *Consent to medical and healthcare treatment manual*. Sydney: NSW Health; 2020. Available online at: <https://www.health.nsw.gov.au/policies/manuals/Documents/consent-section-8.pdf> (accessed January 2021).
33. Phillips A, Patel C, Pillsbury A, Brotherton JML, Macartney K. Safety of human papillomavirus vaccines: an updated review. *Drug Saf* 2018; 41: 329-346.
34. World Health Organization. Immunization stress-related response: a manual for program managers and health professionals to prevent, identify and respond to stress-related responses following immunization. Geneva: WHO; 2019. <https://apps.who.int/iris/handle/10665/330277> (accessed January 2021).
35. Davies C, Skinner SR, Odgers HL, Khut GP, Morrow A. The use of mobile and new media technologies in a health intervention about HPV and HPV vaccination in schools. In: Grealy L, Driscoll C, Hickey-Moody A, eds. *Youth, technology, governance, experience: adults understanding young people*. London: Routledge; 2018. p. 175-195.

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 Dr Skinner reports her institution has received honoraria for educational presentations from Merck and Seqiris, outside the submitted work.

