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Health and wellbeing of young Australians

Indicator framework and key national indicators

Introduction

For more than a decade, the Australian Institute of Health and Welfare (AIHW) has played a leading role in national indicator development, monitoring and reporting in the area of health and wellbeing of Australia's young people, and to date has produced three comprehensive reports in this area (AIHW 2000b, 2003, 2007b). This bulletin provides a preview of the reporting framework and the key national indicators that are the basis of the forthcoming report, *Young Australians: their health and wellbeing 2011*, scheduled for release in May 2011.

The key national indicators presented in this bulletin were produced by the AIHW in consultation with the National Youth Information Advisory Group. This group comprises key experts in youth health and wellbeing, jurisdictional representatives and stakeholders responsible for policies and programs concerning young people (see Appendix 1 for a list of members). The development of these key national indicators builds upon the extensive work undertaken over the last decade by earlier expert advisory groups, taking into account recent Australian and international research, emerging key policy directions and issues concerning young people.

The key national indicators overlap with the Council of Australia's Governments (COAG) performance indicators. Of the 71 key national indicators, nearly one-quarter are the same or similar to COAG performance indicators in the National Agreements, in the areas of health care, disability, education, affordable housing, and Indigenous reform.

Contents

The National Youth Information Framework

The indicators presented in this bulletin, and which subsequently will be included in the *Young Australians: their health and wellbeing 2011* report, are based on the National Youth Information Framework (see Table 1). This is a modification of the National Health Performance Framework (NHPF) developed by the National Health Performance Committee (NHPC 2001). The NHPF is a nationally agreed framework endorsed by the Australian Health Ministers' Advisory Council.

The National Youth Information Framework, previously used in developing indicators for the *Young Australians: their health and wellbeing 2007* report, is aligned very closely with the NHPF, with minor modifications to better capture health and wellbeing issues relevant to young people. This framework consists of three tiers: *Health status*, *Determinants of health and Health system performance*, and includes a number of dimensions within each tier. The National Youth Information Framework provides a comprehensive set of indicators across a range of dimensions that will help monitor the health and wellbeing of young Australians.

The key national indicators for young people's health and wellbeing have been developed using a set of criteria recommended by the National Health Performance Committee (NHPC 2004). The criteria used to develop indicators were: be worth measuring; cover diverse populations; be understood by people who need to act; be relevant to policy and practice; be measurable over time to reflect results of actions; can galvanise action; be feasible to collect and report; and comply with national processes of data definitions.

The breadth of indicators included in the National Youth Information Framework is similar to the indicator framework presented in the report *A picture of Australia's children 2009*. Both frameworks cover a broad range of indicators relating to health and wellbeing and set out the structure for reporting (see AIHW 2006, 2008e for further details on the children's indicator framework).

This bulletin presents the 71 key national indicators to be reported in *Young Australians: their health and wellbeing 2011*, along with brief justifications explaining the relevance and importance of the indicators to young people's health and wellbeing. These indicators are grouped according to the tiers and dimensions of the National Youth Information Framework. For further details on the definition of each indicator, the rationale for selection, indicator and data limitations, and primary data sources, see the AIHW report *Health and wellbeing of young Australians: technical paper on operational definitions and data issues for key national indicators* (AIHW 2010).

In addition to the indicators presented in the following pages, the National Youth Information Advisory Group has proposed a number of additional indicators for inclusion in the *Young Australians: their health and wellbeing 2011* report. The AIHW is currently investigating the feasibility of reporting on these indicators. (See Table 2 for a list of these indicators.)

Table 1: National Youth Information Framework

Tier 1: Health status	
Health conditions	Prevalence of disease, disorder, injury or trauma, or other health-related states.
Human function	Alterations to body structure or function (impairment), activity limitations and restrictions in participation.
Wellbeing	Measures of physical, mental, and social wellbeing of individuals.
Deaths	Mortality rates and life expectancy measures.
Tier 2: Determinants of health	
Environmental factors	Physical, chemical and biological factors, such as, air, water, food and soil quality.
Community and socioeconomic factors	Community factors, such as, social capital, support services, family function and environment, and socioeconomic factors, such as, housing, education, employment and income.
Health behaviours[(a)]	Attitudes, beliefs, knowledge and behaviours such as patterns of eating, physical activity, smoking and alcohol consumption.
Tier 3: Health system performance	
Effectiveness	Care/intervention/action provided is relevant to the client's needs and based on established standards. Care, intervention or action achieves the desired outcome.
Safety	The avoidance, or reduction to acceptable limits, of actual or potential harm from health-care management or the environment in which health care is delivered.
Responsiveness	Service is client oriented. Clients are treated with dignity, confidentiality, and encouraged to participate in choices related to their care.
Continuity of care	Ability to provide uninterrupted, coordinated care or service across programs, practitioners, organisations and levels over time.
Accessibility	People can obtain health care at the right place and the right time, irrespective of income, physical location and cultural background.
Efficiency and sustainability	Achieving desired results with most cost-effective use of resources. Capacity of system to sustain workforce and infrastructure, to innovate and respond to emerging needs.

(a) The NHPF includes an additional dimension on biomedical factors in the Determinants of health tier. This dimension has been incorporated into the Health behaviours dimension as most of the biomedical factors are not relevant for young people.

Note: Based on the revised National Health Performance Framework. Slight revisions were made to the NHPF in 2008–09, such as, merging life expectancy with deaths, combining socioeconomic factors and community capacity, and reducing the number of health system performance dimensions from nine to six (NHISSC 2009).

Key national indicators of young people's health and wellbeing

Tier 1: Health status		
Indicator		**Justification for inclusion**
1.1 Wellbeing		
Physical and mental wellbeing	Proportion of young people aged 15–24 years rating their health as 'excellent', 'very good', or 'good'	People's perception of their own health is a powerful predictor of their future health and survival (Miilunpalo et al. 1997; Wang & Satariano 2007). It is also a simple yet effective general measure of population health.
1.2 Human function		
Disability and activity limitation	Proportion of young people aged 15–24 years with severe or profound core activity limitation	Disability may limit young people's participation in various activities, such as, education, employment, recreational and social activities. Young people with severe disability usually need assistance with a core aspect of daily living (self-care, mobility or communication) and are likely to require lifelong assistance from family or formal services, resulting in social and financial hardships (Hendley & Pascall 2002; Sport England 2000).
Burden of disease and injury	Burden of disease and injury among young people aged 15–24 years	Provides an overview of the impact of premature death, disease and injury at a population level. It is a measure of the state of health of a population and is useful for setting health service priorities; identifying disadvantaged groups and targeting health interventions (Mathers et al. 1999).
1.3 Deaths		
Deaths	Death rates for young people aged 12–24 years	Death rates are commonly used to measure population health (Mathers et al. 2005). They not only reflect circumstances around the time of death but also provide insight into changes in social and environmental conditions, medical interventions, lifestyles and trends in underlying risk factors (AIHW 2009b).
1.4 Health conditions		
Mental health	Proportion of young people aged 16–24 years having high or very high levels of psychological distress as measured by the Kessler 10 (K10) scale	The K10 scale is a good measure of general psychological distress within the population. It contains 10 items asking about feelings of nervousness, hopelessness, restlessness, depression and worthlessness. A strong association between the K10 scale and current diagnosis of anxiety and affective disorders has been shown, as well as a lesser (but significant) association with other mental disorder categories (Andrews & Slade 2001).
	Prevalence of mental disorders among young people aged 16–24 years	Poor mental health among young people can be a precursor to self-harm and suicide, as well as a strong influence on later mental disorders (Patel et al. 2007). Certain mental health disorders, such as, ADHD, depressive disorder and conduct disorder, have implications for a young person's psychosocial growth and development, health care requirements, educational and occupational attainment and their involvement with the justice system (Bhatia & Bhatia 2007; Eme 2007; Laurel & Wolraich 2007).

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Tier 1: Health status *(continued)*		
Indicator		**Justification for inclusion**
Injury and poisoning	Injury and poisoning death rate for young people aged 12–24 years	Injuries, including poisoning, are a leading cause of death among young people. Young people are vulnerable to certain types of injury, particularly during the transition between adolescence and early adulthood when they assume more independent roles. Many causes of injury are preventable, and are therefore amenable to intervention (AIHW: Eldridge 2008; Berry & Harrison 2007). Injury prevention and control is a National Health Priority Area.
	Road transport accident death rate for young people aged 12–24 years	Road transport accidents remain the most common external cause of death from injury among young people, despite large declines over the last 2 decades (AIHW 2007a). Factors contributing to the over-representation of young drivers in transport accidents include inexperience, combined with engaging in risky driving behaviours and/or driving in situations that place them at greater risk (Australian Transport Council 2006, Smart et al. 2005).
	Assault death rate for young people aged 12–24 years	Although deaths from assault are relatively rare among young people, fatal outcomes from intentionally inflicted injuries or homicide provide an indication of the nature and extent of extreme interpersonal violence in this age group. Interpersonal violence, including domestic and family violence and child abuse, is often associated with parental drug and alcohol misuse and mental health problems (AIHW 2007a).
	Suicide rate for young people aged 15–24 years	A range of interacting factors are associated with the increased risk of suicide such as, mental illness combined with harmful drug use, previous suicide attempts or intentional self-harm, family history of suicide or suicidal behaviour, socioeconomic disadvantage, poor education, experience of abuse in childhood, and easy access to firearms (Beautrais 2000; Goldney 1998). Young people are at greater risk of suicide due to a confluence of these factors; they are more likely to use drugs, be of lower socioeconomic status and have lower education levels. Young people may also lack some protective factors, such as marriage or co-habitant partner (Agerbo et al. 2006).
	Accidental poisoning death rate for young people aged 12–24 years	Accidental poisoning remains a major cause of death among young people, and is the third leading cause of injury death among 12–24 year olds. It is important to understand the major causes contributing to the deaths of young Australians in order to plan targeted public health interventions for this age group (AIHW 2007a).

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Tier 1: Health status *(continued)*		
Indicator		**Justification for inclusion**
	Injury and poisoning hospitalisation rate for young people aged 12–24 years	Injuries are largely preventable, yet remain a leading cause of hospitalisation among young people. Injuries sustained during childhood and adolescence can have profound and lifelong effects on development, by causing permanent physical disabilities or long-term cognitive or psychological damage (Mercy et al. 2006). Both the initial injury, and any resulting physical or mental disabilities, can affect a young person's employment, educational and social opportunities.
Chronic conditions	Prevalence of long-term conditions among young people aged 12–24 years	Chronic conditions account for a large proportion of the burden of disease among young people, and can disrupt physical, social and emotional development (Dell'Api et al. 2007). Chronic conditions can place young people and their families under social, psychological and economic pressure (Witt et al. 2009).
	Proportion of young people aged 12–24 years with asthma as a long-term condition	Asthma is one of the most common long-term conditions among young people, and can place considerable restrictions on their physical, social and emotional lives, resulting in poor quality of life, interference with study, work and other activities, a need for urgent medical care, and even premature death (GINA 2005).
	Incidence of diabetes among young people aged 15–24 years	Diabetes is a National Health Priority Area and is one of the most common endocrine conditions of childhood and adolescence. Diabetes can lead to serious complications, including blindness, neurological problems and heart disease, but measures can be taken to control and reduce the risk of complications (Diabetes Australia 2009).
	Incidence of cancer per 100,000 young people aged 12–24 years	Cancer, although relatively uncommon among young people, is the second highest cause of death (AIHW 2008a). Cancers in young people differ from those observed in adults in appearance, site of origin, and response to treatment.
Communicable diseases	Incidence of vaccine-preventable diseases among young people aged 12–24 years	Immunisation against childhood diseases is one of the most cost-effective public health interventions in preventing childhood morbidity and mortality (Pollard 2007), and most children are vaccinated in Australia (AIHW 2009b). Despite this, outbreaks of diseases, such as, pertussis, measles, rubella and mumps still occur in Australia, typically amongst the unvaccinated, and this particularly affects young people.
	HIV infection notification rate for young people aged 12–24 years	HIV infection is a long-term chronic condition, and among young people usually occurs as a result of unsafe sexual and intravenous-drug-use behaviours. It remains important to track HIV notification rates in order to assess the impact of public health intervention strategies aimed to eliminate risk-taking behaviours, as well as to identify any change in trends.

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Tier 1: Health status *(continued)*		
Indicator		**Justification for inclusion**
	Hepatitis A, B and C notification rates for young people aged 12–24 years	Viral hepatitis can be caused by a variety of viruses and is transmitted through food contamination, sexual contact, blood contact, or drug use. Hepatitis can cause chronic infection leading to liver disease, mainly when exposure occurs at a young age.
	Incidence of notifiable sexually transmissible infections (STIs) among young people aged 12–24 years	STIs remain a major public health concern, and contribute to significant long-term morbidity. In Australia there are currently seven STIs of public health importance, other than HIV. Ongoing surveillance is important in order to monitor the rates of these infections and guide preventive measures (Couldwell 2005; Mindel & Kippax 2005).
Oral health	Proportion of young people aged 12 and 15 years decay-free	Oral health affects people both physically and psychologically and can have a significant impact on their quality of life. The pain associated with dental caries (tooth decay) can interfere with children and young people's daily activities, including schoolwork, employment, sleeping and eating (AIHW 2000a; Kwan et al. 2005; Peterson et al. 2005; Sheiham 2005).
	Mean number of decayed, missing or filled teeth (DMFT) at 12 and 15 years	There has been a decline in the average number of dental caries experienced since 1990, although there has been a small increase since 2000 (Armfield et al. 2007). It is important to continue monitoring trends in oral health to detect any changes in current patterns and the need for prevention strategies or interventions.

Tier 2: Determinants of health		
Indicator		**Justification for inclusion**
2.1 Health behaviours		
Overweight and obesity	Proportion of young people who are overweight or obese	Overweight and obese young adolescents are at higher risk of being overweight or obese in adulthood (Ludwig & Ebbeling 2001; WHO 2000). Overweight and obesity impacts on the psychological wellbeing of young people, and increases the risk of developing cardiovascular conditions, asthma and Type 2 diabetes (Reilly et al. 2003). Obesity in adolescence is also associated with social isolation and lower educational and income attainment throughout life (Christoffel & Ariza 1998).
Physical activity	Proportion of young people aged 12–24 years meeting the National Physical Activity Guidelines	Regular physical activity is important in maintaining good health; it reduces cardiovascular risk factors, protects against some forms of cancer, and strengthens the musculoskeletal system (AIHW 2008a; NHMRC 2003; Okely et al. 2008). Physical activity also improves young people's wellbeing by reducing symptoms of depression, stress and anxiety, and through improvements in self-confidence, self-esteem, energy levels, sleep quality and ability to concentrate (Hills et al. 2007).
Nutrition	Proportion of young people aged 12–24 years meeting Australian Dietary Guidelines	Sufficient nutrition is needed to support the rapid growth and development that occurs during adolescence. Adequate consumption of fruit and vegetables is a protective factor against many diseases, including coronary heart disease, hypertension, stroke, Type 2 diabetes and many forms of cancer (NHPH 2001).
Sun protection	Proportion of young people aged 12–24 years using sun protection	Exposure to sunlight in childhood and adolescence is the main risk factor for melanoma and other types of skin cancer in adulthood. Melanoma of the skin remains the most common cancer diagnosed among young people aged 12–24 years (AIHW 2008b), but the risk can be reduced through increased awareness and adoption of skin cancer prevention measures.
Substance use	Reported rate for substance use disorders for young people aged 12–24 years	Substance misuse by young people can cause health and social problems in the immediate and long-term. In the short- term, it may result in hospitalisations due to acute intoxication and related injuries, dependence, withdrawal symptoms, psychotic disorders and amnesia. In the long term, alcohol and other drug use can lead to depression, infections with blood-borne diseases, damage to the liver, heart and brain, and increased risk of cancers and other serious health conditions (Bruner & Fishman 1998, Moran et al. 2006).

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Tier 2: Determinants of health *(continued)*		
Indicator		**Justification for inclusion**
	Proportion of young people aged 14–24 years who are daily smokers	Tobacco smoking is the single most preventable cause of death in Australia and in the world today (AIHW 2008c; WHO 2008). Most tobacco smokers take up smoking in adolescence, with few people beginning to smoke as adults (Mathers et al. 2006). Adolescent tobacco smoking is associated with a range of social and health problems in early adulthood, such as, continued smoking, problematic alcohol use, and mental health, academic and sleep problems (Mathers et al. 2006).
	Proportion of young people aged 12–17 years who have engaged in risky drinking on any one occasion	Drinking to intoxication is particularly risky in this age group. The risk of accidents, injuries, violence and self-harm are high among drinkers aged under 18 years. Alcohol use may also impact brain development adversely and lead to alcohol-related problems later in life (NHMRC 2009).
	Proportion of young people who drink at high-risk levels in the short or long-term	Drinking at high-risk levels can lead to a range of physical, emotional and social problems, including stomach, liver, heart or brain problems, increased risk of some cancers, depression, family and relationship problems, and legal and financial difficulties (Bruner & Fishman 1998; NDARC 2004; NHRMC 2009). In the short term, high-risk drinking is associated with injuries due to accidents, physical and sexual assaults, alcohol poisoning and other risky behaviours, such as, drug use and unprotected sex (Bonomo et al. 2001).
Other substance use	Proportion of young people aged 12–24 years who had used an illicit drug within the last 12 months	Many medical conditions are associated with illicit drug use including overdose, HIV/AIDS, hepatitis C, malnutrition, infective endocarditis, brain damage, respiratory problems, poisoning, suicide and intentional self-harm. Illicit drug use is also associated with psychological and behavioural problems, such as, delusions and hallucinations, memory problems, suicidal ideation, aggressive and erratic behaviour, and is linked with criminal behaviour (Abetz 2005; Loxley et al. 2004; Vasica & Tennant 2002).
Sexual and reproductive health	Proportion of young people in Year 10 and Year 12 who have had sexual intercourse	Sexual development is a normal part of adolescence and sexual and reproductive behaviour during this time can have far-reaching consequences in later life. Understanding the sexual behaviour of young people is a prerequisite for any education or intervention program.
	Proportion of young people in Year 10 and Year 12 who used a form of contraception at their most recent sexual encounter	The success in lowering unwanted pregnancies and the prevalence of STIs among young people relies heavily on the use of effective contraception.

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Tier 2: Determinants of health *(continued)*		
Indicator		**Justification for inclusion**
	Age-specific birth rate for 15–19 year old women	Teenage motherhood, particularly at younger ages, can pose significant long-term risks to both mother and child. Parenthood during the teenage years often means interrupted schooling, a high risk of lone parenthood, greater dependence on government assistance, increased problems in engaging with the labour market, and poverty (AIHW 2009b; Sleebos 2003).
2.2 Community and socioeconomic factors		
Family cohesion / family functioning	Under development	Benefits for young people living in strong and stable families include having positive role models for building relationships, the ability to cope with changing circumstances and stressful life events, and higher self-esteem (Geggie et al. 2000; Shek 2002). Conversely, living in dysfunctional families can have adverse short and long term effects on the development and future life of young people.
Parental health and disability	Proportion of parents rating their health as 'fair' or 'poor'	Parent's health and wellbeing impacts on the health and wellbeing of young people in a number of ways. Young people rely on their primary carer for physical, emotional and economic needs, and support. When disruption to parenting occurs, as sometimes happens with the onset of a physical or mental illness, the needs of the young person may receive less attention or may not be met at all (Silburn et al. 1996).
	Proportion of young people aged 15–24 years living with parents with disability	Raising children and young people involves physical, emotional and financial demands that can pose significant challenges to a parent with disability. Depending on the severity of the disability, the wellbeing of children and young people may be affected by factors, such as, family discord, discontinuity of care, poor general parental skills, social isolation, and poverty; and these young people may experience developmental delays (ABS 1999; AICAFMHA 2001; McConnell et al. 2003). Some children and young people may also take on greater responsibilities or, in some cases, care for the parent, which may restrict their community, educational, and social activities and result in increased levels of stress (Mukherjee et al. 2002).
	Proportion of parents with a mental health problem	Young people living with a parent with a mental health problem may be at increased risk of social, psychological and physical health problems compared with those living in families not affected by mental illness (Mayberry et al. 2005). They may experience greater social isolation as a result of the stigma attached to mental illness, as well as the stress of coping with the parent's condition (Ramchandani & Psychogiou 2009).

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Tier 2: Determinants of health *(continued)*		
Indicator		**Justification for inclusion**
Social capital	Proportion of young people aged 18–24 years who are able to get support in a time of crisis from persons living outside the household	Social capital can be understood as networks of social relationships, characterised by norms of trust and reciprocity. For young people, the benefits of social capital include positive mental health and behavioural outcomes in childhood and later life, reduced school dropout rates and an increased likelihood of gaining meaningful employment (Ferguson 2006). Strong family relationships and supportive neighbourhoods protect children and young people against the adverse effects of socioeconomic disadvantage, leading to improved health for children and youth in economically poor communities (Zwi & Henry 2005).
Community and civic participation	Community participation rate among young people aged 18–24 years	Community participation enriches the social networks available for young people, providing them with a feeling of belonging, which promotes healthy social and mental wellbeing (Brooks 2007; Muir et al. 2009). Examples of community participation include socialising with family and friends, volunteering, involvement with sporting teams and community groups, and other leisure activities within the community.
	Proportion of 17 and 18 year olds who have registered to vote	The proportion of young people aged 17 and 18 years enrolled to vote serves as an indicator of their community connectedness. Engagement in voting and other community and civic activities strengthens social networks and allows the individual to feel a part of their community. Alternatively, young people feeling disconnected from the community and voiceless will be unlikely to register for voting and will experience further obstacles to participation in wider community and civic activities that contribute to overall wellbeing (Brooks 2007; Muir et al. 2009).
School relationships and bullying	Under development	Good school relationships are associated with better educational and social outcomes. Conversely, the negative consequences of school bullying include higher absenteeism in children who are bullied, lower academic achievement and consequent lower vocational and social achievement, physical and somatic symptoms, anxiety, social dysfunction, depression, school failure, and alcohol and substance use (Lodge 2008; Spector & Kelly 2006).
Child protection	Rate of young people aged 12–17 years who were the subject of a substantiation of a child protection notification received in a given year	Child abuse may include neglect, physical abuse, sexual abuse and emotional or psychological abuse. Young people who have been abused or neglected emotionally or physically often have poor social, behavioural and health outcomes immediately and later in life. Abuse and neglect victims may experience lower social competence, poor school performance and impaired language ability, a higher likelihood of criminal offending, and mental health issues, such as, eating disorders, substance abuse and depression (Chartier et al. 2007; Gardner 2008; Zolotor et al. 1999).

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Tier 2: Determinants of health *(continued)*		
Indicator		**Justification for inclusion**
	Rate of young people aged 12–17 years who are the subject of care and protection orders	Children on care and protection orders are those whose safety and wellbeing are of serious concern due to abuse, neglect or the inability of parents to provide adequate care and protection (AIHW 2008d). Recourse to the court is generally a last resort—for example, where supervision and counselling are resisted by the family, where other avenues for resolution of the situation have been exhausted, or where removal of a child into out-of-home care requires legal authorisation.
Victims of violence	Rate of young people aged 15–24 years who have been the victim of physical or sexual assault	Physical and sexual assault can have complex short-term and long-term negative effects on the physical and psychological health of children and young people, and increases the risk of later victimising others. In particular, a history of child sexual abuse has been associated with psychopathology, depression, anxiety disorder, phobias, panic disorder, post-traumatic stress disorder, substance abuse and violent and sexual offending later in life (Lee & Hoaken 2007; Molnar et al. 2001; Rick & Douglas 2007).
	Alcohol- and drug-related violence victimisation rate for young people aged 14–24 years	Consumption of alcohol and other drugs is strongly linked to violence. Young people are more likely to be involved in alcohol and other drug-related violence, particularly young males. Violence can include physical and verbal abuse, as well as being fearful of another person, which can impact on a person's health and wellbeing (AIHW 2005; Regoeczi 2000).
Homelessness	Proportion of young people aged 12–24 years who are homeless	Young people who are homeless experience significant negative social and health consequences including high rates of mental health problems, behavioural disorders and disrupted schooling (Karim et al. 2006; Yu et al. 2008). Young people who become homeless face increased risk of exposure to assault, poor nutrition and inadequate shelter, and are more likely than other youth to engage in risky behaviours (AIHW 2009a).
Young people and crime	Rate of young people aged 12–17 years who are under juvenile justice supervision	Young people under juvenile justice supervision represent a particularly disadvantaged and high-risk group of the population, characterised by high levels of socioeconomic stress, low levels of educational attainment, significant physical and mental health issues, and a history of drug and alcohol abuse (Kenny et al. 2006; NSW Department of Juvenile Justice 2003; Prichard & Payne 2005; Stewart et al. 2002). They are also more likely to be victims and perpetrators of physical and child abuse (Volavka 1999).
	Rate of imprisonment of young people aged 18–24 years	Young people are over-represented in the prison population, accounting for 20% of the total prison population in 2006 (ABS 2006). The health status of prisoners is generally poor with high rates of communicable diseases such as, hepatitis B and C, and a greater likelihood of engaging in health-risk behaviours, such as, smoking and drug use (Butler et al. 1999; Butler et al. 2004; D'Souza et al. 2005).

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Tier 2: Determinants of health *(continued)*		
Indicator		**Justification for inclusion**
Education	Proportion of young people in Years 7 and 9 achieving at or above the national minimum standards for literacy and numeracy	Proficiency in literacy and numeracy is essential for day-to-day living, for further educational opportunities and for employment prospects. Conversely, poor literacy and numeracy skills are a predictor of early school leaving (Parliament of Australia. House of Representatives Standing Committee on Education and Training 2002). In Australia, individuals with higher levels of education report fewer illnesses and have better mental health than those with lower levels of education (Turrell et al. 2006).
	Apparent retention rate from Year 7–8 to Year 12	Students who fail to complete Year 12 may have fewer employment opportunities and are more likely to experience extended periods of unemployment than Year 12 graduates (Lamb et al. 2000). Lower levels of education are associated with higher prevalence of chronic and mental health problems (Sturm & Gresenz 2002).
	Proportion of young people aged 15–24 years undertaking or with post-school qualifications	Qualifications are an important indicator of an individual's capacity to compete in demanding labour markets. While tertiary qualifications are often used as a proxy for income and employment prospects, obtaining a qualification at any level is likely to improve young people's employment opportunities and their ability to compete for higher paid positions (AIHW 2007a).
Employment	Full-time participation rate of young people aged 15–24 years in study or work	Young people not involved in education, training or employment may have less opportunities to participate fully in society, are considered to be at greater risk of personal and social stresses and social exclusion, and may have poorer long-term labour market outcomes than other young people (Long 2006b).
	Unemployment rate for young people aged 15–24 years	Secure and satisfactory employment offers young people not only financial independence but also a sense of control, self-confidence and social contact. In contrast, unemployment is associated with adverse health effects, such as, lower levels of general and physical health, and higher rates of anxiety and depression, suicide and smoking, both among young people and adults (Harris et al. 1998; Lakey et al. 2001; Mathers 1996; Mathers & Schofield 1998; Muir et al. 2003; Power & Estaugh 1990).
Income	Proportion of young people aged 15–24 years receiving government income support	Young people on government income support, such as, those who are unemployed, underemployed, studying full time or who suffer a long-term health condition, may experience financial hardship which can affect their health and wellbeing (Marmot 2002). In addition, people in financially insecure positions are at greater risk of adverse health outcomes, along with greater use of drugs and poor nutrition (Mathers & Schofield 1998).

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Tier 2: Determinants of health *(continued)*		
Indicator		**Justification for inclusion**
	Proportion of young people aged 15–24 years who experience financial stress	Financial stress is an indicator of socioeconomic disadvantage and provides evidence of a young person's difficulty in meeting basic financial commitments. Young people who are not fully engaged in study or employment are more likely to experience financial stress, and these young people are more likely to be socially disengaged, to feel dissatisfied with their life and to experience poorer health outcomes (Long 2006a).
Socioeconomic status of parents	Proportion of young people aged 12–24 years living in jobless families	Members of households where no-one is employed report worse physical and mental health and lower life satisfaction than members of households where someone is employed (Headey & Verick 2006). Jobless families are disproportionally likely to be reliant on welfare, have low incomes and experience financial stress, and parental unemployment may also create tension and hostility in relationships and reduce warmth and supportiveness in the home (Shonkoff & Phillips 2000). There are also inter-generational effects—the likelihood of a young person completing secondary school and finding secure employment is affected by their parent's socioeconomic status (Dawkins et al. 2002).
	Proportion of young people aged 12–24 years whose parents did not complete secondary school (Year 10 or above)	Inadequate education and training is a common factor in Australia's most disadvantaged communities and may increase their risk of social exclusion (Vinson et al. 2007). Young people who are still living with their parents, particularly those who are financially dependent on their parents, will share the same social and economic circumstances as their parents. There is a link between intergenerational poverty and educational attainment.
2.3 Environmental factors		
Environmental tobacco smoke	Proportion of young people aged 12–17 years who live in households where adults smoked inside	Adolescents who are exposed to tobacco smoke are at an increased risk of adverse health outcomes, including onset and increased severity of asthma, respiratory infections and symptoms, and slowed lung growth (CDC 2007; WHO 2007). Young people with parents who smoke are also more likely to take up smoking later in life (Kestila et al. 2006).
Housing environment	Proportion of young people aged 15–24 years who live in overcrowded housing	Overcrowding is often associated with factors, such as, low socioeconomic status and higher unemployment. It has been shown to be associated with an increased risk of infectious diseases, such as, meningococcal disease, rheumatic fever, tuberculosis, skin infections and infestations, diarrhoeal diseases, eye and ear infections and respiratory diseases, as well as poorer educational outcomes for young people (Howden-Chapman & Wilson 2000; Menzies School of Health Research 2000; Williams 2009).

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Key national indicators of young people's health and wellbeing

Tier 1: Health status	
Wellbeing	
Physical and mental wellbeing	Proportion of young people aged 15–24 years rating their health as 'excellent', 'very good', or 'good'
Human function	
Disability and activity limitation	Proportion of young people aged 15–24 years with severe or profound core activity limitation
Burden of disease and injury	Burden of disease and injury among young people aged 15–24 years
Deaths	
Deaths	Death rates for young people aged 12–24 years
Health conditions	
Mental health	Proportion of young people aged 16–24 years having high or very high levels of psychological distress as measured by the Kessler 10 (K10) scale Prevalence of mental disorders among young people aged 16–24 years
Injury and poisoning	Injury and poisoning death rate for young people aged 12–24 years Road transport accident death rate for young people aged 12–24 years Assault death rate for young people aged 12–24 years Suicide rate for young people aged 15–24 years Accidental poisoning death rate for young people aged 12–24 years Injury and poisoning hospitalisation rate for young people aged 12–24 years
Chronic conditions	Prevalence of long-term conditions among young people aged 12–24 years

Tier 2: Determinants of health *(continued)*	
Parental health and disability	Proportion of parents rating their health as 'fair' or 'poor' Proportion of young people aged 15–24 years living with parents with disability Proportion of parents with a mental health problem
Social capital	Proportion of young people aged 18–24 years who are able to get support in a time of crisis from persons living outside the household
Community and civic participation	Community participation rate among young people aged 18–24 years Proportion of 17 and 18 year olds who have registered to vote
School relationships and bullying	Under development
Child protection	Rate of young people aged 12–17 years who were the subject of a substantiation of a child protection notification received in a given year Rate of young people aged 12–17 years who are the subject of care and protection orders
Victims of violence	Rate of young people aged 15–24 years who have been the victim of physical or sexual assault Alcohol- and drug-related violence victimisation rate for young people aged 14–24 years
Homelessness	Proportion of young people aged 12–24 years who are homeless
Young people and crime	Rate of young people aged 12–17 years who are under juvenile justice supervision Rate of imprisonment of young people aged 18–24 years
Education	Proportion of young people in Years 7 and 9 achieving at or above the national minimum standards for literacy and numeracy Apparent retention rate from Year 7–8 to Year 12

Chronic conditions	Prevalence of long-term conditions among young people aged 12–24 years
	Proportion of young people aged 12–24 years with asthma as a long-term condition
	Incidence of diabetes among young people aged 15–24 years
	Incidence of cancer per 100,000 young people aged 12–24 years
Communicable diseases	Incidence of vaccine-preventable diseases among young people aged 12–24 years
	HIV infection notification rate for young people aged 12–24 years
	Hepatitis A, B and C notification rates for young people aged 12–24 years
	Incidence of notifiable sexually transmissible infections (STIs) among young people aged 12–24 years
Oral health	Proportion of young people aged 12 and 15 years decay-free
	Mean number of decayed, missing or filled teeth (DMFT) at 12 and 15 years

Tier 2: Determinants of health

Health behaviours	
Overweight and obesity	Proportion of young people who are overweight or obese
Physical activity	Proportion of young people aged 12–24 years meeting the National Physical Activity Guidelines
Nutrition	Proportion of young people aged 12–24 years meeting Australian Dietary Guidelines
Sun protection	Proportion of young people aged 12–24 years using sun protection
Substance use	Reported rate for substance use disorders for young people aged 12–24 years
	Proportion of young people aged 14–24 years who are daily smokers
	Proportion of young people aged 12–17 years who have engaged in risky drinking on any one occasion
	Proportion of young people who drink at high-risk levels in the short or long-term
Other substance use	Proportion of young people aged 12–24 years who had used an illicit drug within the last 12 months
Sexual and reproductive health	Proportion of young people in Year 10 and Year 12 who have had sexual intercourse
	Proportion of young people in Year 10 and Year 12 who used a form of contraception at their most recent sexual encounter
	Age-specific birth rate for 15–19 year old women
Community and socioeconomic factors	
Family cohesion/family functioning	Under development
	Proportion of young people aged 15–24 years undertaking or with post-school qualifications
Employment	Full-time participation rate of young people aged 15–24 years in study or work
	Unemployment rate for young people aged 15–24 years
Income	Proportion of young people aged 15–24 years receiving government income support
	Proportion of young people aged 15–24 years who experience financial stress
Socioeconomic status of parents	Proportion of young people aged 12–24 years living in jobless families
	Proportion of young people aged 12–24 years whose parents did not complete secondary school (Year 10 or above)
Environmental factors	
Environmental tobacco smoke	Proportion of young people aged 12–17 years who live in households where adults smoked inside
Housing environment	Proportion of young people aged 15–24 years who live in overcrowded housing

Tier 3: Health system performance

Potentially avoidable hospitalisations	Ambulatory care sensitive conditions hospitalisation rate for young people aged 12–24 years
Teenage purchase of cigarettes or alcohol	Percentage of teenage smokers aged 12–17 years who personally purchased their cigarettes
	Percentage of teenage drinkers aged 12–17 years who personally purchased their alcohol
Survival for melanoma of the skin	Five-year relative survival rates for melanoma of the skin for young people aged 12–24 years
Cervical cancer	Cervical screening rates among women aged 20–24 years
	Cervical cancer vaccination rates among women aged 12–24 years
Appropriate use of antibiotics	Proportion of prescriptions for oral antibiotics ordered by general practitioners for the treatment of upper respiratory tract infections
Delivery by caesarean section	Caesarean sections as a proportion of all confinements of young women aged 15–24 years
General practice consultations	Rate of general practice consultations for young people aged 12–24 years
Waiting times in emergency departments	Percentage of patients aged 12–24 years who are treated within national benchmarks for waiting in public hospital emergency departments for each triage category
Adverse events treated in hospitals	Proportion of hospitalisations for young people aged 12–24 years where an adverse event was treated and/or occurred

Tier 3: Health system performance		
Indicator		**Justification for inclusion**
Potentially avoidable hospitalisations	Ambulatory care sensitive conditions hospitalisation rate for young people aged 12–24 years	Potentially preventable hospitalisations are those for which hospitalisation is thought to be avoidable with the application of preventive care and early disease management, usually delivered in the ambulatory care setting, such as, primary care settings (general practitioner (GP) and community health services). Timely and effective ambulatory care is expected to reduce the risks of hospitalisation by preventing the onset of an illness or condition; controlling an acute episodic illness or condition; or managing a chronic disease or condition (Vic DHS 2002).
Teenage purchase of cigarettes or alcohol	Percentage of teenage smokers aged 12–17 years who personally purchased their cigarettes	Evidence suggests that there is a correlation between regular smoking, buying cigarettes and heavy cigarette consumption, and that decreasing the ability of teenagers to purchase their own cigarettes will assist in reducing the likelihood of teenagers making the transition to regular smoking (NHPC 2004).
	Percentage of teenage drinkers aged 12–17 years who personally purchased their alcohol	Consumption of alcohol at young ages increases the risk of later dependence, as well as contributing to poor mental health and increasing the likelihood of violence (Hingson et al. 2006; Pitkänen et al. 2004). State and territory legislations prohibit the sale of alcohol to young people less than 18 years of age. This is an indicator of the enforcement of the laws regarding purchasing of alcohol.
Survival for melanoma of the skin	Five-year relative survival rate for melanoma of the skin for young people aged 12–24 years	Melanoma is the most common cancer among young Australians (AIHW 2008b), and more than 85% of people with melanoma of the skin are cured by surgery. With early detection and treatment, the percentage of people cured has grown steadily over the past 20 years (Cancer Council NSW 2006). Thus survival rates for melanoma are a useful proxy measure of health system performance; an effective health system will detect and treat the melanomas early, leading to better survival rates.
Cervical cancer	Cervical screening rates among women aged 20–24 years	Up to 90% of all cases of cervical cancer could be prevented through regular screening. Pap smears can detect changes in cells which indicate pre-cancerous growth. As early diagnosis of abnormalities is associated with improved prognosis, Pap smear screening is an effective way of preventing cervical cancers and ultimately death from the disease.

(continued)

Tier 3: Health system performance *(continued)*		
Indicator		**Justification for inclusion**
	Cervical cancer vaccination rates among women aged 12–24 years	Human papilloma viruses (HPVs) are the major cause of cervical cancer. At least 14 types of HPVs have been found to cause cancer and the Gardasil vaccine protects against the two which are responsible for around 70% of cervical cancers, HPV types 16 and 18 (Department of Health and Aging 2006). For women and girls over the age of 15 who have never been exposed to these types of HPV, studies have found that vaccination offered protection from contracting these HPVs in 98% of cases for 3 years (Garland et al. 2007; The FUTURE II Study Group 2007).
Appropriate use of antibiotics	Proportion of prescriptions for oral antibiotics ordered by general practitioners for the treatment of upper respiratory tract infections	In most instances, antibiotics have no efficacy in the treatment of upper respiratory tract infections (URTIs), which are most often caused by viruses. Overuse of antibiotics increases antibiotic resistance. A decline in the rate of antibiotics prescriptions for URTIs may be an indication of more appropriate management of viral infections (NHPC 2004).
Delivery by caesarean section	Caesarean sections as a proportion of all confinements of young women aged 15–24 years	Delivery by caesarean section is appropriate in a range of circumstances related to clinical characteristics of patients; however, many other factors have been shown to be important contributors in the decision to deliver by caesarean section, including the practice patterns of individual doctors, and other non-clinical factors, such as, health insurance status, hospital characteristics and exercise of patient choice (NHPC 2004; OECD 2002).
General practice consultations	Rate of general practice encounters for young people aged 12–24 years	One of the challenges confronting health services is how best to support and empower young people to access the health care they need in a timely manner. Significant barriers exist for young people seeking health services such as feelings of embarrassment, concern that their queries will not be taken seriously and fear about confidentiality or being judged. This measure provides an important indication of the accessibility of GP services among young people (Churchill 2009).
Waiting times in emergency departments	Percentage of patients aged 12–24 years who are treated within national benchmarks for waiting in public hospital emergency departments for each triage category	All patients attending public hospital emergency departments are assessed and assigned a triage category, which reflects the urgency with which treatment should start. In Australia, benchmarks for the start of treatment have been identified for each triage category (AIHW 2001). This indicator measures the extent to which these benchmarks have been achieved.
Adverse events treated in hospitals	Proportion of hospitalisations for young people aged 12–24 years where an adverse event was treated and/or occurred	An adverse event occurs when there was harm caused by health care management rather than an underlying disease or condition of the patient. These events are in theory preventable, and serve as a good measure of the efficacy of the health system.

Additional potential indicators

The National Youth Information Advisory Group has proposed several additional indicators for inclusion in the *Young Australians: their health and wellbeing 2011* report. These indicators are currently under development and the AIHW will further investigate whether these indicators fit within the National Health Performance Criteria guidelines for selecting key national indicators, or whether they are better suited as supplementary information to the existing indicators. Further work will also be undertaken to identify appropriate data sources.

Table 2: Possible additional indicator areas to be included in *Young Australians: their health and wellbeing 2011* report

Indicator area	Justification
Other chronic conditions/malaise	Psychosomatic symptoms refer to a range of low-grade non-clinical illnesses that are thought to have an emotional rather than clinical origin. These conditions can include stomach and back pains, headaches, tiredness and irritability and may impact on health and engagement in education of adolescents and youth (Sweeting & West 2003).
Sleep disorders	It is estimated that adolescents need approximately 9 hours of sleep per night (Carskadon 1999). Sleep disorders and sleep deprivation have an impact on the health and wellbeing outcomes of young people by reducing their capacity to undertake normal everyday activities. Thinking, emotional balance and behaviour are all affected by chronic sleep deprivation (Carpenter 2001) with demonstrated outcomes, such as, poorer school grades (Curcio et al. 2006; Wolfson & Carskadon 2003) and a higher rate of traffic accidents (Lucidi et al. 2006). Epidemiological studies have demonstrated that earlier parental set bedtimes may protect against adolescent depression and suicidal ideation by lengthening sleep duration (Gangwisch et al. 2010).
Media and communication	Communication technology, including television, internet, newspaper and other media have been shown to have an impact on young people and how they view themselves and their community, and to inform their views on global issues. Young users are increasingly turning to the internet as a source of information, communication, socialising and entertainment (Gigli 2004). However, commercial media aimed at children and youth can also have negative effects on the behaviour of young people, such as, aggression, obesity, substance misuse, eating disorders and unsafe sexual behaviour among youth (Austin et al. 2006; Huesmann 2007; L'Engle et al. 2006).
Environmental issues	Information on environmental issues, such as, climate change, environmental damage and drought, has been raised as having an impact on the mental health and wellbeing of young people, influencing young people's perceptions of the present and the future (Tucci et al. 2007). There is concern that young people may react with despair and loss of motivation if they perceive climate change as inevitable (Kefford 2006). Young people in rural communities experiencing drought are concerned about the influence of global warming with demonstrated symptoms of sadness, worry, behavioural disturbance and problems relating to peers and others (Sartore et al. 2008).

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Appendix 1: Current National Youth Information Advisory Group

Professor George Patton (Chair)
VicHealth Professor Adolescent Health Research Department of Paediatrics,
The University of Melbourne

Dr John Ainley
Deputy Director
Australian Council for Educational Research

Dr Fadwa Al-Yaman
Senior Executive
Social and Indigenous Group,
Australian Institute of Health and Welfare

Prof David Bennett AO
Head
NSW Centre for Advancement of Adolescent Health,
The Children's Hospital at Westmead

Ms Melinda Bromley
Assistant Secretary
Population Health Programs Branch,
Australian Government Department of Health and Ageing

Dr Judy Cashmore
Faculty of Law
University of Sydney

Mr Richard Eckersley
Visiting Fellow
National Centre for Epidemiology and Population Health,
The Australian National University

Ms Lee Emerson
Branch Manager
Family Policy and Research,
Australian Government Department of Families, Housing, Community Services and Indigenous Affairs

Dr Sharon Goldfeld
Senior Medical Advisor
Office for Children,
Victorian Government Department of Education and Early Childhood Development

Dr Matthew Gray
Deputy Director (Research)
Australian Institute of Family Studies

Dr Diana Hetzel
Senior Researcher,
Public Health Information Development Unit,
The University of Adelaide

Associate Professor James Harrison
Director
National Injury Surveillance Unit,
Australian Institute of Health and Welfare

Ms Angela Hewson
Director
Youth Across Government, Office of Yowuth,
Australian Government Department of Education, Employment and Workplace Relations

Dr Geoff Holloway
Research Manager
Australian Research Alliance for Children and Youth

Dr Paul Magnus
Medical Advisor
Australian Institute of Health and Welfare

Ms Sushma Mathur
Head
Children, Youth and Families Unit,
Australian Institute of Health and Welfare

Dr Naomi Priest
Research Fellow
Melbourne School of Population Health,
University of Melbourne

Dr Jenny Proimos
Senior Medical Advisor
Child and Adolescent Health and Wellbeing Division,
Office of Children and Portfolio Coordination,
Victorian Government Department of Education and Early Childhood Development

Mr Michael Tansky
Director
Office for Youth,
Department of Communities (Qld)

Ms Meredith Turnbull
Executive Director
Australian Youth Affairs Coalition

Ms Gemma Van Halderen
Assistant Statistician
Social Analysis and Reporting Branch,
Social Statistics Group,
Australian Bureau of Statistics

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bulletin 77

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Any enquiries or comments on this publication should be directed to:

Australian Institute of Health and Welfare

Annette Milnes
GPO Box 570
Canberra ACT 2601
Phone (02) 6249 5179

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