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ORIGINAL ARTICLE

Encounters between adolescents and general practice in Australia

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Aim: To describe the nature of the encounters between adolescents and general practice in Australia.

Methods: Data collected by the Bettering the Evaluation and Care of Health programme from 1998–2004 were analysed. Data for 10–14-year-old and 15–19-year-old males and females were compared with data for 25–29-year-olds. The outcome measures included: number of encounters compared with other age groups, reasons for encounter, problems managed, treatments prescribed and referrals made for key problems and types of consultations.

Results: Adolescents have the lowest rate of encounter with general practice, compared with all other age groups. Respiratory, skin, musculoskeletal and unspecified (fever, injury, weakness) problems accounted for the great majority of reasons for encounter and problems managed. Management of mental health problems, preventive health care and health education were very infrequently managed problems. Standard surgery consultations were more common among adolescents than among young adults.

Conclusions: Adolescents have a relatively low rate of encounter with general practice and the problems managed are primarily physical ailments. There is great scope to improve delivery of preventive health care and to increase management of mental health problems.

Key words: adolescents; Australia; general practice; general practitioner; reason for encounter.

In Australia, general practice is the cornerstone of primary health care and young people nominate general practitioners (GPs) as the health provider of choice if they were to seek help.[1,2] Although little has been published in Australia on the specific encounters between GPs and young people, there is evidence to justify concern about the utilisation of general practice by Australian young people. A summary of data on adolescent (12–18 years) consultations in general practice in Australia between 1999 and 2004 showed that adolescents made up only 4.0% of general practice encounters, but 9.7% of the population, suggesting that they were under-represented in general practice.[3] Although this could reflect the fact that young people experience fewer health problems, an extensive needs analysis into access to primary health care by young people (aged 12–25 years) in New South Wales in 2002 suggested that young people experience several barriers to accessing care.[1] Thus, examining the reasons for which young people visit GPs and some of the outcomes of those encounters could provide valuable information about young people's health as well as further insights into access to general practice.

Key Points

1. Adolescents have a relatively low rate of encounter with general practice, although it is not clear if the number of encounters is appropriate to their needs.
2. The problems managed are primarily physical ailments.
3. There is great scope to improve delivery of preventive health care and to increase management of mental health problems.

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The aim of this study was to explore in detail the reasons for which young people consult with GPs in Australia (reason for encounters; RFEs), the problems managed (PM), the prescription and referral rates for key health problems and the types of Medicare-paid surgery consultations. The data are presented primarily for 10–14-year-old and 15–19-year-old males and females, to explore consultations in the decade of life where the majority of individuals go through puberty and experimentation with health risk behaviour begins. This also coincides with the Royal Australian College of General Practitioners' guidelines for preventive activities that recommend that 14–19-year-olds be screened for psychosocial risk behaviours.[4] The data are compared with those for 25–29-year-olds, a young adult population whose behaviours are less likely to be influenced by the adolescent phase of life. The frequency of contact with general practice is also described for population groups across the life span.

Methods

The Bettering the Evaluation and Care of Health (BEACH) programme is a continuous study of general practice activity, commenced in 1998. The BEACH method is described in detail elsewhere.[5]

Survey design

The BEACH study employs a cluster sample survey design. The GP is the primary sampling unit, while the primary unit of

inference is the patient encounter. A random sample of approximately 1000 GPs is drawn each year from the Health Insurance Commission's sampling frame of the population of GPs in Australia. Sampling is cross-sectional, but continuous across the year, with around 20 GPs participating in the study in any 1 week. Each GP completes details of 100 consecutive patient encounters, on structured forms at the time of the encounter. The analysis reported below is for 7 years of combined data from April 1998 to March 2005.

Data elements

A single page encounter form contains the following elements:

- Patient age and sex
- Whether English was the main language spoken at home
- Whether the patient holds an Australian health-care concession card
- The patient's RFE (up to three RFEs)
- The PM by the GP at the encounter (up to four problems per encounter)
- Treatments received for each problem, including medications, clinical treatments, procedures, referrals and orders for pathology and imaging tests.

RFEs and PMs were classified using the International Classification for Primary Care (ICPC-2).[6]

Data selection and analysis

The 30 most frequent PMs were identified separately for 10–14, 15–19 and 25–29-year-old males and females and all were included in the table. All RFEs with a frequency of ≥1.0 per 100 encounters are reported. RFEs and PMs are expressed as rates per 100 encounters. Rates of treatments received are expressed both as rates per 100 encounters and per 100 PMs.

Results

General practice encounter rates across population groups

Table 1 shows the number of Australian males and females and the number of general practice encounters per person per year for each age group in 2001. The encounter rates were similar for 0–4, 5–9 and 10–14-year-olds, but were higher among females in every age group thereafter. Among both males and females, the two lowest encounter rates were in the 10–14 year and 15–19 year age groups.

Table 1 Number of Australian males and females in each age group and the number of general practice encounters per person per year for each age group in 2001

Age group (years)	Males		Females	
	n	Encounters/ person/year	*n*	Encounters/ person/year
0–4	657 499	5.7	624 858	5.3
5–9	693 790	2.7	657 874	2.8
10–14	693 083	2.3	660 094	2.3
15–19	690 668	2.3	662 077	3.8
20–24	660 776	2.6	641 636	4.8
25–29	700 910	2.6	706 171	4.8
30–39	1 468 353	2.9	1 490 466	4.7
40–49	1 409 491	3.4	1 428 360	4.9
50–59	1 165 428	4.4	1 144 148	6.0
60–69	749 572	6.4	754 965	7.6
70–79	530 910	7.8	626 826	9.0
80+	210 172	7.8	385 113	10.8

Problems managed

Table 2 shows the 30 most frequently reported PMs for each ICPC chapter for males and females aged 10–14 years, 15–19 years and 25–29 years, separately.

Differences between males and females

There were very few differences between males and females in the PMs. Injuries and the treatment of asthma were more common among males than females, particularly among 10–14-year-olds. Acne and upper respiratory tract infections (URTIs) were more commonly treated among 15–19-year-old boys compared with girls of the same age. The treatment of depression was more common among 15–19-year-old females than males.

Differences between age groups

Males. The treatment of asthma, several forms of respiratory tract problem (i.e. URTIs, tonsillitis, allergic rhinitis) and ear infections all declined steadily with increasing age among males. Not surprisingly, the treatment of acne peaked strongly among 15–19-year-olds. Although there was some decline in the treatment of physical injuries in the oldest age group, the magnitude of the change was not large and it was accompanied by an increase in the treatment of back problems. There were marked increases with age in the management of psychological problems (depression, anxiety, drug abuse and sleep disturbance) with the frequency of management of depression being 10 times greater among 25–29-year-old males compared with 10–14-year-old males.

Females. The frequency of management of asthma, several types of URTI and ear infections was similar to that of males. Also like males, the treatment of acne peaked in the 15–19-year-old age group. Like males, the frequency of treating physical injuries declined with increasing age, but the pattern of change was quite different. Among females, the frequency of treating injuries halved between the 10–14-year-old and 15–19-year-old age groups and was slightly lower among 25–29-year-olds. With regard to psychological problems, there was a substantial increase in the management of depression, of approximately the same magnitude that occurred among males. Although there were increases in the frequency of management of anxiety, drug abuse and sleep disturbance among females, the increases were smaller than among males. Managing problems

Table 2 Rates per 100 encounters (problem managed and reason for encounter) for males and females aged 10–14, 15–19 and 25–29 years

	10–14-year-olds		15–19-year-olds		25–29-year-olds	
	Males	Females	Males	Females	Males	Females
Respiratory						
Problem managed	34.6	34.1	29.8	26.1	20.7	17.5
URTI (acute)	12.3	13.2	10.7	8.9	7.1	6.5
Asthma	7.3	5.4	4.3	3.4	2.5	2.2
Tonsillitis	3.7	4.7	3.6	4.0	1.7	1.3
Acute bronchitis/bronchiolitis	3.1	2.8	3.3	2.8	2.4	1.8
Allergic rhinitis	1.8	1.3	1.2	1.0	1.1	0.8
Sinusitis	1.5	1.8	1.8	2.0	1.8	1.9
Respiratory infection (other)	0.8	0.9	0.7	0.8	0.7	*
Influenza	0.6	0.6	1.0	0.5	0.9	0.5
Reason for encounter	38.2	37.8	33.2	28.2	–	–
Cough	11.2	10.0	7.9	6.2	–	–
Throat symptom/complaint	10.0	12.2	9.8	9.1	–	–
Upper respiratory infection, acute	3.6	3.7	3.7	3.2	–	–
Asthma	2.9	2.3	1.8	1.5	–	–
Skin						
Problem managed	26.0	24.8	28.2	18.8	20.4	12.6
Warts	3.2	3.6	2.1	1.7	1.1	0.6
Dermatitis	2.0	2.5	1.8	2.1	2.0	1.8
Acne	1.7	2.1	5.0	3.7	0.5	0.9
Ingrowing nail	1.3	0.9	1.1	*	*	*
Naevus/mole	1.2	1.1	1.1	1.1	0.9	0.9
Dermatophytosis	1.1	0.9	1.2	0.5	1.2	0.5
Skin infection (post-trauma)	1.1	1.0	1.2	0.7	1.0	*
Impetigo	0.9	0.9	*	*	*	*
Infected finger/toe	0.8	0.5	0.7	*	*	*
Boil/carbuncle	0.6	0.7	0.9	0.6	0.9	0.5
Reason for encounter						
Rash	22.3	22.5	24.3	17.4	–	–
Warts	4.0	4.7	3.4	3.4	–	–
Laceration/cut	2.8	3.1	1.8	1.5	–	–
Acne	1.7	0.7	1.7	*	–	–
Swelling	1.4	1.7	3.7	2.8	–	–
Skin complaint	1.2	*	1.8	1.0	–	–
Musculoskeletal						
Problem managed	15.3	12.9	17.2	8.6	19.5	8.6
Physical injuries	17.3	12.3	18.8	7.0	16.0	5.4
Osteochondrosis	0.8	*	*	*	*	*
Back complaint	0.7	0.7	1.3	1.1	3.4	1.6
Bursitis/tendonitis/synovitis	0.7	0.6	0.7	0.5	0.9	0.5
Reason for encounter						
Injury musculoskeletal NOS	18.2	15.3	19.9	10.0	–	–
Foot and toe complaint	2.6	1.7	2.5	0.7	–	–
Knee complaint	2.5	2.2	1.7	0.9	–	–
Back complaint	2.1	1.8	1.9	0.9	–	–
Hand/finger complaint	1.2	1.4	2.7	1.9	–	–
General/unspecified						
Problem managed	12.0	12.5	13.7	14.6	15.5	13.1
Viral disease NOS	2.7	2.7	2.3	2.1	2.0	1.5
Allergy NOS	0.8	0.6	0.5	0.5	*	*
Infectious mononucleosis	0.3	0.5	1.0	0.9	*	*
Weakness/tiredness	0.4	0.6	0.7	1.3	0.8	1.1
Adverse medical agent	*	*	*	0.9	*	0.8
Reason for encounter	20.5	20.2	24.5	23.8	–	–
Fever	3.4	3.7	2.6	1.7	–	–
Trauma/injury, NOS	1.9	1.3	1.6	0.8	–	–
Weakness/tiredness general	1.1	1.2	1.8	2.7	–	–
Chest pain NOS	0.8	0.7	1.1	0.7	–	–
Digestive						
Problem managed	8.6	8.8	8.2	8.5	10.6	8.8
Gastroenteritis	1.3	1.1	1.8	1.4	2.3	1.3
Abdominal pain	1.0	1.1	0.5	1.1	0.5	0.9
gastrological infections	0.8	0.7	0.8	0.7	0.8	0.7
oesophageal diseases	*	*	0.4	*	0.9	0.6
Reason for encounter	11.1	11.8	10.9	12.1	–	–
Abdominal pain	3.0	3.7	2.1	3.3	–	–
Vomiting	1.8	1.6	1.9	2.0	–	–
Diarrhoea	1.2	0.9	2.0	1.4	–	–

Table 2 Continued

	10–14-year-olds		15–19-year-olds		25–29-year-olds	
	Males	Females	Males	Females	Males	Females
Ear						
Problem managed	6.6	7.5	4.0	3.0	3.4	2.4
Acute otitis media	2.9	3.2	1.3	1.1	0.8	0.6
Otitis externa	2.1	2.3	1.0	0.7	0.9	0.6
Reason for encounter	7.3	8.4	4.3	3.5	–	–
Pain, ear/earache	4.8	5.8	2.2	2.1	–	–
Neurological						
Problem managed	3.3	3.3	3.2	3.4	4.2	3.7
Migraine	0.7	0.7	0.6	0.8	0.7	1.2
Reason for encounter	5.6	5.7	5.9	5.8	–	–
Headache	3.2	3.4	3.1	3.1	–	–
Psychological						
Problem managed	3.5	2.6	7.4	8.1	16.7	11.3
Hyperkinetic disorder	1.2	*	0.6	*	*	*
Depression	0.4	0.7	1.7	3.5	4.2	4.8
Drug abuse	*	*	1.1	0.6	3.1	0.9
Anxiety	0.4	0.5	0.8	1.0	2.2	1.7
Reason for encounter	2.8	1.9	5.4	6.1	–	–
Depression	*	*	1.0	2.0	–	–
Eye						
Problem managed	2.8	2.7	4.0	1.6	2.4	1.3
Conjunctivitis	1.1	1.0	0.8	0.6	0.7	*
Reason for encounter	3.3	3.2	2.8	1.9	–	–
Pain, eye	0.9	0.8	0.6	0.5	–	–
Genital system						
Problem managed	1.5	3.5	1.5	11.3	2.9	15.6
Menstrual problems	–	1.6	–	3.9	–	2.7
Genital check-up	*	*	*	1.8	*	5.2
Reason for encounter	1.5	3.2	1.6	11.0	–	–
Menstrual problems	–	1.5	–	4.0	–	–
Female genital check-up	–	*	–	1.9	–	–
Urology						
Problem managed	1.1	2.0	0.8	3.1	1.2	3.0
UTI	0.3	1.3	*	2.5	*	2.4
Reason for encounter	0.8	1.6	0.6	2.8	–	–
UTI	*	*	*	0.7	–	–
Dysuria/painful urination	*	0.4	*	1.1	–	–
Urinary frequency/urgency	*	*	*	0.6	–	–
Pregnancy and family planning						
Problem managed	*	0.9	*	17.1	0.1	28.1
Oral contraception	–	*	–	6.7	–	5.9
Contraception other	–	*	–	3.7	–	4.1
Pregnancy	–	*	–	2.5	–	5.9
Pre/post-natal check-up	–	*	–	2.1	–	7.5
Reason for encounter	*	0.8	0.01	15.4	–	–
Oral contraception	–	*	–	4.7	–	–
Contraception, other	*	*	*	2.7	–	–
Pregnancy	–	*	–	1.4	–	–
Pre/post-natal check-up	–	*	–	2.5	–	–
Observation/health education/ advice/diet pregnancy	*	*	*	1.0	–	–
Cross chapters						
Problem managed						
Preventive (immunisation and vaccination)	5.5	5.8	3.4	3.7	3.1	2.2
General check-up	0.8	0.5	1.8	0.9	2.8	1.2
Prescription (all)	0.7	0.6	0.8	1.0	1.0	1.1
Reason for encounter					–	–
Preventive immunisation, vaccination, medications	5.3	5.5	3.3	3.5	–	–
Prescription all	2.8	2.2	3.6	4.1	–	–
Test results	1.5	2.0	2.3	3.6	–	–
General check-up	1.3	1.0	2.2	1.4	–	–

*Not within the most frequent 60 reasons for encounter. NOS, not otherwise specified; URTI, upper respiratory tract infection; UTI, urinary tract infection; –, Not applicable.

Table 3 The number of occasions on which a treatment is prescribed per 100 encounters on which a specified problem is managed, for males and females in each age group, separately

	Number of times (95% CI) treatment is administered/100 encounters on which problem is specified					
	10–14 years		15–19 years		25–29 years	
	Males	Females	Males	Females	Males	Females
Antibiotics for URTI/acute bronchitis	44.8 (42.0–47.60)	42.1 (39.6–44.7)	51.8 (49.1–54.4)	50.0 (47.7–52.3)	51.7 (48.8–54.6)	46.6 (44.3–48.8)
Antidepressants for depression/anxiety	21.6 (12.1–31.1)	26.8 (18.3–35.3)	44.1 (38.0–50.2)	45.1 (41.6–48.6)	47.3 (43.7–50.8)	49.5 (47.0–52.0)
Bronchodilators for asthma	24.5 (20.9–28.1)	20.8 (17.1–24.5)	27.3 (22.7–32.0)	24.3 (20.6–28.0)	27.2 (22.0–32.3)	22.1 (18.5–25.7)
Preventive inhalers for asthma	23.7 (20.2–27.1)	19.7 (16.0–23.3)	21.8 (18.0–25.7)	20.4 (17.1–23.7)	20.8 (16.3–25.3)	19.5 (16.2–22.8)
Referrals for psychological problems	32.2 (26.9–37.6)	22.8 (17.7–27.9)	16.4 (13.8–19.0)	13.5 (11.7–15.3)	10.1 (8.7–11.5)	9.3 (8.2–10.4)

CI, confidence interval; URTI, upper respiratory tract infection.

of the genital system was rare among 10–14-year-old girls, but the frequency was greater among 15–19-year-olds and 25–29-year-olds.

Comparisons between PMs and RFEs

Among 10–14-year-old males and females and 15–19-year-old males, the respiratory, skin, musculoskeletal and general/unspecified chapters accounted for 85–90% of all RFEs. Among 15–19-year-old females, these four chapters only accounted for 68% of RFEs with the genital system and pregnancy and family planning accounting for 11% and 17%, respectively. Overall, the frequency of PMs and RFEs were very consistent within each ICPC Chapter.

Key prescriptions and referrals

Table 3 shows the number of management activities per 100 specified PMs. For example, 44.8 antibiotics were prescribed for every 100 URTI PMs at encounters with 10–14-year-old males. URTI/acute bronchitis was treated with antibiotics for approximately 40–50 per 100 PMs and was slightly higher among males. Depression/anxiety was managed with medication for 20–25% of PMs among the youngest males and females, rising to 45–50% among the older adolescents and young adults. The prescription rates were only slightly higher among females. The rates of prescribing bronchodilators for asthma were 25–27% for males and 21–24% for females, with little difference between the three age groups. Similarly, preventive inhalers were prescribed for 21%–24% of PMs for males and 20%–22% for females. Referrals for psychological problems were higher among males than females for the two age groups of adolescents, but were similar among young adults. Although referral rates declined markedly among both males and females, the decline was steeper among males.

Types of surgery consultation

Table 4 shows the types of Medicare-paid direct surgery consults per 100 encounters. The frequency of short and prolonged consults was consistent across age and sex. However, the frequency of standard surgery consults declined with increasing age and the frequency of long surgery consults increased with age, particularly among females. The frequency of 'other' surgery consults also increased with increasing age among females, but not males.

Table 4 Types of Medicare-paid direct surgery consults per 100 encounters for males and females in each age group, separately

	10–14 years		15–19 years		25–29 years	
	Males	Females	Males	Females	Males	Females
Short surgery	1.8	1.8	1.4	1.2	1.0	1.0
Standard surgery	86.9	87.6	81.1	80.9	74.7	73.4
Long surgery	4.3	4.4	6.4	9.6	8.8	11.9
Prolonged surgery	0.5	0.4	0.6	0.9	1.0	1.0
Other	1.6	1.3	1.6	2.3	1.7	5.8

Discussion

This study found that adolescents have the lowest attendance rates at general practice of all population groups. The three most plausible explanations for this observation are that: (i) adolescents are less likely to seek help than other population groups; (ii) they have fewer health problems than other population groups; and (iii) or, they have their health needs met through other services. It is also possible that adolescents experience physical barriers to gaining access to general practice, such as waiting times to get an appointment, availability of a 'suitable' GP (such as same-gender), cost and hours of operation. On the first hypothesis, there is consistent evidence that adolescents often avoid consulting a GP when they have a health concern, the main reasons being fears about confidentiality breaches, embarrassment and self-consciousness, and inadequate knowledge of the range of services commonly available through general practice.[1] Physical barriers, while an issue, particularly for adolescents in rural settings, are the least common reason for not seeking help.[1,7]

Alternatively, it may be that adolescents have fewer health problems than other population groups. This hypothesis is supported by the observation that the encounter rates among 20–29-year-olds and 30–39-year-olds are only slightly higher than those of adolescents. Compared with adolescents, those in their 20s only have one more general practice encounter every 3 years and those in their 30s only have one more encounter every 2 years. If adolescents were constrained from consulting with a GP, one might expect a larger increase in the encounter rates between the teenage years and the 20s, as young adults overcome the self-consciousness typically associated with adolescence and described by Elkind as the 'imaginary audience'.[8] However, this does not occur.

Another possibility is that adolescents have their health needs met elsewhere (e.g. family planning services).[2] However, young people state that they would be most likely to go to the GP if they were to seek health care from a professional service,[1] so this explanation seems less likely.

The encounter rate was substantially higher among 15–19-year-old girls compared with 5–19-year-old boys. There were approximately 927 000 more person encounters among females of which approximately 80% were accounted for by urology, genital system, and pregnancy and family planning RFEs. That is, discounting urological and reproductive health issues, females have only a marginally higher rate of encounter with GPs.

The great majority of RFEs and PMs were biomedical in nature, whereas data from other sources show unequivocally that Australian adolescents experience other threats to their well-being. For example, Sawyer *et al.* reported that 12–15% of 12–17-year-olds experience mental health problems and 8–16% have mental health disorders.[9] Clearly, only a very small proportion of these mental health problems are being addressed through general practice. It is difficult to determine if mental health problems are not being managed at all, or are simply not being managed through general practice. There are several reasons why adolescents may not seek help with mental health problems through general practice. First, they may see a GP as a manager of only physical ailments. Alternatively, they may wish to seek help from a GP for mental health problems, but be too embarrassed to do so.

Another emerging issue is overweight and obesity. A recent survey has shown that approximately 25% of young Australians are overweight or obese and that the prevalence continues to rise,[10] but obesity barely registered among PMs or RFEs in our data. On balance, it would appear that the general practice encounter rates among adolescents are low because they are generally healthy and because there are probably health issues for which they do not seek help.

The rates of PMs and RFEs for preventive care and health education (data not shown) were extremely low. The Royal Australian College of General Practitioners publishes guidelines for preventive health care that address this issue for adolescent patients.[11]

An interesting finding is that standard consultations were more common among adolescents compared with 25–29-year-olds. There could be several reasons for the difference, including communication difficulties, being concerned about opening a 'can of worms' and having to deal with parents as well as adolescents. GPs have consistently cited 'lack of time' as a major barrier to providing optimal care to adolescents.[2] It may be that GPs are trying to facilitate communication with adolescents, but are not succeeding, or it may also be that many GPs do not have sufficient confidence or feel that there are too many barriers to managing many of the health issues that concern adolescents.[12]

In view of the fact that the majority of cases of URTI among adolescents and adults are viral, the prescription rate appears to be somewhat high (>40%). The rate of antibiotic prescribing for URTI for all patient encounters is declining, falling from 42 per 100 URTI in 1998 to 33.1 in 2001.[5] Declining rates of antibiotic prescribing for URTI has been achieved in many countries and has been attributed to factors such as ongoing physician education[13,14] as well as community educational campaigns.[14] Antibiotic prescription for acute bronchitis, however, remains high in Australia, despite guidelines to the contrary.[15] These results suggest either that antibiotic prescribing for URTI is somewhat higher for older adolescents and young adults than for the rest of the population or that acute bronchitis is being treated with antibiotics frequently, or both. GPs might feel that it is more practical to issue a prescription (that they may recommend filling only if symptoms get worse) to an adolescent, because they are aware that adolescents consult infrequently and may not return for follow up. However, this does not explain the high prescribing rates in the 25–29-year-age group. Further exploration of the nature of and communication within these consultations, the most common RFE, would be useful.

The rate of prescription of antidepressants is more difficult to interpret given the complexity of depression as a health problem. Current guidelines recommend cognitive behaviour therapy as the first line of treatment for mild to moderate depression among adolescents,[16] but GPs cite inadequate support from mental health professionals as a major barrier to working effectively with adolescent mental health problems.[2] It is possible, therefore, that GPs are resorting to second line treatment (antidepressants) or that they are using them as adjuvants to CBT and other psychological therapies.

It is possible that some of the details particularly pertinent to adolescent health were concealed because of the way we summarised the data. Adolescent health problems are very often multifactorial and psychosocial in nature and because we (unavoidably) summarised the data by ICPC chapter, some of the detail may have been lost.

That there appears to be several health problems for which adolescents do not seek help provokes two responses. First, it is important to continue efforts to enhance adolescents' access to general practice by making it available and affordable, by allaying their concerns about confidentiality, facilitating open communication and increasing their awareness of the full range of services available through general practice. Second, it is important that data on the health of adolescents continue to be collected from different sources (e.g. epidemiological surveys) in order to develop a comprehensive understanding and to identify health problems for which help is not being sought.

Overall, the rates for PMs and RFEs were very similar within each ICPC Chapter. This suggests that either clinicians are not probing for issues that may be of concern to adolescents, but which they have difficulty raising themselves, or that they are probing unsuccessfully. It is accepted wisdom that, foradolescent patients particularly, it is important to explore beyond thepresenting complaint. Over the past two decades, efforts to improve

doctors' communication skills have increased,[17] which includes exploring for a 'hidden agenda'. Our data reinforce the need to continue and expand on improving these essential clinical skills.

Because delivery of preventive health care is infrequent, research is required to determine the barriers to delivery of preventive care to adolescents and programmes developed to increase the rate of delivery.

Adolescent health problems are very often multifactorial and require more comprehensive psychosocial assessment than a standard medical assessment. Consequently, adolescent physicians should use the home, education and employment, eating habits, activity, drugs, sexuality, suicide[18] framework, in addition to the standard medical approaches, to make an assessment because it is more likely to identify concerns an adolescent may have, but has trouble expressing.

With regard to data quality, GP response rates may be improved in the future by the use of online data collection. However, many GPs still do not use computers fully in their practices[5] and therefore at this stage paper-based surveys obtain a sample of encounters that is more representative of general practice than by using computer records alone.

Finally, these findings have implications for policy around education and training and service development as well as for the role of more broadly promoting health and well-being outside the health sector in the adolescent population. To these ends, there have been important developments over the past several years in Australia in curriculum development in general practice,[19] paediatric[20] and adult physican[21] training such that adolescent/youth health have more prominence and are mandatory components of registrar training. In relation to service development, much work has been done around Australia to improve 'youth friendly practice' in primary care, although Australia lacks a national youth, youth health or primary health-care policy that might enable access to health care to become a mainstream priority. Health promotion can and does take place outside the health sector (such as in schools and communities), however, this does not detract from the urgent need to foster enduring and trusting relationships between young people and GPs in the consultation.[17]

Conclusions

Although adolescents have the lowest encounter rate with GPs, it appears that one of the main reasons is because they are relatively healthy. However, our evidence also suggests that treatment for mental health problems and overweight is not being sought and that preventive medicine and health education are not being delivered to an adequate extent. It also appears that GPs tend not to probe for unexpressed concerns among adolescents. That is, there remains room for further improvement in the areas apart from the treatment of acute physical health problems.

References

1 Booth ML, Bernard D, Quine S *et al.* Access to health care among Australian adolescents young people's perspectives and their sociodemographic distribution. *J. Adolesc. Health* 2004; **34**: 97–103.

2 Kang M, Bernard D, Booth M *et al.* Access to primary health care for Australian young people: service provider perspectives. *Br. J. Gen. Pract.* 2003; **53**: 947–52.

3 Australian Institute of Health and Welfare General Practice Statistics and Classification Unit. The treatment of adolescents in Australian general practice. *Aust. Fam. Physician* 2005; **34**: 8–9.

4 Royal Australian College of General Practitioners. *Guidelines for Preventive Activities in General Practice*. 6th edn. RACGP, 2005, Melbourne. Available from: http://www.racgp.org.au/Content/NavigationMenu/ClinicalResources/RACGPGuidelines/TheRedBook/2005Redbook_6th_ed.pdf [accessed 8 April 208].

5 Britt H, Miller GC, Knox S *et al. General Practice Activity in Australia 2004–05*. Canberra: Australian Institute of Health and Welfare; 2005. Report No.: General Practice Series No 18.

6 Classification Committee of the World Organization of Family Doctors. *ICPC-2: International Classification of Primary Care*. Oxford: Oxford University Press, 1998.

7 Quine S, Bernard D, Booth M *et al.* Health and access issues among Australian adolescents: a rural-urban comparison. *Rural Remote Health* (online) 2003; **3**: 245.

8 Culbertson JL, Newman JE, Willis DJ. Childhood and adolescent psychologic development. *Pediatr. Clin. North Am.* 2003; **50**: 741–64.

9 Sawyer MG, Kosky RJ, Graetz BW, Arney F, Zubrick SR, Baghurst P. The National Survey of Mental Health and Wellbeing: the child and adolescent component. *Aust. N. Z. J. Psychiatry* 2000; **34**: 214–20.

10 Booth ML, Dobbins T, Okely AD, Denney-Wilson E, Hardy LL. Trends in the prevalence of overweight and obesity among Australian children and adolescents 1985–1997–2004. *Obesity* 2007; **15**: 1089–95.

11 Royal Australian College of General Practitioners. *Guidelines for Preventive Activities in General Practice*. Canberra: Royal Australian College of General Practitioners, 2005.

12 Veit FC, Sanci LA, Coffey CM, Young DY, Bowes G. Barriers to effective primary health care for adolescents. *Med. J. Aust.* 1996; **165**: 131–3.

13 Zwar N, Henderson J, Britt H, McGeechan K, Yeo G. Influencing antibiotic prescribing by prescriber feedback and management guidelines. *Fam. Pract.* 2002; **19**: 12–7.

14 Razon Y, Ashkenazi S, Cohen A *et al.* Effect on antibiotic prescription practices for upper respiratory infections in children: a multicentre study. *J. Antimicrob. Chemother.* 2005; **56**: 937–40.

15 Stocks NP, McElroy H, Sayer GP *et al.* Acute bronchitis in Australian general practice: a prescription too far? *Aust. Fam. Physician* 2004; **33**: 91–3.

16 Lyndon B, Rowe L, Fraser A *et al.* Clinical guidance on the use of antidepressant medications in children and adolescents. *Aust. Fam. Physician* 2005; **34**: 777–8.

17 Sanci LA, Kang MSL, Ferguson BJ. Improving adolescents' access to primary health care. *Med. J. Aust.* 2005; **183**: 416–7.

18 Sanci L, Young D. Engaging the adolescent patient. *Aust. Fam. Physician* 1995; **24**: 2027–31.

19 Kang M, Sanci LA. Primary health care for young people in Australia. *Int. J. Adolesc. Med. Health* 2007; **19**: 229–34.

20 Royal Australian College of Physicians. *Basic Training Curriculum: Paediatrics and Child Health*, 1st edn. RACP, 2007. Available from: http://www.racp.edu.au/index.cfm?objectid=230C0787-E290-CFF6-6D5BB1783F231723 [accessed 3 April 2008].

21 Royal Australian College of Physicians. *Basic Training Curriculum: Adult Internal Medicine*, 1st edn. RACP, 2007. Available from: http://www.racp.edu.au/index.cfm?objectid=230C0787-E290-CFF6-6D5BB1783F231723 [accessed 3 April 2008].