UNIT NO. 1

UNDERSTANDING ADOLESCENTS

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ABSTRACT

The journey from childhood to adulthood, although often fraught with its frustrations and dangers, is a necessary quest that prepares the self for the responsibilities of adulthood. It is true that many behaviours that endanger physical and emotional health originate in adolescence. Yet it is also true that it is the lessons learned, the scratches sustained, the friendships forged, and the positive health decisions made and internalised in this stage of life, that will carry the day for the challenges to come in the years ahead.

Our role as family physicians is to help ease this transition. We do this not merely by treating medical conditions and improving adherence to treatment of chronic disease; but also by actively seeking and preventing health risk behaviours, and addressing the medical consequences that may result from them. Understanding developmental norms gives us an approach to engaging youth on these issues. Likewise, understanding how factors in the adolescents' world affect risk and resilience, open us to opportunities for modifying these factors to effect lasting positive change in the health, and life, of the adolescent.

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INTRODUCTION

Adolescence is the transition from childhood to adulthood. It is a time of physical, cognitive and psychosocial change. It is a common observation that during adolescence, many children with chronic disease become less adherent to treatment. It is also the time when many habits – exercise and food choices – that affect health are formed. Studies show that the beginnings of health risk behaviours like substance abuse and smoking often start at this age. Multiple factors are at play here – family, peers, school environment, health-care providers, media, employment, community agencies, and the adolescent transition itself – and all have some bearing on the health choices and challenges the adolescent faces.

The purpose of this article is two-fold: (1) to have a glimpse of the social and health risk landscape that present Singapore adolescents grow up in, and (2) to understand adolescents, and the adolescent transition, so that we may be more effective in engaging and helping our adolescent patients.

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Table 1: Age of Adolescence/Youth in Different Institutions

World Health Organisation	Age
Adolescence	10-19
Youth	15-24
Young person	10-24
Internationally:	
US CDC (adolescent & young adult)	10-24
United Nations (Youth)	15-24
Singapore Institutions:	
KKH Paediatrics (Adolescence)	10-19
NUH Paediatrics (Adolescence)	10-19
Child Guidance Clinic (Adolescence)	13-18
MCYS (Youth)	15-29

DEFINITION

Adolescence is the transition from childhood to adulthood, characterised by physical, cognitive and psychosocial changes, that occurs from ages 10-19 years (WHO 1995).

PHYSICAL HEALTH

Information from the Registry of Births and Deaths (Appendix A) suggests that adolescents are generally healthy. This is supported by statistics from the MOH Primary Care Survey 2005. The 10 most common conditions (Table 2) seen in primary care facilities show that, except for atopic conditions, most of the diagnoses are acute medical conditions. This confirms what we find true for most of us in the community, that the average Singapore adolescent is generally physically healthy, and that most consult their family physicians for acute self-limiting complaints.

Table 2: The top 10 conditions seen at primary medical care clinics (aged 5-17years), 2005

Rank	Main Diagnosed Condition	%
1	URTI	44
2	Conjunctivitis & Chalazion	7
3	Dermatological conditions	7
4	Diarrhoeal diseases	7
5	Ill-defined condition	4
6	Asthma & Bronchitis	4
7	Fever	4
8	Gastritis	3
9	Injuries & Trauma	3
10	Other gastro-intestinal conditions	2

Source: Primary Care Survey 2005, Ministry of Health

Adolescence is an opportune time to encourage regular exercise and healthy eating habits. Many may already be in the habit of regular exercise encouraged and enforced in school and army fitness programs. Any advice on diet, nutrition, and skin care is usually appreciated; this is the age when dating, appearing 'cool', and belonging to a peer group become overriding concerns. Any healthy lifestyle habits formed now are likely to decrease the risk of future cardiovascular and cerebrovascular disease, as well as the risk of a number of cancers associated with a high-fat, low-fibre diet.

Caveats are in order here: Obsessive weight loss may signal the diagnosis of eating disorders, and body-building may occur in tandem with the use of anabolic steroids in this age-group

MENTAL HEALTH

It is estimated that at any one time, 14 to 20% of the teen population would have mental health problems[1,2]. A 5-year study[3] (1997 to 2001) of adolescent referrals to the Child Guidance Clinic (CGC) showed an increase in adolescent mental health usage with the most common conditions being: conduct and oppositional disorders, stress and adjustment disorders, depression and mood disorders, and anxiety disorders. Figures for 2006 show that there were 15,615 attendances (new cases and reattendances) at CGC.

HEALTH-RISK BEHAVIOURS

The figures in Table 2 do not reflect anything of the risk behaviours our adolescent patients may be engaged in. Although the stereotypical "storm and stress" view[4] of youth may not apply[5] to most adolescents, awareness of possible health risks our adolescent patients are exposed to enables us to effect meaningful preventive and opportunistic interventions in our clinics right where it matters most: in the community.

The spectrum of risk behaviours that adolescents are exposed to is exhaustive. The more common risks include smoking, alcoholic binges and abuse, sexual behaviours, substance abuse, and eating disorders.

Appendix A: Adolescent Health in Singapore: Risk and Resilience Factors summarises a selection of local statistics on adolescent/youth health risk behaviour garnered from various sources, as well as some statistics reflective of resilience factors in Singapore. Some information from overlapping and adjacent age ranges are indicated where statistics specifically for the 10-19 age range is not available:

Some statistics of interest:

- The 1993 SAF smoking survey found that of those who smoked, the average age of starting smoking was 14.3 years.
- The Singapore Youth Tobacco Survey 2000 showed that 11.1% of the 13,111 sec 1-4 youth surveyed smoked at least one day in the past month, 2.4% smoked everyday in the past month, and of those who smoked, the majority – 63% – wanted to stop smoking
- 18.9% of males between 18-29 years binged on alcohol in the month before the survey in 2004, compared to 9.4% of females in the same age group.
- Based on an admittedly skewed population of 20 sexually active teens, a poll by the Straits Times on 26 Jul 2007 showed that for these teens, the average age of sexual debut was 15.5 years.
- The number of teen (10-19 years) STI cases increased from 238 in 2002, to 678 in 2005
- The number of young drug abusers (<20 years) dropped from 215 in 2002, to 50 in year 2006.

THE DOCTOR-PATIENT RELATIONSHIP

How then do we engage our young patients in these health risk behaviours? Studies have shown that the key element in an effective helping relationship[6,7] – especially with adolescents – is the quality of the therapeutic relationship.

We need to have an extensive knowledge of our patient's medical condition, to know the HEADSS mnemonic for psychosocial risk and resilience assessment, and to know something of adolescent development when treating adolescent patients. But until we engage and win their trust, we will not be able to enter their world, and much less negotiate meaningful change.

Adolescents need to sense that we are on their side, and when they are sure that we somehow believe they are capable of positive change under the right circumstances, then will we likely form the type of connection that will enable meaningful change to occur. This does not mean we approve of their behaviours, but rather that we somehow believe in their ability to make responsible decisions for themselves.

THE STAGES OF ADOLESCENCE

Adolescence has traditionally been divided into 3 stages – early (age 10-13), middle (age 14-16) and late (age 17-19). The major developmental issues, and the typical behaviours at each stage have been summarised in Table 3. This framework of course is not rigid. Development neither occurs perfectly linearly, nor is it evenly coordinated in all areas, whether in the same individual or among peers.

THE DEVELOPMENTAL TASKS OF ADOLESCENCE[8]

Several tasks are necessary for the successful transition from childhood to adulthood to occur:

1. Autonomy/independence from parents/adults
2. Increasing role of peer relationships
3. Developing and accepting a realistic body image
4. Sexual self-identity formation
5. Consolidation of a moral/value system
6. Education/vocational goal development
7. Self identity formation that is realistic, positive and stable

Table 3. Stages of Adolescence

	Early (Age 10-13)	Middle (Age 14-16)	Late (Age 17-19)
Major Developmental	o Adjusting to Pubertal Changes o Learning to use Cognitive Capacities o Finding a place among Peers o Dealing with Gender-related expectations	o Handling Sexuality o Making Moral Decisions o Developing new relationships with peers o Balancing Autonomy and Accountability	o Consolidating an Identity o Experiencing Intimacy o Readying to Leave Home
Typical Behaviours	o Increased concern about physical appearance, and whether their bodies are developing normally o Imaginary audience: a period of extreme self-consciousness o Increased abstract reasoning (can imagine what 'could be' rather than merely what 'is') o Idealism ("since things could be so, they should be so") o Adolescent invulnerability ("it won't happen to me") o The personal fable: the belief that their experiences are so unique that no one (especially adults) could possible understand them o Increased argumentativeness, not able to be objective about other points of views yet ("everyone else is wrong") o Intense peer group involvement, may ignore other responsibilities o Increased concern with peer acceptance and conformity o Increased attention to gender roles and disapproval of gender atypical behaviour in others	o Increased interest and curiosity about sex o Empathy: Greater awareness and responsiveness to needs of others o Moral decision making: Less emphasis on personal gain, more interest in gaining approval of significant others o Shifting in peer associations, formation of couples o Increased differentiation from peers: more tolerant of differences, and supportive of individual self-expression o Increased emphasis on independence and freedom from parental rule/authorities o Increased exploration and experimentation (including risky health behaviours) in search for an identity	o May find greater sense of life purpose/ meaning o Begins to narrow down choices for the future o Increased capacity for intimacy; girls may be more mature than boys in this area o School romances may be breaking up o Fewer arguments with parents; struggles over rules and freedom have subsided, but parents expected to respect individuality and choices o Getting ready to leave home (eg. for study overseas/university, National Service, employment)

Adapted from "The Adolescent in Family Therapy" Joseph A Micucci 1998

1. Autonomy/Independence from Parents/Adults

It is natural for a adolescents to distance themselves emotionally from their parents when puberty begins. They begin to need more 'space' and to guard their privacy jealously.

This distance from parents is necessary for teens to develop a sense of their own identity apart from that of their parents. Their peer group now becomes the context where this growing self-discovery and independence can occur.

It is important to note that decreased frequency of family contact does not mean that family relationships are any less important[9]. In fact, studies have shown that close family relationships are the most important factors associated with not smoking, decreased alcohol and drug use, later initiation of sexual intercourse, and fewer suicide attempts among adolescents[10].

The teen now has the complex task of maintaining a relationship with his/her parents, while at the same time growing and increasing in autonomy.

The adage *"Rules without Relationship leads to Rebellion"* ring true especially during this period.

Studies have shown that adolescents from authoritarian[11] (Table 4) homes were most likely to depend on the peer group for approval[12], and were therefore at risk of being rebellious. On the other hand, adolescents from authoritative homes[13] – where opinions are heard and where rules negotiated yet firm – tended to depend less on peers for affirmation.

As the adolescent matures from early to late adolescence, the relationship between the adolescent and his/her parents is transformed from one dominated by parents, to one where the adolescent's gradually increasing personal autonomy and accountability is respected.

Table 4: Baumrind's (1971) three parenting styles

Authoritarian: Parents are rigid, controlling with narrow, specific rules. Children are expected to follow the rules unquestioningly. Discipline: cold and harsh, physical force, no explanation of rules.

Authoritative: Parents are more flexible. The rules are reasonable and there is room for negotiation and compromise. Discipline: warm and nurturing, positive reinforcement, firm limits, rationale for rules and decisions provided.

Permissive: Parent's rules are unclear and children are left to make own decisions. Discipline: warm and friendly, no direction given.

Adapted from "Understanding Human Development" Harms 2005

2. The Increasing Role of Peer Relationships

Just as the early teen looks less to parents for attention and approval, it is normal for her to seek affirmation from the peer group. Again, it is important to note that this is not a total break from relating to parents, but more of a change in the emphasis of the relationships.

Peer groups are important for teens to learn to relate, to make friends, to experiment with independence, and to define their own sense of identity apart from that of their parents. Positive peer relationships during adolescence have been associated with positive psychosocial adjustment. Those accepted by peers and have mutual friendships are found to have better school performance[14]. Socially isolated adolescents on the other hand, have a higher risk of delinquency and health risk behaviours.

The need to belong is so all-consuming at this stage that sometimes adolescents participate in activities that they do not really want to, just so that they can 'belong'[15]. They need adults who can help them withstand peer pressure and help steer them to alternative peer groups if the peer group they associate with influences them adversely.

Studies have found that peer conformity peaks in early adolescence (age 12-14) and then declines[16]. As an adolescent enters mid to late adolescence, her relationship with her peers change. Early in adolescence she may have had difficulty distinguishing her thoughts and feelings from that of the group. But as she enters middle to late adolescence, she begins to appreciate her uniqueness.

A 16-year-old may feel that unlike his friends who spend hours on end on computer games, he is happy to spend time learning about the animals that are becoming extinct in the South East Asian jungles. Like other friends in the same cohort, he is beginning to enjoy asserting his individuality.

The group relationships and school romances of early adolescence give way to more personal and intimate friendships, and dating relationships, as late adolescence comes around.

3. Developing and Accepting a Realistic Body Image

Education about the typical sequence and tempo of puberty can allay a lot of the fears that early teens typically have about the changes in their bodies. The average age of menarche for Singapore girls is 12 years old, with an age range of 10-14. Meanwhile boys on average start their growth spurt at 14, with an age range between 12-16 years.

The different time frames for physical maturity for different individuals in the same cohort can take its toll on some teens. It is found that early maturing boys receive greater peer and self-acceptance, whereas early maturing girls may be devastated by lewd remarks made by adolescent boys[17]. At an age when conformity is excruciatingly important, appearing physically different can be a great hurdle on the road to self-acceptance. Patients with chronic disease that affect their physical appearance eg. thalassemia major, may have a harder time coming to terms with their condition at this stage.

The subtle yet powerful messages of beauty propagated by mass media create unrealistic expectations about what one considers attractive. The unhealthy equating of extreme thinness with beauty (and self-worth) holding currency in popular culture, is a source of great anxiety not just for girls in the adolescent age group, but also for many women even in early and late adulthood.

A retrospective study[18] by Lee et al of 126 cases of eating disorders between 1994 and 2005 showed that the majority of patients with eating disorders were girls, with a mean presenting age of 17.6 years. Classically, there may be an earlier peak in the presentation of eating disorders at less than 14 years old.

4. Sexual Self-Identity Formation

Sexual self-identity formation occurs from childhood even before adolescence. In the early teen years, both boys and girls at this age experience pressure to act in gender appropriate ways.

By mid adolescence, interest and the capacity to engage in sex bring up concerns about sexuality. This is consistent with a Straits Times poll (Appendix A) of an admittedly skewed population of 20 sexually active teens (ST 26 Jul 2007). The poll reported that their average age of sexual debut was 15.5 years.

Meanwhile, a survey by Bayer Schering Pharma Singapore and Youth.SG reported that 13% of 609 youth aged 16-23 year were sexually active. Of these, only 36% reported using contraceptives all the time. At the same time, the number of adolescent (aged 10-19) sexually transmitted infection cases increased from 238 in 2002, to 678 in 2005. The most alarming increase in sexually transmitted infection is for young women aged 20-24: in 2000, there were 376 cases of STI. Just 5 years later in 2005, there were 1,111 cases for the same demographic. Teenage abortions for girls under 19 in 2006 numbered 1,391. In the same year, there were 19 abortions performed on girls less than 15 years. In Singapore, it is legal for teens to go for an abortion without parental consent.

Parents play an important role in gender identity formation and sexual values. Parental values however face strong competition from prevailing peer norms[19], which in turn, are very much influenced by media. Nevertheless, studies have shown that close relationships with parents are associated with later onset of sexual debut[20,21].

Clinicians can be very helpful in allaying the many fears and anxieties about sexuality that teens often have. One approach would be to calmly and openly discuss sexuality and associated health risks with adolescents, and to gently encourage sexual responsibility at the appropriate junctures.

5. Consolidation of a Moral/Value System

By mid adolescence, the youth would have had to deal with many situations where her values would have come into question. In the process of defining one's sense of identity, the question adolescents ask themselves is: what do I believe in? Adolescents are hungry for meaning and ideals, and benefit from having positive role models in their life.

Table 5: Kohlberg's six stages of Moral Development (simplified)

Stage 1: To avoid punishment
Stage 2: To earn rewards for oneself
Stage 3: To receive approval from significant others
Stage 4: To obey rules and laws
Stage 5: To preserve the common good
Stage 6: To comply with universal and abstract ethical principles

Adapted from "The Adolescent in Family Therapy" Micucci 1998

As the adolescent develops cognitively, she is now able to think in abstract terms and to develop the ability to take the perspective of another person.

Adults can facilitate moral development by asking "what if" questions. For example, we might ask an adolescent "How would you feel if you were _____?" These questions are helpful if our adolescent patient is engaged in dangerous behaviours eg. driving home after an alcoholic binge.

Kohlberg[22] presented a staged model (Table 5) for understanding how individuals at different ages and stages make moral decisions. Individuals are thought to go from one stage to another sequentially. As clinicians who engage adolescents in health risk behaviour, it may be helpful to situate our patients in this framework when engaging them on behaviour change.

For example, a teen at *stage 2* (Table 5) might not drive after an alcoholic binge if he is rewarded for not driving. If there is no reward, he might be inclined to drive.

A *stage 5* reason might be too big a jump to make at this stage "we have a duty to keep our roads safe for one another". A more realistic goal may be to move him to *stage 3* "What would your grandma say to you if she knew about it?" (assuming prior knowledge that the teen reverences his grandmother).

Another way to foster moral development is by becoming a volunteer. It has been shown that volunteering is associated with a number of positive long-term outcomes. For example, a national study of girls from 25 schools in the United States found that those who volunteered in their communities were less likely to become pregnant, or to fail academically than girls who did not volunteer[23].

6. Education/Vocational Goal Development

Education is a topic every parent with school-going children grapples with in Singapore.

The stress that school-going adolescents bear is well known and can be quite intense, especially for youth who fall out from the education system. This can have significant effect on their self-esteem.

In Singapore where education is highly valued, one often enough comes across adolescents who devote vast amounts of time and effort into academics, but who have not begun to consider what they want to do with their lives.

Helping adolescents explore their strengths, values and inclinations – however they perform in the school system - and encouraging them to think about their vocational goals, helps them to map out goals that they can own for themselves, and this in turn, affirms their sense of identity and self-esteem.

7. Self Identity Formation that is Realistic, Positive, and Stable

"Who am I?" is *the* question that adolescents ask themselves. According to Erik Erikson[24], the central task of adolescence is to form a secure 'identity'.

James Marcia[25] added to Erikson's work and described a matrix (Figure 1) which maps the process of how individuals form their identity. Within the matrix, an individual had 4 possible identity statuses:

1. ***Identity Diffusion*** – characterised by avoidance of commitment and indecision about major life issues.
2. ***Identity Foreclosure*** – a status of preliminary commitment but characterised by acceptance of other's (for example those of parents or teachers) opinions, rather than after having explored and come to a decision about one's own values.
3. ***Moratorium*** – a status characterised by actively exploring possible choices concerning important life decisions but not yet committed to any. For some, it may take some time of searching before finally making a considered decision.
4. ***Identity Achievement*** – status of being resolved and committed to ideals and plans based on own thinking and not on ideas uncritically accepted from others.

Adolescents in diffusion status are the typical apathetic youth who, without any goals, may be at risk of engaging in risky behaviours. Studies have shown that families with the permissive[26] style of parenting (Table 4) tend to engender this status.

Adolescents in foreclosure tend to be well behaved, risk averse, and tend to have narrow options when making decisions. The status is associated with the authoritarian parenting style.

Adolescents in moratorium are youth who experiment with different options and identities. They tend to come from warm encouraging structured homes. Gradually the choices are narrowed and they eventually arrive at identity achievement.

One may have a different identity status for different facets of one's identity. For example one may be in diffusion about political views, in moratorium about academics, and foreclosed about religion.

The moratorium and its attendant experimentation is developmentally normal, even necessary, for identity achievement to occur. As physicians however, we need to be mindful of the possibility that our adolescent patient may be

Figure 1: Marcia's Four identity Statuses

Amount of exploration	Strength of Commitment: Low	Strength of Commitment: High
Little	Diffusion	Foreclosure
Much	Moratorium	Achievement

Adapted from "The Adolescent in Family Therapy" Micucci 1998

engaging in risky behaviour during this phase.

As the adolescent ekes out his/her identity, the individual's self-esteem is bolstered. Studies consistently show that youth with low self-esteem are at risk of negative outcomes: depression, eating disorders and adjustment problems[27].

Self-esteem may be bolsterd in various ways, including: by engaging youths in non-judgemental open conversations; encouraging the pursuit of any (non-destructive) interest a youth may have; by improving their social skills eg. making friends and anger management.

A healthy self-esteem improves resilience in adolescence.

ADULTHOOD

After a quick tour of adolescence, it is befitting that we frame this stage of life with a few words on the next stage: adulthood.

Traditionally, adulthood has been related to a number of key social transitions: finishing education, entering the workforce, marriage, and parenthood. These criteria have been challenged and refined by various authors. A study by Arnett[28] found that the key criteria indicating the successful transition to adulthood from adolescence related to 'generally intangible, gradual, psychological and individualistic' criteria.

The 3 criteria his team identified instead were the ability to:

(1) Accept responsibility for your own actions;
(2) Decide on your own beliefs and values independently of parents or other influences, and;
(3) Establish a relationship with parents as an equal adult.

The criteria point to 'responsibility' as the characteristic of being adult. Perhaps one way to look at adolescent health and risk behaviours, is to encourage our adolescent patients to become increasingly responsible about their actions, their beliefs, and their relationships.

RESILIENCE AND POSITIVE OUTCOMES FACTORS

Resilience theory asks why some who grow up in adverse circumstances go on to lead healthy, productive lives when all almost all the indicators would have predicted otherwise. This tendency for an individual to rebound from stressful circumstances or events, resume usual activity, and achieve success is called 'resilience'.

Resilience can be facilitated not just by reducing the level of risk, but also by increasing the protective factors. They are:

(1) Stable, Positive Relationship with at least One Caring Adult

Numerous studies have found that the presence of an adult – who may or may not be a parent – with a strong positive, emotional attachment to the child is associated with resilience[29].

(2) Religious and Spiritual Anchors

Religious and spiritual institutions are important vehicles for youth to develop a sense of meaning[29]. This is one of the major pathways by which a youth find their way to a constructive future.

(3) High, Realistic Academic Expectations and Adequate Support

Schools that promote a sense of belonging, shared responsibility, and have high expectations[30] while at the same time providing individual support, tend to enhance resilience.

(4) Positive Family Environment

A warm, nurturing parenting style, which respects the adolescent's growing autonomy, and at the same time sets clear behavioural boundaries, are associated with positive outcomes in adolescents[31].

(5) Emotional Intelligence and Ability to Cope With Stress

Intelligence per se has been reported to be associated with resilience[32], but the more important factors because they are modifiable, are emotional intelligence and the ability to cope with stress[29].

THE FAMILY PHYSICIAN AND ADOLESCENT HEALTH

ROLE: Family physicians play a pivotal role in maintaining the health of adolescents and their families: we prevent and treat illnesses, we provide health education, and we encourage health-promoting behaviour on a daily basis. Studies show that adolescents view their physicians as a trustworthy source of health information and that parents want clinicians to provide these services[33].

Our strengths are: (1) we are accessible and in the community, (2) we are not associated with any stigma – *everyone sees a doctor sometime*, and (3) we may be privy to the inner workings and dynamics of the families we treat.

RESILIENCE: Understanding that adolescent health risk behaviour is the result of the complex interplay of a number of risk as well as protective factors, we can play a crucial role by encouraging resilience factors in the lives of our adolescent patients.

There are a number of creative ways to do this and here are some examples: we may encourage our adolescent patient to spend more time with his parents, or we can encourage her to give time to volunteering. Or perhaps we may help explore with the youth who has dropped out of school his strengths and inclinations, and we can always encourage the Muslim youth to give up smoking because Ramadan is around the corner.

RELATIONSHIP: It is relationship – warm, non-judgemental, accepting - that allows us to enter and intervene in the world of our adolescent patient. Likewise, it is healthy relationships, encouraged and engendered in the lives of our young patients – with their families, their friends, their community, and themselves – that will see our teen through the journey of adolescence, into responsible adulthood.

This is a journey that Family Physicians have the opportunity, and privilege, to be a part of.

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LEARNING POINTS

- **Adolescence is the transition from childhood to adulthood, characterised by physical, cognitive and psychosocial changes, that occurs from ages 10-19 years (WHO 1995).**
- **The average Singaporean adolescent is generally physically healthy and most consult their family physicians for acute self-limiting complaints.**
- **It is estimated that 14-20% of the teen population would have mental health problems with the most common conditions being conduct and oppositional disorders, stress and adjustment disorders, depression and mood disorders, and anxiety disorders.**
- **The more common risk behaviours that adolescents are exposed to are smoking, alcoholic binges and abuse, sexual behaviours, substance abuse, and eating disorders.**
- **Several developmental tasks of adolescence are necessary for the successful transformation from childhood to adulthood. These tasks are:**
  a. **autonomy/independence from parents/adults**
  b. **increasing role of peer relationships**
  c. **developing and accepting a realistic body image**
  d. **sexual self-identity formation**
  e. **consolidation of a moral/value system**
  f. **education/vocational goal development**
  g. **self identity formation that is realistic, positive and stable**
- **Family physicians play a pivotal role in maintaining the health of adolescents by: preventing and treating illnesses, providing health education, encouraging health promoting behaviour on a daily basis, encouraging resilient factors.**

Appendix A: Adolescent Health in Singapore: Risk and Resilience Factors

Population	**2005**	**2006**
Total Population ('000)	4,341.8	4,483.9
Resident Population ('000)	3,543.9	3,608.5
Resident Youth Population ('000)	712.5	729.6

Resident youth population comprises Singapore citizens and permanent residents aged 15-29
Source: Population trends 2006 and Singapore Resident population 1990-2006

Marriages and Divorces	**1990**	**2005**
Number of Marriages	23,953	22,992
Number of Divorces	3,634	6,909

Source: Singapore Department of Statistics

Distribution of Family Types (%)*	**2002**	**2005**
High Support, High Challenge	20	27.9
High Support, Low Challenge	26	13.1
Low Support, High Challenge	33	26.1
Low Support, Low Challenge	21	32.8

**** High support, High challenge** style of parenting: strong family relationships and clear markers of responsibility and achievement*
***High Support, Low challenge** style: strong relationships but little performance expectations*
***Low support, High challenge** style: Socially and emotionally distant parents, but clear enforcement of rules for achievements*
***Low support, Low challenge**: youth receives neither direction nor nurturance from parents*
Youths with high support, high challenge families report greater life satisfaction, whereas youth from low support, low challenge families report least satisfaction with life
Source: 2002 and 2005 National Youth Survey

National Volunteerism Rate (%)	**2004**	**2006**
Ages 15-24	25	28

Source: Survey on Individual Giving in Singapore 2006

Registry of Births and Deaths, 2004: Adolescents

Adolescents are generally physically healthy – only a small proportion have chronic medical conditions such as asthma, and the overall mortality rate is low. In 2004, the mortality rate was 25 per 100,000 adolescents aged 10 to 19 years. Out of 15,860 deaths, there were 122 cases of adolescent deaths (0.8%) in 2004. Of these the three most common causes were accidents (26.2%), neoplasm (15.6%) and pneumonia (12.3%). A significant proportion of adolescents died from preventable causes.

Source: Report on Registry of Births and Deaths, 2004 (Immigration and Checkpoints Authority, Singapore)

Regular Sports Participation (%)	**2001**	**2005**
15-19 years	67.5	82.8
20-39years	39.2	60.4

Source: National Sports Participation Survey 2005

Obesity (%) Residents 18-29 years	**2005**
All	6.8
Malay	18.3
Indians	9.8
Chinese	4.2

Source: Ministry of Health, 2006a

Residents (%) whose fat intake exceeded recommended	**1998**	**2004**
Chinese	40	55
Malays	50	60
Indians	38	64

Data collected for Singapore residents aged 18-29 whose total fat intake exceeded 30% of recommended energy intake
Source: Health Promotion Board, 2006b

Residents (%) who added salt or sauces to food at the table	1998	2004
Chinese	68	45
Malays	56	30
Indians	64	28

Data collected for Singapore residents aged 18-29 who added salt or sauces to food at table by gender and ethnicity
Source: Health Promotion Board, 2006b

Eating Disorder

A retrospective study by H Y Lee, E L Lee, P Pathyand Y H Chan of 126 cases of eating disorders presenting to the Child Guidance Clinic and the Eating Disorder Clinic at the Institute of Mental Health between 1994 and 2005, showed that the majority were female students with a mean presenting age of 17.6 years

Source: SMJ 2005; 46(6); 275, Lee HY, Lee EL, Pathy P, Chan YH. Anorexia in Singapore: an eight-year retrospective study.

Smoking (%)	1992	2004
All	17.4	12.4
Male	31.9	18.4
Female	3.1	6.4

Data collected: Age standardised prevalence of smoking of Singapore residents aged 18-29
Source: Ministry of Health, 2006a

Singapore Youth Tobacco Survey 2000

Have tried or ever smoked cigarettes	*26%*
Have smoked on at least one day in the past month	11.1%
Have smoked an all 30 days in the past month	2.4%
Among smokers, proportion who want to stop smoking	63.3%

Data collected from 13,111 sec one to four students
Source: Health Promotion Board

1993 SAF Smoking Survey

Vast majority of smokers started before enlistment.
The mean age at which smoking started was 14.3 years

Source: SMJ 1996; 38(2) Smoking in The Singapore Armed Forces, M K Lim, C S Soh, YS Tan, CK Leong

Binge Drinking* (%)

2004	
All	14.1
Male	18.9
Female	9.4

Data collected: Age standardised prevalence of binge drinking of Singapore residents aged 18-29
*Binge drinking is defined as consumption of 5 or more alcoholic drinks on a single occasion at least once during the past month
Source: Ministry of Health, 2006a

Motorcyclists: Total Injured or Killed (Killed)	2005	2006
Under 15	1(0)	1(0)
15-19	188(3)	294(7)
20-24	1072(26)	1108(17)

Data collected for motorcyclists injured or killed in Singapore in Road Traffic Accidents.
Figure in parenthesis refers to the number who were killed.
Source: Traffic Police

Motorcar Drivers: Total Injured or Killed (Killed)	**2005**	**2006**
Under 15	0(0)	2(0)
15-19	7(0)	11(0)
20-24	74(1)	86(2)

Data collected for motorcar drivers injured or killed in Singapore in Road Traffic Accidents.
Figure in parenthesis refers to the number who were killed.
Source: Traffic Police

CRuSH: Internet/Computer Addiction
Number of cases seen for counseling since Aug 2006 when the program started (as of 10 Sep 2007): 55
Most were for out-of-control gaming, mostly reported by parents and schools
CRuSH (Cyberspace Risks and where U Seek Help) is a cyber wellness program with a stated vision of "a transformed Internet Community, where young people have fun, and surf safely in a healthy alternative environment".
CRuSH is a programme under TOUCH community services.
http://www.planetcrush.org/index2.htm

Source: Touch Community Services

Number of Young (<20) Drug Abusers arrested	**2002**	**2004**	**2006**
Total Number	215	107	50

Before 2002, the main drug of abuse among young abusers was heroin.
Since 2002, synthetic drugs have displaced heroin as the main drug of abuse among young abusers.
In 2006, more than 80% of young abusers arrested last year had abused synthetic drugs: ketamine, methamphetamine, nimetazepam and 'Ecstasy'.
There was an even representation of females and males among the young abusers in 2006

Source: Central Narcotics Bureau

Poll by Bayer Schering Pharma Singapore and Youth.SG 2007	
% Sexually Active	13
Of sexually active, % using condoms	55
Of sexually active, % not using any form of contraceptive	23

Source: 2007 poll by Bayer Schering Pharma Singapore and Youth.SG on 609 youth 16-23 years

NTU Sex Survey 2003	
% respondents who reported having had sex	15.8
Of the sexually active, % using condoms all the time	35.8

Source: Straits Times I Nov 2003, report on survey of 350 NTU students in 2003

Straits Times Poll 26 Jul 2007	
Age of Sexual Debut	15.5 years

Data from poll of 20 sexually active teens (10 boys, 10 girls)
Source: Straits Times 26 Jul 2007

Sexually Transmitted Infections	**2002**	**2005**
10 -19 years	238	678

Source: DSC

Sexually Transmitted Infection among Women:	**2000**	**2005**
10-14 years	8	15
15-19 years	171	428
20-24 years	376	1,111

Source: DSC, ST report 13/6/2006 "Sexual infections among women here up sharply"

HIV infected Singaporeans (0-29 years)	**2002**	**2006**
0-9 years	2	3
10-19 years	1	2
20-29 years	32	57

Data collected for total number of HIV infected Singaporeans by age

Source: Ministry of Health

Total number of Singaporeans reported with HIV/AIDS	**2002**	**2006**
	234	357

Source: Ministry of Health

Teenage Abortion	**2005**	**2006**
Teenage abortion <19 years	1,279	1,391
Performed on girls <15 years	16	19

Source: Ministry of Health

Child Guidance Clinic	**1995**	**2000**	**2006**
New cases	1917	2263	2162
Total Attendances	12248	14952	15615

Source: Child Guidance Clinic

Young Suicide (10-19 years)	**2005**	**2006**
Male	7	9
Female	6	1
Total	13	10

Data collected for male and female suicides 10-19 years old

Source: Child Guidance Clinic