AUSTRALIAN PRIMARY HEALTH CARE RESEARCH INSTITUTE

PRIMARY CARE RESEARCH UNIT
DEPARTMENT OF GENERAL PRACTICE
THE UNIVERSITY OF MELBOUNE

HEALTH RISK SCREENING AND COUNSELLING OF ADOLESCENTS IN PRIMARY CARE: A CLUSTER RANDOMISED CONTROLLED TRIAL

THE PARTY PROJECT: PREVENTION, ACCESS, & RISK-TAKING IN YOUNG PEOPLE

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JANUARY 2010

ACKNOWLEDGMENT

The research reported in this paper is a project of the Australian Primary Health Care Research Institute, which is supported by a grant from the Australian Government Department of Health and Ageing under the Primary Health Care Research, Evaluation and Development Strategy. The information and opinions contained in it do not necessarily reflect the views or policies of the Australian Government Department of Health and Ageing.

This research was funded as an APHCRI Stream 3 project.

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The PARTY team acknowledges the involvement of all stakeholders, telephone interviewers, participants and general practices; their contribution has been vital to the conduct of the project.

Recommended citation: Sanci L, Shiell A, Patton G, Pirkis J, Hegarty K, Patterson E, Chondros P, Sawyer S, Grabsch B, Hart C, Yang F, Seymour J and the PARTY Team. 2010. *Health risk screening and counselling of adolescents in primary care: a* cluster *randomised controlled trial – Interim Results. A Report submitted to the Australian Primary Health Care Research Institute. Canberra: APHCRI*

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ABBREVIATIONS

ABS	Australian Bureau of Statistics
A & E	Accident and Emergency (Casualty) Department
AIHW	Australian Institute of Health and Welfare
APHCRI	Australian Primary Health Care Research Institute
CATI	Computer Assisted Telephone Interview/Interviewers
CBA	Cost-benefit Analysis
CCA	Cost-consequence Analysis
CEA	Cost-effectiveness Analysis
CMA	Cost-minimisation Analysis
CQI	Continuous Quality Improvement
CUA	Cost-utility Analysis
GAPS	Guidelines for Adolescent Preventive Services
GEE	Generalised Estimating Equation/s
GP	General Practitioner
GPAQ	General Practice Assessment Questionnaire
HE	Health Economic/Economics
HEADSS	Home, Education/Employment, Activities/Peer Relationships, Drugs/Cigarettes/Alcohol, Sexuality, Suicide/Self-harm/Depression/Mood
ICC	Intra-Clinic Correlation Co-efficient
IF	Inflation Factor
MI	Motivational Interviewing
OR	Odds Ratio
PARTY	Prevention, Access & Risk Taking in Young People (Project)
PDSA	Plan, Do, Study, Act (A Model of Continuous Quality Improvement)
PI	Principal Investigator
PM	Practice Manager
PN	Practice Nurse
PSS	Practice Support Staff
QALYS/S	Quality Adjusted Life Year/s
RA	Research Assistant
RCT	Randomised Controlled Trial
SD	Standard Deviation
SES	Socio-economic Status
SF-12	Short Form 12
YO	Years Old
YP	Young Person/People

1 INTRODUCTION

1.1 OBJECTIVES

The research project will address the strategic priority of innovation in organisation and linkages within the primary health care sector in relation to preventive health care for young people (YP), namely to assess the effectiveness and acceptability of a screening and counselling intervention to address the problem of youth health risk behaviours presenting in general practice.

1.2 COMPONENTS

1.2.1 PART 1 - RANDOMISED CONTROLLED TRIAL

Part 1 is a stratified cluster randomised controlled trial (RCT) of an intervention involving the use of a screening tool by for opportunistic health-risk screening, a motivational interviewing (MI) response to elicited health risk behaviours and enhanced referral/linkage with other appropriate youth health or service providers in the management of high risk behaviours.

1.2.2 PART 2 – ECONOMIC EVALUATION

Part 2 is an economic evaluation of the proposed intervention compared to current best practice care.

1.2.3 PART 3 – PRACTICE NURSE FEASIBILITY STUDY

Part 3 is a feasibility study for the role of the practice nurse (PN) in preventive youth health.

1.3 DEFINITION OF TERMS

In this report: '**clinician'** is used to refer to practice nurses or general practitioners (GP). Practice support staff (PSS) is used to describe practice managers (PM), receptionists or other staff in administrative, non-clinical roles.

'**Linkage'** is used to refer to the 'integration' function defined in *General Practice Nursing Australia* (Watts, Foley et al. 2004) " *to develop effective communication channels within the practice and between the practice and outside organizations and individuals*".

Any reference in this report to health risk behaviour will generally, unless otherwise specified, refer to '**psychosocial health risks'** such as smoking, drinking, drug use, sexual health, eating disorders, mental health, personal safety and risky driving.

As this project is focussed on **P**revention, **A**ccess and **R**isk **T**aking in **Y**oung people it will be referred to in this report by its acronym - **PARTY**.

1.4 SPECIFIC AIMS

1.4.1 PART 1 (RCT) – PRIMARY AIMS

The primary aims for PART 1, the RCT, are to compare the effects of the intervention with current best practice on:

(i) Clinician's accuracy in identifying risk-taking behaviour

(ii) Young people's uptake of risky behaviour or intention to change or reduction of established behaviour at 3 and 12 months post-intervention; and

(iii) Acceptability of risk screening to young people, their parents and general practice staff.

1.4.2 PART 1 (RCT) – SECONDARY AIMS

The secondary aims for Part 1, the RCT, include examining and comparing control and intervention on:

(i) Young people's pathways to care, trust in their clinician and likelihood of returning for future visits; and

(ii) Parents' attitudes toward the concept of a youth friendly practice policy including YP seeing the clinician alone and conditional confidentiality.

1.4.3 PART 2 (ECONOMIC EVALUATION) AIMS

The economic component aims to:

(i) Evaluate the economic efficiency of the intervention; and

(ii) Identify the incentives/disincentives that might influence its uptake should it prove effective.

1.4.4 PART 3 (PN FEASIBILITY STUDY) AIMS

The practice nurse feasibility study will use a qualitative process evaluation, as well as quantitative methods, to evaluate the PNs' expectations, experience and acceptability of delivering the intervention and performing a linkage function to improve the access into general practice for high-risk youth who attend other services such as community welfare, education, justice, hospital emergency or specialist medical and mental health services.

1.5 HYPOTHESES

(i) That a screening tool for health risk in youth will improve the clinician's detection by 31% compared to interview alone

(ii) That specific risk response training, including MI, will result in at least 15% overall less uptake of risky behaviour or greater intention to change or reduction in established risk behaviour 3 months post-intervention compared to usual care

(iii) That reduction in risk taking will be sustained to 12 months

(iv) That the benefits to youth and society as a whole will outweigh costs of the intervention; and

(v) That the youth preventive care and linkage role will be acceptable, to PNs and general practice staff, and feasible.

1.6 BACKGROUND

1.6.1 YOUNG PEOPLE'S HEALTH RISK BEHAVIOUR

Australian Bureau of Statistics (ABS) figures cited by the Australian Institute of Health and Welfare (AIHW) put the total number of people in the 15-24 years age bracket at 14% of the total Australian population (Australian Institute of Health and Welfare 2008) with around 9% of patients attending general practice being of that age (Britt, Miller et al. 2008).

The special health care needs of adolescents have long been recognised (Patton, Sanci et al. 2002). In particular, psychosocial issues form the greatest burden of disease for young people including accidents and injury, tobacco, alcohol and other substance use, unprotected sexual intercourse and other mental health disorders (Moon, Meyer et al. 1999). In Australia, 45% of deaths of 15-24 year old (yo) young people are related to transport injury and 27% of deaths are as a result of suicide (Australian Institute of Health and Welfare 2007). In relation to alcohol, about 31% of young people are at risky or high risk levels for short term harm with

11% facing the possibility of long term harm. Seventeen per cent are current smokers (Australian Institute of Health and Welfare 2007). World wide(including developing countries), the leading causes of mortality (in the 10-24 age bracket) are road traffic accidents, followed by suicide and then violence (Patton, Coffey et al. 2009).

Risk taking behaviours tend to cluster in individuals, are initiated in early adolescence and progressively increase in prevalence to early adulthood (Brown 2002) thus compounding the issues. Harms resulting from such risk-taking behaviours are preventable. Where risk-taking behaviour, mental health problems or abuse have already occurred, early detection and intervention have the potential to reduce damage from ongoing harm. Adolescents report that they welcome the opportunity to discuss health issues such as contraception, substance use and sexually transmitted infection with health care providers and trust their advice (Klein and Matos Auerbach 2002). Yet adolescents tend not to disclose their risk taking behaviours to health care providers unless prompted, related in part to barriers perceived in accessing care such as fears about lack of confidentiality (Kramer and Garralda 1998).

Whilst not yet fully elucidated, current thinking is that brain development and neural plasticity for young people continues well into their twenties thus allowing ongoing opportunity to ameliorate detrimental effects (Patton and Viner 2007) but, conversely, amplifying susceptibility to risk for a longer period than had previously been considered. Thus, adolescence and young adulthood are significant developmental stages which should not be neglected; timely health risk assessment and appropriate intervention are critical.

1.6.2 YOUTH FRIENDLY PRACTICE AND BARRIERS TO CARE

Youth friendly practice has received increasing attention over the last decade and the World Health Organisation (World Health Organisation 2002; World Health Organisation 2005) has generated five guiding principles for a framework for the development of youth friendly health services based on: equity, acceptability, accessibility, appropriateness and effectiveness. As youth friendly practice gains more currency, assessments of the youth friendliness of general practice settings (and the concomitant effect on health outcomes for young people) are beginning to emerge. A recent Lancet review provides a comprehensive appraisal of the evidence for youth friendly services (Tylee, Haller et al. 2007). The authors concluded that many projects have not been appropriately evaluated and do not focus sufficiently on health outcomes or economic evaluations of the interventions. The PARTY Project will provide one opportunity to redress these deficiencies.

A fundamental tenet of youth friendly practice relates to the provision of confidential health care which includes: speaking to adolescents alone; discussing the exceptions to confidentiality; and being able to engage appropriately with parents (Ford, English et al. 2004). For the clinician, balancing the health care needs of their young patients and assessing their capacity for decision making ("mature minor" or not) alongside parents' interest and involvement can be challenging (Sanci, Sawyer et al. 2005). Surveys of parents have found that there are still issues to resolve before parents are more comfortable with their sons/daughters receiving confidential health care consultations (Hutchinson and Stafford 2005; Lyren, Kodish et al. 2006; Magnusson, Oakley et al. 2007). There is certainly research evidence that adolescents' apprehensions about confidentiality may discourage visits to health care professionals, or inhibit discussion of more sensitive topics, thus potentially increasing their health risks (Carlisle, Shickle et al. 2006; Lehrer, Pantell et al. 2007).

Other potential barriers to early and preventive intervention in primary care include, for clinicians, time pressure, lack of reimbursement, provider training, skills and confidence in responding and availability of other specialist services to intervene (Igra and Millstein 1993; Van Hook, Harris et al. 2007). Whilst there may be concern that patients will react adversely to screening, unrelated to their presenting issue, youth at risk present to primary care with physical complaints in at least 85% of their consultations, and their risk status is in danger of being missed (Pfaff, Acres et al. 2001). Hence, there is an important preventive role for

acceptable screening methods to identify these youth for further assessment and ongoing care. The complex, psychosocial nature of youth health risk behaviour also demands a comprehensive, collaborative approach that includes linkages between primary care providers, medical and mental health specialists, allied health and welfare, teachers, school nurses and juvenile justice (Gregg, Freeth et al. 1998; Kang, Bernard et al. 2003). Such linkages are likely to facilitate the access of high risk youth to general practice yet have not been formalised in the Australian health care system. There is a call for organisational policies addressing these linkages to be incorporated in professional practice (Kang, Bernard et al. 2003).

1.6.3 PSYCHO-SOCIAL SCREENING AND PREVENTIVE HEALTH

Prevention, early diagnosis and intervention thus dominate the approach to the care of both high risk, marginalised groups of young people and all other young people where health risks related to substance use, unprotected sexual activity and mental health problems are common (Patton, Sanci et al. 2002). In 1993, the American Medical Association produced 'Guidelines for Adolescent Preventive Services' (GAPS) as a tool, for primary care clinicians, to identify young people engaging in, or at risk of, damaging behaviours (Gadomski, Bennett et al. 2003). Even so, screening is still by no means universal. For example, a study which conducted secondary analysis of two independent datasets found only about one third of adolescents were screened for emotional distress such that about 70% of teenagers with distress had missed the opportunity to discuss their issues (Ozer, Zahnd et al. 2009).

Promising results on the effectiveness of the guidelines with preventive counselling, implemented in paediatric outpatient clinics with a comprehensive practice-based training system, have emerged. Rates of detection and discussion of risky behaviours increased (Kramer and Garralda 1998) and overall, lower rates of risky behaviour (tobacco, alcohol and other drug use, sexual intercourse, and non-use of seatbelts) were reported in 15 year olds screened at age 14 years compared with the non-screened (Ozer, Adams et al. 2003). Interestingly in one study (involving a control group), introduction of screening along with appropriate clinical training was found to be more effective than simply supplying the tools (Ozer, Adams et al. 2005) whereas another (pre- and post-test design) concluded that successful implementation could be achieved without extensive training (Lewin, Knauper et al. 2009).

Brief interventions including education, advice, information about non-risk taking in peers and refusal skills are promising in modifying health risk behaviour in adolescents (Knight 2001; Walker, Townsend et al. 2002). Office based interventions, still relatively brief (30 minutes) and given over 2 to 4 visits, are likely to be appropriate for young people's problem substance use and early substance abuse (Poikolainen 1999; Walker, Townsend et al. 2002). Cognitive-behavioural and motivational enhancement approaches underpin most of these interventions (Knight 2001). Results from a randomised controlled trial of preventive health counselling for teenagers by UK general practice nurses, show slight but encouraging reduction in health risk behaviour by teenagers 3 months post-intervention compared to controls; however, these changes were not sustained at 12 months (Walker, Townsend et al. 2002).

Motivational interviewing is a style that fits well with the developmental stage of young people where there is ambivalence about behaviours and resistance to authoritative approaches. It has shown promise in decreasing young people's alcohol intake (Miller and Rollnick 1991; Knight 2001). Certainly, an increasing number of papers have reported that motivational interviewing with adolescents and young people can be an effective response to various health risk behaviours e.g. smoking, alcohol drinking, drug use or sexual health (McCambridge and Strang 2004; Colby, Monti et al. 2005; Chacko, Wiemann et al. 2009).

There is little evidence on effective psychosocial health risk screening strategies or counselling for adolescents seen in the Australian primary health care system. Despite the psychosocial burden of disease for young people, the majority of consultations to GPs by 15 to 24 year olds are for physiological reasons (respiratory, musculoskeletal and dermatological) (Moon, Meyer et

al. 1999). Given that most young people visit general practice for health care at least once a year, the GP visit presents an ideal opportunity to detect hidden psychosocial health burdens (Oppong-Odiseng and Heycock 1997). The importance of screening young people for psychosocial risk factors is becoming evident in guidelines that have been produced e.g. Bright Futures (American Academy of Pediatrics Accessed: January 2010) or GAPS (Gadomski, Bennett et al. 2003). Unlike the US or the UK, the Australian Medicare system does not fund preventive care visits for adolescents, and GPs in private practice, rather than practice nurses or paediatricians in hospital outpatient settings, provide the bulk of primary care services for youth. Hence instruments from these countries cannot be directly applied to an Australian setting. Furthermore, there is little systematically collected evidence on the attitude of young people and parents to screening and youth friendly practice protocols e.g. seeing the doctor alone, discussing confidentiality.

1.6.4 PRACTICE NURSE ROLE IN SCREENING, COUNSELLING AND LINKAGE

In Australian general practice, the role of the PN is evolving, aided by federally funded practice incentive programs and specific Medicare item numbers for immunisation, wound care and pap testing (Hegney, Price et al. 2004). Around 58% of practices have a PN (Australian General Practice Network 2007). Current roles cover 4 main domains: clinical care, organisation, administration and integration ('linkage') (Watts, Foley et al. 2004). The future will see less time in administration and more in the other three roles. Health promotion and preventive care are roles already adopted by PNs in the UK (Watts, Foley et al. 2004).

An overview of the publications on PN research, conducted in Australian general practice, revealed a distinct focus on demographics and roles; no reported studies measured the impact that PNs have on patient satisfaction or clinical outcomes (Halcomb, Patterson et al. 2006). These authors concluded that it was now critical to obtain evidence on the PN role in interventions that can influence health care outcomes particularly in the context of systemic challenges such as workforce shortages and increased patient demand. Even so, there are still a number of practice and policy issues that have been articulated that will require addressing if the potential of PNs in Australia is to be fulfilled including: Medicare payments, supervision and indemnity insurance (Keleher, Joyce et al. 2007).

The practice nurse role and efficacy in primary care has been well-established in the UK, US and NZ and a review of research has shown that nurses can achieve health outcomes that are as good as those of GPs often with superior interpersonal skills (Horrocks, Anderson et al. 2002). PNs have also been trained to give counselling interventions effectively (Ockene, Wheeler et al. 1997; Mynors-Wallis, Gath et al. 2000; Wewers, Neidig et al. 2000; Holtrop, Dosh et al. 2009). Collaborative practice between PNs and GPs seems the preferred model, especially for health risk assessment and therapeutic care, in order to increase efficiency, reduce costs, improve provider satisfaction, patient access to services and health outcomes (Patterson and McMurray 2003; Watts, Foley et al. 2004). This model recognises the unique and overlapping scope of clinical care provided by the GP and PN forming an interdependent, multidisciplinary team for holistic patient care (Watts, Foley et al. 2004).

The overseas studies (above) provide evidence of PNs' effectiveness in screening, counselling and linkage role. The PARTY Project will explore these roles for PNs in an Australian context and in relation to youth health.

1.6.5 ECONOMIC EVALUATION OF PREVENTIVE INTERVENTIONS FOR HEALTH RISK BEHAVIOURS IN YOUNG PEOPLE ATTENDING PRIMARY CARE

Given the problem of scarcity of health care resources, policy makers are faced with the challenge of needing to make choices when allocating funds between competing uses. While information on effectiveness of interventions is necessary it is often not sufficient for health

care decision making. Economic evaluation provides an explicit and theoretically based framework that can be used to assist in setting priorities by comparing the costs and consequences of alternative ways of spending resources. If one of the objectives of policy makers is to make the best use of available funds, economic evaluation can provide information to aid decision making to guide the efficient allocation of resources.

The decision of whether, and how, to implement and fund preventive interventions in young people in primary care can be informed by the accurate estimation of the associated costs and benefits of alternative interventions for screening and treating health risk behaviours and mental health problems. Despite the rapid growth in the conduct of economic evaluations of health and health care interventions over the last 30 years, few economic evaluations of adolescent preventive interventions targeting health risk behaviours have been published. However the evidence that is available is encouraging.

A number of studies have evaluated the cost-effectiveness of smoking, sexual health and obesity education school-based programmes (Wang, Davis et al. 2000; Tengs, Osgood et al. 2001; Wang, Crossett et al. 2001; Wang, Yang et al. 2003; Dino, Horn et al. 2008; Vijgen, van Baal et al. 2008). A Dutch study modelled the life-time costs and benefits of a social influence intervention to reduce smoking amongst school students and estimated the cost per life year gained to range from €14,100 to €18,200 and the cost per Quality Adjusted Life Year (QALY) gained to range from €18,200 to €19,900 (reported in 2004 Euros) (Vijgen, van Baal et al. 2008). Wang *et al* (Wang, Davis et al. 2000) conducted an economic evaluation of the Safer Choices programme designed to reduce unprotected sexual intercourse to prevent human immunodeficiency virus (HIV), other sexually transmitted diseases (STDs) and unintended pregnancies amongst students in the US. The intervention was estimated to cost US$105,243 (reported in 1994 US dollars) and resulted in a 15% increase in condom use and 11% increase in contraception use compared to the usual sexual health education.

Economic evaluations of preventive interventions for young people have also been undertaken in settings other than schools (Downs and Klein 1995; Lynch, Hornbrook et al. 2005; Ross, Powell et al. 2006; Holtgrave, Wunderink et al. 2009). A study evaluating a community-based intervention to reduce young people's smoking estimated the cost per quitter to be $US3,789 and the cost per life year gained to be $US3,942 (reported in 2000 US dollars) (Ross, Powell et al. 2006). The cost-effectiveness of an intervention to prevent teenagers at risk of depression found the incremental cost per depression free day was $US10 and cost per QALY gained was $US9,275 (reported in 2000 US dollars) (Lynch, Hornbrook et al. 2005).

These figures suggest that preventive activities for young people are likely to be cost-effective compared to usual practice. However, the available economic evidence is of limited use for three important reasons. First, no economic evaluations of preventive interventions for health risk behaviours in young people have been undertaken in a general practice setting worldwide. Second, the economic evaluations that have been conducted largely evaluate interventions targeting individual health risk behaviours such as smoking or unprotected sexual intercourse. Given that risk taking behaviours tend to cluster in individuals (i.e. when a young person is identified as having one health risk there is likely to be others) (Brown 2002), evidence is required on the economics of preventive interventions targeting multiple risk taking behaviours in young people. Finally, the economic evaluations in many of these studies have been of standardised preventive interventions for young people, rather than complex interventions that are tailored to the health service delivery setting and the needs of specific populations. An economic evaluation that is specifically designed to evaluate a complex intervention in a complex system, such as primary care, will provide decision makers with much better information to inform improvements in both effective and efficient service delivery.

2 RESEARCH STRATEGY OVERVIEW

2.1 PART 1 – PILOT STUDY AND RANDOMISED CONTROLLED TRIAL

Part 1 has four phases to testing the intervention. *Phase 1* involved piloting the screening tool for use in general practice. In addition, the measurement instruments and youth friendly office system changes required for the intervention needed piloting prior to the main trial. The cluster randomised controlled trial (still in progress) of the intervention in *Phase 2* was chosen over simple randomisation of patients to receiving either the intervention or control 'treatments' because the intervention could affect the whole practice with some systems changes. In addition, we knew that we would build a 'whole of practice' systems change component in the future (see Section 6.5 Future Directions). The practices are stratified according to practice type (bulk billing, private billing or community health centre) and socio-economic status (SES) of location. A baseline measurement of clinicians' accuracy in identifying risk-taking behaviour in the young patients they see and of their assessment of the young person's presenting issue and management plan is being undertaken to compare the intervention and control group at baseline. These measures are repeated following the intervention in both groups. The *Phase 3* follow-up study (still in progress) will assess the impact of the intervention on adolescent health risk behaviours relative to the control group at 3 months (short-term impact) and 12 months (sustainability measure). In *Phase 4*, analyses and final report writing for communication of findings in a policy framework will occur.

2.2 PART 2 - ECONOMIC EVALUATION

The economic evaluation will proceed in parallel with all 4 phases outlined in Part 1 above.

2.3 PART 3 – PRACTICE NURSE FEASIBILITY STUDY

The feasibility study of the role of the practice nurse will be predominantly a qualitative process evaluation by single interview and focus groups conducted in parallel with all 4 phases outlined in Part 1 above.

2.4 ETHICS

The PARTY Project has received the appropriate ethics approvals from The University of Melbourne and fulfilled reporting requirements on an annual basis.

3 PART 1 - PILOT STUDY AND RANDOMISED CONTROLLED TRIAL

3.1 METHODS

3.1.1 STEERING GROUP AND RESEARCH GOVERNANCE

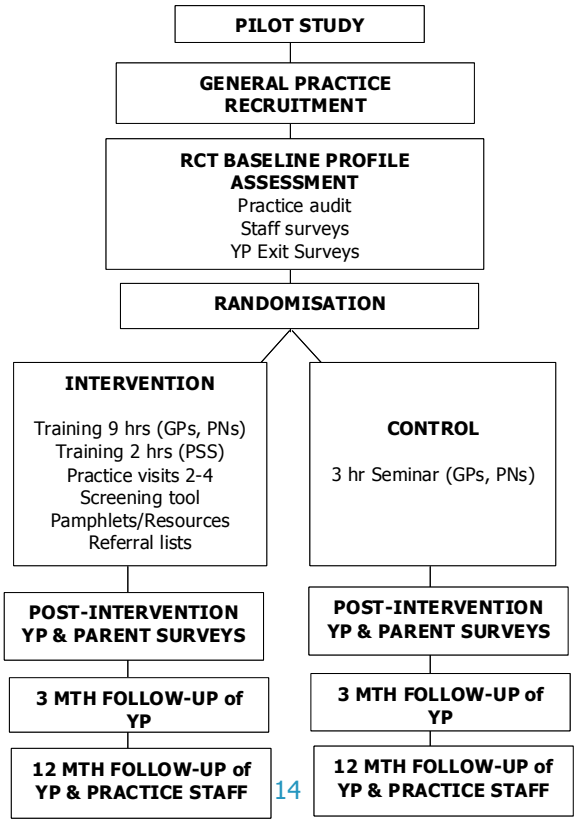
A policy and implementation group was convened, in 2005, to ensure that the project stays relevant to policy and practice. Establishing this group involved extensive consultation and meetings. The members were invited to the project launch and receive regular updates on PARTY Project progress via our quarterly Newsletter.

The group includes policy makers, clinicians, GP Divisions, staff from Victorian Government Departments representing health, education, juvenile justice and the welfare sector, Australian Practice Nurses' Association, the Australian Medical Association, the Royal Australian College of General Practitioners, young people and parents. A consultancy partnership was formed with the Dianella Community Health Centre and YACVic, the peak advocacy body for youth in Victoria.

3.1.2 PILOT STUDY

The Pilot Study provided a key opportunity to develop, review and refine the elements to be used in the RCT: the practice and patient recruitment materials and processes (letters, consent forms, plain language statements, brochures); the measures (practices and staff, young people and their parents); the interventions (training materials/ program, screening tool, youth friendly resources); and, databases (for measures, YP contact/interviews, practice tracking/monitoring). Figure 3.1 shows a flow chart of the PARTY Project design from Pilot Study through to the follow-up phase in the RCT.

Figure 3.1: Flow chart of PARTY Project design



3.1.2.1 INTERVENTION

We attempted, where possible, to recruit the whole of practice but usually worked with a smaller champion team representing GPs, PNs and PSS. The role of the champion team is to trial changes on a small scale so modifications can be made before attempting implementation in the 'whole of practice'. There are three components to the intervention:

(i) Training for staff in youth friendly health care principle

(ii) Motivational interviewing training for clinicians; and

(iii) Tools for health risk screening, and practice procedures and resources to accommodate these, as well as a linkage role for practice nurses.

Control practices received a single 3 hour education seminar for GPs and PNs only. The content focused on adolescent health and development, risk and protective factors, barriers to access/delivery of care, verbal screening for health risk behaviour, medico-legal/professional/ethical/moral issues and an overview of youth friendly practice, all of which constitute the equivalent to current standard best practice. Resources provided include brief readings.

The following sections on the intervention apply to **intervention practices** only.

3.1.2.1.1 Training intervention: youth friendly health care principals

The training for practice staff was based on an educational intervention for GPs (*Adolescent Health Care Principals*) which was designed using evidence-based education strategies and found to be effective in changing GPs' screening practices (Sanci, Coffey et al. 2000). The content and approaches were trialled and refined in the Pilot Study for implementation in the RCT. A practice support staff section was added based on feedback from PSS in the Pilot Study and an additional practice nurse element was introduced from another parallel study on practice nurses' needs in delivering health care to young people.

Intervention practices received an initial 3 hour seminar (with similar content to that of the control practices seminar); this seminar was delivered to GPs and PNs as well as practice support staff. The GPs and PNs received a further two sessions, both of which were experiential involving role plays, with young actors, who simulated young patients and then provided clinicians with feedback on their clinical interactions. The first of these sessions focused on screening for health risk behaviours in young people (using the HEADSS approach (Goldenring and Cohen 1988; Goldenring and Rosen 2004)) and the second dealt with a motivational interviewing based counselling response to elicited health risk behaviours. Resources included substantial readings, a resource book on youth friendly general practice (Chown, Kang et al. 2008), DVDs on health risk screening and motivational interviewing plus logbooks for recording and reflecting on clinical encounters developed by the PARTY Team.

3.1.2.1.2 Training intervention: motivational interviewing

The motivational interviewing intervention was developed using evidence-based principals in effective education and practice change. The approach included brief counselling options for minimal risk and longer term options for 2-4 visits where moderate risk was elicited. As mentioned in Section 3.1.2.1.1, the motivational interviewing component of the training was enhanced by providing intervention GPs and PNs with a DVD entitled *"Preparing Young People for Change: a Motivational Interviewing Approach to Counselling Young People with Health Risk Behaviours"* (Sanci and Cahill 2008). This DVD was produced, by the PARTY Team, using young actors in simulated consultations with GPs, a PN and a psychologist.

3.1.2.1.3 Intervention tools and practice procedures and resources

3.1.2.1.3.1 Screening tool

A written health risk behaviour screening tool was developed by the PARTY Team based on the HEADSS framework (Goldenring and Cohen 1988; Goldenring and Rosen 2004) which is the basis for training GPs in health risk screening young people worldwide plus two existing instruments – one, the Adolescent Screening Questionnaire previously created and trialled in a PhD study, supervised by Chief Investigator Sawyer, and currently used at the Royal Children's Hospital; the other, the GAPS (Middle-Older Adolescent) Questionnaire promoted by the American Medical Association (Gadomski, Bennett et al. 2003). Our tool has drawn on questions from both of these instruments with modifications to ensure relevance to our wider target age group (14-24 yo), the general practice setting, our research aims and the Australian context.

Before its implementation, the tool was piloted with three focus groups of young people in Melbourne and regional Victoria. Members of the Youth Reference Group of the Inspire Foundation, who have helped create the Reachout! website for youth, also provided input on its structure and content.

The tool (to be used in Pilot and intervention practices only) was available in A4 sheets or a C5 booklet version; clinicians chose the version that they thought was most appropriate to their practice. YP were handed the tool by reception staff and were informed that the clinicians were trying a new "youth health check" for all 14-24 yo young people. It was completed in the waiting room or a designated private area. GPs and PNs (intervention practices only) reviewed the completed tools, during their consultations, to target their counselling and management of any health risks. The completed tools were stored in the patient file and researchers did not have access to the content. A tear-off back page gave young people the option to provide a brief opinion about the tool for the research team; there was also the option to provide contact details for participation in a focus group (or interview) to further explore the YP's views on the acceptability of this self-completion health risk assessment for young people.

3.1.2.1.3.2 Practice procedures and practice resources

Practices received at least one, but up to four, practice visits by PARTY staff, over 4-6 weeks, to assist them in implementing the training learnings in their practice settings and clinical work using a Plan-Do-Study-Act (PDSA) model of continuous quality improvement (Langley, Nolan et al. 1996). The model incorporates three fundamental questions, as follows:

- What are we trying to accomplish?
- How will we know that a change is an improvement?
- What change can we make that will result in an improvement?

After our Pilot Study experience, youth friendly 'intervention projects', for the most part focused on facilitating screening for health risk behaviour, which were incorporated into the PDSA model of improvement. Each practice decided during an initial 'kick off' meeting - attended by those in the practice participating in PARTY and by PARTY staff (Principal Investigator (PI) and Research assistant (RA)) – which intervention projects they would like to incorporate during their period of the PDSA model of improvement. Feedback of data from the baseline Exit Survey of young people recruited from the practice was provided at this meeting to assist in prioritising activities.

We decided, in this study, where we had a brief period to intervene with practices (4-6 weeks), to focus on three specific youth friendly initiatives that the practice could trial on a small scale and that would help us achieve our aims of more systematic health risk screening of young people. The initiatives were as follows:

- The piloting of the screening tool or other electronic templates, and appropriate referral for these issues, as well as office procedures that would enable the screening tool to be used for young people (14-24yo) or that would support verbal psychosocial screening by the clinician during the consultation
- The updating of the clinic's adolescent health and psychosocial referral contacts to improve clinic staff's knowledge of appropriate services for young patients aged between 14 – 24 years – this was actually to become the start of the linkage role if nurses were keen to take it up; and
- The updating of the practice's youth-friendly waiting room resources to support the comfort and health education of young patients accessing the clinic. This required our team to research the best resources and design our own where there were gaps e.g. road safety awareness.

PARTY staff supported each participating intervention practice throughout the process of implementing youth friendly interventions, including the initial meeting, provision of youth friendly resources for the waiting room, provision of youth specific referral lists, mentoring to individual clinicians and other staff, advice and support to receptionists in handing out the screening tool to young people, and any other support function as required. The PARTY team also supported the practice in writing up a workbook on the PDSA process.

A final meeting took place with the champion team of GPs, PNs and PSS, approximately 6 to 8 weeks after the initial meeting, to discuss experiences with the process. When the PDSA cycles were completed the practice began recruiting young people for the PARTY cohort.

3.1.2.2 MEASURES

All measures trialled in the Pilot Study were assessed in the light of their performance and fine-tuned for the RCT. We were specifically requested NOT to include copies of the measures in this interim report although they will be appended to the report of the final outcomes when they become available. However, the Young Person's Exit Survey is attached (Attachment 1) to facilitate description of the results.

3.1.2.2.1 Young people's surveys

3.1.2.2.1.1 Exit surveys

The Exit Interview (see Attachment 1) for young people post-consultation (pre- and post-intervention) phases is conducted by telephone and takes 40-50 minutes. In the Pilot Study the computer assisted telephone interviewers (CATIs) recorded the data on hard copy versions. Once the content had been finalised for the RCT, the survey responses have been entered directly into a custom-made web-based database. Young people are asked about:

(i) Their experience at the practice itself including the General Practice Assessment Questionnaire (GPAQ scale) (National Primary Care Research and Development Centre 2004)

(ii) Their interaction with the clinician during the consultation including: recall of whether the clinician screened for risky behaviours (or whether it had occurred at that clinic previously) and/or counselled them, and acceptability of screening. Measures include: the "Likelihood of future visits" scale (Ford, Millstein et al. 1997) and a family doctor trust scale (Thom, Ribisl et al. 1999). The trust scale is scored on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). For scoring, reverse-scored items are re-calculated.

(iii) Psychosocial health risks (tobacco, alcohol and other drug use, sexual health, mental health and self-harm, exercise and eating habits, and driving safety), experience of fear and abuse (if aged 17 and above) and any intention to change unhealthy or harmful behaviours (a potential opportunity for clinician intervention). Measures include: the K10 measure of psychological distress (Andrews and Slade 2001;

Furukawa, Kessler et al. 2003) and the SF12 measure of disability (Ware, Kosinski et al. 1995). (See Attachment 2 for the definition of health risks.)

(iv) Their use of a range of health services including following the advice given during their consultation plus visits to other primary care providers, specialists and hospitals, as well as their use of medicines (over-the-counter, prescription, complementary); and

(v) Demographics questions including: age, gender, educational and employment status.

3.1.2.2.1.2 Follow-up surveys

Young people recruited post-intervention were followed up at 3 months (Pilot Study and RCT) and 12 month (RCT only) after their initial consultation with a 15-20 minute telephone survey. The follow-up surveys covered their health risk behaviours, as in the Exit survey (including uptake, or not, since the previous survey), any intention to change, and their pathways of care since the initial GP visit.

3.1.2.2.2 Practice audit/mapping

At baseline an audit, or mapping, of practice systems, policies and general infrastructure is carried out on all practices. The audit is completed from observations of the practice as well as talking to key personnel, most commonly the PM. During the periods of recruitment of young people, practices are also supported to extract patient attendance numbers from their databases in order to determine the representativeness of the patient samples; the audit provided a sense of the practice capacity to generate this data. The purpose of the audit is to:

(i) Understand how youth friendly the practice is at baseline i.e. before intervention

(ii) Understand any existing processes that the project processes could be integrated with to maximize ease of uptake; and

(iii) Obtain demographic details of the practice which may help to later describe where, or where not, the intervention was helpful.

3.1.2.2.3 Practice staff surveys

GPs, PNs and PSS complete written baseline (Pilot Study) and follow-up surveys (Pilot Study and RCT) about their current practice, knowledge and confidence in working with young people (especially in relation to health risk behaviours and youth friendly practice), their referral networks, practice culture and youth friendliness plus demographics (including age, year of graduation, prior training in adolescent health and brief interventions).

3.1.2.2.4 Clinical encounter form

GPs and PNs complete an Encounter Form for each young person who agrees to be contacted by the PARTY Team during both YP recruitment phases. It is sealed it an envelope with an ID number for collection at the end of the recruitment period. If the YP subsequently declines consent to the interview the encounter form is destroyed without viewing. Information collected includes presenting problem, diagnosis and management, a global assessment of the YP's physical and mental health, length of consultation and relevant Medicare item numbers. In the post-intervention recruitment period clinicians, in intervention clinics only, are asked about their screening practices.

3.1.2.2.5 Parent survey

Clinic attending parents of 14-17 yo YP in the Pilot Study and the post-intervention phase of the RCT are invited to complete a one-off written survey about their experience of the consultation, their opinion on the care that adolescents get in general practice, the acceptability of screening and other youth friendly practices, plus demographics. This survey is included in the information pack given to their son/daughter at the clinic. Outstanding surveys are followed up by telephone.

3.1.3 RANDOMISED CONTROLLED TRIAL

3.1.3.1 PARTICIPANTS

We aimed to recruit 40 general practices of which 30 would be in metropolitan Melbourne and 10 would be rural/regional to reflect the population distribution. General practices were recruited to PARTY via a diverse range of approaches:

(i) PARTY Project website and newsletters

(ii) Advertisements in General Practice Divisions and other peak body newsletters and weekly faxes

(iii) Mail outs from General Practice Divisions lists

(iv) Mail outs to practices (from the Medicare Australia database) which see high numbers of young people

(v) Mail outs from the Department of General Practice database of Victorian general practices

(vi) Mail outs from web-based listings of general practices; and

(vii) Personal contacts.

Mail outs were followed up by telephone contact via GPs, PMs or PNs. Practices expressing interest were usually visited by the PI (also a GP) and/or the Project Co-ordinator; the project was presented in more detail and queries addressed. To take part at least one clinician (GP and/or PN) needed to be willing to participate but as many clinicians and practice support staff (eg receptionists, practice manager) who were interested could be involved. Once practices affirmed their intent to participate, a briefing visit was conducted where consents, and a Memorandum of Understanding, were signed and practices were briefed on the processes for collecting the baseline data on the practice, its staff and its young people.

3.1.3.2 BASELINE PROFILE STUDY OF YOUNG PEOPLE ATTENDING GENERAL PRACTICE

3.1.3.2.1 Young people - inclusion and exclusion criteria

Young people are eligible if aged 14-24 years (inclusive) but are excluded if very unwell (eg vomiting, febrile, weak, psychotic), unable to read/speak English or if aged between 14 and 17 years and not considered (by the GP) to be mature minors and unable or unwilling to obtain parental consent. ALL young people are approached, not just those with risky behaviours. Those young people aged 14-17 whom the GP deems to be immature minors require parental consent.

3.1.3.2.2 Young people – profile study

Baseline sampling (a 'snapshot' profile of the young people prior to randomisation and intervention) is carried out on around 6-12 young people attending the clinicians who are in the study. This sample helps us understand the risk profile of the typical young patient who attends the practice. The research team train practice staff to recruit youth to the study, ideally, consecutive youth who attend once in 2 week period. The Data Manager monitors each clinic's progress and processes to ensure rigour during the data collection phase. Receptionists mention the clinic's involvement in the study and hand out information brochures to YP consulting the PARTY clinicians. There are also posters in the waiting room. At the end of their consultation, clinicians ask YP for permission to record their first name and contact phone number for the research team. The YP are given a pack containing: a patient information statement, a consent form and a list of resources to support young people. The CATIs telephone the young people as soon after the consultation as possible to inform them of the project details, obtain formal consent and then proceed (or not) with the Exit Survey. A web-

based text messaging system is in place to send out text reminders for telephone appointments to mobile phone users.

This group of YP are NOT followed up. In consultation with practice staff (typically the PM) the Data Manager checks the numbers of recruited young people against the total number consulting during the recruitment period.

3.1.3.3 RANDOMISATION

After baseline measures of the patients, practice and staff, practices are stratified on two domains according to their billing practice ((i) bulk-billed i.e. no patient payment; (ii) private billing i.e. patient has some out-of-pocket expenses; or, (iii) community health centre i.e. usually bulk-billed but also providing diverse health and welfare services) AND the SES of the practice location (low versus middle to high SES based on postcode linked to the Australian Bureau of Statistics census data). A statistician, not directly involved with the study, randomises the practices, to assign approximately equal numbers of practices to either the intervention or the control arm of the study. Practices receive verbal, then written, notification of their randomisation allocation.

3.1.3.4 INTERVENTION

The approach to practice staff training and youth friendly practice systems change has already been described in Section 3.1.2.1. as developed in the Pilot Study.

3.1.3.5 POST-INTERVENTION SAMPLING OF YOUNG PEOPLE AND PARENTS

3.1.3.5.1 Young people - inclusion and exclusion criteria

Inclusion and exclusion criteria, at the post-intervention recruitment phase, are the same as at baseline profile (i.e. pre-intervention) phase.

3.1.3.5.2 Young people – post-intervention sampling

At the post-intervention phase we aim to interview 26-30 YP from each practice; this cohort is followed up, by the CATI team, at 3 months and 12 months after consultation. A similar recruitment approach as in the baseline phase was initially utilised but, over the course of the project, with ever increasing demands on clinician time we implemented a process of research assistant facilitated recruitment. Casual RAs are employed to make the initial contact with the YP (and parents as appropriate) in the waiting room, explain the study and answer any questions before the YP's consultation with the GP or PN. In this approach we ensure that, in the busy practice milieu, every YP is approached, any questions about the project can be addressed in a consistent manner and the recruitment period is completed more efficiently and effectively. The GP makes the final determination as to the suitability of the YP to enter the trial. Clinicians once again complete encounter forms for each YP who agrees to be contacted by the research team. YP are telephoned, consented and surveyed as in the pre-intervention phase of recruitment. See Section 3.1.2.2.1.1 for details of the Exit Survey content.

3.1.3.5.3 Parents – post-intervention sampling

Parents who attend the clinic with their son/daughter aged 14-17 years, irrespective of whether they need to consent on behalf of their son/daughter, are given the opportunity to complete a written survey which is included in their son/daughter's information pack. See previous Section 3.1.2.2.5 for details of Parent's survey content.

3.1.3.6 POST-INTERVENTION INTERVIEWS OF PRACTICE STAFF

Semi-structured, follow-up, qualitative focus groups or interviews with participating practice staff, are conducted approximately 12 months after the intervention about the acceptance of

the screening processes and the PN role. The audio-taped interviews to date have been transcribed and analysed for themes which were drawn from both the initial considerations of the raw data and stated objectives of the study.

3.1.3.7 FOLLOW-UP OF YOUNG PEOPLE

Those YP who complete a post-intervention exit survey are contacted after 3 months and again 12 months after their first interview. At this point, if willing, they complete a shorter (15-20 minute) telephone survey. See previous Section 3.1.2.2.1.2 for details of Follow-up survey content.

3.1.3.8 SAMPLE SIZE ESTIMATION

This sample size was revised (from that proposed in the in the original grant) with estimates based on the data from the Pilot Study. Overall, we require 1200 young people in 40 practices to have sufficient power to prove our hypotheses. In the intervention trial, 40% of youth attending general practice have health risk behaviour or emotional distress of which trained GPs, at best, will pick up 60% with interview alone (Pfaff, Acres et al. 2001), equivalent to 24% of all presenting youth. For clinically meaningful outcomes, we would expect the clinicians to pick a further 31% of youth with risk taking behaviours using the screening tool, equivalent to 36.5% of all presenting youth. To detect this 12.5% difference for all youth attending the practice between two study arms, we require 422 adolescents (power of 80%; alpha= 5%, 2 sided test). To allow for increased variance in the estimates due to recruiting youth within GP clinics, the sample size is inflated by a factor of 1.68 to 720 (18 per practice) youth. The inflation factor (IF) is based on the intra-clinic correlation coefficient (ICC) for all outcomes of 0.04 (Eldridge, Ashby et al. 2004). For the follow-up study: Table 3.1 gives the power for detecting a 15% difference in prevalence of selected risk behaviours in young people between the two study arms at 3 and 12 months follow up (alpha 5% for a 2-sided test) given the sample size as above for the main outcome.

Table 3.1: Power for detecting a 15% difference in prevalence of selected risk behaviours

	Prevalence		
Risk behaviours	**Control** (Moon, Meyer et al. 1999)	**Intervention**	**Power**
Alcohol use	0.41	0.26	89%
Substance abuse	0.38	0.23	90%
Tobacco use	0.24	0.09	98%

To allow for a 40% loss to follow-up of young people over 12 months, a total of 30 youth in each practice will need to be interviewed at recruitment. This is more than enough sample size to also detect differences in other risk factors.

3.1.3.9 ANALYSIS PLAN

3.1.3.9.1 Quantitative main outcomes

Clinician factors and young person's characteristics will be summarized using frequencies and percentages for categorical data and means and standard deviations or percentiles for continuous data for the two study arms. Clinician and participant characteristics will be compared between the two arms at recruitment to ensure that randomisation was effective. ICCs will be calculated for key outcome variables and patient variables at baseline. Multi-level modelling techniques will be used to account for the complexity of the study design, its hierarchical structure (youth clustered within general practices), stratification of practices at randomisation and repeated measures over time. The analysis will be intention to treat. For binary outcomes, marginal logistic regression using generalised estimating equations (GEEs)

with robust standard errors will be used to examine the effectiveness of the intervention in increasing the detection rates of clinicians of adolescents with health risk behaviours (Hypothesis 1), and whether the multi-faceted intervention reduces the proportion of young people with risk taking behaviours at 3 and 12 months compared to the controls group (Hypotheses 2 and 3). Results will be reported as odds ratios (OR) with their respective confidence intervals and p-values. Mixed-effects linear regression with study arm fitted as a fixed effect and general practice treated as a random effect will be used for continuous outcomes. Results will be reported as the difference in the mean outcome between the two study arms with 95% confidence intervals and p-values. Variables used to stratify randomisation will be added as fixed effects to the regression models. Imbalanced baseline factors identified *a priori* to be strongly associated with the outcome will also be adjusted for in the regression models.

3.1.3.9.2 Qualitative outcomes

Post intervention and 12 month interviews with practice staff on acceptance of screening processes and the PN role will be transcribed and analysed for themes. Secondary outcomes of pathways to care will be described, (World Health Organisation 1995) and trust, likelihood of returning for future visits and parental attitudes will be summarised for each group. Numbers of high risk youth attending at 3 and 12 months will be compared to baseline measures.

3.2 INTERIM RESULTS

It should be noted that because the RCT is still in progress, we cannot yet report on the effectiveness of the intervention. However we can provide details of the baseline sampling of the young people attending the practices prior to randomisation. As the baseline sampling of the young people is yet to finish, we did not provide confidence intervals in this report.

3.2.1 PILOT STUDY

The main focus of the Pilot Study was to test processes for the RCT and results from any data collection from surveys are not reported here.

3.2.2 RANDOMISED CONTROLLED TRIAL

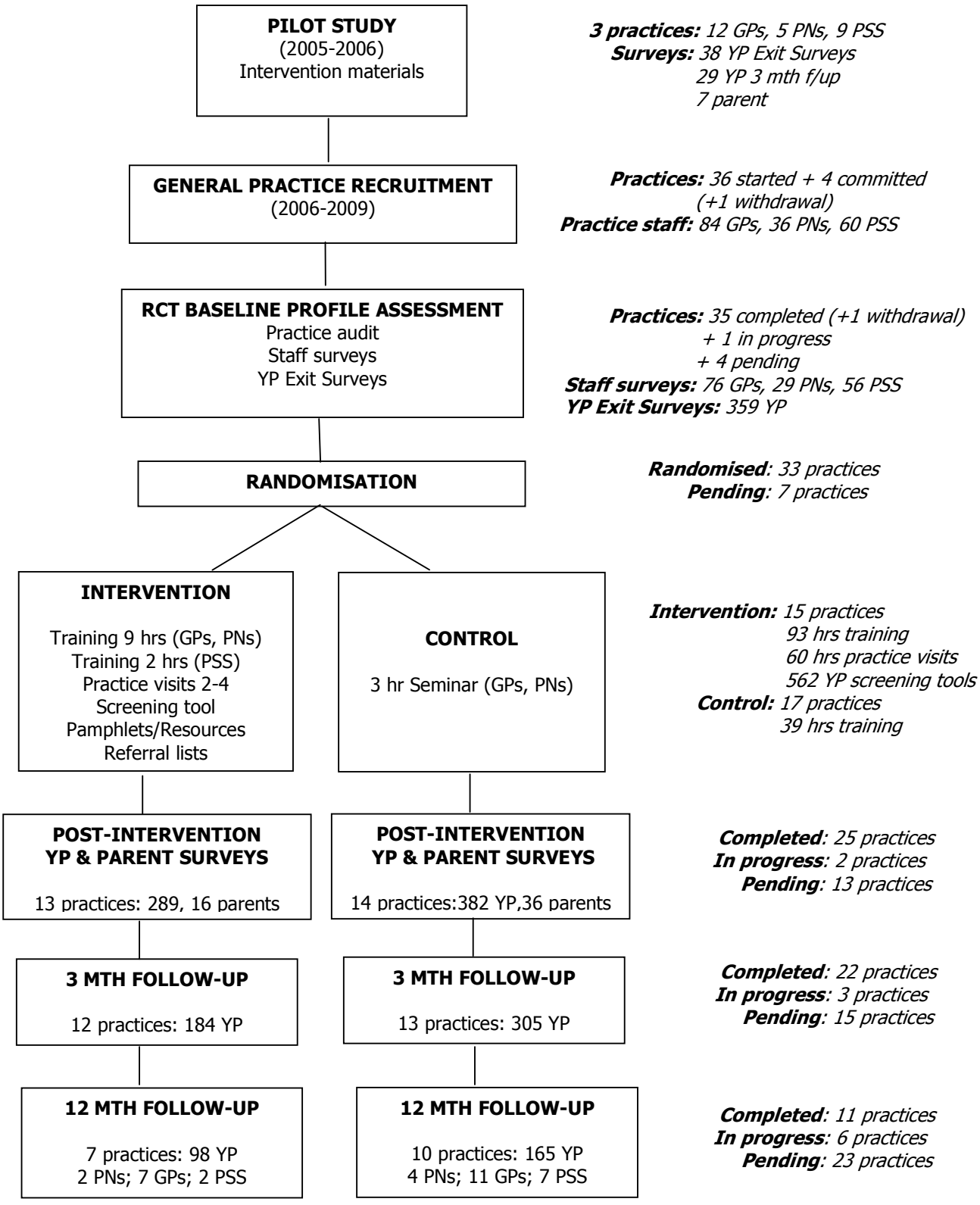
3.2.2.1 PARTICIPANTS

3.2.2.1.1 Practices

The practice recruitment phase has been exceedingly challenging and thrown up unexpected obstacles, in part due to workforce shortages, but also: our initial need to include the 'whole of practice'; the increased availability of adolescent health education over the past decade (thus reducing the attractiveness of the topic for staff); the training requirements (which, as a result, became more flexible in location and mode of delivery); and, the limited capacity of practices to accurately determine the numbers of 14-24 yo young people attending on a weekly basis. The advent of swine flu, also served to inhibit practice capacity to become involved in PARTY.

Despite these obstacles, 36 practices have commenced their involvement in PARTY with another 4 to begin baseline measures in February 2010. Thus far there are 16 practices in the intervention arm and 17 practices in the control arm. Of the randomised practices 20 are private billing, 9 are bulk billing and 4 are community health centres. Sizes range from solo GP practices to large clinics with many doctors, nurses and practice support staff; five of the practices are health services based in tertiary education settings so the majority of their patients are young people. The 36 practices which have commenced plus the 4 due to start in early 2010 are located in diverse areas in Melbourne (n=31) (from the Melbourne central business district out to the urban fringe) plus rural regional locations (n=9) (See Table 3.2).

Figure 3.2: Flow chart of PARTY Project progress to January 2010



(GP = General practitioner PN = Practice nurse PSS = Practice support staff YP = Young people)

Table 3.2: Location of practices (n=40)

		Number
Melbourne metropolitan		
	Melbourne central	6
	North-west	4
	North	2
	North-east	4
	East	6
	South-east	4
	South-west	2
	West	3
Rural regional Victoria		
	North-east region (incl 1 in Albury, NSW)	4
	Western region	2
	North-east central region	2
	Westernport region	1
TOTAL		**40**

3.2.2.1.2 Practice staff

To date, from the 35 practices that have completed the profile recruitment phase and one practice that has commenced the study, 84 general practitioners, 36 practice nurses and 60 practice support staff have signed consent forms and agreed to participate in the PARTY Project. One nurse attended the PARTY training but left the practice before the cohort recruitment phase had started. We have included the data from that nurse.

3.2.2.1.2.1 Clinicians (GPs & PNs)

3.2.2.1.2.1.1 Demographics

To date, 76 GPs have completed and returned the baseline surveys. GP's demographic characteristics included age, gender, country of graduation, number of years they've been in general practice, and if they have received prior training in adolescent health.

75% of the GPs are aged between 35 and 54. 75% of the GPs were trained in Australia. About 63% of the GPs have had prior training in adolescent health.

Table 3.3: Demographic characteristics of GP (n=76)

	Number	%
Age group		
25-34 yo	9	11.8%
35-44 yo	31	40.8%
45-54 yo	26	34.2%
55-64 yo	8	10.5%
65 or over	1	1.3%
Not specified	1	1.3%
Gender		
Male	35	46.1%
Female	41	53.9%
Country of graduation		
Australia	57	75.0%
New Zealand	3	3.9%
Other	15	19.7%
Not specified	1	1.3%
Number of years been in general practice		
0-10 years	28	36.8%
More than 10 years but less than 20 years	35	46.1%
More than 20 years but less than 30 years	9	11.8%
More than 30 years	2	2.6%
Not specified	2	2.6%
Received prior training in adolescent health		
Yes	48	63.2%
No	27	35.5%
Not specified	1	1.3%

To date, 29 PNs have completed and returned the baseline surveys. PN's demographic characteristics included age, gender, year of receiving initial nursing training, country of receiving initial nursing training, and if they have received prior training in adolescent health.

About 72% of the nurses were aged between 35 and 54. Most of the PNs received their initial nursing training in Australia. Approximately 45% of the nurses had received prior training in adolescent health.

Table 3.4: Demographic characteristics of PN (n=29)

	Number	%
Age group		
25-34 yo	6	20.7%
35-44 yo	12	41.4%
45-54 yo	9	31.0%
55-64 yo	1	3.4%
65 or over	0	0.0%
Not specified	1	3.4%
Gender		
Female	29	100.0%
Year of initial nursing training		
1961-1970	1	3.4%
1971-1980	6	20.7%
1981-1990	9	31.0%
1991-2000	9	31.0%
2001-present	3	10.3%
Not specified	1	3.4%
Country of initial nursing training		
Australia	25	86.2%
U.K.	1	3.4%
New Zealand	1	3.4%
Other	1	3.4%
Not specified	1	3.4%
Received prior training in adolescent health		
Yes	13	44.8%
No	16	55.2%

3.2.2.1.2.1.2 Clinician's attitude towards young people

In general, on a scale of -5 (very unenthusiastic) to 5 (very enthusiastic), 83% of the GPs were somewhat enthusiastic to see a young person walking in the door. Four GPs were neutral about it and 4 GPs felt unenthusiastic. One GP felt "very unenthusiastic".

The majority of the PNs (93%) were somewhat enthusiastic to see a young person walking in the door. One person was neutral about it and 1 person felt slightly unenthusiastic.

3.2.2.1.2.1.3 Consulting with young people - process aspects

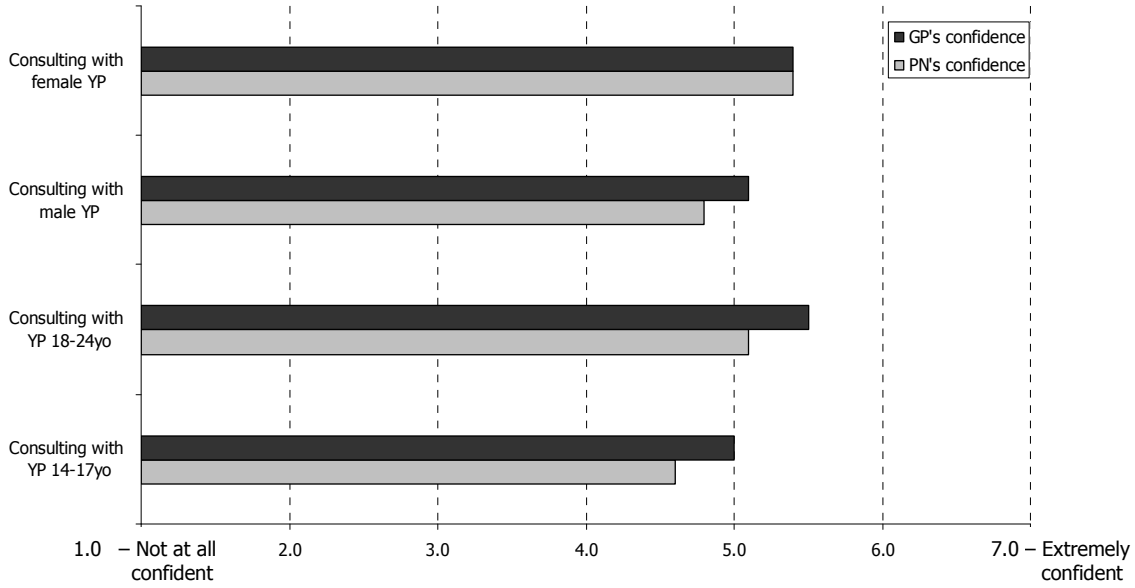
In this section, we will report on how often clinicians carried out certain processes in their consultations with young people and how confident they were with these processes.

- CONSULTING WITH YOUNG PEOPLE

Clinicians were asked to rate their confidence on a scale of 1 (Not at all confident) to 7 (Extremely confident) in relation to consulting with young people.

In general, clinicians felt less confident consulting with YP aged 14-17 than the ones who are aged 18 or above. Also, clinicians felt more confident consulting with female patients than male patients.

Figure 3.3: Mean scores of GP's (n=76) and PN's (n=29) self-perceived confidence in consulting with YP



- CONFIDENTIALITY DISCUSSION

Table 3.5: Frequencies of GPs explaining doctor-patient confidentiality to young people alone, and to young people with their parents together (n=76)

How often GP explains doctor-patient confidentiality to…	Never (%)	Rarely (%)	Sometimes (%)	Mostly (%)	Always (%)	Not specified (%)
YP aged 14-15 alone	1 (1.3%)	20 (26.3%)	27 (35.5%)	17 (22.4%)	9 (11.8%)	2 (2.6%)
YP aged 14-15 with parents together	9 (11.8%)	22 (28.9%)	24 (31.6%)	14 (18.4%)	5 (6.6%)	2 (2.6%)
YP aged 16-17 alone	1 (1.3%)	15 (19.7%)	22 (28.9%)	26 (34.2%)	10 (13.2%)	2 (2.6%)
YP aged 16-17 with parents together	7 (9.2%)	26 (34.2%)	17 (22.4%)	20 (26.3%)	4 (5.3%)	2 (2.6%)
YP aged 18-24 alone	7 (9.2%)	22 (28.9%)	23 (30.3%)	14 (18.4%)	8 (10.5%)	2 (2.6%)
YP aged 18-24 with parents together	11 (14.5%)	30 (39.5%)	14 (18.4%)	11 (14.5%)	8 (10.5%)	2 (2.6%)

Table 3.6: Frequencies for PNs explaining confidentiality to young people alone, and to young people with their parents together (n=29)

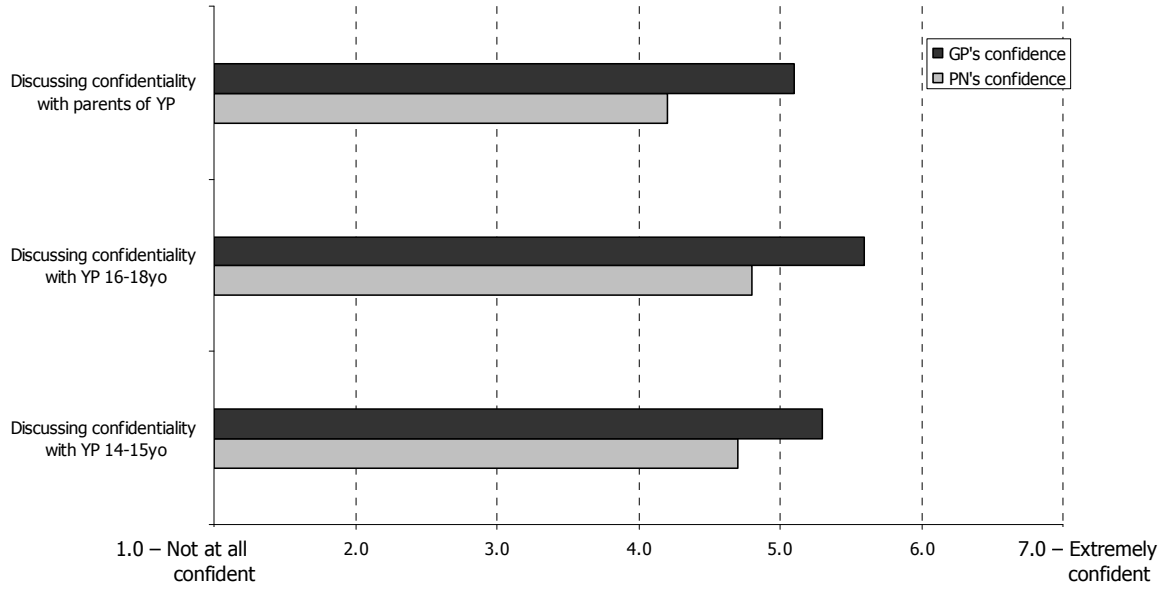
How often do you explain confidentiality to…	Never (%)	Rarely (%)	Sometimes (%)	Mostly (%)	Always (%)	Not specified (%)
YP aged 14-15 alone	4 (13.8%)	7 (24.1%)	6 (20.7%)	2 (6.9%)	7 (24.1%)	3 (10.3%)
YP aged 14-15 with parents together	6 (20.7%)	8 (27.6%)	5 (17.2%)	3 (10.3%)	3 (10.3%)	4 (13.8%)
YP aged 16-17 alone	2 (6.9%)	6 (20.7%)	6 (20.7%)	6 (20.7%)	7 (24.1%)	2 (6.9%)
YP aged 16-17 with parents together	6 (20.7%)	9 (31.0%)	6 (20.7%)	1 (3.4%)	3 (10.3%)	4 (13.8%)
YP aged 18-24 alone	2 (6.9%)	5 (17.2%)	9 (31.0%)	8 (27.6%)	4 (13.8%)	1 (3.4%)
YP aged 18-24 with parents together	7 (24.1%)	7 (24.1%)	7 (24.1%)	2 (6.9%)	3 (10.3%)	3 (10.3%)

GPs seemed to explain confidentiality to YP aged 14-17 more often than YP aged 18-24.

Clinicians were asked to rate their knowledge and confidence on a scale of 1 (Not at all confident/knowledgeable) to 7 (Extremely confident/knowledgeable) in relation to consulting with young people. For most of the scenarios, GPs rated their knowledge marginally higher than their confidence.

Interestingly, clinicians seemed to explain confidentiality less often when young people were with their parents during the consultation (as shown in Table 3.5 & Table 3.6). PNs were less confident than the GPs. Although both were not very confident in discussing confidentiality with parents of young people (as shown in Figure 3.4).

Figure 3.4: Mean scores of GP's (n=76) and PN's (n=29) self-perceived confidence in discussing confidentiality with YP



- NEGOTIATING TIME ALONE WITH YP

It seems that GPs negotiated time alone more often with parents of young people aged 18-24 than the ones with children aged under 18. Overall, more GPs than PNs were at least sometimes negotiating time alone, reflecting perhaps their different roles in the practice.

Table 3.7: Frequencies for GPs negotiating time alone with YP (n=76)

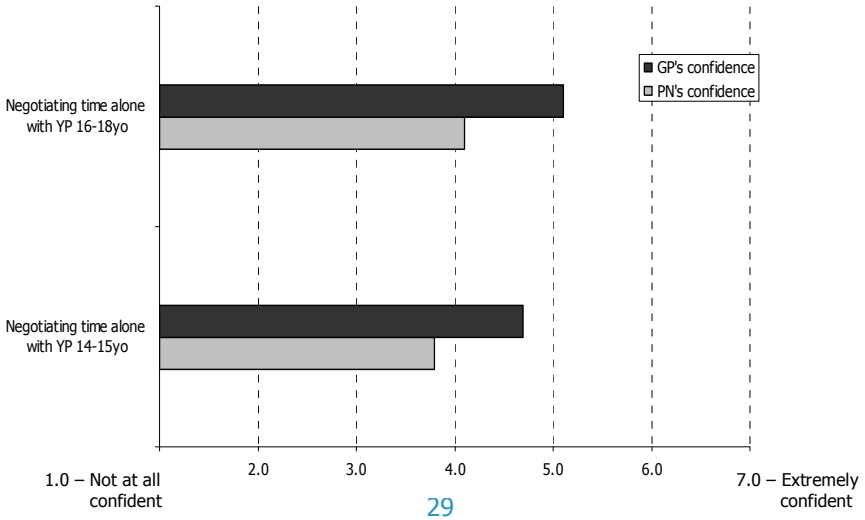
If young people come in with their parents, how often do you suggest that you spend alone time talking to...	Never (%)	Rarely (%)	Sometimes (%)	Mostly (%)	Always (%)	Not specified (%)
YP aged 14-15	4 (5.3%)	11 (14.5%)	41 (53.9%)	11 (14.5%)	7 (9.2%)	2 (2.6%)
YP aged 16-17	2 (2.6%)	12 (15.8%)	30 (39.5%)	19 (25.0%)	11 (14.5%)	2 (2.6%)
YP aged 18-24	4 (5.3%)	11 (14.5%)	22 (28.9%)	22 (28.9%)	14 (18.4%)	3 (3.9%)

Table 3.8: Frequencies for PNs negotiating time alone with YP (n=29)

If young people come in with their parents, how often do you suggest that you spend alone time talking to...	Never (%)	Rarely (%)	Sometimes (%)	Mostly (%)	Always (%)	Not specified (%)
YP aged 14-15	8 (27.6%)	10 (34.5%)	6 (20.7%)	0	3 (10.3%)	2 (6.9%)
YP aged 16-17	8 (27.6%)	8 (27.6%)	6 (20.7%)	3 (10.3%)	3 (10.3%)	1 (3.4%)
YP aged 18-24	8 (27.6%)	6 (20.7%)	6 (20.7%)	3 (10.3%)	5 (17.2%)	1 (3.4%)

Compared with GPs, PNs seemed to negotiate time alone less often during the consultation. This might be because PNs have lower self-perceived confidence in negotiating time alone (shown in Figure 3.5).

Figure 3.5: Mean scores of GP's (n=76) and PN's (n=29) self-perceived confidence in negotiating time alone with YP



- EXPLORING LIFESTYLE ISSUES BEYOND PRESENTING REASONS

Overall, GPs were somewhat confident (mean score=5.2) about exploring lifestyle issues beyond presenting reasons. PNs had lower self-perceived confidence (mean score=4.7) in this aspect.

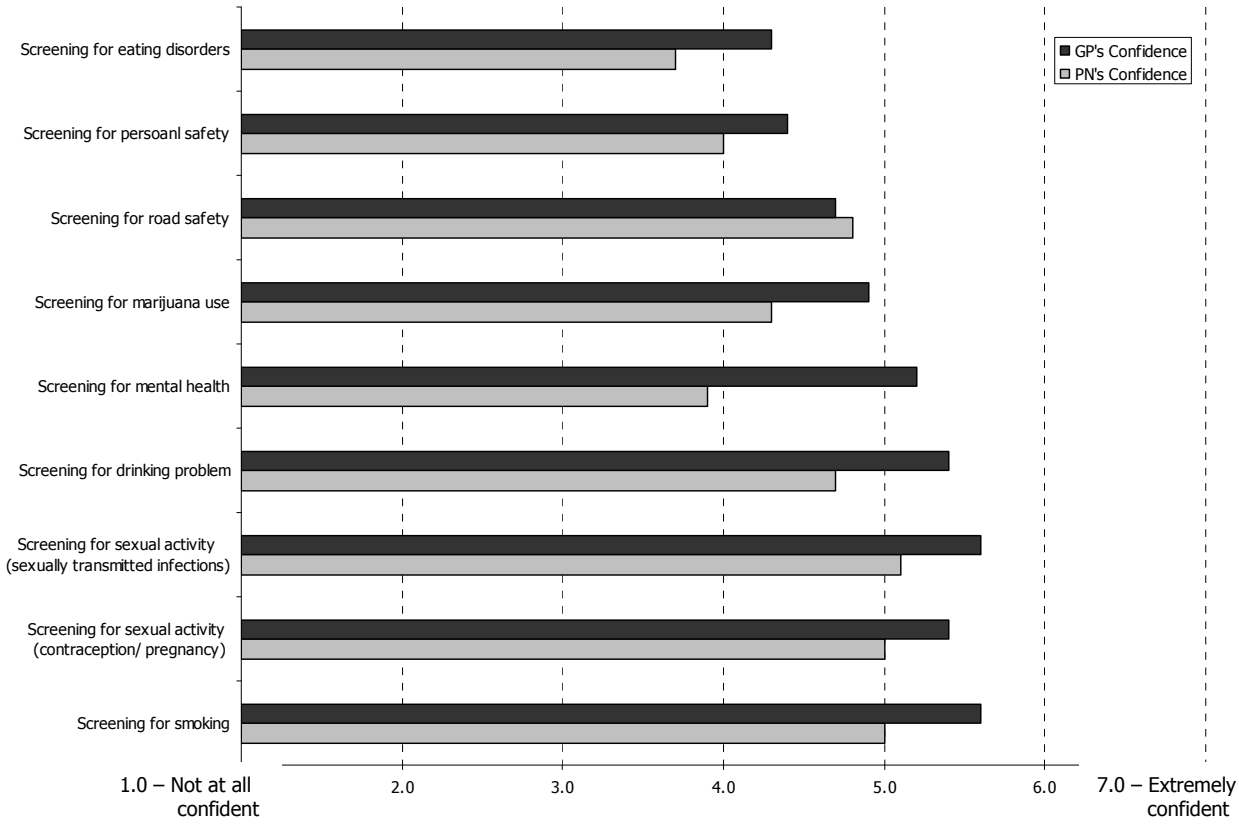
3.2.2.1.2.1.4 Consulting with young people – dealing with substantive issues

- SCREENING

Clinicians were also asked how confident they felt in screening for certain health issues in young people. In this section, we will report on clinician's confidence in screening for risks related to mental health, drinking alcohol, sexual health, drug use, smoking, eating disorders, personal safety and road safety.

PNs had a little confidence in screening for mental health issues (as shown in Figure 3.6). Clinicians were less confident in screening for eating disorders and personal safety issues than other issues.

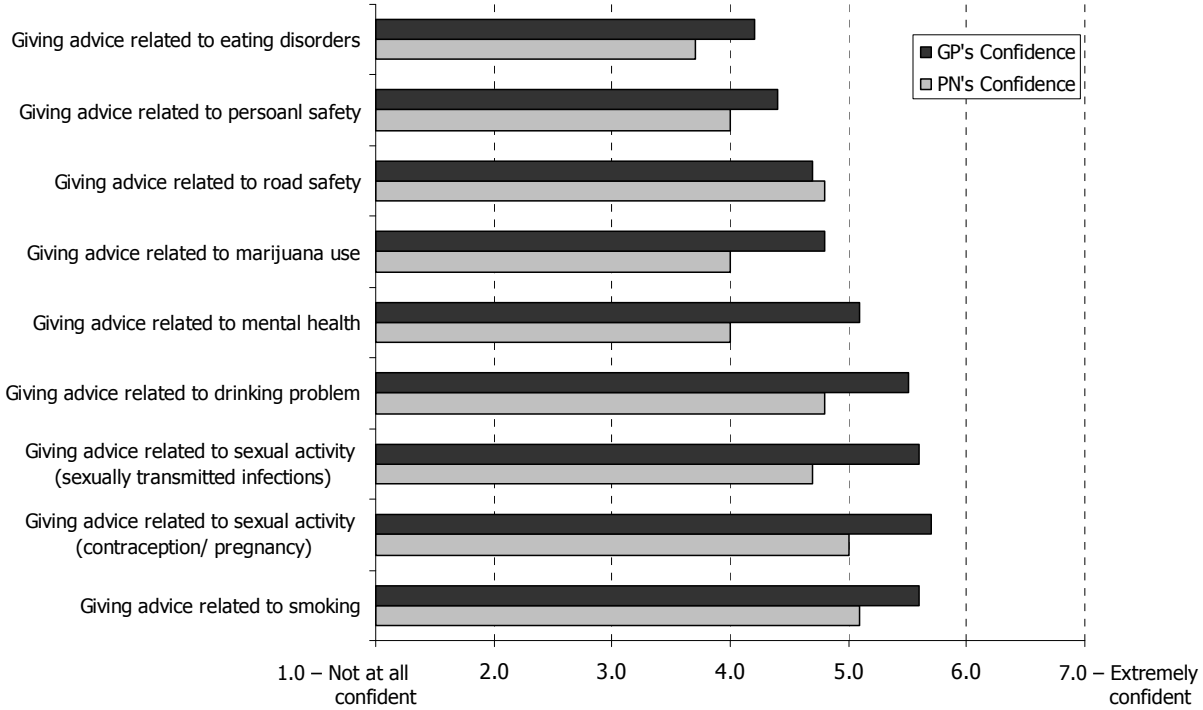
Figure 3.6: Mean scores of GP's (n=76) and PN's (n=29) self-perceived confidence in screening for health risks in young people



- GIVING BRIEF ADVICE

It seems that clinician's self-perceived ratings of their confidence in screening for health risks and giving advice were similar.

Figure 3.7: Mean scores of GP's (n=76) and PN's (n=29) self-perceived confidence in giving advice to young people in relation to their health risks



3.2.2.1.2.2 Practice support staff

To date, 56 practice support staff have completed and returned the baseline surveys. Demographic characteristics included age, gender, role in the practice, and if they had received prior training in adolescent health.

About 38% of the staff were practice managers. Around 11% of the staff had prior training in adolescent health.

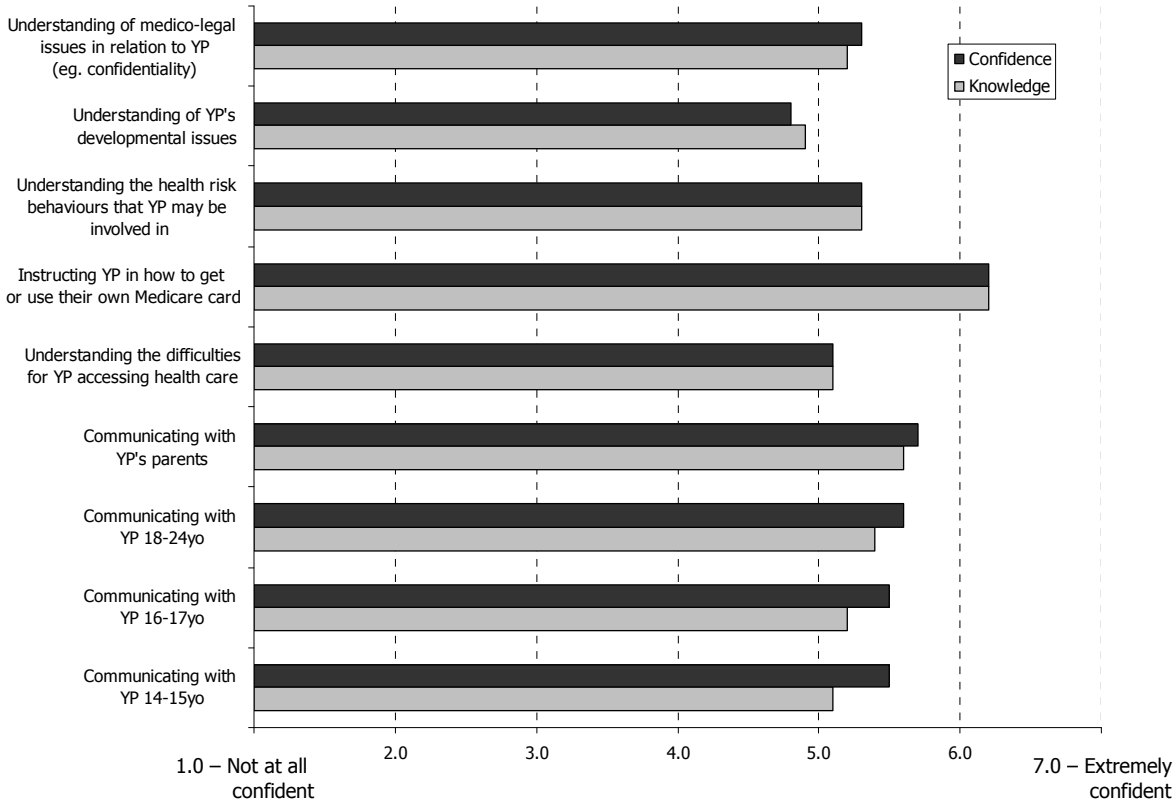
Table 3.9: Demographic characteristics of PSS (n=56)

	Number	%
Age group		
Under 25 yo	4	7.1%
25-34 yo	9	16.1%
35-44 yo	13	23.2%
45-54 yo	23	41.1%
55-64 yo	7	12.5%
65 or over	0	0
Gender		
Male	2	3.6%
Female	54	96.4%
Your role in this practice		
Receptionist	31	55.4%
Practice manager	21	37.5%
Other	4	7.1%
Received prior training in adolescent health		
Yes	6	10.7%
No	50	89.3%

In general, on a scale of -5 (very unenthusiastic) to 5 (very enthusiastic), most of the PSS (94%) were somewhat enthusiastic to see a young person walking in the door. Three people were neutral about it and no one felt unenthusiastic about it.

PSS were also asked to rate their knowledge and confidence on a scale of 1 (Not at all confident/knowledgeable) to 7 (Extremely confident/knowledgeable) in relation to different situations in dealing with YP at the practice. See Figure 3.7 for a detailed summary. For most of the scenarios, they rated their confidence slightly higher than their knowledge. Although knowledge for "understanding of YP's developmental issues" was rated higher than confidence, they both have the lowest rating of all.

Figure 3.8: Summary of PSS's confidence and knowledge in dealing with young people (n=56)



3.2.2.2 BASELINE PROFILE STUDY OF YOUNG PEOPLE

To date, 35 practices have successfully completed the baseline profile recruitment. In this report, we have included 359 young patients who were invited by the 35 practices during the profile study phase (pre-intervention). Challenges in YP recruitment included exam periods, school/ university holidays and reluctance to answer mobile phone calls from an unknown number.

3.2.2.2.1 Young people's demographics

Three hundred and fifty nine young patients consented to participate and completed an Exit Survey over the telephone. Demographic characteristics included sex, age, education status, work status, and if YP were born in Australia (see Table 3.10).

Over 70% of the young people were female. The mean age of the young people was 20 (standard deviation 2.8).

Table 3.10: Demographics of young people who attended general practice and completed the Exit Survey (n=359)

	Number	%
Gender		
Male	94	26.2%
Female	265	73.8%
Age		
14-17 yo	79	22.0%
18-24 yo	280	78.0%
Education status		
Not a student at all	119	33.1%
Attend school	79	22.0%
Studying higher education part-time	128	35.7%
Studying higher education full-time	27	7.5%
Other studies	5	1.4%
Did not answer	1	0.3%
Working status		
Not in paid work	121	33.7%
Full-time paid work	84	23.4%
Part-time/ casual work	144	40.1%
Self-employed	3	0.8%
Other work situation	6	1.7%
Did not answer	1	0.3%
Born in Australia	310	86.4%

Almost 80% of the sample that we are describing in this report indicated that the clinic where they were invited to hear more about PARTY is their usual clinic. Table 3.11 shows the YP attendance pattern at their recruiting clinic.

Table 3.11: YP attendance at the general practice for the past 12 months (n=359)

	Number	%
Is this practice your usual practice?		
Yes	287	79.9%
No	53	14.8%
Don't have a usual practice	19	5.3%
Number of times attended a GP in *this* practice in the past 12 months		
None	10	2.8%
1-2 times	105	29.2%
3-4 times	74	20.6%
5-6 times	60	16.7%
7+ times	110	30.6%
Number of times attended a PN in *this* practice in the past 12 months		
None	197	54.9%
1-2 times	112	31.2%
3-4 times	27	7.5%
5-6 times	9	2.5%
7+ times	12	3.3%
Did not answer	2	0.6%

Two hundred and ninety seven young people reported seeing a GP only, 23 young people saw a PN only and 39 young people saw both a GP and a PN at the visit where they heard about

the study. About 29% of the young people, who saw a GP at the visit, saw that GP for the first time (see Table 3.12).

Table 3.12: Young people's first time seen by the clinician

	n	Yes (%)	No (%)	Unsure (%)
First time saw the GP	336	97 (28.9%)	238 (70.8%)	1 (0.3%)
First time saw the PN	62	32 (51.6%)	30 (48.4%)	0

When asked how their expectations for the consultation were met, about 87% of the YP stated that their expectations were met "quite a lot", or "a lot" (see Table 3.13).

Table 3.13: How much young people's expectations were met at the consultation (n=359)

	Not at all (%)	Slightly (%)	Moderately (%)	Quite a lot (%)	A lot (%)	Not specified (%)
Were your expectations met?	5 (1.4%)	7 (1.9%)	31 (8.6%)	60 (16.7%)	252 (70.2%)	4 (1.1%)

3.2.2.2.2 Young people's Medicare card ownership

Two hundred and four (56.8%) young patients had their own Medicare card. Sixty nine YP, who were aged between 15 and 17, are eligible to receive their own Medicare card but only twelve out of those sixty nine young people (17.4%) had their own card.

3.2.2.2.3 Young people's health risk behaviour and their clinician's detection of this behaviour

Ninety six per cent of YP have at least one health risk behaviour, that is only 4% of our sample are free of health risks. Amongst all of the health risks, drinking alcohol was undertaken by the highest proportion (74%) of young patients. Taking road safety risks was the next most predominant risk-taking behaviour (49%). However, not all young people, who had reported health risks, had their health risk raised or discussed by the clinician. For example, as shown in Figure 3.9 below, only 3% of the young people had discussed road safety issue with the clinician at the practice.

As most of the young people (93.3%) have engaged in moderate or rigorous exercise twice a week or more, we did not include their exercise habits as one of the health risks in Figure 3.9.

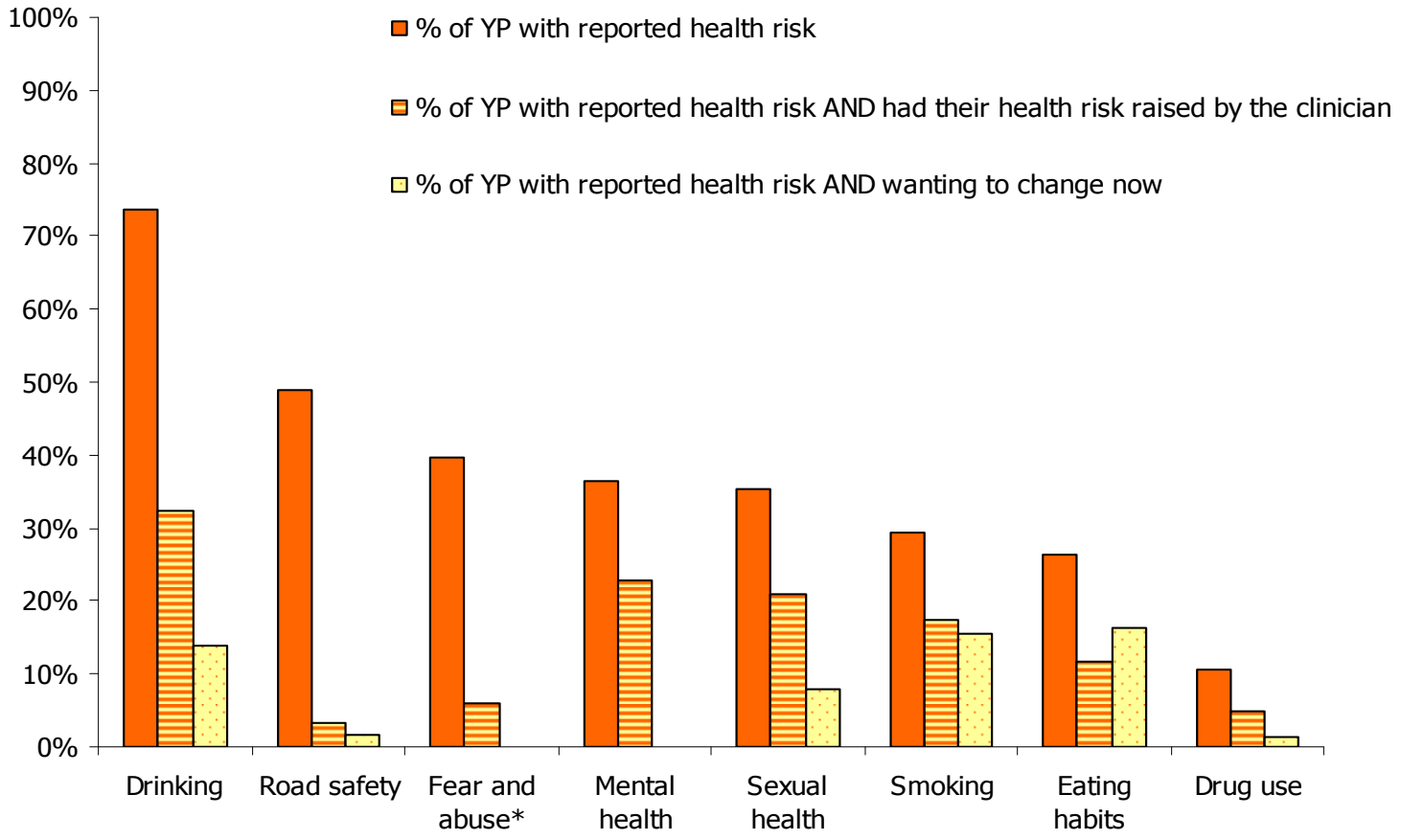
Please see Attachment 2 for definition of health risks in this study.

3.2.2.2.4 Young people's intention to change

Figure 3.9 shows the summary of the proportion of young people with health risks, the proportion of young people who had their health risk behaviour raised or discussed at the clinic, and the proportion of young people who intended to change at the time when the survey was conducted just after the consultation (i.e. a potential opportunity for change).

Young people were not asked their intention to change "fear and abuse" and "mental health".

Figure 3.9: Summary of the proportion of young people with health risk, the proportion of young people who had their health risk behaviour raised or discussed at the clinic, and the proportion of young people who intended to change (n=359)



* These questions were only asked of YP aged 17 and above.

3.2.2.2.5 Young people's trust in clinician

As described in 3.1.2.2.1.1, the trust in physician scale is in use to measure young people's interpersonal trust in their physicians.

The 11 items are scored on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Scores from 4 reverse-scored items have been re-calculated to be consistent with other items.

Table 3.14: Descriptive properties of trust in physician scale (n=359)

	Item	Mean	SD
1.	I doubt that my doctor really cares about me as a person*	4.3	0.9
2.	My doctor is usually considerate of my needs and puts them first	4.3	0.7
3.	I trust my doctor so much that I always try to follow his/her advice	4.0	0.8
4.	If my doctor tells me something is so, then it must be true	3.4	0.9
5.	I sometimes distrust my doctor's opinion and would like a second one*	3.5	1.1
6.	I trust my doctor's judgement about my medical care	4.2	0.7
7.	I feel my doctor does not do everything he/she should for my medical care*	4.2	0.8
8.	I trust my doctor to put my medical needs above all other considerations when treating my medical problems	4.0	0.7
9.	My doctor is well qualified to manage medical problems like mine (diagnose and treat or make an appropriate referral)	4.2	0.7
10.	I trust my doctor to tell me if a mistake was made about my treatment	4.2	0.7
11.	I sometimes worry that my doctor may not keep the information we discuss totally private*	4.2	0.9

*Reverse-scored items.

Although young people generally reported fairly high level of trust in their physician, there was some variation between items (as shown in Table 3.14).

A summary measure of trust is obtained by taking the un-weighted mean of the responses to the 11 questions and transforming that value to a 0-100 scale. Higher scores reflect greater trust. We substitute the total mean score as the mean score if 3 items or less have missing values. If 4 items or more have missing values; we treat the total score as missing.

Overall, the mean of trust in physician is 76.0. The summary measure seems to have a wide spread between practices (shown in Table 3.15).

Table 3.15: Summary of young people's trust in physician scale

	n	Mean item score	SD	Range in mean scores between practices
Young people's trust in physician scale	335	76.0	12.6	65.9-86.9

3.2.2.2.6 Young people's likelihood of return

Young people were asked if they would return to see this doctor/nurse again if they had different situations or problems and whom they would go to see if they did not wish to see the same clinician.

3.2.2.2.6.1 Young people's likelihood to return to the doctor

Three hundred and thirty six YP reported that they saw a doctor when they were invited to hear more about the study. Table 3.16 shows a summary of the responses from young people as to whether they would like to see that doctor again.

Table 3.16: Young people's likelihood to return to the doctor (n=336)*

Would you want to see this *doctor* again if you…	**Definitely Not**	**Probably Not**	**Probably**	**Definitely**	**Not Applicable**
had a bad cough and fever or physical complaint	1	21	69	242	1
had some private or sensitive concerns	9	42	92	190	2
needed help with a difficult problem	6	43	96	190	0
had a problem related to sex	7	46	98	184	0
wanted to stop smoking	11	28	82	201	13
had a problem related to alcohol	7	33	92	195	7
had a problem with marijuana or other drugs	11	37	83	194	10
had a problem with parents	36	101	68	126	3
had a problem at school or work	39	103	76	115	1
had a concern related to eating or exercise	10	28	109	186	0
had a problem with friends	51	113	66	104	0
had an emotional concern	41	83	88	121	0
were thinking of ending your life	42	75	75	130	9

*Some YP did not specify certain questions.

It seems that young people were more likely to return to the doctor if they had a problem related to a physical complaint, sexual health, or substances use. They were less likely to return if they had a problem related to parents, work, friends, or emotional concerns. When asked whom they would see if they did not wish to see that doctor, most of the young people responded that they would go to see a counsellor or psychologist, family and friends, or their usual GP. Fourteen out of 336 young people responded they would see no one if they were thinking of ending their lives.

3.2.2.2.6.2 Young people's likelihood to return to the nurse

Sixty two young people reported seeing a nurse at the time when they were invited to hear more about PARTY. As with the GP, young people were asked if they would return to see this nurse again if they had particular concerns or problems. Table 3.17 shows a summary of the responses from these young people.

Table 3.17: Young people's likelihood to return to the nurse (n=62)*

Would you want to see this *nurse* again if you…	**Definitely Not**	**Probably Not**	**Probably**	**Definitely**	**Not Applicable**
had a bad cough and fever or physical complaint	2	8	10	24	1
had some private or sensitive concerns	2	8	13	22	0
needed help with a difficult problem	2	6	17	20	0
had a problem related to sex	3	6	11	25	0
wanted to stop smoking	2	5	13	24	1
had a problem related to alcohol	1	6	15	22	1
had a problem with marijuana or other drugs	4	3	14	23	1
had a problem with parents	5	19	8	13	0
had a problem at school or work	6	13	11	15	0
had a concern related to eating or exercise	2	4	12	27	0
had a problem with friends	7	12	11	15	0
had an emotional concern	2	9	16	18	0
were thinking of ending your life	6	11	7	19	1

*Some YP were not asked these questions because they were added at a later stage.

When asked whom they would see if they did not wish to see that nurse, most of the young people responded that they would go to see a counsellor or psychologist, family and friends, or another health professional.

3.2.2.2.7 Young people's follow-up of clinician's advice

In general, the number of days taken by young people to complete the survey after their consultation varied between practices from a mean of 8 days to 21 days in which time young people may have had time to follow up their clinician's advice.

Two hundred and eighty five young people responded to the questions about following their clinician's advice. Seventy two young people were not asked these questions as they were added to the survey in October 2007. Table 3.18 to Table 3.21 show the results regarding young people's follow up in relation to prescriptions, tests, X-rays or scans, follow up appointments, or referrals to other health professionals.

- PRESCRIPTIONS

Table 3.18: Young people's follow up on clinician's advice - prescriptions

The clinician has prescribed the medication, have you filled in...		Yes*	No - but intending to do so	No - NOT intending to do so
	n	Number (%)	Number (%)	Number (%)
Prescription #1	126	104 (82.5%)	14 (11.1%)	6 (4.8%)
Prescription #2	24	22 (91.7%)	2 (8.3%)	0
Prescription #3	2	2 (100%)	0	0

*YP have arranged or completed

- TESTS, X-RAYS, SCANS

Table 3.19: Young people's follow up on clinician's advice – tests, X-rays, scans

The clinician has referred you for tests, x-rays or scans, have you followed through...		Yes*	No - but intending to do so	No - NOT intending to do so
	n	Number (%)	Number (%)	Number (%)
Test #1	67	50 (74.6%)	16 (23.9)	1 (1.5%)
Test #2	13	9 (69.2%)	4 (30.8%)	0

*YP have arranged or completed

- FOLLOW UP APPOINTMENTS

Table 3.20: Young people's follow up on clinician's advice – follow up appointments

The clinician has suggested you come back for another consultation, have you come back for...		Yes*	No - but intending to do so	No - NOT intending to do so
	n	Number (%)	Number (%)	Number (%)
Consultation #1	164	47 (28.7%)	96 (58.5%)	21 (12.8%)
Consultation #2	6	4 (66.7%)	2 (33.3%)	0

*YP have arranged or completed

- REFERRAL TO ANOTHER HEALTH PROFESSIONAL

Table 3.21: Young people's follow up on clinician's advice – referral to another health professional

The clinician has referred you to another health professional, have you seen...		Yes*	No - but intending to do so	No - NOT intending to do so
	n	Number (%)	Number (%)	Number (%)
Health professional #1	54	25 (46.3%)	28 (51.9%)	1 (1.9%)
Health professional #2	2	1 (50%)	1 (50%)	0

*YP have arranged or completed

As shown in the tables above, the majority (99%) of the young people have followed up or were intending to follow up the clinician's advice in relation to the tests, X-rays or scans, and referrals to other health professionals. The proportion (87%) of the young people who have followed up, or were intending to follow up, the clinician's advice in relation to having a follow-up appointment is slightly lower.

3.2.2.3 BASELINE CLINICAL ENCOUNTER FORM

Up to date, for the 359 young people who have completed the baseline profile Exit Survey, we have received 272 encounter forms from GPs, and 41 encounter forms from PNs. We are still following up and collecting the outstanding encounter forms from the clinicians.

In this report, we will present a 'snapshot' of the clinician's management of their young patients plus consultation length.

3.2.2.3.1 General practitioner encounter form

According to the GPs, more than half of the 272 young people were prescribed medication and about 47% of the YP had been given education or advice about their physical health. About 58% were advised to return for a follow up appointment.

Table 3.22: Management conducted by GPs at the consultation (n=272)

Management conducted by GP	Number	%
Conduct physical procedure	107	39.3%
Prescribe medication	147	54.0%
Refer YP for blood tests	44	16.2%
Refer YP for X-rays or scans	19	7.0%
Discussed or provided education about physical health	128	47.1%
Recommend a lifestyle/ behavioural change	50	18.4%
Provide counselling	59	21.7%
Suggest a follow-up appointment	157	57.7%
Refer YP to another health professional	44	16.2%
Recommend any other course of action for YP to follow	30	11.0%

The length of the consultation with GPs varied from 3 minutes to 65 minutes with an average of 16.2 minutes per person (see Table 3.23).

Table 3.23: Descriptive statistics of length of consultation with GPs

(in minutes)	n	Mean	SD	Median	Minimum	Maximum
Length of the consult with GP	272	16.2	8.2	15	3	65

Of the 258 young people for whom the Medicare item number was specified, 72% were charged using item number 23 (i.e. standard consultation level B). Two young people were not covered by Medicare so Medicare item numbers were not assigned.

3.2.2.3.2 Practice nurse encounter form

According to the PNs, 23 of the 41 young people had a physical procedure conducted during their consultation with the nurse. PNs gave education or advice in relation to physical health to 27 young people. About 32% of the young people were referred to see a GP (see Table 3.24).

Table 3.24: Management conducted by PNs at the consultation (n=41)

Management conducted by PN	Number	%
Refer YP to see a GP	13	31.7%
Conduct physical procedure	23	56.1%
Discussed or provided education about physical health	27	65.9%
Recommend a lifestyle/ behavioural change	7	17.1%
Provide counselling	5	12.2%
Suggest a follow-up appointment	28	68.3%
Refer YP to another health professional	1	2.4%
Recommend any other course of action for YP to follow	5	12.2%

The PN's length of consultation was similar to the GP's with a range of 5 minutes to 60 minutes (see Table 3.25). The average length of PN's consultation (16.5 minutes) is only marginally higher than that of the GP (16.2 minutes).

Table 3.25: Descriptive statistics of length of consultation with PNs

(in minutes)	n	Mean	SD	Median	Minimum	Maximum
Length of the consult with PN	41	16.5	9.8	15	5	60

3.2.2.4 OFFICE PROCEDURES – PDSA CYCLES OF CQI

To date, 13 intervention practices have completed the PDSA model of improvement, and a further two intervention practices are currently in the process of PDSA. Each practice received at least two visits by PARTY staff (PDSA 'kick off' and a PDSA wrap up); any other visit on top of this was to deliver resources, to provide support and/or mentoring for receptionists and individual clinical staff. So across 15 practices, there have been a total of 40 visits, thus far, involving 62 practice staff.

3.2.2.4.1 Screening Tool and Templates

Fifteen practices have taken part in at least one aspect of the piloting of tools/templates to assist with the psychosocial health-risk screen. Some practices preferred to deliver only verbal HEADSS screening, sometimes using a laminated reference card provided by PARTY as a prompt. Seven practices have used the PARTY developed screening tool; demographics of these practices along with the method of completion of the tool are shown in Table 3.26.

Table 3.26: Practice type and method of completion of screening tool

Practice	Practice type	Method of completion of tool
A	Small inner urban tertiary education, on campus, health service, bulk- billing for students	Handed out by receptionists to all young people presenting, to complete in a private space.
B	Small inner urban tertiary education on campus health service , bulk-billing for students	PARTY staff created a sign in the waiting room encouraging all young people waiting to see the GP to complete a screening tool while waiting and bring it in with them to the consultation.
C	Large outer-urban on campus tertiary education health service, bulk-billing for students	Handed out by receptionists to all young people presenting, to complete in the waiting room. Where not completed clinicians invited the young person to complete the tool after the consultation and book another appointment to discuss any issues that the screening tool has raised.
D	Medium-sized outer-urban practice, private billing	Handed out by receptionists to all young people presenting, to complete in a private space.
E	Medium-sized urban practice, private billing	Handed out by receptionists to all young people presenting, to complete in a private space.
F	Medium-sized, outer urban, mixed bulk-billing and private-billing	Handed out by receptionists to all young people presenting, to complete in a private space.
G	Medium sized outer urban family orientated practice, mixed bulk-billing and private billing	Handed out by receptionists to all young people presenting to complete in either a private space or the waiting room. An explanatory note, along with a brochure about young people and their GP, was given out to parents who arrived at the appointment with the young person. The parent was also asked about their acceptance of the screening tool

3.2.2.4.2 Referral database and practice resources

Thirteen practices took part in at least one aspect of updating of their clinic's adolescent health and psychosocial referrals database. Such activities included:

- Auditing and updating the adolescent health services listed within practices current medical software database
- Adding a keyword search term 'adolescent' to the notes section of appropriate services (listed in the practice medical software database) that have interest or expertise in young peoples' health (so they can be easily found); and
- Developing a laminated A4 resource for GPs and practice support staff, in consultation with PARTY Project staff, that summarises available referral services cross-referenced with the health-risk HEADSS categories.

These activities were very much driven by the practices and their requirements.

3.2.2.4.3 Waiting room resources for young people and their parents

Fifteen participating intervention practices received youth friendly resources and materials to provide health education and increase the awareness of youth friendly practice amongst young people and their parents. The PARTY Team developed a number of resources including:

- "*Young People's Guide to General Practice*" brochure
- "*Helping Parents Support the Health of their Teenagers*" brochure for parents of young people
- "*Road Safety Awareness for Young Drivers"* brochure
- Wallet cards of services for young people (sometimes customized to practice requirements)
- A confidentiality poster; and
- A poster on Medicare entitlements for young people.

In addition, there were resources sourced from government and welfare organisations including a range of brochures and posters on smoking, alcohol and drug awareness, sexual health and mental health.

3.2.2.5 POST-INTERVENTION SAMPLING OF YOUNG PEOPLE

As described in 3.1.3.5.2, during the cohort recruitment phase, young patients were invited to hear more about the study at the clinic. To date, 25 practices have completed the cohort recruitment phase and 2 practices are still in progress (see Figure 3.2: flowchart). Six hundred and seventy one young people have conducted the Exit survey so far and have been, or will be, followed up at 3 months and 12 months after their consultation. Overall, 10,200 telephone contact attempts have been made to conduct the cohort Exit Survey and 29% of contacts are successful (i.e. CATI interviewers were able to speak to the young people). On average, it took about 6.8 days to reach the young person over the phone; and after that, 8.6 days to successfully conduct interviews.

Overall, 3,715 contact attempts have been made to conduct the 3-month follow up survey and 1,264 (34%) have been successful. Four hundred and eighty nine 3-month follow up surveys have been conducted. So far, 2,349 contact attempts have been made to conduct the 12-month follow up survey, out of which, 702 (30%) have been successful. Two hundred and sixty three 12-month follow surveys have been conducted.

3.2.2.6 POST-INTERVENTION SAMPLING OF PARENTS

3.2.2.6.1 Respondents

Fifty two written surveys have been completed, thus far, by clinic-attending parents of young people aged 14-17 years. Just over half (29, (55.7%)) described their ethnicity as Australian and the remainder represented a diverse mix of European, Asian and Pacific backgrounds. About 63% of the parents were in part or full time employment. The majority of the respondents (86.5%) are parents to the young people. One respondent was the guardian and another respondent was the step-parent.

It can be seen in Table 3.27, that their children broadly represented the full 14-17 year age bracket from which the sample was drawn.

Table 3.27: Demographics of parents who completed the Parent Survey (n=52)

	Number	%
Age		
25-35 yo	1	1.9%
36-45 yo	24	46.2%
46-55 yo	22	42.3%
Not specified	5	9.6%
Gender		
Male	6	11.5%
Female	40	76.9%
Not specified	6	11.5%
Education status		
Left school before Year 10	2	3.8%
Completed Year 10 or equivalent	11	21.2%
Completed Year 12 or equivalent	4	7.7%
Certificate/ Diploma	11	21.2%
Bachelor degree or higher	19	36.5%
Not specified	5	9.6%
Parent to son or daughter		
Son	18	34.6%
Daughter	28	53.8%
Not specified	6	11.5%
Parent to YP aged		
14	12	23.1%
15	10	19.2%
16	13	25.0%
17	12	23.1%
Not specified	5	9.6%

Just under half of the respondents (48%) think their children should have their own Medicare card.

3.2.2.6.2 Clinicians' time alone with young people

The majority (45, (86.5%)) of the parents went into the consultation with their son or daughter. Two (3.8%) did not go in to the room and 5 (9.6%) did not indicate. All of those who went into the consultation provided responses as to why they did so and these were thematically analysed. Of those responses, just over half (23) stated that their son/daughter wanted/asked them to be there. Twenty of forty five respondents mentioned providing an advocacy role for their son/daughter e.g. explaining symptoms, understanding the issue or ensuring the required treatment was obtained. Some of their comments included:

> *"Sometimes my children do not stand up for themselves enough. I can help them get the right and full information."*
>
> *"To help in giving information to the doctor. To fill in any gaps"*
>
> *"To help him explain his symptoms (being an adolescent he still speaks in one word sentences most of the time!). To hear the information from the doctor first hand."*

Seven (13.5%) of the parents thought it was their duty, or role, as a parent or that they had always gone in with their son/daughter.

"She is my child and I am there for her in every circumstance of her life it's my duty & privilege. My daughter expected me to be there. "

Just two (3.8%) parents reported that the clinician spent some time with the young person on their own i.e. without the parent present. Of the respondents who gave an opinion on their son/daughter spending time alone with the doctor/nurse, one thought they would rather stay because their child was quite unwell, but the other five respondents thought it was a good idea, for example:

"No problem - they need their privacy to deal with issues or answer honestly any questions around their health issues which they may not want/be able to expose to parents."

3.2.2.6.3 Discussion of confidentiality

Eight (15.4%) of the parents responded that the doctor or nurse had explained confidentiality to them and their son/daughter together, either during this consultation, previously or on both occasions. Seven of these parents detailed their reactions to this confidentiality discussion, all of which were positive, as exemplified in the quotes below:

"Great, if ever she has a problem she can't seem to talk to people close to her, maybe she'll confide in the doctor."

"I'm ok with it as I believe where health issues are concerned it is a necessity."

One person, although satisfied, had mixed feelings: *"Satisfied (but not without the obvious pangs of separation, disconnectedness or losing control-type feelings)*."

3.2.2.6.4 Screening for health risk behaviour

The majority of parents (43, (82.7%)) thought it was a good idea that all adolescents be asked about their risky behaviours and other health risk at least annually. Six (11.5%) respondents felt it was not a good idea and three (5.8%) were unsure. Fifty (96.2%) parents gave reasons, for their opinion, which were thematically analysed.

Thirty four (65.4%) made generally positive comments about screening being a good idea in giving an opportunity for the young person to discuss, identify harm, or open up, plus highlighting the clinician's role in educating young people, for example:

"It helps bring the issues to the forefront. Helps young people feel like they can talk about problems."

"It makes them think about a potential problem - or if heading in that direction, it makes them think."

Six (11.5%) respondents made a comment about the benefits of a written questionnaire e.g. less threatening than verbal i.e. *"So it is on paper and kids feel more comfortable answering questions like this."*

Seven (13.5%) of the parents mentioned the importance of a young person's trust in the doctor and how the young person may open up more with a clinician than with parents:

"Sometimes kids will talk to doctors more than their parents."

"Sometimes children do not talk about everything to the parents and peer group. A questionnaire may seem less threatening."

There were some negative comments by 9 (17.3%) parents on the use of a paper survey, some feeling that young people may not be honest in their answers:

"Good idea but not sure how truthful the answers may be."

"They can be asked to, but it may not be accurate."

Other responses included such notions as:

- The method of screening for health risk behaviour was not parent orientated

- It was important to engage with the young person first, and carry out screening on a second or third visit; and
- Only young people with health risks should complete the screening tool.

3.2.2.6.5 Roles of general practitioners and practice nurses in adolescent health care

Nearly half (24, (46.2%)) of respondents stated that they would prefer the doctor, rather than the practice nurse, to discuss health risk and lifestyle issues with their son or daughter. Nine (17.3%) would prefer a doctor for some things and the nurse for others, and 18 (34.6%) didn't have a preference either way. Just one (1.9%) person would prefer a nurse.

When asked to provide an explanation for their viewpoint some parents, who stated they would prefer the doctor to discuss health and lifestyle issues with their son or daughter, suggested that the role could be shared, or that it would depend on the relationship that had developed between the young person and the clinician, as demonstrated in the quotes below:

> *"It really depends on the professional experience, education, manner and special interest of the health professional. I think the engagement and relationship with the adolescent is of primary importance."*

> *"It depends on the relationship my son or daughter has - which ever they are more likely to hear from is the one I'd choose - the one that has gained their trust or the one that they would be more comfortable with."*

Parents who had no preference, or who felt a nurse for some issues and a doctor for others, stated various reason for their opinions, including some feeling that while the doctor may be more qualified the nurse had better 'people skills', for example:

> *"An adolescent may feel more comfortable discussing embarrassing or more personal things with a nurse."*

> *"There are certain things a doctor needs to ask to determine the mental state or physical condition of the patient. Nurses are generally better with counselling things."*

> *"Doctors are for medical. Nurses can be sympathetic find out a problem. Doctors need to watch for signs of illness mental/physical where nurses can offer advice in a non threatening way sometimes."*

Some stated reasons from parents who preferred the doctor included: the doctor's qualifications were appropriate to deal with adolescents, or a relationship had already been built with the doctor, as shown below:

> *"Kids never seen a nurse and more common practice generally that consultation with Dr. Dr on higher level and more trust. Dr would be more informed and more info to provide."*

> *"Because I don't know the nurse there. I have a certain degree of trust with our Dr."*

> *"My child has never seen the nurse at this practice but he knows the Drs well and he would be confident and feel comfortable with them."*

3.2.2.7 SCREENING TOOL AND YOUNG PEOPLE

3.2.2.7.1 Acceptability of screening tool to young people

As of December 2009, 562 screening tool feedback sheets have been collected from seven intervention practices. Of the total sample 71% (398) of respondents felt that the screening tool was a good idea and 28% (157) were unsure. Only one young person responded that the screening tool was a 'bad idea'. Six young people did not answer this question.

An analysis was carried out to investigate differences in young people's opinions of the screening tool depending on whether, or not, they had seen the clinician before. A very slight

difference emerged. Of the 327 young people (58% of the total sample) who had previously had an appointment with the clinician 69% thought the screening tool was a good idea. Of the 210 young people (37% of the total sample) who were seeing the clinician for the first time 73% thought the screening tool was a good idea.

Table 3.28: Acceptability of screening tool to young people

Practice Name	Practice Type	Number YP completing feedback sheet on tool	Number good idea/ unsure/ bad idea	Number YP agreed to contact
A	Small inner urban tertiary education, on campus, health service, bulk- billing for students	53	Good Idea: 43	10
			Bad: 0	0
			Unsure: 9	3
			Not Specified: 1	0
B	Small inner-urban tertiary education on campus health service , bulk-billing for students	114	Good Idea: 74	4
			Bad: 0	0
			Unsure: 37	0
			Not Specified: 3	0
C	Large outer-urban on campus tertiary education health service, bulk-billing for students	297	Good Idea: 214	17
			Bad: 1	0
			Unsure: 80	6
			Not Specified: 2	0
D	Medium-sized outer-urban practice, private billing	63	Good Idea: 42	7
			Bad: 0	0
			Unsure: 21	3
			Not Specified: 0	0
E	Medium-sized urban practice, private billing	2	Good Idea: 1	0
			Bad: 0	0
			Unsure: 1	0
			Not Specified: 0	0
F	Medium-sized, outer urban, mixed bulk-billing and private-billing	13	Good Idea: 9	2
			Bad: 0	0
			Unsure: 4	2
			Not Specified: 0	0
G	Medium sized outer urban family orientated practice, mixed bulk-billing and private billing	20	Good Idea: 15	0
			Bad: 0	0
			Unsure: 5	1
			Not Specified: 0	0

Some of the positive comments provided by the young people about the screening tool included:

"I think it's a good idea because people with problems or worries can inform the doctor in writing, less confronting than face to face"

"It's good for your doctor to know as much as they can about you"

"Seeing as I am not familiar with, or to, this doctor I think it is a good process"

"Good to be questioned on issues I wouldn't normally think about"

"I think this makes it easier to communicate things that I really don't feel comfortable talking about."

A few young people had mixed feelings about the screening tool:

"Bit strange but I can see the usefulness"

"Good for myself to remind about how I feel at the moment & how I'm healthy at the moment. But I feel uncomfortable to fill all info."

Several young people made recommendations on how the screening tool could be improved. Suggestions included:

- Having an 'N/A' option and providing a 'sometimes' option. Having 'Yes' and 'No' on the same sides
- Less vague questions (e.g. 'I feel scared of violence at the train station but not at home' felt vague to one young person); and
- Providing an indication of what sort of follow-up is provided

3.2.2.7.2 Interviews of young people re screening tool

Fifty six young people to date have provided their names and telephone details to be contacted by the PARTY team to discuss the screening tool in more detail. So far 16 have been successfully contacted, 9 have agreed to take part in semi-structured telephone interviews and 3 have completed their interviews. The qualitative analysis of YPs' opinion on the screening tool is a separate Masters study currently in progress. Although outside the scope of the APHCRI deliverables the interview data will add further information that will capture an in-depth understanding of the impact of completing a psychosocial screening tool pre-consultation on: the young person's expectations of their consultation, their relationship with the doctor or nurse; their perception of their own health; and, on their willingness to discuss health risk or mental health with the clinician at that point or in a return visit. The interviews will also explore general acceptability of the tool, whether comfort completing the tool varied with the practice's arrangements for doing so and young people's attitude to electronic methods of completing the tool and conveying the information to their clinician (eg. Palm Pilot, mobile phone, web based survey).

3.2.2.8 POST-INTERVENTION INTERVIEWS OF PRACTICE STAFF ON ACCEPTABILITY OF SCREENING

3.2.2.8.1 General practitioners

Only practices in the intervention arm were provided with the PARTY developed, written screening tool. To date, seven GPs from intervention practices have been interviewed 12 months after their training. All these GPs incorporated at least a verbal screening process with four of them utilising the PARTY screening tool itself. Three out of four GPs had sustained their use of the PARTY tool at the 12 month mark and two out of three had sustained verbal screening.

Positive comments about the use of the screening tool included:

> *"... It can break the ice and you can uncover things with patient."*
>
> *"It efficiently covered a very broad range of topics psychological areas and across that whole range of topics that you probably wouldn't normally approach in the first consultation with a new patient because of the depth of it all…it opened up more areas that they might want to make an appointment for to come back later. I think the patients appreciated that going the extra step and really enquiring about things too so there were sort of advantages on both sides"*

There were also some challenges in using the tool as demonstrated in the following comments from doctors who preferred the verbal approach to screening over the written tool:

> *"They didn't like filling it out I think, difficult to get the receptionists to remember to give it to them. Difficult to facilitate the process, so I ended up doing it from my head. Although the questions were good, and probably more probing than my own questions. Better doing it verbally, better communication."*
>
> *"Not using the screening tool. It was difficult to administer. Raised things that we didn't know what do to with. HEADSS is on my wall and I use it. Using it more than I did opportunistically."*

When asked about possible modifications to the PARTY screening tool, two GPs mentioned it would be more convenient for them to have the screening tool compatible with their computer, either by being in a format that can easily be scanned, or to complete it directly online. Making it shorter was also suggested by one GP.

3.2.2.8.2 Practice nurses

See Section 5.3 for interim results for practice nurses and screening tool usage.

4 PART 2 - ECONOMIC EVALUATION OF THE PARTY PROJECT

4.1 AIM

The economic evaluation will evaluate the costs and health outcomes associated with the screening and counselling intervention to reduce health risk behaviours and mental health problems in young people (intervention group) compared to current practice recommended for young people in primary care (control group).

4.2 OBJECTIVES

Specific objectives of the economic evaluation are to:

(i) Identify, measure and value the costs to the health service, general practice staff, youth related services and to young people and their families in the intervention group compared to the control group

(ii) Use information on changes in individual health risk behaviours and other health outcomes collected and analysed in the trial to assess the effectiveness of the intervention at 3 months and 12 months after baseline

(iii) Compare the changes in costs and health outcomes over time between the intervention and control group practices using cost-consequence analysis, cost-effectiveness analysis and cost-utility analysis where appropriate

(iv) Conduct sensitivity analysis; and

(v) Interpret the findings of the study and consider the policy implications.

4.3 METHODS

4.3.1 DESCRIPTION OF THE INTERVENTION AND THE CONTROL INTERVENTION

The 20 practices in the intervention arm of the trial received training in youth friendly care incorporating screening and motivational counselling for health risk behaviours in young people. Practice staff were then encouraged and supported to identify and implement office procedures and resources to support screening and counselling using the PDSA quality improvement process in their practice setting. Practices in the control arm received minimal training in the principles of youth friendly care. See Section 3.1.2.1 for a detailed description of these components.

4.3.2 TYPE OF ECONOMIC EVALUATION

Economic evaluation is defined by Drummond *et al* (Drummond, Sculpher et al. 2005) as '*the comparative analysis of alternative courses of actions in terms of both their costs and consequences*' (p9). There are four main types of economic evaluation: cost-minimisation analysis (CMA); cost-effectiveness analysis (CEA); cost-benefit analysis (CBA); and, cost-utility analysis (CUA). Each type of economic evaluation involves a comparison of costs and consequences (or benefits), however they differ in terms of the way in which they measure and value benefits and the clarity of the theoretical foundations associated with each technique. The results of a CEA are presented in terms of a single measure of outcome (e.g. life years saved). However when there is more than one outcome of interest, costs can be presented alongside a series of outcome measures in a cost-consequence analysis (CCA). In this economic evaluation, a CCA will be initially conducted and a CEA and CUA will be undertaken if the intervention is effective in changing health outcomes.

4.3.3 PERSPECTIVE

The perspective of an economic evaluation determines the scope of the study and types of costs and benefits included in the analysis. This economic evaluation was primarily undertaken from the health service perspective requiring resource use associated with administering the intervention, changes in clinical practice and health services utilisation during the 12 month follow up period to be examined in the study. Additional data were collected to enable the study to examine costs incurred by young people and their families, general practice staff and youth related services where relevant. This approach was considered preferable to adopting a full societal perspective given the limitations of data and current methods used to assess productivity costs with a population of young people many of whom are not in paid employment.

4.3.4 TIMEFRAME

Young people recruited to the trial were interviewed at baseline and followed up twice during the 12 month study period. All analyses in the economic evaluation will be based on data generated within the trial period.

4.3.5 IDENTIFICATION AND MEASUREMENT OF HEALTH OUTCOMES

See Table 4.1 for a summary of data collection required for the economic evaluation. Primary health outcomes consist of the changes in health risk behaviours assessed in the main trial. These include smoking, alcohol and other substance use, sexual health, depression and self harm, fear and abuse, eating habits, and driving safety (including the use of seat belts, speeding and driving under the influence of substances). A detailed description of the measures of the health risk behaviours are provided in Section 3.1.2.2.1. Health-related quality of life is also assessed using the SF-12 (Ware, Kosinski et al. 1995). All outcomes are measured using the Young Person's Exit Survey administered at baseline and the Young Person's Follow-up Survey at 3 and 12 months.

4.3.6 VALUATION OF HEALTH OUTCOMES

A sub-set of responses to the SF-12 questions will be used to derive a corresponding set of population-based utility weights to value quality of life using a prescribed scoring formula (Brazier, Roberts et al. 2002). Data collected from the three time points will enable the number of QALYs to be estimated over the 12 month period.

Table 4.1: Summary of data collection instruments required for the economic evaluation

Resource use and health outcomes data	Data collection instruments	Timing	Data source
Health risk behaviours, SF-12 and health service utilisation	Young person's exit survey	Baseline	Young person
Health risk behaviours, SF-12 and health service utilisation	Young person's 3 month follow up survey	3 months post baseline	Young person
Health risk behaviours, SF-12 and health service utilisation	Young person's 12 month follow up survey	12 months post baseline	Young person
Resource use required to develop the intervention	Intervention development log	On completion of development	Research team
Resource use required to train general practice staff	Training costing questionnaire	On completion of each training cycle	Research team
Time and travel cost information	Time and travel cost surveys	At each training session	Practice staff
Youth friendly practice changes at each practice	PDSA action plans	Throughout the PDSA process	Research team
Resource use required to support youth friendly practice change at each intervention practice	Research team PDSA activities log	Following training until the beginning of cohort recruitment	Research team
Resource use required to implement youth friendly practice change at intervention practices	Practice PDSA activities log/survey	Following training until the beginning of cohort recruitment	Practice staff
Resource use required to make youth friendly changes at control practices	Youth friendly activities log	Following training until the beginning of cohort recruitment	Practice staff
Changes in clinical practice	GP and PN encounter forms	Following initial consultation the young person has at the practice	GPs and PN

4.3.7 IDENTIFICATION AND MEASUREMENT OF RESOURCE USE

There were four main areas that required the collection of resource use data in the economic evaluation. These included: development of the intervention; implementing the intervention; changes in clinical practice which occur in the initial consultation the young person has with the GP or PN; and, cost (savings) associated with changes in subsequent health service utilisation in the 12 month follow up period. Resource use data was collected prospectively by adding questions to existing surveys or developing specific instruments when this was not possible. (See Table 4.1 for a summary of instruments used to collect resource use data.)

4.3.7.1 DEVELOPMENT OF THE INTERVENTION

Development costs consist largely of the time spent by researchers to develop key resources such as the training sessions, modification of an existing screening tool to identify health risk behaviours in young people and resources required for the PDSA component of the intervention. The costs associated with the development of the intervention will be annuitised over the anticipated life of the intervention (Drummond, Sculpher et al. 2005).

4.3.7.2 IMPLEMENTING THE INTERVENTION

The costs associated with training general practice staff was one of the main areas of resource use required to implement the intervention. To maximise staff attendance, training was delivered in a 'flexible format' to suit the needs of each practice. Therefore detailed information was required on the resource use associated with training sessions in the intervention and control arms of the trial. As sessions were conducted at varying locations (at practices and the University of Melbourne) during work hours, and also in the evenings and on weekends, information on participant time and travel costs was also collected.

Additional data was required to estimate the costs associated with the PDSA process used to make changes in the office procedures at practices in the intervention arm of the trial. This included practice and research resources required to prepare, attend and follow up from PDSA meetings and to implement changes at each practice. Resource use data was collected from a number of sources and researchers worked closely with practice staff to ensure that the data they needed to collect was recorded regularly, and as accurately as possible, throughout the intervention period. Note that, as the study progressed, practice staff reported difficulty in recording all activities (and associated resource use) using an open-ended log. At this point the strategies adopted by practices became more predictable, therefore a brief survey was developed to quantify resources use associated with three main types of change (introduction of screening process and/ or screening tool, pamphlets and updating resource lists with youth friendly services). The survey was completed by the key contact person at each practice with the support and assistance of researchers as required. Given that practices in the control arm could also introduce changes (with minimal training and without the aid of the PDSA process), this data was also collected for practices in the control arm of the trial.

4.3.7.3 CHANGES IN CLINICAL PRACTICE ASSOCIATED WITH THE INITIAL CONSULTATION

Young people had their first contact with the study when they attended a consultation with the GP or PN. As the number and content of consultations at the intervention and control practices may differ, data were also collected from GPs and PNs on the clinical management, length of each consultation and the assigned Medicare item numbers. Information collected from each practice on prescriptions, referrals to allied health professionals, tests and investigations, specialists and recommendations for follow-up practice visits discussed in the consultation collected will be cross-checked with young people's self-reported health service resource use data to confirm where the young people followed up medical advice.

4.3.7.4 CHANGES IN HEALTH SERVICE UTILISATION OVER THE 12 MONTH FOLLOW UP PERIOD

A key component of the economic evaluation was to estimate the costs (savings) associated with changes in subsequent health service utilisation over the 12 month follow up period. A series of health service resource utilisation questions covering primary, secondary and tertiary care services were added to the Young Person's Exit Survey and the Young Person's 3 and 12 month Follow-up Surveys to collect self-reported health service utilisation data and the associated costs to young people and their families throughout the follow up period. See Table 4.2 for an overview of health service utilisation data.

Table 4.2: Health service utilisation data

Areas of health service utilization
▪ GP and PN consultations ▪ Complementary medicine (consultations with therapists and medications) ▪ Attendance at other clinics for young people ▪ Assistance provided by an ambulance ▪ Assistance provided by pharmacists ▪ Consultations with allied health professionals (e.g. psychologists) ▪ Consultations with specialists (e.g. psychiatrists and paediatricians) ▪ Prescription and non-prescription medications ▪ Tests and investigations ▪ Attendance at Accident and Emergency ▪ Hospital admissions ▪ Attendance at hospital outpatient clinics ▪ Out-of-pocket costs to young people and their families

4.3.8 VALUATION OF RESOURCE USE

All costs in the study are expressed in 2009/10 Australian dollars. The unit costs (or prices) of health service resource use and health care professionals' time will be determined using published cost estimates (e.g. Manual of Resource Use Items for use in submissions to the Commonwealth of Australia's Pharmaceutical Benefits Advisory Committee (Commonwealth Department of Health and Ageing 2002) and general practice administrative and compliance costs (Productivity Commission 2003). The remaining resources will be costed using a combination of financial and administrative records or market prices. Costs will be generated by multiplying the quantity of resources used by their unit costs and summing across all resources. The different components of costs will be reported together and separately.

4.3.9 ANALYSIS

Data on the costs and health outcomes will be presented initially using a balance sheet to provide policy makers with a transparent summary of costs and outcomes measures from which to make decisions. The effectiveness of the intervention will be expressed in terms of a series of health risk behaviours and quality of life rather than one main outcome measure as usual in a CEA. Subject to the efficacy of the intervention, simple cost-effectiveness ratios (e.g. cost per unit in unprotected sex) will be reported and a CUA conducted if appropriate. Finally, sensitivity analysis will be used to explore the robustness of the results in the economic evaluation.

4.4 INTERIM RESULTS

This report presents interim results on young people's self-reported health service utilisation over a 12 month period using data collected from the baseline profile study (collected pre-intervention). Analysis of this data provides insights about the patterns of health services used by young people over an extended period. Data collection of young people's health service utilisation from the cohort sample is currently ongoing and will be analysed in the economic evaluation at the completion of the trial.

4.4.1 BASELINE PROFILE STUDY OF YOUNG PEOPLE ATTENDING GENERAL PRACTICE

In the baseline profile phase, 359 young people from 35 practices have currently completed the Young Person's Exit Survey which contains a series of questions covering their use of health services in the previous 12 months.

4.4.2 YOUNG PEOPLE'S USE OF HEALTH SERVICES

Table 4.3 reports the number of consultations young people have had with GPs and PNs during the previous 12 months. Almost 90% of young people reported that they had at least one GP consultation during that period. 35.1% had seen a GP between 1 and 4 times, 17% had seen a GP between 5 and 6 times and 37.6% had seen a GP 7 or more times. Almost 40% of young people had at least one consultation with a PN during the same period. More than half of young people reported that on average they spent between 7 to 19 minutes with the GP at each visit and a quarter of young people's consultations were 20 to 39 minutes in length (Table 4.4).

Table 4.3: General practice consultations in the past 12 months

	Number of times young people have attended general practice consultations in the past 12 months (n=359)				
	None (%)	1-2 times (%)	3-4 times (%)	5-6 times (%)	7 or 7+ times (%)
GP	37 (10.3%)	58 (16.2%)	68 (18.9%)	61 (17.0%)	135 (37.6%)
PN	220 (61.3%)	94 (26.2%)	28 (7.8%)	6 (1.7%)	11 (3.1%)

Table 4.4: Length of general practice consultations in the past 12 months

	Average length of young people's general practice consultations in the past 12 months (n=359)					
	Less than 6 minutes (%)	7-19 minutes (%)	20-39 minutes (%)	40-60 minutes (%)	More than 1 hour (%)	Not specified (%)
GP	18 (5.0%)	209 (58.2%)	89 (24.8%)	6 (1.7%)	0	37 (10.3%)
PN	36 (10.0%)	75 (21.0%)	25 (7.0%)	2 (0.6%)	1 (0.3%)	220 (61.3%)

In terms of attendance at consultations for mental health related problems, 85.5% of young people had not visited either a psychologist and, or counsellor in the last 12 months and only 5.8% had seen a psychiatrist at least once (Table 4.5). Young people reported that within the previous 12 months they rarely attended special youth health related clinics (Table 4.6).

Table 4.5: Other consultations in the past 12 months

	Number of times young people have attended other consultations in the past 12 months (n=359)				
	None (%)	1-2 times (%)	3-4 times (%)	5-6 times (%)	7 or 7+ times (%)
Psychologist	307 (85.5%)	15 (4.2%)	9 (2.5%)	11 (3.1%)	17 (4.7%)
Psychiatrist	338 (94.2%)	6 (1.7%)	4 (1.1%)	2 (0.6%)	9 (2.5%)
Counselling	307 (85.5%)	19 (5.3%)	9 (2.5%)	6 (1.7%)	18 (5.0%)
Pediatrician	348 (96.9%)	7 (1.9%)	3 (0.8%)	0	1 (0.3%)

Table 4.6: Attendances at special clinics in the past 12 months

	Number of times young people attended special clinics in the past 12 months (n=359)				
	None (%)	One time (%)	Twice (%)	Three times or more (%)	Not specified (%)
Drug and alcohol clinic	353 (98.3%)	2 (0.6%)	1 (0.3%)	3 (0.8%)	0
Sexual and reproductive health clinic	343 (95.5%)	12 (3.3%)	3 (0.8%)	0	1 (0.3%)
Youth clinic	342 (95.3%)	9 (2.5%)	0	7 (1.9%)	1 (0.3%)

Young people reported that they are able to seek health related advice from other clinical sources if needed. Table 4.7 shows that in the previous year almost half the sample obtained help and advice from a pharmacist. The results also suggest that there were high levels of prescribing (62.7%) and referral for tests and investigations (42.3%) over the 12 month period (Table 4.8).

Table 4.7: Assistance provided by pharmacists in last 12 months

	Number of times young people received help and advice from a pharmacist in the past 12 months (n=359)				
	None (%)	1-2 times (%)	3-4 times (%)	5-6 times (%)	7 or 7+ times (%)
Pharmacist	187 (52.1%)	104 (29.0%)	39 (10.9%)	16 (4.5%)	13 (3.6%)

Table 4.8: The use of prescription medications and referral for tests and investigations in the last 12 months (n=359)

	Yes (%)	No (%)	Not specified
Have you been prescribed any medications in the last 12 months?	225 (62.7%)	129 (35.9%)	5 (1.4%)
Have you had any tests or investigations* that undertaken in the last 12 months?	152 (42.3%)	122 (34.0%)	85** (23.7%)

* Excluding tests and investigations undertaken in hospital. **A response was not specified as the question was not initially included in the survey

In terms of the use of complementary medicine, 36.2% of young people reported that they had taken complementary medicines in the last 12 months however few had attended consultations

with complementary therapists (Table 4.9). Finally, Tables 4.10 to 4.12 report the use of hospital related services by young people over a 12 month period. The data suggest that young people are not high users of ambulance, hospital inpatient or outpatient services.

Table 4.9: Young people's use of complementary therapies in the past 12 months

	Number of times young people attended complementary therapists in the past 12 months (n=359)				
	None (%)	1-2 times (%)	3-4 times (%)	5-6 times (%)	7 or 7+ times (%)
Homeopath	354 (98.6%)	4 (1.1%)	1 (0.3%)	0	0
Naturopath	343 (95.5%)	11 (3.1%)	3 (0.8%)	1 (0.3%)	1 (0.3%)
Acupuncturist	347 (96.7%)	5 (1.4%)	1 (0.3%)	3 (0.8%)	3 (0.8%)
Herbalist	352 (98.1%)	6 (1.7%)	1 (0.3%)	0	0
Message therapist	290 (80.8%)	36 (10.0%)	13 (3.6%)	9 (2.5%)	11 (3.1%)
Aromatherapist	356 (99.2%)	3 (0.8%)	0	0	0
Chiropractor	312 (86.9%)	12 (3.3%)	12 (3.3%)	6 (1.7%)	17 (4.7%)
Osteopath	337 (93.9%)	6 (1.7%)	7 (1.9%)	6 (1.7%)	3 (0.8%)

Table 4.10: Assistance provided by ambulance services in last 12 months

	Number of times young people have used ambulance services in the past 12 months (n=359)		
	None (%)	1-2 times (%)	3-4 times (%)
Ambulance - not driven to hospital	341 (95.0%)	16 (4.5%)	2 (0.6%)
Ambulance - driven to hospital	346 (96.4%)	12 (3.3%)	1 (0.3%)

Table 4.11: Attendances at Accident and Emergency (A&E) and hospital admissions in the past 12 months

	Number of times young people attended A&E or were admitted to hospital in the past 12 months (n=359)				
	None (%)	One time (%)	Twice (%)	Three times or more (%)	Not specified
A&E	278 (77.4%)	58 (16.2%)	13 (3.6%)	5 (1.4%)	5 (1.4%)
Admissions	314 (87.5%)	41 (11.4%)	3 (0.8%)	0	1 (0.3%)

Table 4.12: Attendances at hospital outpatient clinics in the past 12 months

	Number of times young people attended hospital outpatient clinics in the past 12 months (n=359)				
	None (%)	One time (%)	Twice (%)	Three times or more (%)	Not specified
Hospital outpatient clinics	333 (92.8%)	12 (3.3%)	8 (2.2%)	4 (1.1%)	2 (0.6%)

5 PART 3 - PRACTICE NURSE FEASIBILITY STUDY

The sources of data for the PN feasibility study will include:

(i) Qualitative interviews and Observation Diary entries

(ii) Staff survey of self-perceived confidence and knowledge (see Section 3.1.2.2.3)

(iii) Young people's Exit Survey about quality of care from the PN (see Section 3.1.2.2.1); and

(iv) Parent's survey about PN involvement in adolescent care (see Section 3.1.2.2.5).

This section will describe the aims, methods and preliminary findings for the qualitative component of the PN feasibility study.

5.1 AIMS

To re-iterate Section 1.4.4, the practice nurse feasibility study will use a qualitative process evaluation, as well as quantitative methods, to evaluate the PNs' expectations, experience and acceptability of delivering the intervention and performing a linkage function to improve the access into general practice for high-risk youth who attend other services such as community welfare, education, justice, hospital emergency or specialist medical and mental health services.

5.2 METHODS

The practice nurse feasibility study began with the pilot intervention from which research questions were formulated and interviews tested. All interviews/focus groups are audio-taped, transcribed and analysed for themes. Baseline interviews with PNs seek to understand their current concepts regarding roles in youth preventive health and linkage roles. Their experiences of the training and system changes are sought post intervention and their adjustment to roles at 12 months after training ascertained. PNs who take on the roles will be compared to those who do not and factors enabling and inhibiting this role uptake will be explored. The experiences of PNs in the intervention and control groups will also be compared. GPs and other practice staff are also interviewed.

This feasibility study is being be conducted in parallel with the RCT and will yield detailed information on training needs, barriers and enablers of PN involvement and preferred role in the intervention, perceived system effectiveness, degree of collaboration between GP and PN, youth engagement with PN, perception of success of linkage role. Between 16 and 40 PNs are expected to be in the study at completion depending on whether clinics have a PN/s, and whether they have capacity to participate in PARTY.

Data from qualitative interviews with GPs and PSS have also provided some input on PN roles as has the Observation Diary kept by the PARTY staff throughout the trial.

5.3 INTERIM RESULTS

The results presented below represent responses from qualitative interviews from PNs and GPs from the first twelve clinics (less than a third of the clinics which will eventually complete the RCT) and, as such, must be regarded as provisional in nature.

5.3.1 PRACTICE NURSE RESPONDENTS

All participating practice staff from the first twelve PARTY clinics were approached for a follow-up interview between August 2008 and October 2009, each approximately 12 months after they completed their involvement in the PARTY study. Eight of these twelve clinics had a participating practice nurse. Six nurses, four from control practices and two from intervention

practices were interviewed. The nurses who were not interviewed generally had time, family or health issues which precluded their involvement (see Table 5.1).

Table 5.1: Number of practice nurses who have participated in PARTY and completed 12 month follow-up interviews (to date).

	No. of practice nurses in PARTY Project in first 12 clinics	No. of practice nurses who completed interviews in first 12 clinics	Reasons for non-completion of follow-up interview
Control	7	4 (2 had attended the training)	1. PN had left practice 2. PN was not able to find time 3. PN had withdrawn due to time pressures
Intervention	5	2 (2 had attended the training)	1. PN had serious health issues 2. PN not actively able to engage with PARTY due to family commitments 3. PN away at time of interview visit
TOTAL	**12**	**6**	**6**

5.3.2 PRACTICE NURSE ROLES WITH YOUNG PEOPLE

All respondents reported various roles with young people in their practice, including cervical cancer preventive vaccinations, other vaccinations, injury dressing and medical advice. The two practice nurses from the intervention arm also reported a role in screening for health risk behaviours and in making referrals; they were nurses from a tertiary education health service. Three respondents, including the two from the intervention arm felt that involvement in PARTY gave more depth to their current roles with young people. The two practice nurses from the intervention arm specifically commented on enhancement of their role with young people in regards to screening for health risk behaviours, as a result of PARTY.

5.3.3 SCREENING, COUNSELLING AND REFERRALS

Both practice nurses in the intervention arm were involved in screening and counselling. No practice nurses in the control arm reported a role in screening and counselling young people.

Four practice nurses had a role in making referrals with one of these responding that she only makes referrals in emergencies. The two practice nurses from the intervention arm regularly made referrals within their internally available services (e.g. counsellors, financial officer for emergency food vouchers) but also had a role in external referrals.

5.3.4 USE AND ACCEPTABILITY OF SCREENING TOOL

Two practice nurses (intervention arm) reported that using the screening tool was very helpful and both continue to use it with young people. One of the practice nurses felt that the young people were accepting and appreciative of the screening tool, whilst also feeling it may be too wide-ranging for some young people.

One practice nurse commented that a benefit of the screening tool was that "*it takes you comprehensively through all aspects of a young person's life*" whilst another practice nurse said "*that it normalised the asking of some personal and potentially sensitive questions*". This practice nurse also stated that it was useful to be opportunistic in using the screening tool i.e.:

"…for a lot of students we may only see them once or twice so if you don't make every opportunity a winner you are going to lose people, you're not going to get the opportunity to go through things…"

5.3.5 USE AND ACCEPTABILITY OF MOTIVATIONAL INTERVIEWING TECHNIQUES

Motivational interviewing was only taught in the intervention training sessions. Two practice nurses found MI techniques helpful, and felt that even though it was difficult to sustain this aspect of PARTY training, they do, however, keep the PARTY training notes at their desk and attempt to use MI when they can.

A nurse, who is yet to be interviewed, has reported that she now feels much more comfortable with young people and she uses MI with them, facilitated by the laminated MI prompt sheets which she keeps handy during consultations (*from Observation Diary*).

5.3.6 ENABLERS OF SCREENING, COUNSELLING AND REFERRALS

Enablers to practice nurses performing roles in screening, counselling and referral activities included the existence of good relationships with GPs (so that concerns can be communicated) and a well-established database of service providers.

One respondent in the intervention arm reported on the positive role she had, as a practice nurse, in driving forward whole practice initiatives in screening, counselling and referral activities:

"I think as nurses we adapt quite well and we take on these things fairly proactively …we drove it. And I don't know whether that's a generalisation about practice nurses but I think we go out looking for a lot of things and tend to run them…" (Intervention Nurse)

5.3.7 BARRIERS TO SCREENING, COUNSELLING AND REFERRALS

One practice nurse in the control arm stated that a barrier to screening, counselling and linkage roles was lack of training and the need for up-skilling:

"… I don't feel equipped with the tools to deal with it. And I wouldn't know if I had made someone worse. If had training, upskilling I would feel okay." (Control Nurse who had attended the single training session for control clinicians)

The two practice nurses in the intervention arm felt that a barrier to the screening role was time, with one of these practice nurses stating that lack of time affected quality of care:

"…time is always an issue. Sometimes when you are seeing a lot of students and every one of them walks in with a survey you start to think I'm not going to do this justice." (Intervention Nurse)

5.3.8 DISCUSSION OF CONFIDENTIALITY IN CONSULTATIONS

Of the two practice nurses in the intervention arm, one felt that she discussed confidentiality more with YP as a result of PARTY demonstrating an acceptability of youth friendly practice:

"Yes. That's probably one thing I do a lot more consciously... in terms of bringing it up. In the past I would have either presumed that it was a given that they would understand that or perhaps not being so formalised about discussing it whereas now I specifically do and certainly the Party project has improved that for me personally as a practitioner"

The other practice nurse in the intervention arm reported that this discussion of confidentiality has not been sustained in her clinical practice, but she is conscious of bringing it up where she felt the young person may be concerned.

5.3.9 CHANGES IN INDIVIDUAL AND CLINICAL PRACTICE

In the control arm one practice nurse did not make any changes to her individual clinical practice as a result of involvement in PARTY. The other three practice nurses from the control arm implemented a variety of changes as a result of their involvement including: discussion of confidentiality; being more aware of young people's needs; treating the young person as an individual not just part of a family; being opportunistic in speaking to young people about other aspects of their life aside from the presenting complaint; and, building relationship with young people.

Practice nurses from the intervention arm reported that their involvement in PARTY enhanced roles they already undertook with young people. They also stated that they screened for health risk behaviour more regularly and in a more formalised manner. One practice nurse regularly discussed confidentiality, as a result of PARTY involvement. Both practice nurses in the intervention arm attempted to use motivational interviewing techniques that they had learnt through PARTY.

Three out of six practice nurses reported that their knowledge of young people and their health had changed whilst five out of six practice nurses stated that they felt more confident in talking to young people as a result of their involvement with PARTY e.g. *"Yes, feel more able to ask those sorts of questions to engage them"* (Control Nurse)

Changes in the clinic, as a result of involvement in PARTY included better communication within the practice (between GP and PN), youth friendly waiting room materials and explanations of Medicare to young people.

In terms of sustainability of changes in individual clinical practice and in the clinic, four practice nurses (two from control and two from intervention) felt that changes as a result of the PARTY were sustained. Two practice nurses are continuing to screen young people for health risk behaviour.

As for the future, four out of six of the practice nurses would like to make further changes in their practice to become more youth friendly. Potential changes included: making the waiting room more youth friendly; further training for reception staff; more youth focussed clinical staff; more information about linkages; information about recognising family issues and refresher training; and, fresh ideas for youth friendly practice. One practice nurse from the intervention arm suggested a further change would be to adapt the screening tool for international students.

5.3.10 IMPACT OF TRAINING

Respondents reported on the most helpful aspects of the PARTY training, which included; information about confidentiality, being aware of young people's health risks, learning about negotiating time alone with a young patient who presents with a parent. One practice nurse from the intervention arm added that the most helpful elements for her included learning about motivational interviewing, receiving a referral list and reinforcing her current knowledge. One practice nurse from the control arm commented specifically on the delivery of the training, finding scenarios, films and the advice from the trainer was most helpful. One practice nurse (from the control arm) did not attend the training.

One practice nurse, yet to be formally interviewed, commented that she had successfully used the principals of the PARTY training with a young person who had been self-harming. The same nurse was affirmed when she subsequently attended another training course and recognised

that she had already been using the techniques as a result of her PARTY involvement (*from Observation Diary*).

5.3.11 GENERAL PRACTITIONERS AND PRACTICE SUPPORT STAFF VIEWS ON NURSE ROLES

5.3.11.1 GENERAL PRACTITIONERS

Eleven GPs from the control practices have been interviewed to date. None of them made any comments on the roles of practice nurses in young people's health.

Seven GPs from intervention practices have completed their follow-up interviews. Three specifically referred to the option of nurses being involved in the screening of young people attending general practice. Such comment included:

> *"In an ideal world (we) would have more time. Longer appointments.* ***Practice nurses*** *would be good to have for screening."*
>
> *"I have talked with the* ***nurses*** *about bringing in something like this. I think probably for the first visit. It would be good to bring it in."*
>
> *"….there is scope for entering into that sort of dialogue with their doctor or* ***nurse****…..I think the PARTY project works in that way that it gives them the confidence to talk to you about whatever."*

5.3.11.2 PRACTICE SUPPORT STAFF

Seven practice support staff from control practices have been interviewed to date. Only one of them commented directly on practice nurse roles in youth health, namely:

> *"Any info that comes my way related to YP I make sure it goes to the PN, so we have a bigger database of info."* (Control PSS)

Of the intervention practice support staff both of those interviewed, to date, referred to the role of the nurse in relation to youth health. One, who was the practice manager, suggested:

> *"Work better if (the) PN took the role of changing the environment re personal health of YP and giving information…….role of nurse could change re youth health.."* (Intervention PSS)

At this stage there are limited numbers of PSS interviews available for analysis.

6 DISCUSSION

6.1 RANDOMISED CONTROLLED TRIAL

We will have the full results of the trial of health risk screening and counselling of young people in general practice in 2012. The interim results from the baseline profiling sample of 359 14-24 year old young people, presented in this report on the randomised trial, is the first systematically collected data on the health risks of young people attending general practice in Australia. We have found high levels of risk (96% of YP had at least one risk) especially in relation to drinking and road safety (and which, in combination, are well recognised as potentially fatal). For most of these young people, the general practice they had attended was their usual practice. Nearly three quarters of them had seen the GP previously and nearly half had seen the PN before. Additionally, many of the YP trusted their doctor and the high rates of YP follow-up on the clinician's advice (e.g. prescriptions, tests, referrals) indicates a willingness by the YP to accept the clinical management of their issues. This evidence currently suggests that many of the YP had at least some familiarity with the practice and some confidence in the clinician. However, regardless of this 'relationship' many underlying psychosocial health risks remained undetected.

Young people were asked if they would attend their general practice for a range of psychosocial health risks – they were less likely to return for the more social and emotional related concerns such as those relating to parents, work or education and mental health. Just over a third would not attend the GP if they were thinking of ending their life. Of these most would see either family, friends or counselling professions but a few would not seek help from anyone. The reluctance to discuss social and mental health issues may be, in part, due to young people perceiving the GP as more focussed on physical health. It is a goal of our intervention to shift these perceptions and increase young people's awareness that the general practice can be a source of assistance, or referral, for specialised assistance in these matters.

These health risks (which are the issues which have the greatest impact on young people's health (Moon, Meyer et al. 1999) have gone undetected despite nearly two thirds of GPs, and nearly half of PNs, in the study reporting some adolescent health training prior to their PARTY Project involvement. Clinicians are positive about young people as their patients but lack confidence both in process issues of consulting with young people (eg discussing confidentiality, negotiating for time alone with the young person) and in screening for, and managing, the substantive issues which cause the greatest burden of disease (eg. eating disorders, personal and road safety, heavy alcohol use, other drug and mental health issues and sexual health). They feel less confident consulting with younger adolescents and with male patients. PNs have significantly less confidence in these areas than GPs except for screening on road safety. This may reflect that fewer PNs have had training in young people's health and that most report not seeing many young people in the practice. The clinician surveys also indicated that opportunistic screening was not a routine part of their care with young people.

Given the high levels of self-reported risk detected amongst our sample of YP (plus the desire to change – at least one behaviour for 77% of YP) there appear to be many lost opportunities for intervention in the current system of primary care which is, where young people are concerned, still largely reactive to the issues they present with rather than being orientated toward a preventive approach. This sits in stark contrast to the other age groups which have Medicare funded preventive health initiatives such as the 4 year old health check, the 45 year old check and the 75 yr old + health check. These enhanced primary care schemes have also afforded a role for the practice nurse in these preventive health assessments. Whilst various groups representing GPs report that GPs are dissatisfied with the approach of enhanced primary care initiatives and their reporting requirements, their introduction does facilitate a practice prioritising these activities. Other more acceptable methods to support and finance youth preventive health care are urgently needed given that most mental health disorders and other

risk taking that affects fertility, obesity, cardiovascular disease, cancer risk and diabetes in adult life actually begin in the 14-24 year old age group.

Perhaps the failure to discuss these more sensitive issues could also, in part, be due to, as GPs and PNs responded in their surveys, that clinicians were not routinely consulting with young people alone (that is without a parent present) and not routinely discussing confidentiality with their young patients. If 14-24 year old young people are to receive appropriate health promotion and intervention, more attention needs to be paid to the elements of youth friendly practice which apply to the clinical interface i.e. discussing confidentiality, spending time with the YP without the parent being present and exploring psychosocial health issues beyond the presenting problems.

The screening tool, developed by PARTY for use in intervention practices, has already shown some promise in facilitating clinician's detection of health risks and, from our preliminary data, seems to be acceptable to parents and young people. For clinicians the pragmatics of utilising such a tool, on a regular basis, do present some hurdles which we would hope to explore, and overcome, as we trial the tool in more practices and integrate the feedback from practice staff, young people and parents. The future results of the trial will provide vital evidence as to the benefits to young people's health outcomes. Whilst young people and parents seem on the whole accepting of a screening tool, more in-depth qualitative work is necessary to understand where there were uncertainties and what made them think it was a good idea.

Practice support staff seemed to be most confident in explaining Medicare card application to young people yet fewer than 20% of eligible 15-17 year olds had their own card and only 57% of the sample overall. Lack of having their own Medicare card has been raised as a barrier to young people accessing care (Veit, Sanci et al. 1996). Of concern is the relatively lower confidence and knowledge of PSS in understanding the difficulties YP face in accessing health care. Given their front line role in welcoming patients to the practice, this is a key competency that needs addressing and we have done so for the intervention practices in the trial.

6.2 ECONOMIC EVALUATION

Interim results from the economic evaluation on young people's health service utilisation reported from the baseline profile sample provides a number of interesting insights into the pattern of health service resource use by young people. While the results on the number of GP consultations initially seem consistent with current evidence that most young people attend the GP at least once a year (Booth, Bernard et al. 2004), on closer examination use of these services, among our study participants, is higher than expected. While young people report that they are less likely to visit a PN than a GP in a 12 month period, given that only 58% of practices in Australia employ at least one PN the number of consultations young people have with PN is encouraging (Australian General Practice Network 2007).

Overall, young people's self-reported data indicates that health utilisation tends to stay in primary care and there is limited evidence of referral to allied health professionals, specialists and specialty clinics for young people. These results draw attention to an important issue highlighting the need to investigate the referral rates for young people between the intervention and control arms of the RCT. It is important to gain an understanding of whether the low rates of referral at baseline reflect the low percentage of health risk behaviours actually detected by the clinician and whether existing referrals are appropriate. The interim results also highlight the importance of training and providing information to GPs and PNs on the availability of these services. Likewise, young people's self-report data provides interesting information on the patterns of prescribing and referral for tests and investigations. Again the RCT will determine whether young people should be prescribed more or less medications or whether the 'mix' of medications and rate of investigations is appropriate.

Given that health and health care resources are limited it is essential that preventive primary care interventions are subject to economic analysis to guide decision makers in the efficient

allocation of these resources. At the completion of the study, the findings of the economic evaluation of the PARTY project will:

(i) Determine the economic efficiency associated with the screening and counselling preventive intervention to reduce health risk behaviours and mental health problems in young people; and

(ii) Enable the distribution of costs (i.e. the share of costs falling on general practice) to be documented and determine the financial implications of the intervention to identify the incentives and disincentives that might influence its uptake should it prove effective.

This innovative research is the first known economic evaluation of a preventive intervention for young people administered in a general practice setting world wide. As the findings of the economic evaluation are of national and international significance, we will disseminate results in leading international journals in the fields of adolescent health, general practice and health economics.

The research will provide a platform for policy development by giving GPs and decision makers vital information to incorporate into future decisions regarding the design, delivery and funding of effective and efficient interventions to reduce high risk behaviours and mental health problems for young people in Australia. Importantly this research will also build on a small existing health economics literature on the methodological challenges arising from using traditional economic evaluation methods to evaluate complex interventions in complex systems (Anderson 2008; Shiell, Hawe et al. 2008). The protocol for this study was developed using rigorous economic evaluation methods, where conventional approaches of data collection and analysis were tailored to capture, where possible, the costs and consequences associated with evaluating a complex intervention in a complex system such as general practice. It is envisaged that the findings of this study will assist health economists to open up the 'black box' to gain a better understanding of complex organisations and systems and how the complex intervention operates at each site. The methodological insights obtained from this study have already informed design of a subsequent economic evaluation to be conducted alongside an extension of the current RCT evaluating the effectiveness of youth friendly organisational change in primary care (PARTY 2 Project). It is envisaged that over time this body of research will be used to develop recommendations regarding methodological principles needed to guide future economic evaluations of complex interventions in complex systems.

6.3 PRACTICE NURSE FEASIBILITY STUDY

Whilst we have, at this stage, only interviewed practice nurses from less than one third of the PARTY practices, interesting findings are emerging that support the concept of PN involvement in screening, counselling and referral roles with young people. Time or family commitments precluded active involvement by some PNs (e.g. inability to attend training, needing to service their existing patient base such as the elderly). However, attendance at training and other PARTY activities certainly provided the stimulus for more pro-active, youth-friendly approaches to young people's health even amongst some control nurses who only received a brief training intervention and no additional PARTY team support for in-practice implementation.

Screening, by its nature, can take more practice nurse time but where the practice is supportive it would appear to be feasible. However a large number of practice nurses work in privately billing general practices and Medicare does not fund preventive youth health visits. PNs may be trying to 'fit in' young people's health where they can rather than making it a specific focus of the practice in the same way as they might for the elderly.

As the trial proceeds to its conclusion we expect to gather a larger body of evidence to further explore practice nurse roles in preventive youth health.

6.4 STRENGTHS OF CURRENT WORK

The PARTY RCT is as rigorous a trial as is possible in the busy, real world environment of general practice. We will be able to achieve a robust data set to inform policy and practice for youth health provided in general practice. To date we have:

(i) Sampled a wide range of general practices (36 to date with 4 more due to commence in February 2010) located in areas of diverse socio-economic status

(ii) Recruited 180 practice staff (general practitioners, practice nurses, practice managers and receptionists) who have consented to take part

(iii) Gathered detailed information and observations of practice policies and systems

(iv) Interviewed young people soon after they have consulted with GPs and PNs in general practice.

In the future we will be able to report on:

(i) Changes at four levels – practice, staff, young people and their parents; and

(ii) A well formulated economic evaluation to inform decision makers on health outcomes and their cost effectiveness.

6.5 LIMITATIONS OF CURRENT WORK

This large trial of a complex intervention in general practice has provided numerous challenges for the PARTY Team. We have been pro-active in addressing each issue as it has arisen. There are some possible limitations with respect to the practices and the sample of young people:

(i) The general practices and their staff were volunteers which may raise potential limitations as such practices may already provide good quality care and, hence, their YPs' evaluation of them is high

(ii) We are only collecting data from patients who actually attend primary care – we are not concerned by this limitation because we accept that this intervention can only affect those who actually attend rather than those who do not – which is outside the sphere of influence of general practice. In addition we know most YP would visit at least annually anyway; and

(iii) Since most YP have actually been back to the GP multiple times, they may rate them more highly. This is in line with other literature reporting that patients generally like their doctors. However, our sample does show considerable variation of scores across the practices so results of the trial will clarify whether there are improvements in ratings.

One of the other difficulties is in data collection from the practices, which may impede a precise determination of the total sample denominator:

(i) There appears to be a low capacity of medical software or computer systems in general practice.

So far, all participating practices have computer systems in place to store patients' records electronically. The research plan was to collect the number of patients aged 14-24 seen by each clinician in the practice during the recruitment phase. However, some practices were not able to run search queries on the computer due to the low capacity of the computer system e.g. the system crashes or causes huge delays for other end users. In other practices the computer systems are able to cope, but the medical software was not easy to operate for collecting rigorous research data.

We have remedied these problems to acquire best possible estimates by obtaining free demonstration resources from medical software providers and then assisting practice

staff to successfully complete the data collection and then working with practice staff to solve their specific issues - sometimes the number of patients was recorded manually by receptionists.

(ii) Time constraints of staff have meant that whilst we aimed for clinicians to recruit consecutive 14-24 year old attendees, in reality the recruitment activity was patchy depending on how busy they were. This was in contrast to the principal investigator's prior work where this method was efficient and effective and has therefore meant recruitment periods were longer and resulted in more frequently attending patients being recruited. However, despite this, there was still room for improvement in rates of preventive care for young people. Funding limitations precluded the assignment of a research assistant in each practice to do the recruiting. However, with very few practices left to enter and complete the trial there was scope to introduce RAs for recruiting. This will allow us to determine if there are differences in the type of patient recruited and thereby adjust for these in the final analyses.

(iii) Incomplete data records have arisen due to different procedures. Practice nurse's consultations were not recorded in the computer database in some practices which has created difficulties in collecting data consistently. In some practices a tally sheet was handed out to the nurses so that number of patients could be recorded manually.

6.6 FUTURE DIRECTIONS

We are excited to be bringing this project to its conclusion soon and to be translating our findings for policy makers to take forward. We hope to influence the priority young people's health care is given by governments and practitioners in the future.

In this trial we used a brief intervention, focussing mainly on training and tools, to help improve screening and counselling young people for health risks. In the future we plan to test the effectiveness of a longer intervention, targeting the practice as a whole, to implement a wider range of youth friendly initiatives. We have obtained National Health and Medical Research Council (NHMRC) project grant funding to afford each intervention practice a two year time period during which we will provide feedback of their practice data and a professional mentor who will assist practices in making the systems change they prioritise. The changes that are possible, with longer time frames for intervening, were evidenced in our Pilot Study for this trial. In the Pilot we allowed practices to choose the areas they wished to focus on first. This process took a great deal longer than we had available for each practice in this trial but will be achievable in PARTY 2. Examples of such changes include:

(i) Holding community fora for parents

(ii) Holding focus groups for young people in the community to help get suggestions for the practice

(iii) Setting up nurse-led community clinics

(iv) Liaising with local secondary schools

(v) Introduction of an Induction Manual with DVDs and resources for all new staff on the principals of youth friendly practice; and

(vi) Developing a billing policy for YP attending the practice.

If PARTY 1 and PARTY 2 are successful, our recommendation will be that, for a practice to be truly youth friendly, they will need to adopt the training and tools based intervention to improve screening and counselling of young people for health risks from PARTY 1 along with the systems change approach from PARTY 2. Spin off benefits for other patient groups are likely and will be measured in PARTY 2, because youth friendly approaches are consistent with quality patient centred care.

7 REFERENCES

American Academy of Pediatrics (Accessed: January 2010). Bright Futures: prevention and health promotion for infants, children, adolescents and their families, http://brightfutures.aap.org/.

Anderson, R. (2008). "New MRC guidance on evaluating complex interventions." Bmj **337**: a1937.

Andrews, G. and T. Slade (2001). "Interpreting scores on the Kessler Psychological Distress Scale (K10)." Australian and New Zealand Journal of Public Health **25**(6): 494-7.

Australian General Practice Network (2007). National Practice Nurse Workforce Survey Report 2007. Canberra, Australian General Practice Network.

Australian Institute of Health and Welfare (2007). Young Australians: their health and wellbeing 2007. Canberra, AIHW.

Australian Institute of Health and Welfare (2008). Australia's Health 2008. Canberra, Australian Institute of Health and Welfare.

Booth, M. L., D. Bernard, et al. (2004). "Access to health care among Australian adolescents. Young people's perspectives and their sociodemographic distribution." Journal of Adolescent Health **34**(1): 97-103.

Brazier, J., J. Roberts, et al. (2002). "The estimation of a preference-based measure of health from the SF-36." J Health Econ **21**(2): 271-92.

Britt, H., G. Miller, et al. (2008). General practice activity in Australia 2006–07. General Practice Series No. 21, University of Sydney & the Australian Institute of Health and Welfare.

Brown, R. T. (2002). "Risk factors for substance abuse in adolescents." Pediatric Clinics of North America **49**: 247-255.

Carlisle, J., D. Shickle, et al. (2006). "Concerns over confidentiality may deter adolescents from consulting their doctors. A qualitative exploration." J Med Ethics **32**(3): 133-7.

Chacko, M. R., C. M. Wiemann, et al. (2009). "Efficacy of a Motivational Behavioral Intervention to Promote Chlamydia and Gonorrhea Screening in Young Women: A Randomized Controlled Trial." Journal of Adolescent Health **In Press, Corrected Proof**.

Chown, P., M. Kang, et al. (2008). Adolescent health: enhancing the skills of general practitioners in caring for young people from culturally diverse backgrounds. GP resource kit. Sydney, NSW Centre for the Advancement of Adolescent Health & Transcultural Mental Health Centre.

Colby, S. M., P. M. Monti, et al. (2005). "Brief motivational intervention for adolescent smokers in medical settings." Addictive Behaviors **30**(5): 865-874.

Commonwealth Department of Health and Ageing (2002). Manual of resource items and their associated costs for use in major submissions to the Pharmaceutical Benefits Advisory Committee involving economic analyses. Canberra, Commonwealth of Australia.

Dino, G., K. Horn, et al. (2008). "Cost-effectiveness analysis of the Not On Tobacco program for adolescent smoking cessation." Prev Sci **9**(1): 38-46.

Downs, S. M. and J. D. Klein (1995). "Clinical preventive services efficacy and adolescents' risky behaviors." Arch Pediatr Adolesc Med **149**(4): 374-9.

Drummond, M., M. Sculpher, et al. (2005). Methods for the economic evaluation of health care programmes. Oxford, Oxford University Press.

Eldridge, S. M., D. Ashby, et al. (2004). "Lessons for cluster randomized trials in the twenty-first century: a systematic review of trials in primary care." Clinical Trials **1**: 80-90.

Ford, C., A. English, et al. (2004). "Confidential health care for adolescents: position paper of the Society for Adolescent Medicine." Journal of Adolescent Health **35**(2): 160-167.

Ford, C. A., S. G. Millstein, et al. (1997). "Influence of physician confidentiality assurances on adolescents' willingness to disclose information and seek future health care." JAMA **278**(12): 1029-1034.

Furukawa, T. A., R. C. Kessler, et al. (2003). "The performance of the K6 and K10 screening scales for psychological distress in the Australian National Survey of Mental Health and Well-being." Psychological Medicine **33**: 357-362.

Gadomski, A., S. Bennett, et al. (2003). "Guidelines for Adolescent Preventive Services, the GAPS in practice." Archives of Pediatrics and Adolescent Medicine **157**: 426-432.
Goldenring, J. M. and E. Cohen (1988). "Getting into adolescents heads." Contemporary Pediatrics **July**: 75-90.
Goldenring, J. M. and D. S. Rosen (2004). "Getting into adolescent heads: An essential update." Patient care for the Nurse Practitioner.
Gregg, R., D. Freeth, et al. (1998). "Teenage health and the practice nurse: choice and opportunity for both?" British Journal of General Practice **48**(426): 909-10.
Halcomb, E. J., E. Patterson, et al. (2006). "Evolution of practice nursing in Australia." Journal of Advanced Nursing **55**(3): 376-388.
Hegney, D., K. Price, et al. (2004). "Australian consumers' expectations for expanded nursing roles in general practice: choice not gatekeeping." Australian Family Physician **33**(10): 845-849.
Holtgrave, D. R., K. A. Wunderink, et al. (2009). "Cost-utility analysis of the National truth campaign to prevent youth smoking." Am J Prev Med **36**(5): 385-8.
Holtrop, J. S., S. A. Dosh, et al. (2009). "Nurse consultation support to primary care practices to increase delivery of health behavior services." Appl Nurs Res **22**(4): 243-9.
Horrocks, S., E. Anderson, et al. (2002). "Systematic review of whether nurse practitioners working in primary care can provide equal care to doctors." British Medical Journal **324**: 819-823.
Hutchinson, J. W. and E. M. Stafford (2005). "Changing Parental Opinions About Teen Privacy Through Education." Pediatrics **116**(4): 966-971.
Igra, V. and S. G. Millstein (1993). "Current status and approaches to improving preventive services for adolescents." JAMA **269**: 1408-12.
Kang, M., D. Bernard, et al. (2003). "Access to primary health care for Australian young people: service provider perspectives." British Journal of General Practice **53**: 947-952.
Keleher, H., C. M. Joyce, et al. (2007). "Practice nurses in Australia: current issues and future directions." Med J Aust **187**(2): 108-10.
Klein, J. D. and M. Matos Auerbach (2002). "Improving adolescent health outcomes." Minerva Pediatrica **54**: 25-39.
Knight, J. R. (2001). "The role of the primary care provider in preventing and treating alcohol problems in adolescents." Ambulatory Pediatrics **1**(3): 150-61.
Kramer, T. and E. Garralda (1998). "Psychiatric disorders in adolescents in primary care." British Journal of Psychiatry **173**: 508-513.
Langley, G. K., T. Nolan, et al. (1996). The improvement guide: a practical approach to enhancing organizational performance. San Francisco, Jossey-Bass.
Lehrer, J. A., R. Pantell, et al. (2007). "Forgone health care among U.S. adolescents: associations between risk characteristics and confidentiality concern." Journal of Adolescent Health **40**(3): 218-26.
Lewin, W., B. Knauper, et al. (2009). "Detecting and addressing adolescent issues and concerns: Evaluating the efficacy of a primary care previsit questionnaire." Canadian Family Physician **55**(7): 742-7434.
Lynch, F. L., M. Hornbrook, et al. (2005). "Cost-effectiveness of an intervention to prevent depression in at-risk teens." Arch Gen Psychiatry **62**(11): 1241-8.
Lyren, A., E. Kodish, et al. (2006). "Understanding confidentiality: perspectives of African American adolescents and their parents." Journal of Adolescent Health **39**(2): 261-5.
Magnusson, J., L. Oakley, et al. (2007). "Parents' views on confidentiality and health advice for adolescents in general practice." Primary Health Care Research & Development **8**(02): 121-127.
McCambridge, J. and J. Strang (2004). "The efficacy of single-session motivational interviewing in reducing drug consumption and perceptions of drug-related risk and harm among young people: results from a multi-site cluster randomized trial." Addiction **99**: 39-52.
Miller, W. and S. Rollnick (1991). Motivational Interviewing: preparing people to change addictive behaviour. New York, The Guildford Press.

Moon, L., P. Meyer, et al. (1999). Australia's young people: their health and well-being. Canberra, Australian Institute of Health and Welfare.
Mynors-Wallis, L. M., D. H. Gath, et al. (2000). "Randomised controlled trial of problem solving treatment, antidepressant medication, and combined treatment for major depression in primary care." British Medical Journal **320**(7226): 26-30.
National Primary Care Research and Development Centre (2004). Manual: General Practice Assessment Questionnaire (GPAQ), University of Manchester.
Ockene, J. K., E. V. Wheeler, et al. (1997). "Provider training for patient-centred alcohol counselling in a primary care setting." Archives of Internal Medicine **157**(20): 2334-41.
Oppong-Odiseng, A. C. K. and E. C. Heycock (1997). "Adolescent health services through their eyes." Archives of Disease in Childhood **77**: 115-119.
Ozer, E., S. Adams, et al. (2003). "Do clinical preventive services make a difference in adolescent behaviour?" Journal of Adolescent Health **32**(2): 132.
Ozer, E. M., S. H. Adams, et al. (2005). "Increasing the screening and counseling of adolescents for risky health behaviors: a primary care intervention." Pediatrics **115**(4): 960-968.
Ozer, E. M., E. G. Zahnd, et al. (2009). "Are adolescents being screened for emotional distress in primary care?" J Adolesc Health **44**(6): 520-7.
Patterson, E. and A. McMurray (2003). "Collaborative practice between registered nurses and medical practitioners in Australian general practice: moving from rhetoric to reality." Australian Journal of Advanced Nursing **20**(4): 43-48.
Patton, G., L. Sanci, et al. (2002). "Updates in Medicine: adolescent medicine." Medical Journal of Australia **176**: 3.
Patton, G. C., C. Coffey, et al. (2009). "Global patterns of mortality in young people: a systematic analysis of population health data." Lancet **374**(9693): 881-92.
Patton, G. C. and R. Viner (2007). "Pubertal transitions in health." Lancet **369**(9567): 1130-9.
Pfaff, J. J., J. G. Acres, et al. (2001). "Training general practitioners to recognise and respond to psychological distress and suicidal ideation in young people." Medical Journal of Australia **174**: 222-226.
Poikolainen, K. (1999). "Effectiveness of brief interventions to reduce alcohol intake in primary health care populations: a meta-analysis." Preventive Medicine **28**: 503-509.
Productivity Commission (2003). General practice administrative and compliance costs. Canberra, Productivity Commission.
Ross, H., L. M. Powell, et al. (2006). "Community-based youth tobacco control interventions: cost effectiveness of the Full Court Press project." Appl Health Econ Health Policy **5**(3): 167-76.
Sanci, L. and H. Cahill (2008). Preparing Young People for Change: a Motivational Interviewing Approach to Counselling Young People with Health Risk Behaviours (Training DVD), Department of General Practice, University of Melbourne.
Sanci, L. A., C. M. M. Coffey, et al. (2000). "Evaluation of the effectiveness of an educational intervention for general practitioners in adolescent health care: randomised controlled trial." British Medical Journal **320**: 224-30.
Sanci, L. A., S. M. Sawyer, et al. (2005). "Confidential health care for adolescents: reconciling clinical evidence with family values." Medical Journal of Australia **183**(8): 410-414.
Shiell, A., P. Hawe, et al. (2008). "Complex interventions or complex systems? Implications for health economic evaluation." Bmj **336**(7656): 1281-3.
Tengs, T. O., N. D. Osgood, et al. (2001). "The cost-effectiveness of intensive national school-based anti-tobacco education: results from the tobacco policy model." Prev Med **33**(6): 558-70.
Thom, D. H., K. M. Ribisl, et al. (1999). "Further validation and reliability testing of the Trust in Physician Scale." Medical Care **37**(5): 510-17.
Tylee, A., D. M. Haller, et al. (2007). "Youth-friendly primary-care services: how are we doing and what more needs to be done?" Lancet **369**(9572): 1565-73.
Van Hook, S., S. K. Harris, et al. (2007). "The "Six T's": barriers to screening teens for substance abuse in primary care." Journal of Adolescent Health **40**(5): 456-61.

Veit, F. C., L. A. Sanci, et al. (1996). "Barriers to effective primary health care for adolescents." Med J Aust **165**(3): 131-3.
Vijgen, S. M., P. H. van Baal, et al. (2008). "Cost-effectiveness analyses of health promotion programs: a case study of smoking prevention and cessation among Dutch students." Health Educ Res **23**(2): 310-8.
Walker, Z., J. Townsend, et al. (2002). "Health promotion for adolescents in primary care: randomized controlled trial." British Medical Journal **325**: 524-530.
Wang, L., M. Davis, et al. (2000). "Economic evaluation of Safer Choices: a school-based human immunodeficiency virus, other sexually transmitted diseases, pregnancy prevention program." Archives of Pediatrics and Adolescent Medicine **154**(10): 1017-24.
Wang, L. Y., L. S. Crossett, et al. (2001). "Cost-effectiveness of a school-based tobacco-use prevention program." Arch Pediatr Adolesc Med **155**(9): 1043-50.
Wang, L. Y., Q. Yang, et al. (2003). "Economic analysis of a school-based obesity prevention program." Obes Res **11**(11): 1313-24.
Ware, J., M. Kosinski, et al. (1995). How to score the SF-12 physical and mental health summary scales. Boston MA, The Health Institute, New England Medical Centre.
Watts, I., E. Foley, et al. (2004). General Practice Nursing in Australia, Royal Australian College of General Practitioners & Royal College of Nursing, Australia.
Wewers, M. E., J. L. Neidig, et al. (2000). "The feasibility of a nurse-managed, peer-led tobacco cessation intervention among HIV-positive smokers." Journal of the Association of Nurses in AIDS Care **11**: 37-44.
World Health Organisation (1995). Mental Illness in General Health Care: An International Study. West Sussex, UK, John Wiley & Sons Ltd.
World Health Organisation (2002). Adolescent friendly health services: an agenda for change. Geneva, WHO.
World Health Organisation (2005). Adolescent friendly health services: making it happen. Geneva, WHO.