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Preventing Behavioural and Emotional Problems in Children who have a

Developmental Disability: A public health approach

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Abstract

Children with developmental disabilities are at substantially greater risk of developing emotional and behavioural problems compared to their typically developing peers.

While the quality of parenting that children receive has a major effect on their development, empirically supported parenting programs reach relatively few parents. A recent trend in parenting intervention research has been the adoption of a public health approach to improve the quality of parenting at a population level. This has involved delivering parenting interventions on a large scale and in a cost-effective manner. Such trials have been demonstrated to reduce negative parenting practices, prevent child maltreatment, and reduce child behavioural and emotional problems. However, these trials have been restricted to parents of children who are developing typically. This paper explores the rationale for the extension of a population health approach to parenting interventions for children with developmental disabilities. It is argued that a population-based implementation and evaluation trial of an empirically supported system of interventions is needed to determine whether this approach is viable and can have a positive impact on parents and their children in a disability context. The Stepping Stones Triple P—Positive Parenting Program is presented as an example of a parenting intervention that satisfies the requirements for such a trial. Tasks and challenges of such a trial are discussed. **Keywords:** developmental disability, parenting, prevention of behaviour problems, public health

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Developmental Disability: A public health approach

To date, efforts to address the prevalence of behavioural and emotional problems among children with developmental disabilities have been inadequate. A recent and promising trend in parenting intervention research has been the adoption of a public health approach to improve the quality of parenting at a population level. This has involved delivering parenting interventions on a large scale and in a cost-effective manner. Such trials have been demonstrated to reduce negative parenting practices, prevent child maltreatment, and reduce child behavioural and emotional problems (Prinz, Sanders, Shapiro, Whitaker, & Lutzker, 2009; Sanders, Ralph et al., 2008; Zubrick et al., 2005). However, these trials have been restricted to parents of children who are developing typically. This paper explores the rationale for the extension of a population health approach to parenting interventions for children with developmental disabilities.

Children with a developmental disability are at a substantially greater risk, when compared to their typically developing peers, of showing a variety of emotional and behavioural problems. Epidemiological surveys show that approximately 40% of children and adolescents with an intellectual disability develop significant mental health problems. This represents 3 to 4 times the level of risk for these children compared to their non-disabled peers (Emerson, 2003; Tonge & Einfeld, 2000).

The consequences of these emotional and behavioural problems in children with developmental disabilities are substantial. For the children behaviour problems can threaten physical health and restrict access to educational, vocational and community settings (Nissen & Haveman, 1997; Parmenter, Einfeld, Tonge, & Dempster, 1998). Behaviour problems in children with disabilities are one of the best predictors of burden

of care or parental distress and one of the main predictors of whether or not parents will seek an out-of-home placement for their son or daughter (McIntyre, Blacher, & Baker, 2002; Plant & Sanders, 2007a). At school, disruptive behaviour in children with disabilities contributes to stress in peers and burnout in teachers (Hastings & Brown, 2002). Further, as these children become adolescents and adults, their behaviour problems can require intensive and costly interventions and support options (Knapp, Comas-Herrera, Astin, Beecham, & Pendaries, 2005). Individuals with developmental disabilities and challenging behaviour may also be treated with psychotropic drugs that can have serious side effects (Singh, Matson, Cooper, Dixon, & Sturmey, 2005).

While the patterns of behaviour which characterise some genetic disorders, called “behavioural phenotypes,” provide evidence that genetic causes of developmental disabilities influence behaviour and emotional experience, family and environmental factors interact with behaviour to contribute to the development and maintenance of emotional and behavioural problems (Baker, McIntyre, Blacher, Crnic, Edelbrock, & Low, 2003; Tonge & Einfeld, 2003).

The quality of parenting that children receive has a major effect on their development and there is evidence that parenting programs based on social learning models are effective for children with developmental disabilities, particularly in the management of early onset behaviour problems (Matson, Mahan, & Matson, 2009; Roberts, Mazzucchelli, Taylor, & Reid, 2003). However, such programs often have only one level of intensity which may not fit a family’s needs or preferences, are traditionally delivered individually to families and, consequently, typically reach relatively few parents. Because of this many children continue to develop potentially preventable problems (Biglan, 1995; Einfeld et al., 2006).

This article argues that a public health model of parenting intervention for parents

of children with developmental disabilities is required to increase the reach of evidence-based parenting programs. Reducing the prevalence of child behavioural and emotional problems requires that a large proportion of the population be reached with effective parenting strategies (Biglan, 1995). Given the prevalence and impact of emotional and behavioural problems in the population of children with developmental disabilities, such an approach is urgently needed.

1. Evidence Supporting the Effectiveness of a Public Health Approach to Parenting

The Triple P—Positive Parenting Program developed by Sanders and colleagues (Sanders, 1999) is one of the few examples of a public health approach to parenting. Triple P was designed as a comprehensive population-level system of parenting and family support. This multilevel system includes five intervention levels of increasing intensity and narrowing population reach. Evidence-based interventions within the system range from the use of the media (Sanders, Calam, Durand, Liversidge, & Carmont, 2008) to intensive family interventions for parents where parenting problems are complicated by multiple additional sources of family adversity (Sanders, Markie-Dadds, Tully, & Bor, 2000). The system is designed to prevent severe behavioural, emotional and developmental problems in children and adolescents by enhancing the knowledge, skills, and confidence of parents.

Triple P has been evaluated as a universal, whole of population strategy and shown to strengthen parenting and reduce the prevalence of conduct problems in children from high-risk neighbourhoods (e.g., Zubrick et al., 2005). Sanders, Ralph et al. (2008) showed that the concurrent implementation of multiple levels of Triple P in a population application can reduce clinically elevated and borderline child behavioural and emotional problems, parents' symptoms of depression and stress, and coercive

parenting. In a similar population trial, Prinz et al. (2009) demonstrated a preventive impact on population-level indicators of child maltreatment. These studies indicate both the feasibility and effectiveness of targeting dysfunctional parenting practices using an intervention model that blends universal and targeted program elements.

Stepping Stones Triple P (SSTP; Sanders, Mazzucchelli, & Studman, 2004) represents a parallel system of interventions to core Triple P, for children with developmental disabilities. Because of its multi-level nature, it is argued that it could potentially achieve similar population-level effects for children with a developmental disability.

2. Large-Scale Implementation of Positive Parenting for Children who have a Disability

Sanders (2008) identified a number of tasks that need to be accomplished if a public health approach to parenting is to work. Reviewing these tasks in a disability context, it is evident that many of them have already been accomplished.

2.1 Determine Base Prevalence Rates of Child Problem Behaviours

Information is required concerning the base rates of targeted behavioural and emotional problems in the areas targeted before the intervention begins. It has already been noted that approximately 40% of children and adolescents with an intellectual disability develop significant mental health problems. However, it is important to note that within the population of children and adolescents with an intellectual disability the level of risk for certain disorders varies. Disruptive and antisocial behaviours are more prominent in children with IQ scores in the mild to moderate range of intellectual disability, and “self-absorbed” and “autistic” behaviours more prominent in those with IQ scores in the severe range of intellectual disability (Einfeld & Tonge, 1996). There is also evidence that specific causes of developmental disability are associated with

particular patterns of behaviour. Examples of such behavioural phenotypes include the hand and lip biting of children with Lesch-Nyhan syndrome (Nyhan, 1994) and the compulsive eating of children with Prader-Willi syndrome (Curfs & Fryns, 1992).

2.2 Determine Base Rates for Modifiable Parental Risk and Protective Factors

Potentially modifiable parenting factors that place children with developmental disabilities at risk of developing behavioural and emotional problems include exposure to a harsh, punitive disciplinary practices, lower marital adjustment, parental psychopathology (particularly maternal depression) and low levels of parenting support (Emerson, 2003; Witwer & Lecavalier, 2008). Potentially modifiable protective factors that reduce children's risk of developing problems include exposure of parents to evidence-based parenting programs, access to professional support for children's emotional and behavioural problems, and social and emotional support from significant others. Studies indicate that large numbers of children with developmental disabilities may be exposed to risk factors but lack exposure to protective factors. For instance, there is evidence that maternal expressed emotion towards children with an intellectual disability is more negative than expressed emotion towards children without intellectual disability (Beck, Daley, Hastings, & Stevenson, 2004). Studies typically report that mothers of children with developmental disabilities have higher levels of stress and poorer psychological wellbeing than other mothers (Eisenhower, Baker, & Blacher, 2005). Also, it is commonly reported that parents of children with developmental disabilities and behavioural or emotional problems receive a lack of specialist support or intervention (Einfeld et al., 2006). The risk and protective factors that are most likely to change as a result of the intervention can be assessed prior to an intervention being implemented and can be reassessed over time.

2.3 Ensure that Effective Interventions are Available

According to the Society for Prevention Research (Flay et al., 2005), before an intervention is disseminated widely it must meet stringent standards for both efficacy and effectiveness. There is evidence that increasing positive parenting practices and reducing ineffective disciplinary practices reduce child behaviour problems and produce better developmental outcomes in children with developmental disabilities (Matson et al., 2009; Roberts et al., 2003).

The evidence in support of SSTP builds on an existing evidence base that evolved over a 30-year period in support of the core Triple P program. The evidence for SSTP includes single-case experiments (e.g., Sanders & Plant, 1989), consumer acceptability studies (e.g., Whittingham, Sofronoff, & Sheffield, 2006; Whittingham, Wee, Sanders, & Boyd, 2010), and randomised efficacy and effectiveness trials that have evaluated different delivery modalities with a variety of populations (e.g., Hampel et al., 2010; Harrison, 2006; Jahnel, 2010; Roberts et al., 2006; Whittingham, Sofronoff, Sheffield, & Sanders, 2009b). These studies have included children with intellectual, physical and sensory disabilities and pervasive developmental disorders such as autistic disorder and Asperger's syndrome. As a consequence, a sizable and growing body of evidence demonstrates the efficacy of SSTP with children with a wide range of developmental disabilities. Studies have also supported the Triple P dissemination process (e.g., Shapiro, Prinz, & Sanders, 2008).

2.4 Ensure that Programs to Be Used are Acceptable and Appropriate

To be useful at a population level, an intervention needs to have broad consumer appeal and appropriateness across diverse segments of the population. A challenge for a public health approach to strengthening parenting among the disability population is the wide range of developmental disabilities and their associated behavioural phenotypes. Designing a different intervention or program for each cause of

developmental disability is perhaps neither feasible nor desirable. A viable alternative is to create a core set of programs that are flexibly constructed to serve many disability populations, but which can be augmented with supplementary materials tailored specifically to particular syndromes or causes of developmental disabilities as necessary. Providing syndrome specific information such as potential behaviour problems and indicated strategies/interventions, and drawing on exemplars that are within each family's experience are ways to tailor the core program to particular families needs and enhance consumer acceptability (Mazzucchelli & Sanders, 2010).

The culturally appropriateness of a program also needs to be considered. Parents from diverse cultural, linguistic, and religious backgrounds may seek support with parenting issues related to their child with a developmental disability. There is increasing evidence that the principles of positive parenting are cross-culturally robust. The core Triple P program has been shown to be acceptable and effective to parents in a range of cultural contexts (Leung, Sanders, Leung, Mak, & Lau, 2003; Matsumoto, Sofronoff, & Sanders, 2010; Morawska et al., 2010). Given this, it may be assumed that SSTP would be similarly acceptable and effective. Although empirical confirmation of this is pending, SSTP has been demonstrated to be acceptable and effective in Australia (Roberts et al., 2006) and Germany (Hampel et al., 2010) and efficacy trials of SSTP are presently underway in Belgium, Holland, New Zealand and the United States of America.

2.5 Provide a High Quality Dissemination Program

Practitioners from a variety of disciplines are involved in the delivery of services to parents of children with developmental disabilities. Consequently, a public health approach to strengthening parenting in the disability population will require a multidisciplinary training and dissemination program. What is evident from current

thinking in implementation best practices is that the quality of the parenting intervention, the type of skills-training service providers receive, and the supportiveness of the post-training workplace environment interact to determine whether the service providers change the way they work with parents (Fixsen, Blase, Naoom, & Wallace, 2009). Professional behaviour change within an organisation is more likely when managers, administrators and colleagues support the adoption of the treatment and when adequate supervision and support is available (Sanders, Prinz, & Shapiro, 2009). Consequently, an effective dissemination process must not only adequately train practitioners in the content and processes of an intervention, it must also engage participating organisations to ensure that the accurate delivery of the intervention is supported.

2.6 Ensure the Parenting Intervention is Widely Available

For a population health approach to work, sufficient numbers of parents need to participate in the program. Knowing the effectiveness of a program makes it possible to estimate how many parents need to receive an intervention if a population benefit is to be detected. Based on prior research that has evaluated different levels of SSTP and the Triple P system, the number of parents in a geographical catchment area who need to participate in order to achieve various reductions in the prevalence of clinically significant behavioural and emotional problems can be estimated. For instance, for the Australian state of New South Wales (NSW) to achieve a 20% reduction, between 4,347 and 4,431 parents would need to participate, depending on the mix of programs being accessed (see Table 1). It might be noted that a limitation of these estimates is that they do not take into account the provision of a media and communication strategy, and no study has yet examined the effects of delivering all these levels concurrently. There is evidence that a media strategy can be an effective intervention in its own right,

as well as raising parents' awareness and willingness to attend a parenting program (Sanders, Calam et al., 2008). One might anticipate a synergistic effect from the concurrent availability of alternate delivery modalities of an empirically supported system of parenting support and, in fact, fewer parents might need to participate to reach the desired reduction in population prevalence.

Once the minimum number of parents who need to participate has been estimated, the number of practitioners that would need to be trained to deliver the programs can be estimated. For NSW, it is estimated that to achieve a 20% reduction in population prevalence of child emotional and behavioural problems between 34 to 47 practitioners would need to be trained.

For a population health approach to work, practitioners need to become regular users of the programs they have been trained to implement. Factors that complicate practitioner estimates include the fact that it is not known how the concurrent availability of alternative delivery modalities will affect the demand for participation in a specific program modality (such as a group delivery). Also, some practitioners are likely to become high users of the program and intervene with more families compared to other practitioners. Sanders et al. (2009) reported that two-thirds of service-providers who were trained in Triple P became users of Triple P and that the vast majority maintained their program use when assessed 6 months post training. Service providers who became high users of Triple P tended to be trained in the group variant of the program, had few barriers to implementation, received positive feedback from parents regarding the program, and tended to consult with other practitioners delivering the program. The likelihood of being a high user diminished when practitioners had low self-efficacy or confidence, found it difficult to incorporate the program into their job, and lacked workplace support.

Consideration is also needed as to how to engage families' participation in the program. A population health approach will fail if families are not aware of or choose not to participate in the program that is available. Parental willingness to participate in a parenting program depends on a number of factors, among them, the nature of the program offered, how it is delivered, perceptions of the parents as to whether the program is relevant and meets their needs, how much time they will need to invest in completing the program, and the payoff they anticipate relative to other uses of their time (Morawska & Sanders, 2006). A number of strategies, such as using orientation sessions for parents who are first receiving a diagnosis or accessing services from a disability support agency could be used to normalise and destigmatise participation. The use of the media in the form of local newspapers and service and school newsletters, mailings to family households, and website information also represent a ideal ways to raise parents' awareness and willingness to attend a parenting program. Different media messages could be used to provide information of interest to parents and demystify what is involved in participating in a parenting program by providing relevant, meaningful, and accurate information for parents.

2.7 Track Population-Level Outcomes

Assessing the impact of public health interventions requires a focus on the wellbeing of entire populations of children and parents. This requires some form of population-level auditing of parents to assess whether parental concerns about children's behavioural and emotional problems have decreased and whether there has been an increase in parent use of positive parenting methods and a decrease in dysfunctional parenting practices. Participation rates in parenting programs and access to formal and informal support should increase.

Previous population trials may inform the selection of measures to be used in

trials involving parents of children with developmental disabilities. Sanders and colleagues have used population-level household surveys collected through computer assisted telephone interviews, which have included assessment of constructs that provide population indices of penetration and impact, assessment of practitioners, and evaluation of cost considerations to assess the impact of Triple P (e.g., Sanders, Ralph et al., 2008). Prinz et al. (2009) employed aggregate archival data at a county level to evaluate the impact of Triple P as a population-level intervention to prevent child maltreatment. The data came from records of statutory authorities that assessed founded and unfounded cases of child maltreatment, out-of-home placements, and hospitalisation accident and injury data. Children with developmental disabilities are at significantly greater risk of being maltreated and receiving an out-of-home placement than their typically developing peers (Sullivan & Knutson, 2000). Consequently, it might be appropriate to use the same variables to assess the impact of a parenting intervention for this population. Other relevant indexes would include measures of childhood development that are routinely and universally collected, such as the Australian Early Development Index (Sayers et al., 2007). These data could be gathered by linking the records of individual children across disability, health and welfare agencies. Such methodology has been successfully used in studies investigating the prevalence and epidemiological characteristics of children with disabilities (e.g., Sullivan & Knutson, 2000).

3. Potential Barriers

A range of barriers and problems can be anticipated in implementing a population health approach to strengthening parenting of children with a developmental disability. These range from issues that might interfere with the access or uptake of a parenting

intervention, obstacles that might make it difficult for parents to complete a parenting program, or problems that might cause a program to be less effective than its potential.

3.1 Unhelpful Explanations and Beliefs

Biases in which child behaviour is attributed to factors that cannot be changed can interfere with the uptake of parenting interventions. For instance, with the phenomenon known as diagnostic overshadowing, symptoms or behaviours of a person with a developmental disability are attributed to the person's underlying impairments causing co-morbid psychopathology to be under-diagnosed. The consequence is that appropriate treatments are not implemented and the apparent confirmation of the original attribution (Reiss, Levitan, & Szyszko, 1982). Similarly, the belief that behaviours that are characteristic of a particular syndrome will inevitably develop can cause parents to be unmotivated to attempt to influence these behaviours, or even to inadvertently encourage these behaviours. Clear information is needed for both disability professionals and parents as to the varied influences on children's behaviour and the potential for children to learn new skills and behaviours. A universal parenting information campaign is ideal for this purpose.

3.2 Quick Fixes

Difficulty adjusting to a child's diagnosis, lack of awareness as to the interventions available and/or lack of skills in critically evaluating the evidence base of interventions can leave parents vulnerable to choosing interventions for their children that may have bold claims made about their effectiveness, but with little good evidence to support such claims. Parents can spend time and money on less effective, ineffective or even interventions with iatrogenic effects. The universal elements of a public health approach should alert providers and carers about the existence of poorly supported (and sometimes exploitative) interventions. Universal programs also have the potential to

educate providers and carers as to how to: (a) evaluate the claims made in support of interventions, and (b) make informed decisions as to what interventions and supports are best suited under particular family circumstances. Information about the evidence supporting the public health approach should be readily available.

3.3 Depiction of Families

Care must be taken in the selection of images and examples used in media promoting or supporting interventions and programs. A balance must be struck between presenting images and examples that depict some of the unique difficulties and challenges faced by parents of children with disabilities, while at the same time recognising and acknowledging that most family experiences and challenges are shared by all families in the community. Parents may fail to see the relevance of a program if supporting images do not reflect the unique experiences and challenges they face. Conversely, there is a risk that overemphasising challenges might lead some families to reject a program due to their desire to be seen as the same as other members of the community. A universal media strategy designed for parents of those children who are developing typically as well as those with developmental disabilities should be inclusive and reflect the full spectrum of families' experiences. Sufficient exemplars should be used which vary non-critical stimuli (such as a child's support needs) so that core parenting principles and strategies are discernable.

3.4 Help Seeking Strain

Seeking appropriate supports, coordinating and attending appointments and implementing recommendations from health and developmental practitioners are all tasks associated with additional stress and can cause parents' resources of time, money and physical and emotional energy to be placed under considerable strain. If this causes individual and family needs to go unmet, families may prematurely terminate

interventions and the maintenance of intervention effects can be threatened.

Consideration needs to be given as to how to reduce the stress associated with receiving support. Coordination of services so that all health and developmental practitioners within the community provide consistent information and advice is an important goal to aspire to. A flexible system of interventions would permit the flexible tailoring of the mode, content and intensity of interventions to the idiosyncratic needs and preferences of families. When appropriate, interventions might usefully include information and advice on appropriate and effective personal and family coping strategies.

3.5 Turf Wars

The disability sector involves service providers from many disciplines including dietitians, medical practitioners, nurses, occupational therapists, physiotherapists, podiatrists, psychologists, social workers, speech pathologists and teachers. Involving these practitioners in the provision of a parenting intervention has the advantage of broadening the program's reach, facilitating the more timely provision of advice, and promoting greater consistency in the advice provided to parents. This approach is consistent with contemporary models of multi-professional practice including emerging transdisciplinary models of practice (King et al., 2009).

A common barrier is when one discipline or agency contends that certain services or interventions remain solely within their jurisdiction. Another barrier that can interfere with the effective dissemination is when a discipline or agency denies that a service or intervention is its responsibility. The consequence of both these kinds of barriers is that families might not receive the services they need. Strategies that promote better understanding of the respective and complementary roles of different disciplines and organisations can improve access to services for families in need of support (e.g., across agencies and multidisciplinary-based training).

3.6 Behaviour Support Policies

A particular issue in the disability sector relates to standards of ethical practice in behaviour support. Concerns regarding particular practices and interventions have led regulatory bodies and agencies to develop policies on what is not acceptable, and, on occasions recommendations for the complete elimination of empirically supported procedures such as response cost and time out. Such recommendations have the potential to limit the availability of effective treatment options to families and may even be a violation of a client's right to effective treatment (Gerhardt, Holmes, Alessandri, & Goodman, 1991).

Procedures such as time out and response cost in the context of parenting interventions are normative. They are used along with a number of other strategies in most evidence-based parenting programs for parents of young children (Morawska & Sanders, 2011). They are widely used by parents, and parents rate them as acceptable and effective strategies, including parents of children with intellectual disabilities, autism spectrum disorders and cerebral palsy (Roberts et al., 2006; Whittingham, Sofronoff, Sheffield, & Sanders, 2009a; Whittingham et al., 2010). There is also considerable evidence that time out, when used in combination with other positive parenting methods, can be an effective strategy for reducing child noncompliance and aggressive behaviour over and above the effects of praise, rewards, use of effective instructions and other behaviour management strategies (Morawska & Sanders, 2011).

While ethical practice in the disability sector should be encouraged, it is important that misinformation about empirically supported and normative procedures does not lead to parents being denied access to effective interventions, especially for a population at substantially greater risk of developing emotional and behavioural problems. When such misinformation is encountered, it should be challenged.

4. Is the Public Health Approach Cost Effective?

A public health approach to parenting interventions within a disability context would involve the adoption of population-wide strategies to optimise impact and reach a larger segment of the population of families who have a child with a disability. This approach could be conceived as simply targeting the disability sector; however, greater synergies might be achieved if this approach is embedded within a larger strategy focused on the entire population of families with children.

Research has found that the costs of establishing a public health infrastructure to support the implementation of Triple P to be modest (less than US\$12 per child; Foster, Prinz, Sanders, & Shapiro, 2008). Given the extremely high societal costs of child and family problems, and the estimated level of reduction in cases of child behaviour problems expected from implementation of the Triple P system, such an investment is likely to be effective (Mihalopoulos, Sanders, Turner, Murphy-Brennan, & Carter, 2007).

5. Conclusion

Children with developmental disabilities are at substantially greater risk of developing emotional and behavioural problems compared to their typically developing peers. These problems can be complex and challenging for parents and are one of the best predictors of burden of care or parental distress. While the quality of parenting that children receive has a major effect on their development, empirically supported parenting programs reach relatively few parents. The present paper has presented an argument for a public health model of parenting support for this population. Recent trials have shown that this approach to parenting intervention can have large positive benefits within the general community. A population-based implementation and evaluation trial of an empirically supported system of interventions is needed to

determine whether this approach is viable and can have a positive impact on parents and their children in a disability context. One example of a system of parenting intervention that satisfies the requirements for such a trial is SSTP. The challenge now is to evaluate this system as a public health approach for the disability population.

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Table 1

Estimated Number of Parents Needed to be Reached and Practitioners Needed to Deliver Various Mixes of Stepping Stones Triple P Programs to Achieve Desired Reductions in Prevalence of Clinically Significant Behavioural and Emotional Problems in Children (2-10 years) with an Intellectual Disability in New South Wales, Australia

Program mix	Desired reduction in population prevalence (%)			
	5	10	15	20
20% Selected seminars; 30% Primary Care; 2% Self-directed; 28% Group; 20% Standard				
Parents that would need to be reached	1,087	2,173	3,260	4,347
Practitioners needed for desired reach to be achieved over a two year period	12	23	35	47
40% Selected seminars; 25% Primary Care; 2% Self-directed; 20% Group; 13% Standard				
Parents that would need to be reached	1,097	2,194	3,291	4,388
Practitioners needed for desired reach to be achieved over a two year period	10	20	30	40
60% Selected seminars; 20% Primary Care; 2% Self-directed; 12% Group; 6% Standard				
Parents that would need to be reached	1,108	2,215	3,323	4,431
Practitioners needed for desired reach to be achieved over a two year period	8	17	25	34
Children with clinically significant problems who would move into the normal range ($n = 11,327$)	566	1,133	1,699	2,265

Note. New South Wales population estimates based [on](#) data from Australian Institute of Health and Welfare (2008), and assuming that 40% of children with a developmental disability are in the clinical range for emotional and behavioural problems. Stepping Stones Triple P efficacy estimates based on data from Harrison (2006), Jahnel (2010), Plant and Sanders (2007b), Sanders, Markie-Dadds et al. (2000), and Turner and

Sanders (2006). Practitioner estimates based on data from Triple P International (2010). It is assumed that (a) only one parent from each family access a Stepping Stones Triple P service and (b) all parents who access a service access only one program.