Economic Impact
of
Children in Care with FASD

Phase 1:
Cost of Children in Care with FASD in Manitoba

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1. Introduction and Rationale

Fetal Alcohol Spectrum Disorder (FASD) is a serious social and health problem for the child welfare, health and education systems in North America with significant social and economic costs. Meeting the needs of children with disabilities creates significant challenges for child welfare agencies. In Manitoba, it was determined that one third of children in care fall within a broad definition of disability and 17% of children in care were affected by diagnosed or suspected Fetal Alcohol Spectrum Disorder (FASD) (Fuchs, Burnside, Marchenski, & Mudry, 2005). FASD encompasses a range of conditions that are caused by maternal alcohol consumption during pregnancy. Indicators include physical characteristics and inhibited growth, neurodevelopmental problems, and behavioral and cognitive difficulties that are inconsistent with developmental level. As a result, children with a diagnosis of FASD present agencies with an array of complex and variable needs. Both the significant proportion of children with FASD in care and the nature of their needs make it important to understand the service demands and the social and economic costs of this population to agencies, governments and communities.

Studies in the United States suggest that Fetal Alcohol Syndrome may be more prevalent in disadvantaged or impoverished populations. Further, disadvantaged populations are frequently over-represented in child welfare systems. Little is known about the prevalence and economic impact of FAS-related disorders in Canadian child welfare systems, or how the unique needs of children with this disability are being met when they are in care.

In Manitoba, a study was conducted to create a profile of children with disabilities who were receiving services from child and family services agencies in Manitoba (Fuchs, Burnside, Marchenski, & Mudry, 2005). The study investigated the characteristics of 1,869 children with disabilities who were receiving services on September 1, 2004. As some of those children were identified with Fetal Alcohol Spectrum Disorder (FASD), the study provided a unique opportunity to examine the situation of children with FASD within the population of children with disabilities in the child welfare system in Manitoba.

Because of the high prevalence of FASD in the children-in-care population in Manitoba, a second study focusing on children with FASD was conducted to examine the reasons for their coming into care and their trajectories through the child welfare system (Fuchs, Burnside, Marchenski, & Mudry, 2007). The data clearly showed that children with FASD had come into care at an age that was at least a year younger than any other group of children (although the condition of having FASD was not the reason for admission to care in the majority of cases). They became permanent wards more quickly. Their age at becoming permanent wards was two years younger than children with no disabilities and three years younger than children with other disabilities who also became permanent wards. Legal status and placement histories confirmed that children with FASD spend a greater proportion of their lives in care of an agency than other children.

When reviewing legal status and placement histories, it is important to be aware of the legislative context of the Manitoba child welfare system. In accordance with the Manitoba *Child and Family Services Act*, children who come into care in their preschool years must be secured in permanent placement more quickly than older children, due to their developmental need for attachment and stability. Therefore, if young children in care cannot be reunited with their parents within 15 months of legal guardianship, agencies are required to apply for permanent guardianship. Consequently, children who come into and stay in care at a younger age are more likely to become permanent wards than children whose admission to care occurs in school-age years or in adolescence. This has implications for the cost of care, as children who become permanent wards in their preschool years will require care until age of majority.

The number of children with FASD and their demonstrated dependence on child welfare agencies emphasizes the importance of strategically addressing their needs. Further, the Addictions Foundation of Manitoba reported that 1,200 women of child-bearing age were screened for addictions programs in the 2005-2006 year indicating that there is a risk of continued demand for services for children with FASD (Fuchs, et al., 2007). The implications for agencies include increasing demands on the expertise of workers, caregivers and service providers and the program supports currently available, and increasing need for comprehensive service plans to support the transition of children with FASD into adulthood. Further research is needed to identify the unique developmental needs and to examine the social and economic costs of the children with FASD who are in care over the length of their childhood and adolescence.

Using the population of children identified in the Child and Family Service Information System (CFSIS) as having diagnosed FASD, this study was designed to examine the financial costs of those children. More specifically, the goal of this project was to answer the questions:

1. What is the cost of child welfare care for children with FASD in the Province of Manitoba?
2. What are the cumulative costs over a one year period?
3. What are the specific types and amounts of costs covered?
4. What do the findings on financial costs suggest for the overall examination of the economic impact of FASD on children in care?

Knowledge of the costs associated with children with FASD in care of child welfare agencies can lead to a more informed process for addressing the needs of those children and provide increased impetus for efforts to reduce the incidence of FASD.

2. Research Context

Definition

Fetal Alcohol Spectrum Disorder (FASD) is not a diagnosis but rather an umbrella term used to describe a continuum of conditions that result from prenatal exposure to alcohol. Gestational exposure to alcohol can result in Fetal Alcohol Syndrome (FAS) which consists of a group of symptoms including characteristic facial features, growth deficiency and central nervous system dysfunction. The diagnosis is conditional upon a history of maternal consumption of alcohol during pregnancy. FAS represents the full expression of birth defects associated with maternal alcohol consumption. A number of other conditions may be diagnosed that describe varying degrees of effects. These include partial FAS, fetal alcohol effects (FAE), alcohol-related birth defects (ARBD) and alcohol-related neurodevelopmental disorder (ARND). All of these diagnoses are encompassed by the term FASD and all are associated with significant neurobehavioural deficits.

Diagnosis

The adverse effects of maternal consumption of alcohol have been noted throughout history but were first described as a pattern of disabling effects under the term Fetal Alcohol Syndrome by Jones and Smith in 1973. Because of the range of effects as a result of prenatal alcohol exposure, diagnosis of FASD can be complex (Chudley et al., 2005; Hay, 1999; Wattendorf & Muenke, 2005; Zevenbergen & Ferraro, 2001). Health Canada's National Advisory Committee on FASD, together with experts and practitioners in FAS diagnosis and treatment, have worked to integrate various approaches to achieve consistency across Canada. They have determined that "current knowledge of the complexity of the disabilities associated with prenatal alcohol exposure dictates that a comprehensive, multidisciplinary assessment is necessary to make an accurate diagnosis and provide recommendations for management" (Chudley, et al., 2005, p.52). The diagnostic process they describe would include screening and referral, physical examination and differential diagnosis, neurobehavioural assessment and treatment and follow-up. The core diagnostic team would consist of a case management coordinator, a physician trained in FASD diagnosis, a psychologist, occupational therapist and a speech-language pathologist. "Because of limited capacity and expertise and the need to involve several professionals in a comprehensive multidisciplinary diagnostic evaluation, only a fraction of those affected currently receive a diagnosis" (Chudley et al., p. 52).

Incidence

Various attempts have been made to estimate the incidence of FASD. The Public Health Agency of Canada (2004) has summarized some international data suggesting that rates of FAS range from as low as .02% of live births (Seattle) to as high as 10.3% of live births (Northern Cape, South Africa). Chudley et al. (2005) indicate the prevalence of

FASD in the United States has been reported as 1-3 per 1000 live births and the rate of FASD as 9.1/1000 live births. There are currently no national statistics on the rates of FASD in Canada; however the incidence has been estimated at 1 to 6 in 1000 live births (Stade, Ungar, Stevens, Beyenne, & Koren, 2006). Prevalence, the total number of cases in a population at any one time, has been estimated in a number of small Canadian populations. In an isolated Aboriginal community in British Columbia, Robinson, Conry and Conry (1987) found a prevalence of 190 per 1000 live births. Asante and Nelms-Matzke (1985) estimated the rate of FAS and related effects at 46 per 1000 native Canadian children in the Yukon and 25 per 1000 in northern British Columbia. Chudley et al. (2005) cites the Saskatchewan study of Habbick, Nanson, Snyder, Casey, and Schulman. Based on referrals to a diagnostic clinic, they estimated the rate of FAS to be 0.589 in 1988-1992 and 0.515 per 1000 in 1973-1977. Two Manitoba studies are noted. Square (1997) estimated the prevalence in a Manitoba First Nations community to be 55-101 per 1000 and Williams, Obaido and McGee (1999) reported an incidence of 7.2 per 1000 live births in northeastern Manitoba. In considering these estimates it is important to remember that the complexity of diagnosis contributes to the delay or even omission of diagnosis (Chudley et al., 2005).

Risk Factors

Although several of these incidence studies reflect the rates found in First Nations communities, it is a misconception that FASD is associated with ethnocultural background. A five year study of birth mothers by Astley and colleagues, as cited by Chudley et al., 2005, found that women were from diverse racial, educational and economic backgrounds but were often challenged by mental health concerns and were victims of abuse. Jacobson and Jacobson (2007) describe several risk factors. The risk of FASD increases markedly with increasing maternal age. The severity of the condition is also increased when the mother has a longer drinking history. In addition, there are individual differences in genetic vulnerability. Infants born to mothers with certain variants of a gene involved in regulating alcohol metabolism are less at risk for FASD (Jacobson & Jacobson, 2007). Although relative risks are not clear, it is evident that the most important risk factor for FASD is related to blood-alcohol concentration (Chudley et al., 2005, p. 52).

The Cost of FASD

Although there is significant social and political interest in the cost of health care, illness and conditions, there is little data on the cost of FASD or the specific conditions that are included in that term. Four sets of American investigators are generally referenced for their work in estimating the annual cost of FASD in the United States:

1. Abel and Sokol (1987) measured cost from the perspective of the health care system and based their cost estimate on an incidence of 1.9 FAS cases per 1000 live births. Abel & Sokol (1991) repeated their estimate from a health care perspective but based cost on an incidence of .33 per 1000. This incidence rate

was derived prospectively and excluded populations known to face risks of FAS. Neither the 1984 or 1991 studies included costs beyond age 21.

2. Harwood and Napolitano (1985) used a societal perspective and included cost estimates for the value of productivity lost as a result of cognitive disabilities and the cost of education, treatment and residential care for patients of all ages. They used incidence rates of 1.0, 1.67, and 5.0 per 1000.
3. Rice, Kelman, Miller (1991) estimated costs from a health care perspective. They included an annual cost for treating FAS-related birth defects and cognitive disability as well as the cost for residential care for those over 21 years. The cost of residential care accounted for 80% of their total cost estimate.
4. Harwood, Fountain & Livermore (1998), based on the approach used by Harwood and Napolitano, estimated costs in 1992 using a prevalence rate of 2.0 per 1000. They included treatment and care to age 21, home and residential services to age 65 for those with moderate to severe retardation, special education services and lost productivity.

These cost studies produced a very wide variation in estimates. Lupton (2003) provides adjusted 2002 estimates for these earlier cost estimates and they range from $0.2 billion to $11.7 billion. Differences were largely related to very different assumptions about prevalence rates.

A more recent study in North Dakota used a methodology that may have relevance for Manitoba research. Klug and Burd (2003) estimated the economic impact of a child with FAS using the North Dakota Health Claims Database and information from health care facility visits made by children from birth to age 21 years in 1996-1997. Subjects were identified using the International Classification of Diseases, 9th edition (ICD-9) codes. A critique of their study by Ahn (2004) noted the difficulty of gathering information on young children who are usually undiagnosed and the difficulty with sampling in using a database that did not include uninsured individuals. Although there is no readily available solution for early identification of affected children, in Manitoba universal health care makes the health database a more reliable sample.

In Canada there is recent interest in examining the economic impact of FASD. The goal of the Canadian-based study of Stade, Ungar, Stevens, Beyene and Koren (2006) was to measure social and individual costs. It included measures of direct health care costs: cost of educational services, social services and direct costs to parents including the cost of externalizing behaviours[1]. Their measure also included some indirect costs such as missed work days for parents. Societal costs were presented from the perspective of society, the Ministry of Health and the patient. Determinants of cost were identified. The severity of the disability and the age of the child were both significant direct predictors of cost. The costs for children aged 6-15 years were higher than the costs in all other groups. Costs were also higher in Central and Western Canada compared to Eastern Canada. It was unclear to what extent those variables were influenced by the availability of services.

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[1] This study included the costs incurred as a result of externalizing behaviours which it defined as aggression such as damage to people or property or stealing (Stade et al., 2006, p. 4).

The education system that serves children in the 6-15 year age group generally provides a number of services to children with disabilities (Fuchs, Burnside, Marchenski, & Mudry, 2005) and these services are not as readily available for the adult population. Stade et al. (2006) noted that parents living in the East consistently reported a lack of educational and health services for their children with FASD. The annual total cost for an individual with FAS or FAE when adjusted for severity of disability, age and geographical region was $14,342.00. Although this study was designed to measure costs at the individual-patient level, it included a brief discussion of the cost of FASD to Canada. At the population level, they used a conservative prevalence rate of 3 per 1000 to estimate national costs at $344 million.

Hutson (2006), in her review of the cost of substance abuse in Canada, points out that many expenses associated with FASD, such as medical and educational costs, are relatively easy to estimate. However, she notes a lack of data in two areas critical to cost estimation for this population: the child welfare system and the justice system. Citing an estimate that 50% of the children in care in Alberta have FAS, Hutson (2006) concludes that children with FASD are most likely overrepresented within the child welfare system. There is a good indication of the number of children in care with FASD in Manitoba. Fuchs, Burnside, Marchenski and Mudry (2005) found evidence of FASD in 17% of the children in care in Manitoba. This previous research makes it possible to report on the actual cost of children in care with FASD in Manitoba.

Summary

FASD is a term describing the range of complex physical and neurological symptoms that result from prenatal exposure to alcohol. Recognition and diagnosis of the condition has received renewed interest both nationally and internationally. Currently attempts to estimate the incidence and prevalence of the condition are somewhat problematic. Although there are no national statistics, in Canada the incidence is estimated at 1 to 6 per 1000 live births. Several risk factors have been identified including maternal age and length of drinking history. Increased awareness of the prevalence and service needs of those with the condition have created interest in determining the financial implications of FASD. The cost of FASD has been variously estimated in the United States and estimates range widely from $0.2 billion to $11.7 billion. A recent Canadian study estimating social and individual costs concluded that the annual cost of an individual with FASD was approximately $14,000. This estimate did not include children in care although there is reason to believe that children with FASD are overrepresented in the child welfare system. Previous research in Manitoba has identified a population of children with FASD in care of the child welfare system. This makes it possible to determine with considerable accuracy the cost of that group of children and add to current knowledge of the economic impact of FASD.

3. Methodology

This study sought to examine the financial costs of children in care with FASD in Manitoba. A detailed examination of the financial record system pertaining to children in care with FASD including identifying the location of the records and the processes for the aggregation of the information was completed. Only the financial records of children who receive provincial funding for their child welfare care (that is, children living off-reserve) were available for this study, and children living on-reserve whose care is funded by the federal government were not included.

In order to identify children with FASD, the initial task of this phase of the research project was to gather information on the FASD population from the Children with Disabilities study that was previously completed by this research team from the Child and Family Services (CFS) administrative database. Child and Family Services Application (CFSA) is the data system used by child welfare agencies within Manitoba. It has two main components: Child and Family Services Information System (CFSIS) and the Intake Module. For the purpose of this study, CFSIS was used. Special queries conducted through CFSIS established a list of children with FASD that had initially been identified in the 2005 report (Fuchs, Burnside, Marchenski, & Mudry, 2005).

Using CFSIS, a special query created a list of children who were identified with FASD (diagnosed, partial, Alcohol Related Neurological Disorder and suspected) in 2004-2005. The children included on the list may have had other disabilities in addition to FASD. As demonstrated in previous research, this population was commonly diagnosed with other disabling conditions. For example, a co-occurrence of mental health disorders was identified in 46% of the children with FASD (Fuchs, et al., 2005). These children also had to have an open child in care (CIC) or child in care supervision (CIC-Sup) file for at least one day during the period of January 1, 2006 to December 31, 2006. Children were included regardless of their legal status.

The children were then divided into two groups: diagnosed FASD (recorded in CFSIS as diagnosed, partial or ARND) and suspected FASD. The sample of children with an FASD diagnosis was then filtered to include only those who were Permanent Wards (PW). Children with other legal statuses such as under apprehension or temporary wards as of January 1, 2007 were not examined to allow for more consistent comparisons of age groups of children with FASD for a full year of in-care status.

Information on the child’s culture of origin was not requested in the query used to obtain the study sample. However, the over-representation of Aboriginal children in care has been noted in the previous study (Fuchs, et al., 2005).

<u>Measure</u>

The data collection tool was based on the existing “Child maintenance actuals for foster and special rate care by child” form found in the Child and Family Services funding guidelines for child maintenance (2006). (See Appendix A). This form (or one similar) was used by various agencies to submit costs to the Child Protection Branch for payment. Minor modifications were made to the form to create the FASD Financial Cost Tool used by researchers (see Appendix B).

Both the data collection tool and data collection process were tested using financial data from various agencies related to the cost of children who were known not to be included in FASD sample. The tool was adjusted as necessary. The researchers gathering the data were trained in the use of the tool and their work was examined for consistency.

Random Sample

It was decided that a random sample of 75% (N = 400) of children who were Permanent Wards with diagnosed FASD would be created. The available cost data for child maintenance and special need services provided to children with diagnosed FASD for the one year period of January 1, 2006 to December 31, 2006 was then gathered. Members of the research team reviewed the physical financial records of the available cost data for those children identified as part of the random sample. Children for whom no financial information was available were excluded from the random sample. Children excluded because there was no available financial record from the random sample were replaced to ensure a sample size representing 75% of the total. Since only provincial financial records were available to researchers, any children who were federally funded had to be replaced in the random sample. Other reasons for children not having financial data available included moving to another province, adoption, or the child's financial records being under a different name.

Physical records of the monthly financial reports were examined for 374 of the children. For the remaining 26 children only the electronic financial data were available and used for the analysis.

Analysis

The special queries that generated the total population of children with FASD who had an open CIC or CIC – SUP CFSIS case in Manitoba between January 1, 2006 and December 31, 2006 were produced by CFSIS in an Excel spreadsheet format. The preliminary query was validated by randomly checking information for 20 children in care against their actual CFSIS files. It was determined that the special query had created an accurate total population.

Initial findings of the analysis were used to create the random sample and provide demographic information. The financial information collected using the data collection tool was entered into Excel. Calculations of costs for the random sample group were then created using Excel formulas. Data totals were cross-checked to ensure accuracy in both the data entry and analysis.

Limitations

This study was designed as a file review of financial reports. The amount and accuracy of the information collected was dependent on the content and accuracy of the financial file. Financial information for some children was unavailable for several months. These children remained in the random sample as children in care may have occasion to be in ‘non-paid care’ (care that may not be directly funded by the child and family services system), such as hospitalization, incarceration, addiction treatment, select adoption probation, home visits and/or non-paid care placements. There are also times when a child may be AWOL, which may impact the provision of paid care placements.

Children included in the random sample may have multiple disabilities and the costs recorded may be for services, care or supplies required as a result of an additional disability. For example, a ramp would not be a cost related to FASD but instead related to an additional disability. Additionally, although a non-FASD comparison group would have increased understanding of the costs specific to FASD, it was not possible within the constraints of this phase of the project to develop or investigate such a sample.

Research information was also dependent on the accuracy of the filing system used by the Child Protection Branch and the data submitted by the agencies. Agencies varied considerably in their approach to completing and submitting financial records. It is also possible that information on file was missed by researchers. The files of some agencies had financial reports that were not in alphabetical order, as well as having rebilling and adjustments for over/under payments. There was also variance amongst agencies in how/where they recorded financial costs for children on the form used by agencies in the Province of Manitoba. Also, researchers were only able to access yearly totals for two agencies, while the remaining agencies had monthly financial data available.

The financial data collected is reflective of the costs for one calendar year. There may have been over/under payments made that would be corrected in future years. Since this study looked at a calendar year and not a fiscal year, direct comparison to CFS fiscal reports need to be made carefully. Further, from 2005-2007 following the period of devolution (where cases were transferring from one child and family services Authority to another as part of a provincial restructuring of the child welfare system), a freeze on special rates was in place. Therefore, the costs calculated for this study, based on the cost of care in 2006, may not fully reflect the total cost of meeting the actual care needs of children.

Due to the centralized emergency care system in Winnipeg managed by one agency but accessed by all agencies, costs of care for children with FASD who required placement in a shelter are reflected in the costs of Winnipeg Child and Family Services.

4. Findings

This section presents the demographic profiles of the children with FASD. It also outlines the findings related to the type of expenses and the financial costs for care of children with FASD who were permanent wards (PW) over one calendar year.

General Demographics

Total FASD Group

The special query identified a total group of 882 children who had some form of FASD recorded for the 2004-2005 year and had an open children in care (CIC) or children in care - supervision (CIC-Sup) case for at least one day in 2006. The 882 children consisted of 542 (61.5%) males and 340 (38.5%) females. The children ranged in age from 2 to 21 years, with a mean age of 11.7 years (Mdn = 12) as of December 31, 2006.

Of the 882 children, 604 had a form of diagnosed FASD (in CFSIS this was recorded as diagnosed FASD, partial FASD and/or ARND) and a further 280 children had suspected FASD recorded in the 2004-2005 year. For 12 children, more than one type of FASD was recorded. In addition, the children in the sample may have had other co-occurring disabilities.

The legal status of children was derived from the recordings in CFSIS. Children who were permanent wards (PW) made up the largest group with 773 (87.6%) children. Other legal statuses included: 36 (4.1%) children in transition planning, 30 (3.4%) children under Voluntary Placement Agreements (VPA), 19 (2.2%) under apprehension, and 8 (0.9%) who were temporary wards (TW). In addition, there were 7 (0.8%) children under a petition for further order and 9 (1.0%) with an unknown legal status (current legal status was not entered in CFSIS).

Of the total group, 537 children had diagnosed FASD (recorded in CFSIS as diagnosed FASD, partial FASD and/or ARND) for the 2004–2005 year and were permanent wards as of December 31, 2005. This group consisted of 327 (60.9%) males and 210 (39.1%) females. The age ranged from 3 to 19 years with a mean age of 11.8 years (Mdn = 12) as of December 31, 2006.

For the purpose of this economic impact study, only children who were permanent wards (PW) as of December 31, 2005 had their financial records examined.

FASD Random Sample Group Used in Current Study

The total random sample group consisted of 400 children, who had diagnosed FASD (recorded as diagnosed FASD, partial FASD and/or ARND) for the 2004-2005 year and were a PW as of December 31, 2005. The 400 children consisted of 249 (62.3%) males and 151 (37.8%) females. The children ranged in age from 3 to 19 years, with a mean age of 11.9 years as of December 31, 2006.

All of the children in the random sample group were PWs for the entire 2006 year (365 days), meaning collectively these 400 children were in care for 146,000 days in 2006. Children in care, including permanent wards, may have non-paid days throughout the year. For this group, that included correctional facilities (765 days), AWOLS/whereabouts unknown (194 days) and family non-paid care (360 days). While it was not found in the random sample, children may also have non-paid care due to hospitalization or select adoption probation.

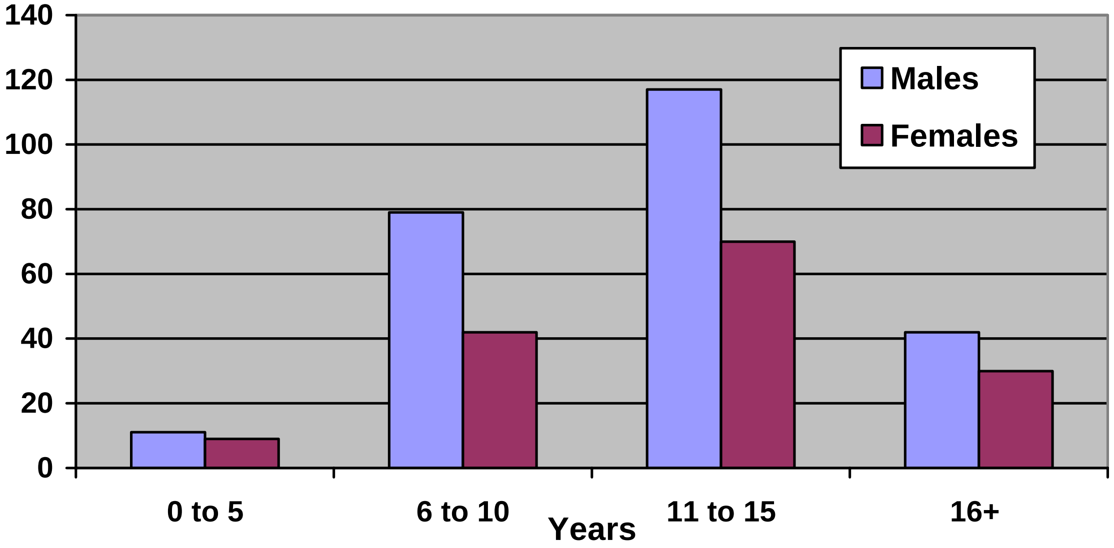
Age Groups.

For descriptive purposes the children will be discussed using the following 4 age groups: 0 - 5 years, 6 - 10 years, 11 - 15 years and 16+ years. Figure 4.1 shows the breakdown of children by age group and gender.

0 to 5 Years Age Group.

The 0 to 5 years age group consisted of 20 children: 11 (55.0%) males and 9 (45.0%) females. The children ranged in age from 3 to 5 years, with a mean age of 3.9 years as of December 31, 2006. All of the children in this group were PWs for the entire 2006 year, meaning collectively these 20 children were in care for 7,300 days in 2006.

Figure 4.1
Age of Children by Gender



6 to 10 Years Age Group.

The second group consisted of 121 children: 79 (65.3%) males and 42 (34.7%) females. The children ranged in age from 6 to 10 years, with a mean age of 8.5 years as of December 31, 2006. All of the children in this group were PWs for the entire 2006 year, meaning collectively these 121 children were in care for 44,165 days in 2006.

11 to 15 Years Age Group.

This age group consisted of 187 children: 117 (62.6%) males and 70 (37.4%) females. The children ranged in age from 11 to 15 years, with a mean age of 13.0 years as of December 31, 2006. All of the children in this group were PWs for the entire 2006 year, meaning collectively these 187 children were in care for 68,255 days in 2006.

16+ Years Age Group.

The oldest age group consisted of 72 children: 42 (58.3%) males and 30 (41.7%) females. The children ranged in age from 16 to 19 years, with a mean age of 16.9 years as of December 31, 2006. All of the children in this group were PWs for the entire 2006 year, meaning collectively these 72 children were in care for 26,280 days in 2006.

Financial Costs for Children with FASD

Three main categories of costs were examined by researchers. These were basic maintenance, special rate/special needs and exceptional circumstances. These categories were predetermined by the financial recording form already being used by child and family services agencies in Manitoba as documented in the Child and Family Services Funding Guidelines for Child Maintenance (2006).

The cost for the 400 children in the random sample for 2006 was $3,124,600 for basic maintenance, $6,074,974 for special rate/special needs and $230,752 for exceptional circumstances. This totaled $9,504,094, with an average of $23,760 for the year or $65 per day per child (see Figure 4.2)[2].

When the total financial costs were examined by age group, children aged 11 to 15 years had the highest average cost per child for 2006 at $26,021 or $71 per day per child. They also had the highest total cost of $4,865,910 for 2006. Children 16+ had the next highest average at $24,742 for 2006 or $68 per day per child with a total cost of $1,781,404 for 2006. The 6 to 10 year old age group had a yearly average of $20,633 and a daily average of $57 per child with a total of $2,496,616 for 2006. The youngest children had the lowest total cost for 2006 at $360,165 and the lowest averages with $18,008 for 2006 or $49 per day per child. The average daily cost per child for all age groups is shown in Figure 4.3.

Basic Maintenance

Basic maintenance is the first level of funding for children in care. It is the sum of basic rate and agency allowance. These funds are to provide for the everyday costs to care for children in care.

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[2] The sum of the three categories (basic maintenance, special rate/special needs and exceptional circumstances) does not equal the yearly total as only the yearly total (no monthly breakdown was available) for six children.

Figure 4.2
Total Financial Costs for 2006 in Canadian Dollars

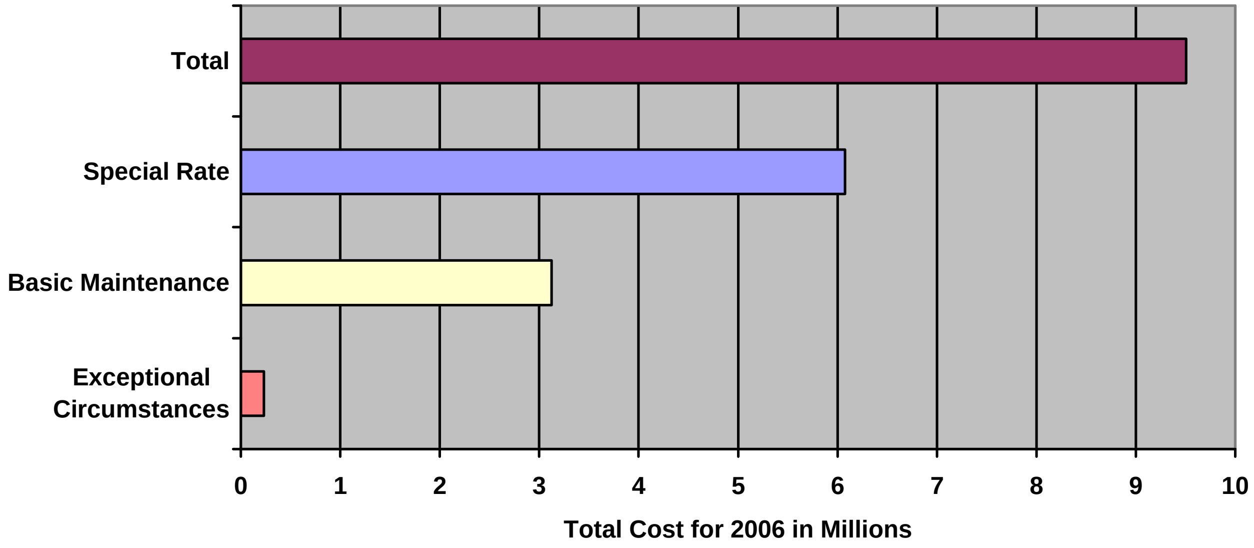
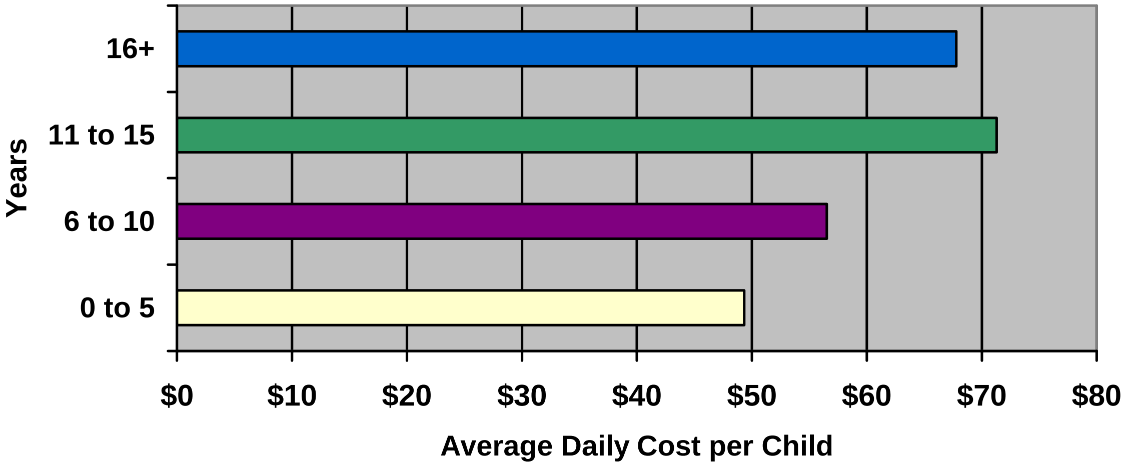


Figure 4.3
Average Daily Cost per Child in Canadian Dollars by Age Group



The basic rate portion of the money is paid directly to the caregiver (e.g. foster parent) when children are in care. Basic rates vary by age of the child, with caregivers of children 11 to 17 receiving more than caregivers of children 0 to 10 years of age. In addition, the rate is higher in the North to account for higher costs in remote areas. (The foster care rates are provided in Appendices C and D).

Items included in the basic rate are: household allowance; bedding/linen; repair, equipment and room maintenance; utilities; food; health and personal care; transportation; respite; replacement clothing; personal allowance; child care support/babysitting; and damage/deductibles.

The agency allowance portion of the money is paid to the agency and is based on the child's individual needs. These funds are used at the agency's discretion for gifts, education, activities, transportation, and other miscellaneous items such as daycare services and northern food allowance.

Of the 400 children, 394 (98.5%) had some cost recorded for this category for a total cost of $3,124,600 in 2006. The yearly average of costs recorded for 2006 was $7,930 with a daily average of $22 per child.

Special Rate/Special Needs

Special rate/special needs is the second level of funding. It is available to cover costs that exceed basic maintenance or were not intended to be covered by basic maintenance. This includes both increases in the per diem (through a fee for service) and one time only expenses such as respite, therapy, initial clothing, age of majority, home visits, medical, and other special expenses. While basic maintenance is paid automatically, special rate/special needs funding must be requested, supported and justified by social work staff and approved through internal agency procedures.

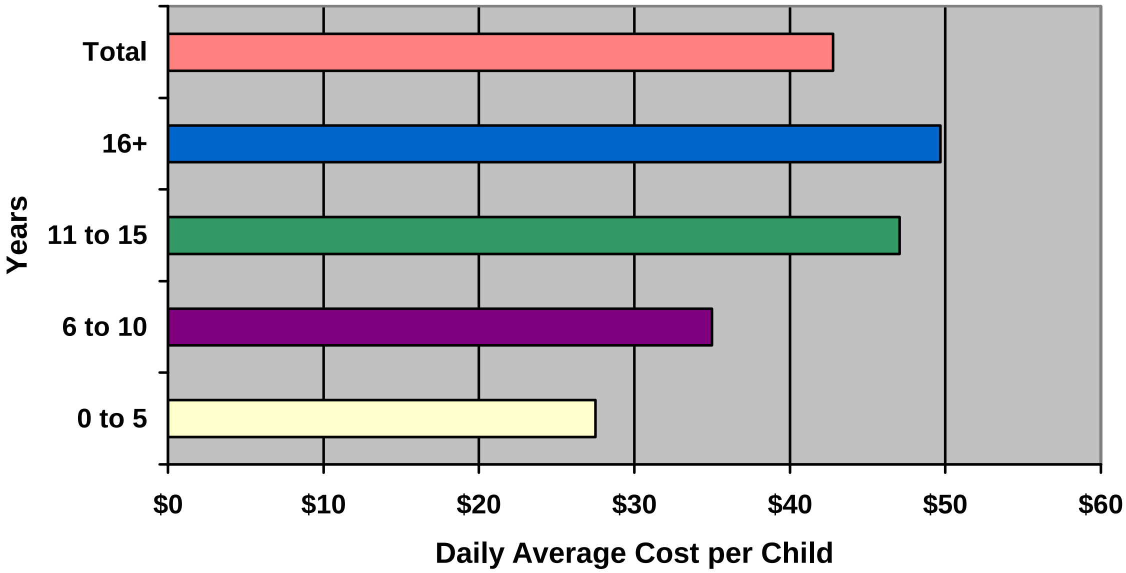
Of the 400 children in the sample, 389 (97.3%) had some cost recorded in this category, for a grand total of $6,074,974 in 2006. Costs recorded for the year ranged from $166 to $172,135 per child with an average cost of $15,617 for 2006 or $43 per day per child. (Table 4.1 provides a breakdown of the costs by age group). The average special rate/special needs costs were found to increase with age as shown in Figure 4.4.

Table 4.1
Special Rate/Special Needs Costs in Canadian Dollars by Age Group

	0 – 5 Years (N = 20)	**6 – 10 Years (N = 120)**	**11 – 15 Years (N = 181)**	**16+ Years (N = 68)**	**Total Group (N = 389)**
Minimum	753	728	379	166	166
Maximum	27,889	85,512	172,135	92,855	172,135
Median	7,750	8,874	9,929	9,722	9,464
Yearly Average	10,038	12,773	17,175	18,130	15,617
Daily Average	28	35	47	50	43
Total	200,754	1,532,720	3,108,689	1,232,811	6,074,974

The average daily financial cost per child reported by this study was compared to the cost reported by the Child Protection Branch for all children in care for a similar time period. While the children from this financial record were of all legal statuses and included the children of our sample, it was of interest to note the average special rate cost per day for each group. This study found a daily special rate average of $43 per child for children who are PWs and have diagnosed FASD. This is higher than the daily special rate average of $35 per day reported by the CPB for all children in care over a similar time period.

Figure 4.4
Average Daily Special Rate/Needs Costs by Age Group in Canadian Dollars



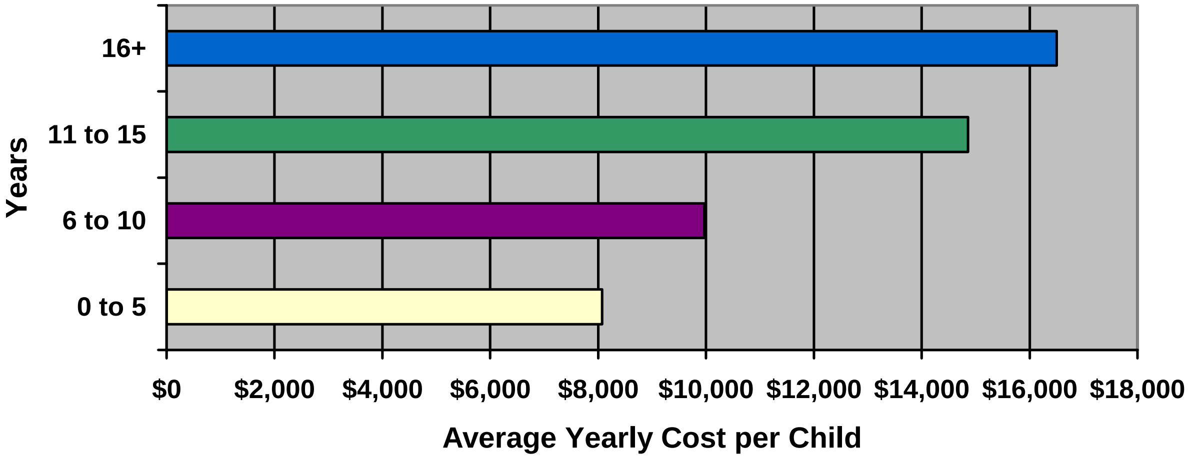
Four types of costs within the special rate/special needs category were further examined: fee for service, respite, therapy and medical costs.

Fee for Service.
According to the Child Protection Branch (2006), fee for service is "compensation paid to the foster parent in recognition of the additional time and services provided beyond that which would be normal for foster care. This would be determined by the needs of the child and the skills of the care provider."

Of the 389 children who received some form of special rate/special needs funding, 371 (95.4%) received fee for service. This additional funding ranged from $23 to $172,135 per child in 2006 and could be added to the child's care budget at any time during the year. The average yearly cost was $13,273 per child for a total of $4,924,163 for the 2006 calendar year. When examined by age group it was found that the average fee for service cost per child tended to increase with age (see Figure 4.5). The total fee for service cost for 2006 was $137,201 for 0 to 5 year olds, $1,176,595 for 6 to 10 year olds, $2,570,851 for 11 to 15 year olds and $1,039,516 for children 16 and up.

Respite.
Additional respite dollars, over and above that already provided in the basic maintenance rate, may be available for children. Additional funding for respite was provided for 243 (60.8%) children for a total annual cost of $679,795. The costs ranged from $48 to $25,342 per child for 2006 with a yearly average of $2,798. Like fee for service, respite costs could be initiated at any time during the year and may fluctuate based on the varying needs of the child.

Figure 4.5
Average Yearly Fee for Service Costs in Canadian Dollars by Age Group



For children ages 0 to 5 years, the average yearly cost for respite per child was $3,097 with a yearly total of $43,352 for 14 children. Children aged 6 to 10 years had the highest yearly average at $3,381 per child and a yearly total of $243,407 for 72 children. The lowest yearly average per child was found for children ages 11 to 15 years at $2,369. The total cost for this group was $293,694 for 124 children. Lastly, children 16 years old and older had a yearly average cost of $3,010 per child with a total of $99,341 for 33 children.

Therapy.
Therapy costs were incurred to provide children in need with ongoing treatment by a mental health practitioner where not directly covered by Manitoba Health (Child Protection Branch, 2006). This does not include ongoing assessments or consultation with workers or care providers. Therapy was funded for 48 (12.0%) children at a cost of $51,493 for 2006. The average yearly cost was $1,073 per child.

The average yearly cost per child for therapy increased for the younger three age groups, followed by a decline for children 16+. The two children aged 0 to 5 had a yearly average per child of $59 with a total of $119 for 2006. The 9 children aged 6 to 10 had an average of $1,008 with a total of $9,075 per year. The 28 children aged 11 to 15 had a yearly average of $1,327 and a total of $37,169. Lastly, the 9 children who were 16 and older had an average of $570 and a total of $5,130or 2006.

Medical.

Medical costs incurred for medical needs not covered under the Social Allowance Health Services Program or Manitoba Health are also covered under special rate/special needs funding. There were 129 (32.3%) children who incurred medical costs for a yearly average of $534 per child and a total $68,844 for 2006.

Initial clothing, age of majority, home visits and other special expenses accounted for the remaining $350,679 spent in the special needs/special rate category.

Exceptional Circumstances

Exceptional Circumstances is the third and final level of funding. It includes costs such as support services, out of province travel for children in care, criminal legal fees, funding for Level V children, and extra one time funding (e.g., renovations to a foster home for a disabled child). This type of funding requires prior approval, with the exception of legal fees.

There were 63 children (15.8%) who received exceptional circumstances funding. The total cost for 2006 was $230,752, with a yearly average of $3,663 per child. Examples of costs found by researchers included hotel accommodations, replacement of damaged household items/house at foster care residence, Medi Van, wheelchair ramp and training/child care. It was found that children aged 6 to 10 years had the highest average spent on exceptional circumstances compared to the total group average.

Summary

For this study, a random sample was drawn from a population of children identified by a diagnosis of FASD and Permanent Ward legal status on December 31, 2005. The sample population included children from 20 agencies, was 62% male and 38% female, and ranged in age from 3 to 19 years with a mean age of 12 years. The monthly agency billing for each child was examined and the total cost for the 2006 calendar year for each child was summed in three categories: basic maintenance, special rate/special needs and exceptional circumstances. The total cost for the sample population was $9.5 million including $3.1 million billed for basic maintenance, $6.1 million for special rate/special needs and an additional $0.2 million for exceptional circumstances.

The cost per child was compared across age groups. At an average cost of $71 per day, children aged 11 to 15 received the highest average daily funding. Those 16 years of age and over averaged $68 per day, followed by children in the 6-10 year old group with a daily average of $57, and the youngest children, the 0 to 5 year olds, $49 per day. Of the total agency cost, basic maintenance accounted for an average of $22 per day per child. In the sample, 97% of children received funding in the special rate/special needs category and 95% of that group received fee for service monies for a total cost of $4.9 million. Funding for additional respite was provided to 61% of the FASD sample ($0.7 million) and 12% received funding for therapy ($0.05 million). Medical costs not covered by Manitoba Health or the Social Allowance Health Services Program were paid for 32% of the children in the sample ($0.07 million). A small proportion of children (16%) received exceptional circumstances funding ($0.2 million). The average special rate cost for children in the sample at $43 per day was above the daily average of $35 reported by the Child Protection Branch for all children in care in a similar time period.

5. Discussion and Implications

At an average cost of $65 per day, children in care diagnosed with FASD deserve attention. As basic maintenance rates are standard for all children, the increased costs of care are primarily a reflection of special rate/special needs funding. While comparisons are somewhat problematic, it is nevertheless instructive to recognize the difference in the average per diem special rate cost for the sample population ($43) and the average special rate per diem for the total child in care population receiving a special rate ($35). It is clear from examination of actual expenditures that fee for service is the most important driver of the total cost of services for this population. It is also evident that this cost varies directly with the age of the child; that is, as the age of children increases so does the average fee for service cost.

The higher average special rate cost of care for this group merits even greater attention when considered in the light of previous research. The study of Fuchs, Burnside, Marchenski and Mudry (2007) demonstrated that children who received a diagnosis of FASD had come into care for the first time at an earlier age (2.5 years) than both children with no disability (3.6 years) and children with other disabilities (4.3 years). Their legal and placement histories confirmed that permanent wards with FASD spent on average approximately three quarters of their lives in the care of an agency or about 15% more than any other permanent wards. Therefore, not only are the daily special rate costs higher for this group of children but also those costs are extended over a lengthier period of time. It is also important to consider that once children in this group come into care they are more likely than other children to become permanent wards and to become permanent wards more quickly than other children (Fuchs, Burnside, Marchenski & Mudry, 2007).

An in-depth review of the placement histories of a small group of permanent wards with FASD revealed the tendency for an initial breakdown in placement to occur when children reached the 11-14 year age group (Fuchs, Burnside, Marchenski & Mudry, 2008). Coincidentally, reviewing the median costs of special rates by age group as reported in the current study, the 11-15 year old group had the highest median cost.

Given what has been learned in previous studies of the population of children with FASD in care in Manitoba (Fuchs, Burnside, Marchenski, & Mudry, 2005, 2007 & 2008), this cost analysis suggests a strong need for consideration of issues related to the provision of foster care, issues related to the service needs of this population, and issues related to service delivery.

Issues related to foster care

Fee for service has been identified as the main driver of the cost of service provision for this population. The high fee for service, compared to other groups of children, suggests that caring for children with FASD is a particular challenge for foster parents. Consideration could be given to strategies to better support foster parents in caring for children with FASD, to evaluate their needs as foster parents, and to assess the outcome of various support strategies, whether financial, respite, educational, etc on the costs as well as on the longer term functioning of children with FASD, and the incidence of placement breakdown in adolescence.

Developing measures of the well-being of children in care is work that is ongoing but not yet established. However, some factors influencing outcomes have been identified. The literature discusses several related or interdependent factors that work together to support or undermine the successful adaptation to independence of youth in care. Those factors include the stability of residential placements, the stability of school placements, mental health issues, and an enduring attachment to a significant adult (Pecora et. al, 2005; Reid & Dudding, 2006; Reid & Dudding, 2007). Children with a disability have been shown to be particularly disadvantaged in that their placements are at least four times more likely to be non-kin foster care. Placements of this type typically result in more placement changes than reunification, adoption, or placement with relatives (Romney, Litrownik, Newton, & Lau, 2006). Therefore, placements that are enduring, that maintain school continuity, and that promote the development of lasting supportive relationships provide the most positive outcomes. Providing stable placements is a challenge but has been shown to be even more challenging for children with disability.

The payment of a special rate to foster parents recognizes that parents are attempting to meet a demand for the provision of more skilled parenting. It is reasonable to expect that the demands on parents would increase as children enter their teen years and this is reflected in the increase in the average of special rates as children age. However, it appears that instability also increases at this time. What do foster parents need to assist them in maintaining placements? Increased rates alone may not address the issues underlying placement breakdown. What preparation for caring for a child with FASD do parents receive? And what commitment to care do parents make or agencies demand?

Additional respite is often regarded, at least anecdotally, as an option to assist parents in dealing with ongoing stress. The pattern of respite provided in this sample indicated that the average annual cost of respite per child to support those parenting children in the 11-15 group was actually less than that provided to any other age group. The proportion of those receiving respite was comparable across groups. The proportion of parents in each age group that received respite was: 0-5 years 70%, 6-10 years 60%, 11-15 years 69% and 16 and over 49%. Yet the cost of respite provided per child in the 11-15 year old group was $1,000 less per child than the amount provided to the 6-10 year old group and $700 per year less that that provided to each of the other age groups. The reason for this rather startling finding is unclear. Speculatively, the lessened use in adolescence may be related to placement breakdowns that tend to initiate a chain of admissions to shelters and/or short-term placements where respite is not required/implemented. Once placement stability is achieved, respite may again be added. Another possibility is that the challenge of finding respite providers for this age group limits the use of respite funding. It should be noted that additional respite was provided to 62% of parents caring for children with FASD meaning that 38% of those parents did not receive any additional respite.

Only 12% of children in the sample were receiving mental health therapy that was paid as an additional cost to the agency. Children with FASD experience a variety of co-occurring or secondary disabilities and the most frequently noted are mental health disabilities. Fuchs, Burnside, Marchenski and Mudry (2005) found 46% of children with FASD in care in Manitoba also had a diagnosed mental health disability. (Other co-occurring disabilities included medical conditions 20%, physical impairments 17%, and sensory impairments 2%). The most commonly co-occurring mental health disability, affecting 39% of the children with FASD, was ADHD. Other mental health conditions were diagnosed in 6% of children with FASD. Typically ADHD is a condition that would necessitate intervention within the school system as opposed to mental health services and would, therefore, not be included as an additional cost to the CFS agency. These numbers would support the relatively low number of children receiving therapy. Therapy costs are, of course, recorded here for only the 2006 year and do not reflect any history of therapeutic intervention that may have occurred for a child in another year.

Issues related to service needs

Meeting the needs of children with FASD in care presents a number of challenges. Four particular challenges are associated with providing care for children in this group: the length of time they are in care; their special developmental needs; their needs as they transition out of care; and the number of affected children that will continue to enter the system and require care. Each of these challenges is a factor that increases the demand on resources available for children in care in Manitoba.

It has been identified and discussed that children who are diagnosed with FASD enter care at an earlier age, tend to become permanent wards, and spend a greater proportion of their lives in care. These factors place additional responsibility on child welfare agencies as they must assume the role of substitute parent for the majority of the individual's childhood years. Children in care are known to be disadvantaged and face additional risks to their successful adaptation to adulthood. These risks must be addressed by the agency representing the caring of the community. The duty of a responsible substitute parent carries a fiscal commitment.

In addition, the needs of this group of youth suggest that their care should be extended to the limit that is possible under current legislation. Although this would increase the cost of care for this group, that cost could be balanced by remaining in school longer and being mentored past adolescence. An investment made earlier in the life of the individual could be used to maximize their adult independence thus reducing the potential cost to adult health, income and judicial systems.

In addition to systemic responses to the needs of children in care with FASD, interventions are required at a child-specific level. FASD is a complex constellation of symptoms that varies from individual to individual. Managing the condition necessitates effective assessment and planning. Workers and care providers need to be aware of the nature of the condition, its specific impact on the children in their care, best practices in managing children with FASD, and the protocol for transitioning out-of-care for children with disabilities. Training specific to the challenges related to FASD is recommended for foster parents, social workers, and other service providers who deliver care services to children with FASD. In addition, workers and foster parents must be prepared with the knowledge and skill to advocate for appropriate service provision from the medical system, the education system, the disability service sector and the providers of adult services. Each of these strategies contributes to the ability of a child with FASD to successfully navigate from care to the adult world.

In 2007, Fuchs, Burnside, Marchenski and Mudry reported on the involvement of women of child-bearing age with the Addictions Foundation of Manitoba (AFM). In 2005-2006, AFM screened 1212 women between 19 and 45 years of age. A minimum estimate of the number of children parented by the women who were screened was 2,457. Many of those women (about one third) were already involved with a child welfare agency. Only 25% of the women reported being in a relationship meaning that the majority were solely responsible for the care of children. The potential for children to be affected by alcohol, both biologically as a result of prenatal exposure and environmentally as a result of postnatal exposure, remains significant. The potential to reduce costs to the child welfare system by the prevention of prenatal and postnatal exposure to alcohol is without parallel. Even if prevention efforts were able to reduce the number of children entering the system, actual numbers of children with FASD in the system would continue to rise for some time as a result of new diagnoses of FASD for children currently in care, admissions to care of children already exposed to prenatal alcohol abuse who are subsequently diagnosed with FASD, and few children with FASD leaving the system except through reaching age of majority. There is no foreseeable reduction in the number of children with FASD requiring the resources of the child welfare system.

Issues related to service delivery

In general children with FASD require assessment of their condition, a plan for therapeutic intervention or enrichment in areas of deficit, services to act on the plan, and support towards adult independence.

The capacity for assessment of children with FASD is concentrated in Winnipeg at the Clinic for Alcohol and Drug Effected Children (CADEC). This is an excellent resource with staff who are national and international leaders in the field of FASD diagnosis. However, the capacity of the facility has made it necessary to limit diagnostic services to children 12 and under. There has sometimes been an additional northern clinic providing diagnostic services but maintaining expert staff has been problematic. Other provinces such as British Columbia and Alberta have concentrated on increasing access to diagnostic services by developing clinics in a number of areas. Given Manitoba’s population distribution, the most cost effective approach to this specialized diagnostic service may be to increase centralized capacity. The increasing options available through the Manitoba Telehealth Network may be a cost effective solution to providing services over long distances. In whatever way it is provided, access to diagnostic services needs to be available without long wait lists and without age restrictions to persons living anywhere in the province.

Services specific to the needs of children with FASD and their caregivers are limited at the present time, although there is increased recognition of the need to develop appropriate support services for this population. FASD Outreach (available in Winnipeg only) provides support to a limited number of pre-school and school age children. As demonstrated in the review of services to children with disabilities in care included in the 2005 study of Fuchs, Burnside, Marchenski and Mudry, the major providers of intervention or therapy services for children with disabilities including FASD are child and family service agencies and the education system.

In estimating the cost of providing services to children with FASD, a significant oversight occurs if we do not recognize that many children do not generate a direct cost not because they do not need service, but because no service is available to them. This is especially true for children who live on reserve who are disadvantaged by distance, isolation, and federal funding structures.

This summary of direct expenses for a particular sample of children does not include a variety of indirect costs that are incurred on behalf of every child who enters the child welfare system or the costs that are associated with efforts to prevent children entering the system. For example, the cost of prevention services and the cost of maintaining a trained staff of agency workers have not been added. Costs incurred by other systems on behalf of these children also remain to be determined. These include education and special education costs, medical and dental costs not covered by child welfare agencies and costs related to involvement with the Justice system.

Summary

Providing for children with FASD within the child welfare system is expensive. The special needs rate for this group of children is higher than for children in general and costs are further increased because children with FASD tend to be in the system longer than other children. As this group of children is more reliant on the child welfare system for parenting, agency care has a greater impact on their success or lack of it. Without adequate measures of success, it is difficult to establish the effectiveness of the current investment in care for children with FASD. In general, children in care and children with disabilities face additional risks of poor outcomes. Children in care with disabilities are, therefore, doubly challenged. The separation of systems to support children in care and children with disabilities increases the challenge of meeting the needs of children with FASD. Children living on reserves are at an even greater disadvantage because of lack of access to services.

6. Future Direction for Research on the Economic Impact of Children in Care

In terms of future work, various approaches to expanding the financial cost analysis of FASD-affected children in care can be considered. Typically, economic cost analysis takes three distinct but related perspectives based on point of view.

The different points of view in economic costing are:

- Fiscal/government point of view
- Individual/private point of view - including a human capital approach to calculate productivity effects
- Societal point of view – various stakeholders in society, such as insurance companies, employers, parents and relatives of affected children.

Fiscal Point of View

From a fiscal point of view, the current study's analysis informs us that the financial costs are substantial in the child welfare system. Children affected by FASD enter the system at an earlier age and stay longer. This finding can inform a more detailed and comprehensive cost-analysis that would take into account a variety of fiscal points of view. For example, future research could consider costs not only incurred in the child welfare system, but also in the justice system (police, incarcerations, courts, etc.), medical care system, and other community social services.

As an extension of the current research, costs could be further disaggregated. Future research could examine the cost implications of FASD with co-occurring conditions (physical disabilities; intellectual and learning difficulties, etc.), of regional variations, and/or of age groups. Prevalence rates, which have been widely-estimated in a significant literature, could be used to extrapolate costs to the wider population in the province or country.

Some examples of direct fiscal costs associated with FASD:

- Direct costs: special education resources for learning and physical disabilities; medical therapeutic costs; costs related to dealing with anger management and other mental health issues; social workers. Direct lifetime costs for medical, educational, and social service costs (not including crime and incarceration) have been estimated at $1.5 million per person (Manitoba Child and Youth Secretariat, 1997).
- Direct costs related to secondary effects: school drop out and possibly low literacy; alcohol/drug abuse; social housing costs (home care, residential care, respite care); criminal justice system costs (incarceration, courts, policing, youth detention centres); income assistance.

Fiscal costs related to FASD can be categorized even further into primary, secondary, and tertiary prevention. Categorizing fiscal costs in this manner would allow for calculations of the extent to which upfront investments in services for children with FASD have the potential to prevent higher costs in the future. This is referred to as a cost avoidance approach in the economic cost-benefit literature. Future research could potentially monetize various types of fiscal cost avoidance.

Primary Prevention

Primary prevention costs are more “preventive-focused”. Some examples include public awareness campaigns preventing prenatal alcohol use in high-risk populations since FASD is known to be preventable.

Secondary Prevention

Secondary prevention costs include outreach to at-risk populations, as well as screening at-risk women, such as those in treatment facilities for addictions. One FAS cost study in North Dakota conducted by Dr. Larry Burd at the North Dakota Fetal Alcohol Syndrome Center determined that “For each $10,000 spent caring for persons with FAS, North Dakota spent less than $30.00 on prevention efforts” (Burd, 2008). Consequently, most fiscal costs tend to be reactive direct costs incurred by various level of government, as opposed to having a preventive focus. In addition, the results of the current study would indicate that there is a need for increased support resources to assist children with FASD, for increased support for foster parents who provide the care necessary for children with FASD, and for earlier intervention to increase the likelihood of their successful development outcomes.

There are a number of studies that have looked at the economic impact of substance abuse on different service sectors (Choi & Pak, 1996; Harwood & Napolitano, 1985; Rehm et al., 2006; Rice, Kelman & Miller, 1990; Single, Robson, Xie, & Rehm, 1996, 1998). A more detailed economic impact study could examine the extent to which FASD, as one specific consequence of substance abuse, contributes uniquely to these costs. Further, in keeping with a cost avoidance approach, it would then be possible to examine the monetary value of savings to different levels of government for every case of FASD prevented.

Tertiary Prevention

To some extent, this type of preventive fiscal cost has been calculated by the research team in the current study. For example, many of the special rate/special needs financial costs result from intensive case management, including mental health management. The current findings revealed that the costs tend to rise with an affected child’s age. Moreover, savings of tertiary fiscal expenditures would be found in services that prevent children from getting involved in conflicts with the law, focusing on behavioral issues, and intensive work around labour force training as the child reaches the age of majority.

While tertiary prevention costs are necessary and funding often falls short of the demand for services, an economic cost study could compare investments in primary and secondary prevention (costs of preventing prenatal alcohol exposure) to the reactive tertiary fiscal costs of managing the disabilities over time for those individuals who are affected. As suggested earlier, this is another approach to cost avoidance analysis.

Life Cycle Approach

Finally, an economic impact analysis can be conducted using a lifecycle approach (for example, over the individual's life cycle) and for different age groupings under age 18 and/or adult years after leaving formal care. Additionally, future research could attempt to investigate whether or not costs increase to society as alcohol-affected children age (taking into consideration all points of view). The North Dakota study determined that the costs for adults with FAS are 5-8 times the cost of care for a child affected with FAS. However, it is also known that the costs associated with late diagnosis are substantial (Oliver, 1998).

Private Point of View

From the private point of view, an economic cost analysis can focus on productivity effects, for example, the loss of human potential. If it is possible to identify young adults affected with FASD who were formerly in care (or not in care), a labour market study of an 18-30 year old cohort could be conducted. Data on their education, training, and labour force participation patterns after leaving care could be captured. An examination of this group's connections to the labour market after transitioning out of care could be completed and comparisons made with other control groups.

A human capital approach could be used to calculate productivity effects over a lifetime. This is a measurement strategy that involves calculating the indirect costs to the individual in terms of lost productivity or the value of lost time in the labour market. If for any reason the individual is disconnected from the labour force, the period of time is multiplied by potential earnings at that particular stage of the life cycle. The study would focus on the productivity losses associated with early school drop out, conflicts with law, substance abuse, and other afflictions. These calculations can be estimated over time. Adjusting factors, such as inflation, net present value calculations, and discount rates are used to take into consideration the time value of money when conducting economic costing analysis over a period of time – see the definitions in Appendix E below.

The fiscal impact of lost human productivity is the individual's long-term reliance on social assistance and other social services. These losses could then be compared to secondary/tertiary prevention costs, such as investments in special education and training, as well as justice system prevention initiatives.

Societal Point of View

From the third perspective, societal costs may be considered, for example, costs that are incurred by parents and relatives of the alcohol-affected child. For instance, how much it costs caregivers (not necessarily parents) each year to care for a child with FASD.

Summary

As demonstrated, the cost of children in care with FASD underlines the importance of further study of the economic implications associated with that population. Economic cost analysis can be conducted from a fiscal, an individual or a societal point of view. From a fiscal view point, future research could examine the direct costs associated with providing services to children and could compare those costs between sub-groups of the FASD population. Cost avoidance analysis enables a determination of the cost saving potential of an initial investment. Future research could compare primary and/or secondary prevention costs with the tertiary costs of service provision. Further, a life cycle approach to fiscal analysis could investigate costs over the life span. Using a private or individual point of view, economic analysis could focus on the effects of FASD on the loss of human potential. A human capital approach calculates productivity effects over a lifetime by estimating the indirect costs to the individual of diminished productivity or lost time in the labour market. Those losses could also be compared to prevention costs. Additionally, societal costs to families and care providers could also be determined.

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Appendix A

Agency: __________ CHILD MAINTENANCE ACTUALS FOR FOSTER AND SPECIAL RATE CARE BY CHILD Page __ of __

For the month of: __________ Level: _______________ Date: ______

Rate Category: _________

Name	**Basic Maintenance**									**Special Rate/Needs**								
	Foster Parent Board	**Agency Allowance**						**Total Basic Mtce.**	**N. Food Allow. (if app.) (info only)**	**Fee for Service**	**Respite**	**Therapy**	**Initial Clothing**	**Age of Maj.**	**Home visits**	**Medical**	**Other Spec.**	**Total Spec. Rate/Needs**
		Gifts	**Education**	**Activities**	**Special Occ.**	**Trans.**	**Other**											
Totals																		

Exceptional Circumstances Expenditures					
Criminal Legal Fees	**Out of Province Travel**	**Services to Level V**	**Extraord. One Time Special Needs**	**Total Except. Circ. Expenditure**	**Exp. No.**

Appendix B

1. Date of Birth: ______________________
day / month / year

2. Gender: Male ☐ Female ☐

3. Status: Treaty ☐ Not Treaty ☐

	Actual Basic Maintenance								Residential care		Special rate/ Special needs Total	Exceptional Circ. Total	**Total Expenditures**
	Placement	Agency Allowance						**Total Basic Mtce.**					
Month	Foster Parent Board	Gift	Education	Activities	Spec Occs	Trans.	Other		Rate	Amount			

Month	Special Rates/Special Needs									**Total Special Needs**	Exceptional Circumstances Expenditures					
	Fee for Service	Respite	Therapy	Initial Cloth	Age of Majority	Home visits	Travel	Medical	Other special		Support Service	Legal Fees	Out of Prov	Service Level V Family	Extra 1 Time	Exceptional circumstances

Appendix C

FOSTER CARE RATE 2005/2006 (Effective April 1, 2005)
PAYABLE TO FOSTER PARENTS

CHART OF ACCOUNTS	**SOUTH OF 53**				**NORTH OF 53 East of Lake Winnipeg N51 12' (no road access)**				**NORTH OF 53 (road access)**			
	0-10		**11-17**		**0-10**		**11-17**		**0-10**		**11-17**	
	Per Diem	**Annual**	**Per Diem**	**Annual**	**Per Diem**	**Annual**	**Per Diem**	**Annual**	**Per Diem**	**Annual**	**Per Diem**	**Annual**
Household Allowance	0.47	171.55	0.47	171.55	0.49	178.85	0.49	178.85	0.49	178.85	0.49	178.85
Bedding & Linen	0.48	175.20	0.48	175.20	0.50	182.50	0.50	182.50	0.50	182.50	0.50	182.50
Repairs & Equipment	0.94	343.10	1.04	379.600	0.98	357.70	1.10	401.50	0.98	357.70	1.10	401.50
Utilities	1.11	405.15	1.11	405.15	1.16	423.40	1.16	423.40	1.16	423.40	1.16	423.40
Food	5.77	2,106.05	7.32	2,671.80	6.35	2,317.75	8.06	2,941.90	8.36	2,208.25	10.62	2,810.50
Health & Personal Care	0.54	197.10	0.86	313.90	0.57	208.05	0.90	328.50	0.57	208.05	0.90	328.50
Transportation	1.63	594.95	1.63	594.95	1.70	620.50	1.70	620.50	1.70	620.50	1.70	620.50
Respite	1.89	689.85	1.89	689.85	2.00	730.00	2.00	730.00	2.00	730.00	2.00	730.00
Replacement Clothing	1.93	704.45	2.39	872.35	2.02	737.30	2.52	919.80	2.02	737.30	2.52	919.80
Personal Allowance	0.69	251.85	1.60	584.00	0.72	262.80	1.67	609.55	0.72	262.80	1.67	609.55
Babysitting/Child Care	1.23	448.95	1.23	448.95	1.31	478.15	1.31	478.15	1.31	478.15	1.31	478.15
Damages/Deductibles	0.96	350.40	1.89	689.85	1.03	375.95	1.95	711.75	1.03	375.95	1.95	711.75
TOTAL TO FOSTER PARENT	**17.64**	**6,438.60**	**21.91**	**7,997.15**	**18.83**	**6,872.95**	**23.36**	**8,526.40**	**20.84**	**6,763.45**	**25.92**	**8,395.00**
Agency Allowance Gifts	0.30	109.50	0.30	109.50	0.31	113.15	0.31	113.15	0.31	113.15	0.31	113.15
Activities, Education, Special Occasion, & Other Special Costs	1.16	423.40	1.16	427.05	1.21	441.65	1.21	441.65	1.21	441.65	1.21	441.65
SUB-TOTAL	**1.46**	**533.90**	**1.46**	**536.55**	**1.52**	**554.80**	**1.52**	**554.80**	**1.52**	**554.80**	**1.52**	**554.80**
***TOTAL RATE**	**19.10**	**6,971.50**	**23.37**	**8,530.05**	**20.35**	**7,427.75**	**24.88**	**9,081.20**	**22.36**	**7,318.25**	**27.44**	**8,949.80**
Northern Food Allowance					0.30	109.50	0.36	131.40				

*Includes Northern Food Allowance

Appendix D

FOSTER CARE RATE 2006/2007 (Effective April 1, 2006)
PAYABLE TO FOSTER PARENTS

CHART OF ACCOUNTS	**SOUTH OF 53**				**NORTH OF 53 (road access)**				**NORTH OF 53 East of Lake Winnipeg N51 12' (no road access)**			
	0-10		**11-17**		**0-10**		**11-17**		**0-10**		**11-17**	
	Per Diem	**Annual**	**Per Diem**	**Annual**	**Per Diem**	**Annual**	**Per Diem**	**Annual**	**Per Diem**	**Annual**	**Per Diem**	**Annual**
Household Allowance	0.47	171.55	0.47	171.55	0.49	178.85	0.49	178.85	0.49	178.85	0.49	178.85
Bedding & Linen	0.48	175.20	0.48	175.20	0.51	186.15	0.51	186.15	0.51	186.15	0.51	186.15
Repairs & Equipment	0.95	346.75	1.05	383.25	0.99	361.35	1.11	405.15	0.99	361.35	1.11	405.15
Utilities	1.12	408.80	1.12	408.80	1.17	427.05	1.17	427.05	1.17	427.05	1.17	427.05
Food	5.83	2,127.95	7.39	2,697.35	6.41	2,339.65	8.14	2,971.10	8.45	3,084.25	10.73	3,916.45
Health & Personal Care	0.55	200.75	0.87	317.55	0.58	211.70	0.91	332.15	0.58	211.70	0.91	332.15
Transportation	1.65	602.25	1.65	602.25	1.72	627.80	1.72	627.80	1.72	627.80	1.72	627.80
Respite	1.91	697.15	1.91	697.15	2.02	737.30	2.02	737.30	2.02	737.30	2.02	737.30
Replacement Clothing	1.95	711.75	2.41	879.65	2.04	744.60	2.55	930.75	2.04	744.60	2.55	930.75
Personal Allowance	0.70	255.50	1.63	594.95	0.73	266.45	1.69	616.85	0.72	262.80	1.68	613.20
Babysitting/Child Care	1.24	452.60	1.24	452.60	1.32	481.80	1.32	481.80	1.32	481.80	1.32	481.80
Damages/Deductibles	0.97	354.05	1.91	697.15	1.04	379.60	1.97	719.05	1.04	379.60	1.97	719.05
TOTAL TO FOSTER PARENT	**17.82**	**6,504.30**	**22.13**	**8,077.45**	**19.02**	**6,942.30**	**23.60**	**8,614.00**	**21.05**	**7,683.25**	**26.18**	**9,555.70**
Agency Allowance Gifts	0.30	109.50	0.30	109.50	0.31	113.15	0.31	113.15	0.31	113.15	0.31	113.15
Activities, Education, Special Occasion, & Other Special Costs	1.17	427.05	1.17	427.05	1.22	445.30	1.22	445.30	1.22	445.30	1.22	445.30
SUB-TOTAL	**1.47**	**536.55**	**1.47**	**536.55**	**1.53**	**558.45**	**1.53**	**558.45**	**1.53**	**558.45**	**1.53**	**558.45**
***TOTAL RATE**	**19.29**	**7,040.85**	**23.60**	**8,614.00**	**20.55**	**7,500.75**	**25.13**	**9,172.45**	**22.58**	**8,241.70**	**27.71**	**10,114.15**
Northern Food Allowance					0.30	109.50	0.36	131.40	2.33	850.45	2.94	1,073.10

*Includes Northern Food Allowance

Appendix E
Definitions of Economic Terms for the Examination of Costs

Economic costs as opportunity costs: from an economic perspective, all of society's resources may be used in other most highly valued alternative ways. When society makes a choice about the uses of its scarce resources or its delivery of services, it also sacrifices the positive benefits or opportunities obtained by using the resources in some other way. For example, society's expenditures on reactive fiscal costs, such as police investigations and law enforcement, including human efforts in these activities, pulls resources away from preventive public education about drinking and driving, speeding, or consuming alcohol while pregnant. The latter alternatives may have resulted in other valuable and gainful societal outcomes. This notion of giving up one thing to get something else underlies economic cost analysis and, in economic terms, it is defined as an 'opportunity cost' [Levin & McEwan, (2001)].

Fundamentals of economic cost components

The main components of economic cost analysis: tangible benefits and costs, as well as intangible benefits and costs. These include:

- **Tangible benefits and costs**: these are easily monetized
    - **Direct costs**: All of the accounting costs that were captured in Phase 1 of the project are considered tangible, direct costs. These costs are the explicit payments on goods and services. Examples include the funds expended on health care services, law enforcement, the judicial system, and the child welfare system. Direct costs consist of wage payments to workers and statutory benefits remitted, for example, to health and administrative employees, as well as equipment, buildings, supplies, and out-of-pocket expenditures or operational costs (Choi & Pak, 2002).

    - **Indirect costs:** value of volunteer services, forgone wages or productivity (i.e. human potential), unintended spill-over costs to others in society. These costs are mostly related to human resources, specifically, lost work time or lost productivity from work absences attributed to physical and mental health issues and premature death. When human beings do not reach their full potential in terms of lifetime earnings power (due to the effects of FASD, for example), the consequent economic outcome is an indirect productivity cost to the individual, as well as society (Choi & Pak, 2002).

    - **Benefits:** one example is a higher earnings stream over a future period of time from special training and education initiatives as part of a secondary/tertiary prevention program.

- **Intangible costs and benefits**: these are difficult to monetize

    - **Costs:** examples of these costs are the personal pain, suffering, loss of leisure time, stress to the individual and his or her family members; other examples include: the value of lost community cohesion; loss of recreational opportunities; the loss to society from a growing informal economy; family spill-over effects. Precise monetary values are more difficult to assign to these costs, but there have been attempts to calculate them by using the willingness-to-pay (WTP) approach (Choi & Pak, 2002).

    - **Benefits:** sense of pride; altruistic motivations.

- Economic analysis involves calculating a social value as opposed to an accounting value.

Point of View in Economic Costing

- Individual/private point of view
    - human capital approach may be used to calculate productivity effects

- Fiscal/government point of view

- Societal point of view – various stakeholders in society, such as insurance companies, employers, parents of affected children, etc.

Adjusting factors: Inflation, Net Present Value, and the Discount Rate in Economic Analysis

Inflation factor: this is an adjusting factor to cost-benefit analysis because the value of money fluctuates over time due to increases (and sometimes decreases) in the general price level of goods and services in the economy, as well as wages in the labour force. We refer to these periodic adjustments to the value of money as "nominal dollar changes" (i.e. costs unadjusted for inflation). An inflation adjustment removes the price level effects by converting economic values into "real dollar units", in other words, constant purchasing power over time. The costs of all future years are adjusted to the price level of a specific base year. The most widely used measure of inflation is the Consumer Price Index (CPI) (Levin & McEwan, 2001).

Net Present Value (NPV): when comparing costs versus benefits over a period of time, a dollar's worth of expenditures today is worth more than the value of a dollar at some future date. This is because an invested dollar today will earn interest income. Put differently, any deferred costs to future years involve lower real resource costs to society. If we extend the costs and benefits over a number of years, the time value of money is adjusted together with the inflation factor (constant purchasing power). A present value calculation accomplishes this task by using a discount rate. It converts the value of program benefits and costs in the future to a 'present value', in order to compare them to the current or present costs (Levin & McEwan, 2001; Choi & Pak, 2002).

Discount rate: this is a type of interest rate that is used for the net present value calculation and its value depends on the viewpoint under examination. For personal effects, a standard approach is to use the market interest rate because it reflects a return to private savings or a bank loan, in other words, the consumer's opportunity costs of consumption versus savings. From the state's narrow viewpoint, the cost of government borrowing is an appropriate discount rate. Broader societal effects are adjusted using a social discount rate which, in Canada, has been specified by the government's Treasury Board to be approximately 7% in recent years, a rate that reflects private firms' opportunity costs of investment (Levin & McEwan, 2001; Treasury Board of Canada, 1998).

Sensitivity analysis: a researcher may want to use a range of discount rates in order to check the sensitivity of the study results (NPV of social costs or benefits) to the choice of a social discount rate or even other crucial assumptions that were made in the cost estimation procedures. Sensitivity analysis is a tool of economic cost analysis, which is used to determine whether some basic assumptions in the study design are irrelevant to the key findings and conclusions (Levin & McEwan, 2001).