

1. Summary of Proposed Research

Over 75% of Canada's young children (18 months to 5 years) use non-parental care in a typical week. The effects of these experiences on children depend on the quality of care received. The best available evidence suggests that in both Canada and the United States, much child care is custodial rather than developmental.

There is considerable uncertainty about the best ways to improve the quality of non-parental care that children receive. Most of the existing research on the factors which affect child care quality has been conducted by developmental psychologists concentrating on single variable relationships, or on the effects of a small number of potential quality determinants. Some key factors which are difficult to measure have been ignored; other factors which are easy to measure have been claimed as major determinants of quality, even though they are highly correlated with variables that may be the true determinants.

Economics provides a natural framework (the production function) for considering theoretically and empirically the role of different inputs to the amount of quality produced. The tools for measuring quality in child care have already been developed and extensively tested. Now, a group of uniquely appropriate Canadian data sets will allow us to use economic theory and econometric methodology to make important advances in determining the factors affecting child care quality.

This research project concentrates on analyzing the relationships in the production process between structural quality (child care characteristics which are subject to control by regulation) and process quality (the observed quality of interactions and experiences), and on the effects of the auspice of the child care arrangement (ownership/management structure) and the compensation of child care staff on process quality in both child care centres and licensed family homes in Canada. The key analytical objective of this research is to determine the paths by which and the extent to which various factors affect the different dimensions of child care quality supplied. The key policy objective is to identify which factors influencing the quality of early childhood care are good candidates for public or private encouragement and which are not.

The results of this research program will have three main applications:

- (a) To public policy on early childhood care: In the last several years, every province has announced early childhood development initiatives, some of them very broad-ranging. This research speaks to the effectiveness of public regulation of quality, of subsidization of quality, and the role of professional development and occupational self-regulation.
- (b) To the analysis of the effects of early childhood care on children: It is very difficult to assess the long run impacts of different features of child care on children's development. A simpler but strongly-related question is to assess the impact of different features of child care on quality measures that are themselves strongly predictive of child development. A test of this simpler question becomes a test of the underlying theoretical model.
- (c) To future data collection: Most child care surveys only collect data about structural features of quality. However, if structural quality is not consistently predictive of process quality, then on-site observations are essential for empirical work involving quality as a variable; our research will determine the reliability of structural measures as proxies.

2. Detailed Description – Program of Research

(a) Objectives

- (1) To determine which measures of the quality of early childhood care in centres and family homes, or which combination of measures, are the best to use in further analyses;
- (2) To determine the impact of each of a range of inputs to child care on the quality of care in child care centres (infant-toddler and preschool) using a variety of measures of quality. In other words, estimating quality production functions for child care centres, including readily observable inputs, and proxies for normally unobservable inputs;
- (3) To determine the impact of each of a similar range of inputs on the quality of family home care;
- (4) To determine whether the remuneration of centre-based child care workers on the one hand, and family home child care providers on the other hand, reasonably compensates better educated and more experienced caregivers encouraging them to enter and stay in the field;
- (5) To determine whether, with all other relevant factors held constant, the auspice of a child care centre matters for the determination of compensation of workers, and whether it is more reasonable to interpret this as a quality-enhancing compensation premium (efficiency wage) or as a sharing of rents (non-profit inefficiency);
- (6) To draw out the general and specific implications of this body of research for government regulatory policy, compensation packages of child care workers, future data collection, and future research agendas

(b) Context

There is a large research literature on educational production functions, to which economists have made major contributions (Hanuschek, 1979, 1986, 1996). The dominant conclusion in this literature is that government expenditures on education are not productive, although this conclusion is not unanimous (Card and Krueger, 1996). A similar debate is now underway in the area of early childhood education and child care. It centres on the question of whether government policies to regulate, subsidize and encourage child care have beneficial effects on the quality of child care and ultimately on children.

This discussion is taking place on several fronts. First, economists have made important contributions to the assessment of production and cost functions (Blau, 1997, 2000; Mocan et al, 1995; Mocan, 1997; Mukerjee and Witte, 1993; Powell and Cosgrove, 1992). The principal issues in debate here are the role of auspice in the production of child care quality, and the effect of structural measures of quality and caregiver characteristics on the quality of care produced. Second, economists have made contributions to the analysis of the factors affecting wages and compensation (Mocan and Viola, 1997; Mocan and Tekin, 2000; Cleveland and Hyatt, 2002; Leete, 2001). Issues in dispute include the effect of auspice on wages, the interpretation of the effects of auspice, and whether caregivers are compensated appropriately for additional education and experience. Third, economists are using sophisticated econometric techniques to investigate the long-term effects of child care on the development of children (Currie and Duncan, 1995, 2000; Blau, 1999; Haveman and Wolfe, 1995). Empirically, this research concentrates on controlling for non-random selection of child care services and for the influence of unobservables in useful ways (e.g., family and mother fixed-effects).

This research proposal will contribute to the first two of these debates using Canadian data with detailed on-site observations of child care quality in centres and in licensed family homes. This research will be the first using Canada-wide data to analyze empirically the contribution made by a wide range of factors to the production of quality in child care centres and in family homes (apart from the final reports of the data collection exercise itself). We will advance North American debate on the role of government regulations in affecting quality in early childhood education by improving proxies for unobservable factors believed to bias results in previous research. Further, by controlling appropriately for the multiple outputs of centres, we should be able to improve estimates of the contribution of structural and caregiver inputs to the output of interest – process quality.

We will make important contributions to the analysis of staff compensation, which appears to be strongly correlated with the quality of output. First, we can measure the independent role of staff compensation (presumably through its effects on work effort or morale) in determining quality of care produced. Second, we can assess whether education and experience are reasonably compensated, providing incentives to continuing accumulation of skills and job tenure. Third, we will be able to distinguish between rent-sharing and normally-unobservable quality enhancement as reasons for the positive contribution of non-profit auspice to staff compensation.

This research project concentrates on analyzing the relationships in the production process between structural quality (child care characteristics which are subject to control by regulation) and process quality (the observed quality of interactions and experiences), and on the effects of the auspice of the child care arrangement (ownership/management structure) and the compensation of child care staff on process quality in both child care centres and licensed family homes in Canada. The key analytical objective of this research is to determine the paths by which and the extent to which various factors affect the different dimensions of child care quality supplied. The key policy objective is to identify which factors influencing the quality of early childhood care are good candidates for public or private encouragement and which are not.

The proposed research represents a natural extension of work by the principal investigator and his co-investigator, but using data which is more recent and includes key on-site observations of quality of care. Our recent article (Cleveland and Hyatt, 2002) explores factors affecting compensation of centre-based child care workers in 1991, with a special focus on the role of auspice. There was a presumed link with quality of care; however that data set had no on-site measures of quality. The investigator and co-investigator have done considerable previous research on child care in Canada. This includes articles and monographs on child care choice, the effects of child care price on married and single mothers' labour supply, the design and effects of child care subsidy systems, a widely-circulated monograph on the costs and benefits of early childhood education and an edited University of Toronto Press book on child care policy in Canada

(c) *Methodology*

This research proposal consists of data analysis of a unique set of already collected data – the You Bet I Care! (YBIC) group of data sets. In 325 child care classrooms across Canada, YBIC collected survey information about the characteristics and compensation of individual staff

members, the characteristics and policies of child care directors and their centres. In 231 regulated family child care providers across Canada, YBIC collected information about provider characteristics, compensation, and conditions. However, this data is unique primarily because it is the only Canada-wide early childhood data set which includes on-site observations and assessments of the “process” quality of all of these child care environments.

Above, we have listed five objectives of this research program. We have organized the discussion of methodology to refer to the achievement of these objectives.

Objective 1: To determine which measures of quality of early childhood care in centres and family homes, or which combination of measures, are the best to use in further analyses.

Available measures include the Early Childhood Environments Rating Scale (ECERS), the Infant-Toddler Environments Rating Scale (ITERS), the Family Day Care Rating Scale (FDCRS), the twenty sub-scales of these above-mentioned scales, and the three sub-scales of Arnett’s Caregiver Interaction Scale (CIS). We will examine the variation in different subscales of the various quality measures, and the degree of correlation between different measures. The goal here is to determine which set of factors is “driving” the overall variation in quality (e.g., hygiene vs. learning activities) and whether different measures tell the same story. In particular, we wish to determine whether omission of some subscales decisively changes the quality rankings of different centres and family homes, or whether quality rankings are invariant.

Objective 2: To determine the impact of each of a range of inputs to child care on the quality of care in child care centres (infant-toddler and preschool); in other words, estimating quality production functions for child care centres.

In OLS regressions, we will control for a range of obvious inputs to quality in early childhood education: general education level, ECE-specific training, and recent professional development of the lead teacher; both field-specific and centre-specific job experience of this teacher; education and experience of the centre director; staff-child ratio for each age grouping, group size by age grouping; auspice of the centre and various other centre and teacher characteristics.

It is important to include all inputs in a regression assessing the determinants of quality, in order to avoid possible omitted-variables bias. The role of unobserved factors is probably key in the production of quality in early childhood centres. These may be unobserved teacher characteristics, such as effort and empathy. Or they may be unobserved centre characteristics, such as special leadership/management abilities of the director, or extra resources not elsewhere accounted for. A number of alternative techniques will be explored to sort out the role of unobservables. It is hypothesized that teacher compensation is strongly correlated with teacher effort; various measures of compensation will be assessed as proxies for effort. Alternatively, it may be possible to interpret human capital wage regression residuals as an index of special unobserved abilities. Even more interesting is the idea of interpreting one of the data set’s indexes of quality as a measure of the quality of the teacher input (i.e., observed plus unobserved abilities). The CIS scale is an assessment of the interactions between the lead teacher and children in the classroom, which can be viewed as a measure of the quality of the key input (in contrast, the ECERS and ITERS scales measure quality on the level of the classroom). We would instrument this variable and test it as a measure of (normally unobserved) teacher abilities.

The focus of interest would be the effect of including this measure on the estimated effects of other variables.

Blau (1997, 2000) uses centre fixed-effects modelling to control for centre-specific unobservables, such as the director's leadership skills. His empirical results show that when a centre fixed-effect is added to the regression, so that the estimated effect of these variables is driven by within-centre variation, these regulable (structural) variables are no longer found to have any significant effect on quality. We will replicate Blau's centre fixed-effects estimates, but also assess the technique's appropriateness, given that quality variation within centres is small, and perhaps unplanned, whereas variation between centres is large and deliberate.

A further issue that will be considered is the overall interpretation of our empirical work as being the estimation of a production function for quality. Quality (as defined by developmental psychologists) is not necessarily the only output produced by child care centres or family homes; purely custodial care and behaviour management/socialization are alternative outputs. Given the data available, the primary implication is that the contribution of inputs should be estimated separately for centres with different objectives, or output mixes. Explicit answers by centre directors to questions about objectives (i.e., curriculum) may allow us to divide the data set along these lines. Alternatively, non-profit and for-profit centres might have different mixes of output, or centres with many versus few subsidized children may have different mixes of objectives. Analysis of the performance of different types of centres on different sub-scales of ECERS/ITERS/CIS may assist us in grouping centres.

Objective 3: To determine the impact of each of a similar range of inputs on the quality of family home care.

There are two alternative management regimes for regulated family home child care in Canada: agency management and individual homes. We will use data on a range of observable inputs such as the management regime, the ages and number of children in care, the education and experience of the caregiver, characteristics of the adult work environment, availability of support from other organizations and networks to estimate a quality production function. In addition, Caregiver Interaction Scale measures may allow us to proxy for unobserved caregiver abilities. Since there have been no previous North American econometric studies focussing exclusively on the production of quality in family homes, this research will break new ground. In principle, the methodological approach to estimating the contribution of inputs to quality in family home child care is the same as for centre-based care.

Objective 4: To determine whether the remuneration of centre-based child care workers on the one hand, and family home child care providers on the other hand, reasonably compensates better educated and more experienced caregivers encouraging them to enter and stay in the field.

Staff compensation is believed to play an important role in determining the quality of care provided in centres and family homes (Walker, 1991; Whitebook et al, 1990; Goelman et al, 2000; Doherty et al, 2000). Regressions of wages and benefits on human capital and job-related variables can confirm whether general education, Early Childhood Education training, on-the-job training, job tenure and general experience in the child care field are, on average, compensated in ways similar to the rewards received in other occupations.

Objective 5: To determine whether, with all other relevant factors held constant, the auspice of a child care centre matters for the determination of compensation of workers, and whether it is more reasonable to interpret this as a quality-enhancing compensation premium (efficiency wage) or as a sharing of rents (non-profit inefficiency).

Non-profit status of day care centres has often been found to generate a wage premium when all productivity-enhancing characteristics have been controlled in human capital wage regressions (Preston, 1993; Mocan and Tekin, 2000; Cleveland and Hyatt, 2002). Some (Mocan and Viola, 1997) have argued that when the appropriate controls are included, this turns out to be a premium based on public subsidies or extra donated resources. In other words, the apparent effect of auspice on wages is a reflection of rent-sharing in some non-profit centres. The counter-argument sees an important component of the non-profit wage premium as a payment for unobservably higher quality in the labour market. This payment may be necessary (because principal-agent problems make monitoring less effective in non-profits) or may simply reflect a different objective function of non-profits with greater preference for developmental quality. In either case, the non-profit wage premium should be purchasing (normally-unobservable) higher quality services. We can use on-site assessments of the quality of care provided by teachers and assistant teachers to test this hypothesis.

Objective 6: To draw out the general and specific implications of this body of research for government regulatory policy, compensation packages of child care workers, future data collection, and future research agendas

The debates towards which this research proposal is directed have important implications for policy, theory and the empirical work of researchers. In policy terms, the view that structural features of child care are associated with improved quality of care is consistent with the views that stricter regulation, subsidies contingent on enhancement of structural quality measures, and discrimination against commercial care providers facilitate the provision of higher quality learning and care experiences for young children. If structural features of child care have no impact on quality, then normal public policies to enhance child care quality are ineffective.

In terms of theory, existing literature (e.g., Blau, 1997) presumes the relevance of a two-stage link between child care inputs and child outcomes. Child care inputs determine child care quality; child care quality has consistent influence on ultimate child outcomes (cognitive, behavioural, social). In developmental psychology and child care literature, this is known as the structure/process/outcomes triad. This research project provides a test of the first stage of this theory about the effects of child care on children.

In terms of empirical work, the perceived strong link between structural measures of quality and the actual interactions measured by process quality is very convenient. Currently, surveys which are used to analyze the demand for child care quality, or the effects of quality variations on child outcomes, collect only structural measures of child care quality on the assumption that these are highly correlated with the actual quality of teacher-child interactions. For instance, the National Child Care Survey (Hofferth, Brayfield, Deich and Holcomb, 1991), the National Household Education Survey (Hofferth et al, 1998) and the National Longitudinal Survey of Youth and the Canadian National Child Care Survey and the National Longitudinal Survey of Children and Youth collect only structural measures of quality or parental judgements

of these measures. Studies which have collected process quality measures through on-site observations are much more expensive (e.g., the Cost, Quality and Child Outcomes Study [Helburn, 1995], the U.S. National Child Care Staffing Study [Whitebook et al, 1990], the NICHD [NICHD Early Child Care Network, 1994], You Bet I Care! [Goelman et al, 2000; Doherty et al, 2000]).

(d) Communication of Results

During the three year horizon of the research project, we expect to publish articles in academic journals which focus on labour economics, general economics and public policy, in journals in the field of early childhood education and the economics of education, and in journals in the field of child development. We provide below an illustrative list of research papers and the journals to which we would tentatively direct them:

- “What Factors Affect the Production of Quality in Child Care Centres and Family Homes? An Analysis Controlling for Unobservables” *Journal of Human Resources*
- “Can Governments Affect the Quality of Care that Children Receive: Evidence from Canadian Child Care Centres and Family Homes?” *Child Development*
- “Why Does Auspice Matter in Child Care Centre Wages: Resource Rents versus Quality Enhancement?” *Labour Economics: An International Journal*
- “Workers in Child Care Centres and Family Homes: Do Caregivers Get Remunerated For The Quality They Produce?” *Journal of Public Economics*
- “What Governments Currently Do and Should Be Doing to Affect the Quality of Early Childhood Education” *Canadian Public Policy*

The Investigator and Co-Investigator plan to present preliminary results at academic conferences in the United States and Canada, and to look for similar opportunities in Europe. Because the subject matter crosses disciplinary lines, and because there are important cross-disciplinary issues of empirical methodology involved in this research proposal, we plan to present to both economists and to child care researchers in other disciplines. We would plan to present work at the Canadian Economics Association, American Economics Association, and the Western Economics Association (which has been receptive to child care research in the past). We will present at the Canadian Industrial Relations Association and the American Psychological Association. We will investigate opportunities to present at the IZA (Institute for Labor Studies - which hosted a special conference on child care research three years ago) in Bonn, Germany, and the Thomas Coram Research Unit at the University of London (which specializes in education research and has some noted specialists in early childhood education).

As part of previous work by the investigator and co-investigator, there exists a current web site (www.childcarepolicy.org) dealing with child care research and policy issues. The web site will be revised and renovated to present the ongoing research results on child care deriving from this project, along with reviews of related literature. Interested parties will be able to download draft and completed research papers from this site. An e-mailing to researchers in related fields (economics of education, early childhood education, population economics, child development, economics of the family, family studies) will make other academics aware of the site and give them regular updates about new additions to the site.

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4. The Research Partnership

The two investigators who are partnered in this research proposal have complementary skills that have frequently proved productive in previous research on the market for child care services and related markets.

Douglas Hyatt, a full professor in the Division of Management at the University of Toronto at Scarborough and at the Centre for Industrial Relations and the Rotman School of Management at the University of Toronto, is an experienced researcher on issues of workers' compensation, accidents and injuries, pay and compensation, and child care. His research encompasses the application of a wide array of econometric techniques to the analysis of problems in labour economics and workplace-related issues. Hyatt has gained experience in research transfer during his tenure as Research Director for the Ontario Royal Commission on Workers' Compensation, and the Royal Commission of Workers' Compensation in British Columbia.

Dr. Gordon Cleveland, senior lecturer in the Division of Management at the University of Toronto at Scarborough, has concentrated his research career on the economics of child care and families. He is intimately familiar with the You Bet I Care data sets and has excellent contacts throughout the child care/early childhood education community throughout Canada. He is

widely published on child care policy and research issues and brings that knowledge to bear on interpreting the results of research on this project. These researchers have frequently done research together and published together and separately. The weight of each member's contribution to the work of this research proposed will be approximately equal.

5. Training and Role of Students

One student will be hired in each year of the project. Contractual obligations will be defined so that the work is separable, implying that the same student, or different students might work on the project.

The student hired each year will receive either introductory or intermediate training in the use of STATA, a flexible and powerful data analysis program. STATA Corporation offers internet-based courses (with e-mail instructor contact, and small course enrollments) each year. Our hired student will have fees paid and will be compensated for time spent taking courses. As described below, the student will, after this initial training, be trained "apprentice-fashion" on the use of STATA, on econometrics and the interpretation of econometric tests and outputs, and on general research methodology by the two Investigators.

In the first year, the student, working under the supervision of the Principal Investigator and the Co-Investigator, will transform the data from SPSS format to STATA-readable files. The data for child care centres is collected into three separate data files and for family child care providers in two different files. These will be joined and tested. The student, in regular contact with the investigators, will define the wide range of dependent and explanatory variables needed for different parts of the research project. At each stage, extensive checking and testing will be done to ensure that subtle programming errors are not made and that additional missing values are not created. All variables will be scanned for the reasonableness of their frequency distributions and descriptive statistics. A log of all variables and their definitions will be kept. Consultation with the YBIC team of researchers will occasionally be necessary to sort out puzzles.

In the second and third years, the student, under the direction of the Investigators, will work, one at a time, on the different research objectives/articles that are identified in this proposal. The first two will be the estimation of quality production functions for both centre-based care and regulated family home child care. There will be a considerable amount of supplementary programming as additional variables will need to be defined. Monthly meetings will be held during the school year, and more frequently in the summer to define new regressions to be run, and to assess and interpret the results of recent runs. The student will investigate anomalies and explore alternative explanations of unusual patterns. A log and hard copies of all runs will be kept.

Students will also be responsible for up-dating the website with new reviews of existing literature related to this research project, and with downloadable copies of working papers and other project outputs. Students will keep e-mail contact with identified interested academics and policy experts, letting them know when new material appears on the site.

6. Previous and Ongoing Research Results

The investigators have completed a number of streams of supported research in the general areas of child care choice and maternal labour force participation with a particular focus

on the impacts of costs of child care in affecting these decisions. The research support for which we are applying will permit us to extend our investigation to consider the impacts of type of child care chosen on child care quality received.

Child Care Visions, Human Resources Development Canada (1997). "A Policy-Evaluation Model of the Child Care Sector." (With Gordon Cleveland, Morley Gunderson and Michael Krashinsky)

Description: This project involved the construction of a demand and supply-side model of the child care market in Canada. The model consists of three components: (I) A demographic model which projects numbers of children, by single year of age; (II) An employment choice model that projects which parents will be in the labour force, and their hours of work. When combined with (I), the model projects how many children of employed and non-employed children will be seeking care; and, (III) a child care choice model, through which children are allocated to different forms of care (day care centre, relative, neighbourhood sitter, etc.) The model is designed to simulate the impacts of demographic changes, tax and transfer policies and other child care policies on a wide array of employment and child care choice outcomes. This project has been completed.

Human Resources Development Canada (1996). "Subsidies to Consumers or Subsidies to Providers: How Should Governments Provide Child Care Assistance?" (With Gordon Cleveland)

Description: There is considerable debate among some in the child care sector with respect to whether child care subsidies should be provided to parents or to the child care facility itself. The economics perspective is that the ultimate market impact of a subsidy is independent of whether it is provided on the demand side or the supply side. This project, which resulted in a paper published by Human Resources Development Canada, set out the economic perspective in the context of child care, and then examined the extent to which special features of the child care market may result in subsidies generating different results depending upon whether they were provided on the demand or supply side.

Human Resources Development Canada (1995). "Child Care, Lone Parents, Social Assistance and the Employment Decision." (With Gordon Cleveland)

Description: This project produced an HRDC working paper, and subsequent journal articles and monographs, on measuring the independent impacts of child care costs, social assistance amounts and rules, and labour market earnings on the employment choices of lone parents. The estimation results were used to simulate the impacts of various legislative changes to financial support for child care and welfare clawbacks of employment earnings, on alleviating poverty among groups of poor single parents. This project has been completed.

Human Resources Development Canada (1994). "An Assessment of the Impact of Child Care Cost, Availability and Quality on Mothers' Employment." (With Gordon Cleveland)

Description: This project culminated in what was one of the first Canadian papers to estimate the impact of child care costs on the labour force participation and child care choices of married mothers with pre-school age children. The research was ultimately published in the *Canadian Journal of Economics*.

7. Budget Justification

In each year of the project, a Ph.D. student will be hired to undergo training in the use of STATA (data analysis software), to do data analysis as described above under “4. Training and Role of Students”, to communicate by e-mail with academics and policy experts working in the same general field, to post working papers to the web site and to update the web site. These students will work for 10 hours a week, 12 weeks a term during the regular school year, and for 20 hours a week for 12 weeks in the summer. In total, these students will be hired for 480 hours per year. At prevailing rates of pay at University of Toronto (\$23 per hour for research assistants) and a benefit rate of 14% (10% plus 4% in lieu of vacation), this amounts to \$12,585.60 per year.

There is an existing web site which can serve as a base for communication of research results to others and information about the research project and its objectives and scope. It will need the work of a professional web person to do some updating and to make it easy for an untrained student to update items on the web and post papers on the web. We estimate from discussion with web designers that this will cost \$1500. Each year there are fees for maintenance of the domain name and for the hosting of the web site on a central server. We have allocated \$500 a year of these costs to this project.

The project will need a small amount of supplies, mostly paper and ink cartridges and some binders in which to preserve past data runs. We estimate these costs at \$200 per year. Some additional items are needed in the first year: an extra copy of the STATA manuals for use by the research assistant (\$238.50), and an interactive CD providing an introduction to STATA and its use (\$43.50). The total for supplies in the first year is therefore \$482.

Listed under other expenses are the fees paid for web courses offered by the STATA Corporation at the introductory and intermediate levels. Prices are slightly different for these different courses. We have estimated the fees at \$142.50 in the first year and \$187.50 in each of the last two years.

Presentation of preliminary results at academic conferences is an important way of disseminating research results and getting feedback and criticisms to amend final versions of papers. There are a number of possible places we would like to present, listed above under “Communication of Results”. Without knowing exact locations of conferences, it is difficult to be exact; we have concluded after consultation with colleagues with SSHRC grants that \$690 is a conservative average estimate of costs (\$300 transportation, \$80 per night accommodation for 3 nights, \$50 per diem for 3 days). Similarly, \$950 is a conservative average figure for a conference presentation in the United States (\$500 travel, \$90 per night accommodation and \$50 per diem for 3 days each). We have assumed that there will be one presentation in Canada and one in the United States each year. Although we are going to explore opportunities for presentation in Europe as well, we will seek other sources of funding for those possibilities.