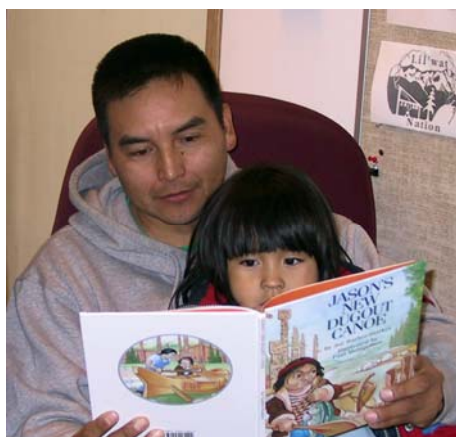


Father's Involvement as a Determinant of Child Health

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Paper prepared for the Public Health Agency of Canada, Population Health Fund Project: *Father Involvement for Healthy Child Outcomes: Partners Supporting Knowledge Development and Transfer*, March 1, 2007. The views expressed herein do not necessarily represent official policy of the Public Health Agency of Canada.

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Executive Summary

This report explored the question: What are the theoretical and empirical foundations for justifying investments in promoting and reinforcing positive father's involvement as indirect investments in children's health?

One objective of this report is to bring forward some possible conceptual frameworks for generating hypotheses about how fathers may contribute to children's health. A second objective is to bring some research evidence to bear on hypothesized links between variables that make up the framework. A third objective is to stimulate thinking about a research agenda that could tease out the impacts of father's involvement on children's health and development using a broad model that encompasses indirect as well as direct contributions that combine to produce children's health and well-ness. Ultimately, the goal is to animate discussion and a program of focused research that will advance understandings of how fathers contribute to children's health, even when they may have little direct involvement in caring for a child. This 'big picture' perspective will then provide a justification for calling for greater recognition and support for the roles of fathers in children's health.

A large body of evidence has shown clear associations between mothers' health, education, and maternal behaviour on children's well-being. But what about father's roles in shaping children's development and influencing their health? And does fathering contribute to men's overall well-being? This report highlights research that has demonstrated an array of impacts that father's involvement can have on fathers' well-being and children's development and health outcomes. A search of available data bases came up short on evidence of direct links between father's involvement and children's health in terms of injury, morbidity, and mortality.

This report argues that some of the most important ways that fathers may contribute to child health may be indirect and work through the environment in which the child grows and develops, rather than directly through father-child interactions. A tentative conceptual framework is offered to suggest many indirect contributions that fathers may make to their children's health, for example, by generating family income, maintaining a home, providing transportation, social networking, and role modeling in the community. These contributions are crucial from an ecological perspective on the determinants of health, such as the widely theorized, but under-deployed, population health model that encompasses the multiple social and environment, as well biological, determinants of health. Thus, father's contributions to child health may be underestimated because they are be indirect and as such they are harder to measure than

parental behaviours that involve direct interactions with a child. Also, it is harder for health policies and programs, which typically have a narrow mandate based on a narrow conceptualization of inputs to health and child development, to intervene at the ‘indirect’ level where men are often making their most important contributions or facing the greatest challenges.

Future research seeking to establish an evidence-base for investments in fathering should be guided by a broad, ecological conceptualization of the determinants of health that includes domains where men are most likely to have significant agency or face significant obstacles that influence the conditions for health and wellness of all family members. This report provides a conceptual rationale for policies and programs that recognize and encourage a wide array of ways that men may demonstrate caring for their children’s health and well-being, and diverse pathways for facilitating men’s contributions to family health.

Introduction

Most investigators engaged in understanding fathers' roles in family life assume that positive father's involvement contributes to child and family well-being. However, the idea that promoting positive father's involvement could be an effective strategy for promoting child health is not yet a strongly held view in public health policy, health promotion and education, child and family services, including child welfare policy and practice, or in medicine. These fields continue to be dominated by a focus on positive mother's involvement as the critical link to child health and development – a view that might be characterized as a '*mothercentric*' perspective or bias.

This report offers an assessment of the strength of current research evidence supporting a view that father's involvement plays a significant role in determining child health outcomes. A synthesis of evidence supporting this view would provide a rationale and direction for social and health policy reforms to encourage, enhance, and reinforce father's involvement with their children.

There is a growing research literature that has attempted to tease out the relative contributions that fathers make to outcomes for children. Within this body of work, evidence is accumulating in support of a hypothesized role of father's involvement in determining certain aspects of children's development. The impact of father's involvement specifically upon child health outcomes is less well established.

Reflecting on the current state of knowledge, it appears that the possibility of *direct* effects of father's involvement on child health have been under-investigated in health and family studies. At the same time, possible *indirect* contributions that fathers can make to child health remain under-conceptualized and have yet to be explored through multi-level, multivariate research informed by an ecological or holistic view of the determinants of health.

Research on child health outcomes has tended to be narrowly focused on direct, often material or biological inputs to health, while measures of health have tended to be restricted to mortality, morbidity, and injuries. This could be characterized as a '*medical model*' perspective or bias about what determines a child's mortality, morbidity, and general well-being.

Alternatively, approaches to understanding how fathers can contribute in important ways to children's health need to be based on theoretical models linking health to a broad array of ecological determinants of health. Thus, the quality of a child's experiences during their formative years is related to a child's environment. The quality of the child's environment is affected by such factors as the family income, the availability of social support for the child and the family unit, the availability of opportunities to become literate and to explore the environment, the quality of interactions among family members including such characteristics as affection, violence, guidance and discipline, and so on. In order to establish a rationale for investments in father's involvement, research is needed that is guided by a conceptual framework that

embraces the indirect and reciprocally causal effects of father's economic contributions, cultural teachings, efficacy in generating social support for the family unit, and other indirect determinants of health.

A salutogenic perspective

The current exploration was aimed at understanding the contributions of father's involvement, rather than father's absence, to child health outcomes. It seems probable that one of the reasons why there is so little research exploring the contributions of father's involvement to child health is that the field of father studies has been preoccupied with measuring the effects of father's absence. There now is a large literature on the effects of single parenting on child development, and more specifically on the effects of father absence on child development. Taken as a whole, this body of research suggests that children raised in single parent families are vulnerable to sub-optimal developmental outcomes. For example, research shows that, as a group, they are twice as likely to drop out of high school, twice as likely to have a child before they are 20 years old, and one and a half times as likely to be unemployed in their late teens and early twenties (McLanahan & Sandefur, 1994). They are also more likely to become single parents themselves or parenting outside of a marriage (Booth & Crouter, 1998).

The development of measures of father's involvement, in addition to measures of the impacts of father's absence, has been a necessary step towards a program of research that will uncover the effects of varying qualities and amounts of father's involvement on family functioning and on child health and development outcomes. In a recently published volume on measuring father involvement, Evans has commented on this.

“...father involvement was never really measured at all. Across all fields of relevant science, family process was measured by mother-child interaction, family systems analysis, or some other global measure of family process. No attention was given to father-child interaction because there was no evidence that father involvement was important in explaining child well-being or development. We thought that the most important thing a father could do was to support the mother and that mothers could provide whatever information we needed about that support. In addition, it was too difficult and too expensive to include fathers in research designs. As a result, we were left with a heritage that predicated research on family structure, in which fathers were noted primarily by their absence; on a family system, in which fathers were studied but scant attention was paid to child well-being or development.” (Evans, 2004, p. x).

Progress in measuring father involvement is a necessary precursor to understanding the effects of father involvement. Optimistically, measurement of father's involvement is currently undergoing an evolution similar to the current evolution of health measures, which historically were measures of death. While there are benefits to approaching understandings of health through an understanding of the causes of death, there is so much more to discover through a focus on why people are healthy rather than why people die. Similarly, studies focusing on divorce or single parenthood have not contributed substantially to understanding how positive father's involvement changes

outcomes for children or for other family members (including fathers themselves). The current review of the research literature did not seek to identify and review studies showing what can happen to children when fathers are not present in the family; rather, the aim was to document evidence of contributions fathers can make when they are positively involved with their children.

Defining constructs

Related to measurement challenges, the most basic question in exploring the relationship of father's involvement to children's health is how to conceptualize and operationally define the constructs of 'father's involvement' and 'child health.' These are not matters of consensus. Father's involvement involves the quantitative and qualitative dimension of father's engagement with their biological or custodial children. The measurement (or lack thereof) of father involvement has historically been a barrier to studying the roles and influences of fathers in child and family development. Often father's involvement has not been examined separately from 'parents' involvement. When father's involvement has been a distinct focus, it has often been measured using vague proxy's based on recall, such as adolescents' or adults' recollection of father-child conflict, or global ratings of father or child 'satisfaction' with the father-child relationship. Improving measures of father involvement and the use of these measures has been the focus of considerable efforts in recent years (Day & Lamb, 2003).

Child health and child development are global concepts with a multitude of possible indicators and ways of measuring these. For many years, child survival and morbidity rates were the primary indicators of 'child health.' School readiness and academic achievement have often been considered suitable as proxies for characterizing 'child development.' Scores on depression or anxiety scales have often been used as indicators of 'psychosocial adjustment' or 'well-being.' Recently, definitions of health have expanded to include an individual's capacities to be productive and to enjoy life, while definitions of 'development' now encompass such dimensions as social competence, affective engagement, creativity, and resilience.

Accompanying the elaboration of more holistic concepts of health, scholars and policy makers focused on families are increasingly subscribing to understandings of health as multiply and reciprocally determined by a broad array of biological and non-biological factors. For example, the World Health Organization (WHO) defines health as "...a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity..." (WHO, 1948). Though the term 'well-being' is not defined, it has been suggested elsewhere that well-being is "...a broader [than health] set of conditions related to one's sense of dignity, security, and mastery in particular settings..." (Earls & Carson, 2001).

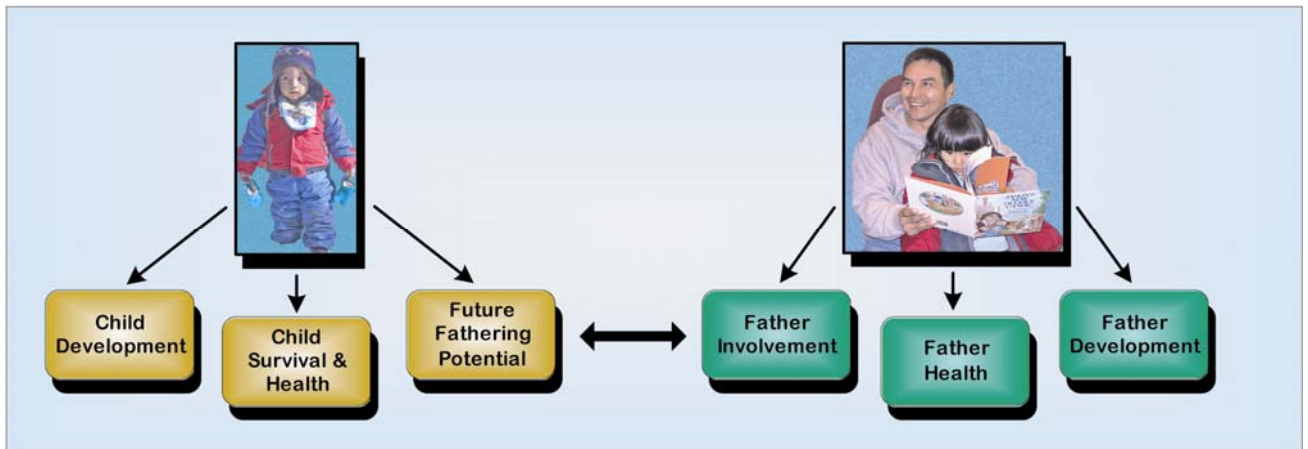
Holistic definitions of health and health determinants significantly expand possibilities for exploring the impacts that father's involvement can have on children's health. Given broad definitions of health, it could be argued that there is enough evidence

from research to claim that father's involvement affects several dimensions considered to be indicators of, or contributory to, child health.

Impacts of father's involvement on child development

Father's involvement is generally thought to have the potential to impact child development, child survival and health, and the child's emerging capacity to become an effect parent themselves for the next generation. Father's involvement has also been seen in some research to have salutogenic effects on aspects of father's health, father's self-development. Some research has also suggested that father's involvement is self-reinforcing; the more fathers are involved, the more satisfaction they report, the more they learn about being an effective father and having fun, and the more likely they are to sustain involvement with their child.

Figure 1. Outcomes Associated With Father's Involvement



Proportionately more research effort has been aimed at assessing the impacts of father's involvement on child development, functioning and quality of life than on child health (Allen & Daly, 2002; Horn & Sylvester, 2002; Lamb, 2004). A summary of research findings by Allen and Daly (2002) identified a number of dimensions of child development that may be influenced by father involvement and father absence, as well as dimensions of fathers' well-being that may be impacted by father's involvement with his children. Key findings of this review of research are summarized in Table 1. It should be noted that there is also a body of research that has failed to show any relationship of father's involvement to indicators of child or father health or development (see for example Lamb, 2004).

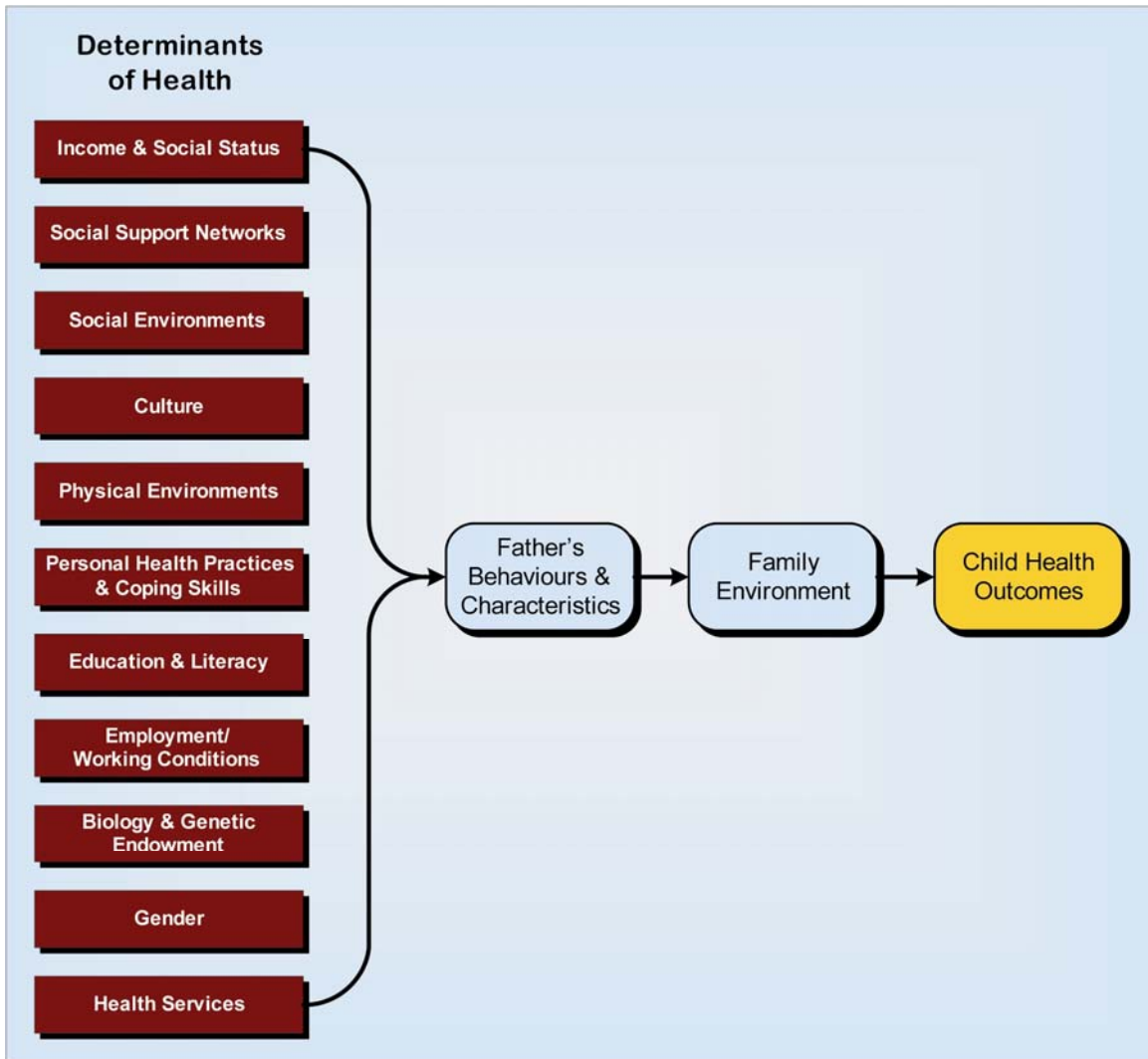
Table 1.
Dimensions of Child and Father Development Affected by Father’s Involvement

Child Dimensions		Father Dimensions
Cognitive functioning	Lower levels of depression	Self-confidence
IQ	Life satisfaction	Attachment with children
Academic achievement	Greater self-acceptance	Less distress/more self-identity
School connectedness	Positive peer relations	Fewer accidental and premature deaths
Educational attainment	Less stress	Less substance abuse
Attachment	Empathy	Greater well-being
Resiliency	Conformity to rules and moral judgment and values	Community participation
Supportive social networks	Less delinquent behavior	Marital stability/happiness
	Less substance use	Fewer hospital admissions

Linking father’s involvement to determinants of health

There are similarities between some of the outcomes shown on Table 1 and some of the factors accepted by the Public Health Agency of Canada (PHAC) as determinants of health (PHAC, 2003). PHAC has adopted a conceptual model of health determinants that includes: income and social status, social support networks, education and literacy, employment/working conditions, social environments, physical environments, personal health practices and coping skills, healthy child development, biology and genetic endowment, health services, gender, and culture. Establishing links between determinants of health and father’s involvement could be a major focus for future research. For example, how does the father’s income generating activity (or lack of) affect the family environment for the child (e.g., housing, food, supervision, equipment, lessons, stress, conflict, leisure activities, etc.) in ways that contribute to health outcomes (e.g., nutrition deficits, obesity, respiratory infections, injuries, etc.)? The schematic diagram in Figure 2 shows the potential mediating role of fathers in relationships between health determinants and child health.

Figure 2.
Potential mediating role of fathers in relationships linking health determinants to child health.



To illustrate, research has shown that youth who are close to their fathers are more likely to abstain from substance use. Substance use is an example of a major category of health determinants referred to as ‘personal health practices and coping strategies.’ Thus, positive father’s involvement is seen to promote a positive health practice and coping strategy in youth, resulting in lower risk of negative health outcomes for the youth. Similarly, research has shown that fathers who are more involved in their schools are more likely to do well academically. In the population health model adopted by PHAC, ‘education and literacy’ is a major category of determinants of health. If improvements in children’s education and literacy are associated with father’s involvement, then we could argue that father’s involvement has indirectly impacted children’s improved health. These examples are suggestive of possible pathways between father’s involvement and

child health that call for further conceptual elaboration and research. Additional examples are provided on Table 2.

Table 2.
Linking Child and Father Domains Affected by Father Involvement to Determinants of Health

Child Domains Associated With Father Involvement (Kerry and Daly, 2002)	Suggestive Evidence	Associated Determinant of Health
Cognitive functioning, IQ, Academic achievement, Educational attainment	Children whose fathers were highly involved in their schools were more likely to do well academically, to participate in extracurricular activities, and to enjoy school, and were less likely to have ever repeated a grade or been expelled compared to children whose fathers were less involved in their schools. This effect held for both two-parent and single-parent households, and was distinct and independent from the effect of mother involvement (Nord & West, 2001).	Education and Literacy
School connectedness, Attachment, Positive peer relations, Supportive social networks	“Higher levels of father involvement in activities with their children, such as eating meals together, helping with homework, and going on family outings, have been found to be associated with fewer child behavior problems, higher levels of sociability, and higher levels of academic performance in children and adolescents.” (Mosley & Thompson, 1995)	Social Support Networks
Resiliency, Less delinquent behavior, Less substance use, Less stress, Less depression, Self acceptance, Life satisfaction	<p>“Youths who abstain from substances, as compared to those who don’t, typically feel closer to their fathers, spend more time with them discussing personal problems, and depend upon them for advice and guidance. Such fathers also provide more praise and encouragement.” (Coombs & Landsverk, 1988, p. 480)</p> <p>“High involvement and increasing closeness between fathers and adolescents protect adolescents from engaging in delinquent behavior and experiencing emotional distress.” (Harris, Furstenberg, & Marmer, 1998, p. 214)</p>	Personal Health Practices and Coping Skills

Child Domains Associated With Father Absence (Kerry and Daly, 2002)	Suggestive Evidence	Associated Determinant of Health
Problems with school academic performance	“In studies involving over 25,000 children using nationally representative data sets, children who lived with only one parent had lower grade point averages, lower college aspirations, poorer attendance records, and higher drop out rates than students who lived with both parents.” (McLanahan & Sandefeur, 1994)	Education and literacy
School behavioral problems, Negative peer relations	“Thirteen percent of 6 th through 12 th graders living with both their parents have ever been suspended or expelled, compared to 23 percent in stepfamilies and 27 percent in mother-only families.” (Nord & West, 2001, p. 31)	Social Support Networks
Depression, Sadness, Suicide, Criminal behavior, Drug, alcohol, tobacco use and abuse, More sexual activity and teenage pregnancy	<p>“In a survey of 272 high school students, family cohesion and marital status were the strongest protective factors against suicidal □behaviour, with students in intact families as the least likely to be suicidal (9%), compared to 20% of teens from single-parent homes and 38% of teens from stepfamilies.” (Rubenstein, Halton, Kasten, Rubin, & Stechler, 1998)</p> <p>In a re-analysis of data from a classic 1950s study of 500 delinquent and 500 non-delinquent youths, it was found that the low supervision of adolescents frequently found in father absent homes was more the cause of delinquency than poverty was (Sampson & Laub, 1994).</p>	Personal Health Practices and Coping Skills
Poverty	<p>In 2004, 5.5% of two parent families were in poverty, while 28.4% of mother-only families were in poverty (DeNavas-Walt, Proctor, & Lee, 2005).</p> <p>“In 2003, 9 percent of children in married-couple families were living in poverty, compared with 42 percent in female-householder families” (The Federal Interagency Forum on Child and Family Statistics, 2005, p. 18)</p>	Income and social status

(continued)

Child Domains Associated With Father Absence (Kerry and Daly, 2002)	Suggestive Evidence	Associated Determinant of Health
Health problems	<p>“Subjects identified in midlife as suffering from illnesses such as coronary artery disease, hypertension, duodenal ulcer, and alcoholism, gave their parents significantly lower ratings ($p < .00003$) on perceived parental caring items (loving, just, fair, hardworking, clever, strong) while in college. This effect was independent of subject's age, family history of illness, smoking behaviour, the death and/or divorce of parents, and marital history of subjects. Furthermore, 87% of subjects who rated both their mothers and fathers low in parental caring had diagnosed diseases in midlife, whereas only 25% of subjects who rated both their mothers and fathers high in parental caring had diagnosed diseases in midlife.” (Russek & Schwartz, 1997, p. 144)</p> <p>“Parental divorce before the age of 21 was associated with a 44% increase in mortality risk ($p < .01$)...and a shorter life span, by more than 4 years, than children whose parents remained married” (Schwartz et al., 1995, p. 1241 & 1243)</p>	Health services

Father Domains Affected by Father Involvement (Kerry and Daly, 2002)	Suggestive Evidence	Associated Determinant of Health
Attachment with children	Involved fathers enjoy closer, richer father-child relationships (Snarey, 1993)	Healthy Child Development
Community participation	Involved fathers are more likely to participate in the community (Eggebeen & Knoester, 2001) and serve in civic or community leaderships positions (Snarey, 1993).	Social environment
Marital stability/happiness	Some evidence suggests that involved fathering is associated with marital satisfaction in midlife (Snarey, 1993). Involved fathers are more likely to feel happily married ten or twenty years after the birth of their first child (Snarey, 1993), and be more connected to their family (Eggebeen & Knoester, 2001).	Social Support Networks

While it is plausible to argue that factors affected by father's involvement are closely linked with health determinants, as suggested in Table 2, studies explicitly designed to investigate this relationship are needed. Intuitively, father's involvement seems to be related to child health because both father's involvement and child health are related to child development, it is tempting to assume causal associations between father's involvement and child health. However, findings of research exploring pathways and causal mechanisms between father's involvement and child development cannot simply be extended to the domain of child health outcomes. Future research needs to determine whether the associations between father's involvement and child health are causal, the pathway(s) by which fathers may influence their children's health, the strength of the associations, and moderators and confounders of these linkages. These studies will also clarify the kinds of policies, supports and interventions that are most likely to strengthen the positive contributions that fathers can make to their children's health/

Expanding assessment of father's instrumentality in pathways to child health

Efforts to establish the visibility and importance of fathers within policy frameworks targeting child health need to construct and measure fathers' contributions to children's health including but extending far beyond fathers' direct interactions with their child or other family members (e.g., co-parents). Conceptual and empirical frameworks that are sensitive to fathers' roles in child health need to encompass the ways that fathers affect the quality of the child's environment for survival, growth, health, and development, as well as the quality of the family environment in which the child is embedded. For example, fathers' behaviours and personal characteristics contribute (positively or negatively) to family income, family social status and stability, opportunities for children to access health care and education, availability of social support, and other aspects of the ecology of the child that have been linked conceptually and through some research to child health outcomes.

To illustrate, three categories of variables that have been related to health are education, family income, and stress. Research has shown that the impacts of stress on health are mediated by the availability and personal use of social support. It could be argued that a key contribution that fathers make to child health is through their income generation, their work to secure access to learning opportunities from preschools to trade school to university education, and their activities outside the home which function to connect the family to sites for social support within the community (e.g., recreation, leisure activities, formal and non-formal social organizations, etc.).

For example, Wadsworth found that family's socioeconomic status relates to a child's opportunities for education (Wadsworth, 1991), which is associated with a child's growth (Kuh & Wadsworth, 1989), and with future occupation and income (Montgomery, Bartley, Cook, et al., 1996). What is the role of the father in determining the family's socioeconomic status?

Taking another example, Montgomery, Bartley, & Wilkinson (1997) found that family stress and conflict is associated with reduced growth in childhood, and Sweeting

and West (1995) found that family stress and conflict is associated with poorer health, lower self-esteem and less psychological well-being among adolescence. What is the role of the father in shaping the emotional climate, conflict, and conflict resolution with a family? These are a few examples of how research could be framed to focus on direct as well as indirect ways that fathers affect the child's environment, which affects their health status and health trajectories as they grow and develop.

The next section reviews theory and research that can advance hypotheses positing contributory links between father's characteristics and behaviours, and children's health outcomes. The final section of this report outlines a conceptual framework for future research to explore these relationships.

Theoretical Frameworks

A large body of research has shown that the underlying factors that determine health and well-being are deeply embedded in social circumstances, including social support, socio-economic status, psychosocial conditions, and availability of materials resources, access to health services, and so on. One area of interest, then, is the roles that fathers play in shaping the social circumstances, or quality of environments, in which their children grow and develop, and in turn how these circumstances affect children's health trajectories across their life span.

There are a number of theoretical frameworks describing reciprocal causal relationships between families and macros-system conditions, and between children's environments and child health. The following theories were selected as promising for embedding concepts linking father's involvement to child health.

- (1) Bronfenbrenner's ecological systems theory (Bronfenbrenner, 1979).
- (2) Hertzman's social aggregation model (Hertzman & Siddiqi, 2000).
- (3) Schor and Menaghan's model of the social context of child health (Schor & Menaghan, 1995).
- (4) Wadsworth's model of the accumulation of risk to health from family sources (Wadsworth, 1999).

An overview of these theories is offered subsequently.

(1) Bronfenbrenner's Ecological Systems Theory

Bronfenbrenner's ecological systems theory delineates five types of nested systems which the child and his/her family are embedded, with which they interact, and which they can influence as well as being influenced by them.

The microsystem is the intimate realm of the family and the personal support network consisting of the close relationships in which an individual is engaged. The microsystem forms the primary context for development.

The mesosystem characterizes the interactions between and among two or more Microsystems. It includes such characteristics as institutional responsiveness, social trust, and social cohesion.

The exosystem includes institutions, organizations, and policies that constrain and support development, such as a parent's workplace or a child's school.

The macrosystem is the general social and cultural contexts in which the individual and their personal social networks interact over the life course. It includes such features as ; National wealth, income distribution, degree of industrialization and urbanization, level of unemployment, and the structure of opportunity created by history, geography, and fortune.

The chronosystem characterizes the temporal dimension of human experience across the life span and across historical epochs and changing conditions. In Bronfenbrenner's later work, this construct was subsumed as part of the construct of the macrosystem.

From an ecological perspective, child health is affected by multiple mesosystems, including the family, which in turn affect each other and also affect and are affected by the microsystem, exosystem, and macrosystem in which the child is embedded and with which he or she interacts. Everything is connected by varying degrees of proximity to everything else in a holistic system of child/human development.

To the extent that they are perceived to be involved in some way with their child, fathers are a part of the child's microsystem. Fathers can influence the child's microsystem by the quantity and quality of their interactions with the child and other family members. Cultural views of fatherhood and family roles and interactions, as exerted through a cultural macrosystem, also affect whether and how a father is engaged with his children and family.

(2) *Hertzman's Social Aggregation Model*

Hertzman's social aggregation model of the determinants of health builds on Bronfenbrenner's theory, defining the socioeconomic and psychosocial (SEP) conditions which determine health at three levels of society. "At the broadest (macro) level of aggregation are state factors, in particular, national wealth, income distribution, degree of industrialization and urbanization, level of unemployment, and the structure of opportunity created by history, geography, and fortune which support or undermine health and well-being. At the intermediate (meso) level, there is the quality of civil society; that is, those features of social organization, such as institutional responsiveness, social trust, and social cohesion, which facilitate or impede coordination and cooperation for mutual benefit and, in so doing, exaggerate or buffer the stresses of daily existence. At the "micro" level, there is the intimate realm of the family and the personal support network. These three levels of social aggregation are intersected by time, in the form of the individual life course. What emerges is a lifelong interplay between the cognitive, behavioural, and emotional coping skills and responses of the developing individual, on the one hand, and the SEP conditions as they present themselves at the intimate, civic, and state level, on the other" (Hertzman & Siddiqi, 2000, p. 817).

It can be argued that father's involvement exerts an influence on each of these levels of society. For example, at the macro level, the trend of fatherlessness in some cultures and societies constitutes part of the structure of opportunity created by history – reflected in the observation that there is a tendency for father absence to repeat in future generations (Snarey, 1993). In addition, the presence or absence of a father's financial support has a significant effect on family/household income thereby contributing to income inequalities which in turn are reflected in national wealth and income distribution. At the micro level comprised of the family and personal support network, the effects of father involvement on the family are the subject of an increasing body of literature (Allen & Daly, 2002; Horn & Sylvester, 2002; Lamb, 2004).

In the social aggregation model of the determinants of health, the macrosystem, mesosystem, and microsystems of society act together over time as determinants of health. Figure 2 highlights the family context, showing father's involvement, within the microsystem of the child's ecology, and illustrates how the family context interacts within the microsystem, mesosystem, and macrosystems of society.

Pathways between father's involvement and child health status can be presumed, to the extent that there is overlap and interaction between the domains of child development where father involvement has been shown in some research to have an influence, and the determinants of child health, where father's involvement has a hypothesized influence. Some aspects of the family's context and functioning have a direct influence on health status, such as family's engagement with health care providers and family's engagement with food, giving both a direct and indirect pathway between father's involvement and health status.

Interactions between father and family and the larger environment, and outcomes resulting from these interactions, are reinforced, repeated, and realized over the life course as a child grows into adulthood and eventually becomes a parent him/herself. Father's involvement could thus be categorized as an important indirect determinant of health through hypothetical connections to, and pathways between, father's involvement and health status. These constructs and pathways are depicted in Figure 6 subsequently.

Keating and Hertzman (1999) have been among the leading investigators in Canada to explicate a theory-driven and research-based argument for investments in childhood as a way to secure the social, economic, and human well-being of the nation. Like the other theorists reviewed in this report, their research has illustrated how national and community investments in quality environments for early childhood pay off in terms of improvements in health, educational achievement, and labour force participation among adults. However, the specific contributions of positive father's involvement to quality environments for children or indirectly towards improved long-term outcomes have not been explored in research undertaken by Keating, Hertzman and others.

(3) *Schor and Menaghan's Model of the Social Context of Child Health*

Schor and Menaghan's model of the social context of child health posits the family environment and family functioning as the central determinants of children's characteristics, development, and developmental outcomes. Within this model, other domains exerting an influence on child health through the family environment and family functioning include:

- the family life-cycle, including developmental stages, transitions, and disruptions;
- the family's community/society, including the extended family and other social networks, community norms and values, and social policy; and
- the family's characteristics, including individual family biological and psychological status, family structure variables, and family sociodemographics.

Father's involvement affects a number of components of this model, including family environment and family functioning, the family life-cycle, child's development, and child outcomes. For example, a father's negative influence can exert a stressful, even harmful, influence on a family environment and its functioning. The converse is also true.

(4) *Wadsworth's Model of Accumulated Health Risks from Family Sources*

Wadsworth presents a model of the effects of family circumstances and family function on individual health throughout the life course, beginning in childhood. Parental influences are specifically mentioned (i.e., parent's self-esteem, interest in child's education, neglectful parenting). Perhaps the most noteworthy component of the model is the increased likelihood for a child who has experienced adversity in their birth family to replicate this adversity in their own family.

Summary of promising theoretical frameworks. Hypothetical relationships between father's involvement and child health can be conceptualized within a number of existing theoretical frameworks. Beyond theories, what has research shown? A review of peer-reviewed, published literature and non-refereed, informal or 'gray' literature was conducted to search for evidence of the nature and strength of the relationship between father's involvement and child health.

Review of Relevant Research

Search Approach

This section reports the results of a systematic search for evidence linking father's involvement and child health.

A literature review of published, peer-reviewed studies up to and including May 2006 was conducted using the data bases listed below.

- Medline
- Academic Search Elite
- Health Sciences
- Psychology
- PsycINFO
- Social Sciences Index
- Sociological Abstracts
- Web of Science
- Cumulative Index to Nursing & Allied Health Literature (CINAHL)
- Education Resources Information Centre (ERIC)
- Public Affairs Information Service (PAIS)
- Papers First
- Proceedings First
- Dissertation Abstracts
- Theses Canada.

The following search strategy was applied on the title field for each database:

1. Father* OR dad OR male OR men OR man
2. health* OR health care OR well-being
3. Child* OR son OR daughter OR adolescent* OR teen
4. Involvement OR parenting OR guidance OR time
5. 1 AND 4
6. 2 AND 3
7. 1 AND 2
8. 5 AND (6 OR 7)

Criteria for inclusion of research in the review were as follows:

- (1) it focused on an aspect of father's involvement with a child or family; and
- (2) it reported outcomes included at least one measure of child health or father's health outcomes.

Research was excluded if:

- (1) it did not isolate the effects of fathers; and
- (2) it did not include child health outcomes.

Non-refereed, non-published "gray literature" was also examined. This included publications from government, non-profit, and other institutions and reports by persons not indexed in peer-reviewed literature databases.

Key informants were consulted in an effort to find ongoing research or research evidence on relationships between father's involvement and health.

Contact was made with six investigators actively engaged in fatherhood research, policy analysis, or father's involvement in family health.

- Randal Day – a professor of family life at Brigham Young University who does research on fatherhood;
- Joe Pleck – professor of human development and family studies at the University of Illinois who does research on fatherhood and parenthood;
- Paul Kershaw – a professor in the Faculty of Graduate Studies and the Human Early Learning Partnership (HELP) at the University of British Columbia who does research on fathers and public policy; and
- Iraj Poureslami – a research associate in the Human Early Learning Partnership at the University of British Columbia who does research on the influence of fathers on children's psychosocial behaviours and affect in immigrant families in Vancouver;
- Philip Cowan – a professor emeritus at the University of California, Berkeley, who does research on family formation and the impacts of fathers within a family system;
- Bill Watson - a family physician on staff at the Hospital for Sick Kids in Toronto, Canada.

Father's involvement and men's health websites in Canada and internationally were also reviewed for content related to the influence of father's involvement on father's and child's health.

The search strategy described above yielded a surprisingly meagre inventory of research focused on assessing or characterizing the relationship between father's involvement and child health.

Peer-Reviewed Literature

Teitler (2001) used data from the first wave of the Fragile Families and Child Well-being Study. Teitler compared a sub-sample of parents of randomly sampled children born to non-married parents in seven cities in the United States (n=1286 fathers; 19% Hispanic, 70% African American, and 8% Caucasian) with a comparison sample of married parents (n=473 fathers; 25% Hispanic, 37% African American, and 32% Caucasian). Teitler analyzed the level and effects of father's involvement on their child's birth weight and the mother's health behaviours (prenatal care, drinking, drug use, and smoking) during pregnancy. Father's involvement was assessed using multiple measures, including: (1) relationship status; (2) whether or not the child had the father's surname; (3) whether the father's name was on the birth certificate; (4) whether the father came to the hospital to visit the mother; (5) financial and in-kind support during pregnancy; (6) whether the father told the mother he would contribute financial support for the baby; and (7) a binary composite measure created by summing the previous measures. Teitler found that father's involvement, depending on the measure used, had beneficial effects on maternal prenatal care and health behaviours (i.e. alcohol use, smoking, drug use), with larger effects found among married couples, but less effect on low birth weight.

Greene & Moore (200) used data from the National Evaluation of Welfare to Work Strategies Child Outcome Study (n=790 predominantly African-American mother-child pairs living in Fulton County, Georgia). They investigated whether non-resident father's involvement was associated with improved child outcomes. They found that non-residential father's involvement, measured by father-child visitation, formal child support payments received through the welfare office, and informal child support, was associated with improvements in child's school readiness, emotional and behavioural development, and a more supportive home environment.

Flouri and Buchanan (2003) used data from the longitudinal UK National Child Development Study (n=8441) to explore links between father's involvement when the child was age 7 year, and behavioural problems at age 16 years, and between father's involvement at age 16 years, and psychological distress at age 33 years. They controlled for mother's involvement and for known confounds. Father's involvement was measured at age seven years in terms of: (1) outings with father; (2) father manages the child; (3) father reads to the child; and (4) father is interested in the child's education. At age 16 years, measurement of father's involvement was limited to a rating of the extent to which the father was interested in their child's education. The investigators found that early father figure involvement could not independently predict mental health outcomes in

adolescence and in adult life. However, it had a significantly protective role against psychological maladjustment in adolescents from non-dual parent families, and against psychological distress in mother. Flouri and Buchanan noted that there was no evidence suggesting that the impact of father's involvement on adolescent mental health and later on the mental health of adult offspring depended upon the level of mother's involvement.

Moore (2004) explored factors that influence father's involvement in their child's well-child visits to a health clinic. Moore found that whether a father was in attendance at the child's delivery had a greater impact than whether the child had health insurance or any other factor. This research suggests that it may be possible through research to demonstrate reciprocal feedback loops, whereby father's involvement in attending to the health care needs of their child works to increase father's involvement overall or perhaps in the child's health care specifically.

Amato (1994) conducted four interviews over the course of 12 years with a representative sample of 2033 married couples in the USA based on age, ethnicity, household size, presence of children, home ownership, and region. He found that closeness to fathers, measured by parental understanding, trust, respect, fairness, and affection, made a unique contribution to offspring happiness, life satisfaction, and less psychological distress.

Wenk, Hardesty, Morgan & Blair (1994) analyzed data drawn from the US National Survey of Children. They examined Wave I data, collected in 1976, and Wave III data, collected in 1987, focusing on a sample of 367 male and 395 female respondents who reported having a mother and a father or stepfather present in the home in 1976 (Time I) and who continued to reside in the parental home in 1987 (Time II). Children's closeness to mother and/or father, love from mother and/or father, desire to imitate mother and/or father, and parental presence were reported by the children at Time I. Their self-reports were positively related to adolescent self-esteem, life-satisfaction, and mental health at Time II. Importantly, the quality of father-child relationship was found to be more influential than paternal presence.

Videon (2005) used a subset ($n = 7,143$) of the US National Longitudinal Study of Adolescent Health involving a nationally representative sample of adolescents living with both biological parents. Videon examined the effects of the father-child relationship on adolescent 'psychological well-being' – measured in terms of a validated depression questionnaire. The quality of the father-adolescent relationship was measured using a single question capturing the adolescent's subjective evaluation of their overall satisfaction with their relationship with their father. Videon found that the quality of the father-adolescent relationship had an independent impact on adolescent psychological well-being, and that changes in adolescent's satisfaction with this relationship significantly influenced fluctuations in adolescent psychological well-being. It is important to note the limited operationalization of the construct of 'psychological well-being' in the study, being confined to a single measure of depression.

Using data from the UK birth cohort studies collected in 1946, 1958, and 1970, Stewart-Brown, Fletcher & Wadsworth (2005) examined the effects of the quality of parent-child relationships on health problems of children when they reached adulthood. The 1946 birth cohort measured relationship quality with a single question to cohort members, at age 43 years, asking whether, as a child, they felt mistreated by their parents in any way. The 1958 birth cohort asked cohort members, at age 16 years, to respond to a single statement on how well they get on with their mother/father. The 1970 birth cohort asked cohort members, at age 16 years, questions from a validated Parental Bonding Instrument. In all three cohorts (1946 cohort at 43 years; 1958 cohort at 33 years; 1970 cohort at 26 years), members were asked if they suffered from any problems on a list of common health problems or diseases. Stewart-Brown et al. found that reports of abuse and neglect (1946 cohort), poor quality relationship with mother and father (1958 cohort), and a range of negative relationship descriptors (1970 cohort) predicted reports of three or more illnesses or health problems in adulthood (Stewart-Brown, Fletcher, & Wadsworth, 2005). While the longitudinal design of this study is uniquely promising, the data obtained did not focus specifically on fathers and so no conclusions can be drawn about the contributions of father's involvement to the higher prevalence of health problems among adults who recalled parent-child difficulties.

Summary. While there is a body of research showing a range of impacts of parent-child relationship quality on the well-being of children and adult children, there is a paucity of focused research on the specific impacts of father's involvement and child health outcomes. Extending our inquiry into 'gray' literature, key informants, and websites yielded some additional insights.

Non-refereed, Informally Published Literature

National Fatherhood Initiative - Father Facts

The National Fatherhood Initiative in the USA has published a collection of 'Father Facts', which includes a section on physical health (Horn & Sylvester, 2002). Four articles referenced in this collection which met our inclusion criteria are reviewed below.

Dawson (1991) used data from a 1988 US National Health Interview Survey on Child Health (n=17,110, weighted to represent national population totals) to investigate several measures of health and well-being among children living in different types of families. Information on children's health was obtained through responses to a questionnaire by an adult living in the household. Dawson found that children living without fathers present in the family had a higher risk of injury, asthma, speech defects, and frequent headaches than children living with both biological parents. This study, though relevant for the current review, forms part of a large body of research investigating effects of father absence on children's health and well-being. As stated at the outset, the current review aimed to document evidence of contributions fathers can make when they are positively involved with their children. It did not seek to identify and

review studies showing what can happen to children when fathers are not present in the family.

Gaudino, Jenkins, and Rochat (1999) evaluated father's name reporting on birth certificates as a paternity measure and risk for infant mortality, calculating relative risks for 38,493 infants in the state of Georgia with no father's names in comparison to 178,100 infants with their father listed. Compared with those listing father's names, women not listing father's names were more likely to: be unmarried; under 25 years of age; have 12 or fewer years of education; be African American; have received late or less than adequate prenatal care; have smoked during pregnancy; be primigravid; and to have delivered a low birthweight, premature, and/or small-for-gestational age infant. The relative risk of death in the first year was higher when the father's name was not listed by both unmarried and married mothers, in comparison with married women listing both parent's names. Increased risks remained after stratifying by maternal race, age, adequacy of prenatal care and medical risks, and congenital malformations, birthweight, gestational age, and small-for-gestational age.

The study by Gaudino et al. (1999) offers a promising lead for father's involvement investigators. What is the psychological significance, for the mother and father, or having a father's name designated on a child's birth record? Are fathers more likely to initiate and sustain positive contact with their child if they are named on the child's birth record? Is paternal designation one of the first 'signposts' on a father's journey to become positively involved, and to sustain positive involvement, as their child grows and develops? What is the impact of paternity designation on the child's responsiveness to the father named on their birth record?

Based on the UK Avon Longitudinal Study of Pregnancy and Childhood (n=10,431), a study team (O'Connor, Davies, Dunn, Golding, and ALSPAC Study Team, 2000) investigated whether family type and psychosocial risks indexed by family type were systematically associated with differences in health outcomes in children. Outcomes of interest included: burns/scalds; falls; swallowing an object; and illness requiring medication. These outcomes were assessed through mother's responses to questionnaires. The study team found that at two years of age, children in single-parent, stepfather, or stepmother families were disproportionately likely to experience accidents, receive medical treatment for physical illnesses, or be hospitalized or receive attention from a hospital doctor for an injury or illness. The study team concluded that the mediating processes in this relationship are not entirely attributable to social class differences connected to family type and may instead be associated with a range of psychosocial risks (i.e., child temperament, exposure to stressful life events, and maternal life history risks) that are more frequently found in single-parent families and stepfamilies, compared with dual-parent or non-step-families.

The Father Involvement Initiative – Ontario Network

The Father Involvement Initiative – Ontario Network commissioned two significant research papers: *The Effects of Father Involvement: A Summary of the Research Evidence* (Allen & Daly, 2002) referred to in the introduction to the current report; and *Status of Research on Fathers in Canada* (2002).

The review by Allen and Daly (2002) provides an overview of the many domains - both for children and fathers - affected by father involvement. Despite the broad cross-section of outcomes identified, however, the domains of child's health or father's health remain absent, presumably reflecting a dearth of research investigating this connection.

Dubeau (2002) used a population health perspective for classifying fatherhood research in Canada, with a focus on "health promotion data, specifically with regard to the health of men and children" (Dubeau, 2002, p. 19). Dubeau commented that "the research relating to fathers is rather scarce" and noted that "none of the studies analysed described the health of fathers. It would be useful to compare health between fathers and men without children. Moreover, from a generative perspective of paternity, it may be appropriate to investigate the link between paternal involvement and paternal health" (ibid., p. 20).

Dubeau comments that "one cannot deny the impact of father involvement on the child's development. In fact, this concern is evident...the challenge lies in identifying the strategies that would allow fathers to fully exercise their role in order to contribute to their child's optimal health and development" (ibid., p. 21). Thus Dubeau conflates the concepts of child development and child health, which is a tenuous proposition both conceptually and for the kinds of refinements in measurement that are urgently needed in this field of inquiry.

Dubeau classified Canadian research on father's involvement according to its focus on one or several determinants of health. She found that research most often considered two major health determinants; namely, personal health practices and coping strategies (29 studies) and gender (25 studies). Although she provides a brief discussion of the literature focusing on each determinant, she reports no literature which extends this framework to look at health outcomes among children in the same study. Without measures of health outcomes in studies of the effects of father's involvement, and without measures of father's involvement in studies of health outcomes, links between the two constructs can at best be hypothesised based on the 'theoretical blurring' of the boundaries between the two fields alluded to elsewhere in this report. Nevertheless, Dubeau's synthesis of research is of interest. For example, she reported evidence that the development of "children who live in privileged socioeconomic families exceed those of less privileged children" (ibid., p. 22) and that paternal involvement in the family reduces economic stress. She identified three studies of the effect of social status on child adjustment, and found effects of social status on education and resiliency, although she did not report the effects of social status on health outcomes. She identified a few studies looking at the effects of employment and working conditions on work-life balance, and effects associated with paternal unemployment, but not on health outcomes.

Dubeau included studies focusing on interactive and relational characteristics related to competence in parents, and found a number of aspects of competency examined in the literature, but again reported no health outcomes associated with any of these measures. She identified ten studies conducted with samples of infants and pre-school children, focusing on parent's interactive or relational characteristics that were associated with the child's adjustment – but again with no inclusion of health outcomes.

Dubeau reported on studies examining the role father's involvement plays in health care experiences and in caring for sick family members. For example, one study found that mothers who have their spouse's support require fewer medical interventions during delivery (Fox & Worts, 1999). Other studies looked at the potential impacts and perceptions of various health and health care situations. Dubeau identified multiple studies exploring the role of fatherhood in social and legal processes (i.e., divorce, separation, mediation, child custody), but identified no articles relating to health outcomes directly. Dubeau also identified studies comparing father's involvement across cultures, but again with no mention of health outcomes.

Dubeau summarizes her review with the comment that a population health approach allows “us to go beyond the traditional indicators of mortality and morbidity (for which very few results are available) and move towards indicators of well-being and adjustment among children and parents” (ibid., p. 26). However, the relationship between father's involvement and the ‘traditional indicators’ needs to be established and its intricacies illuminated. Without this preliminary clarification, any study of the relationship between father's involvement and the determinants of health is premature.

Key Informants

Several key informants were asked about their work in the domain of father involvement and their assistance was requested for locating research on the relationship between father involvement and health. These inquiries yielded information on how the role of fathers in child development has garnered the attention of the medical community. Wilson and Bader have written a paper intended to guide physicians in their interactions with new and current dads, to help them understand fatherhood and their role in family and child development. Their work testifies to the growing interest in fatherhood within the health sector, but does not contribute empirical data to advance theory or policy focused on father's involvement and child health.

Fatherhood and/or Men's Health Websites

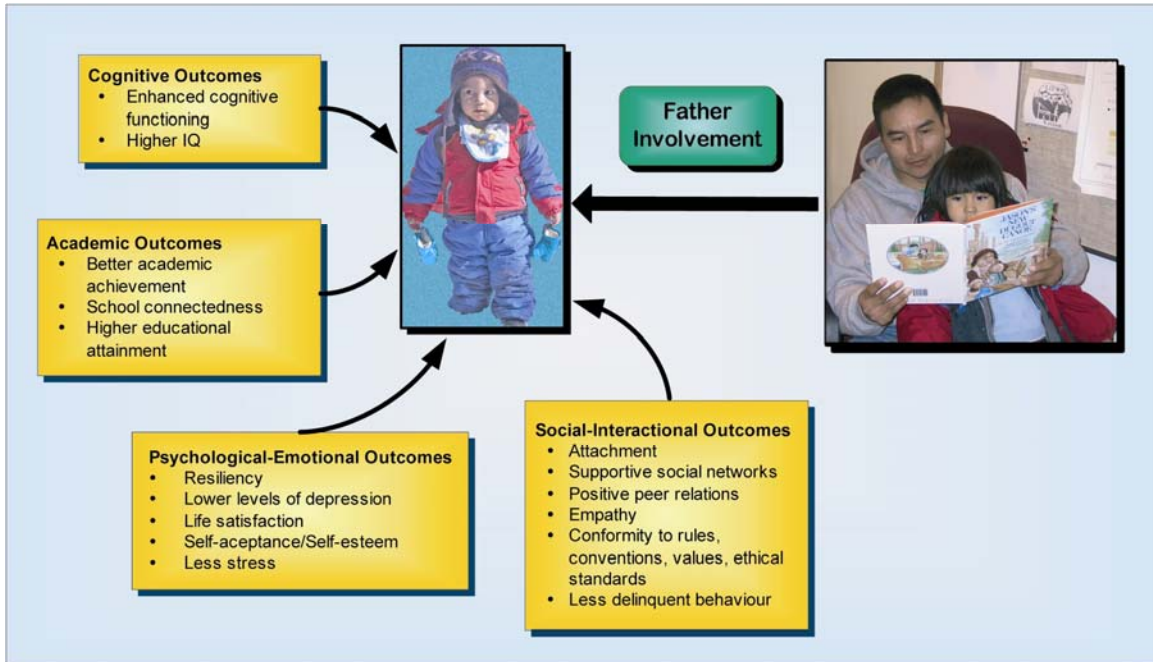
Several websites, listed below, were reviewed for information on father involvement and child health. Only three websites yielded references to father involvement (the Men's Project, Men's Health Information and Resource Center). None yielded references specifically to father's involvement and child health.

- Father Involvement Initiative – Ontario Network: <http://www.cfii.ca/fiion/>
- Father Involvement Network- British Columbia: <http://www.bccf.bc.ca/fin-bc.htm>
- Canadian Men's Health Network: <http://www.mensnet.ca/>
- European Men's Health Forum: <http://www.emhf.org/>
- European Men's Health Development Foundation: <http://www.emhdf.org/>
- International Society for Men's Health and Gender: <http://www.ismh.org/ismh/index.htm>
- Men's Health Forum (England and Wales): <http://www.menshealthforum.org.uk/>
- Men's Health Forum (Scotland): <http://www.mhfs.org.uk/mhfs/index.php>
- Men's Project (Northern Ireland): <http://www.mensproject.org/>
- Men's Health Information and Resource Center (Australia): <http://menshealth.uws.edu.au/>
- Center for Advancement of Men's Health (Australia): <http://www.mannet.com.au/camh/>
- Men's Health Network (USA): <http://www.menshealthnetwork.org/>

Summary of Research Evidence

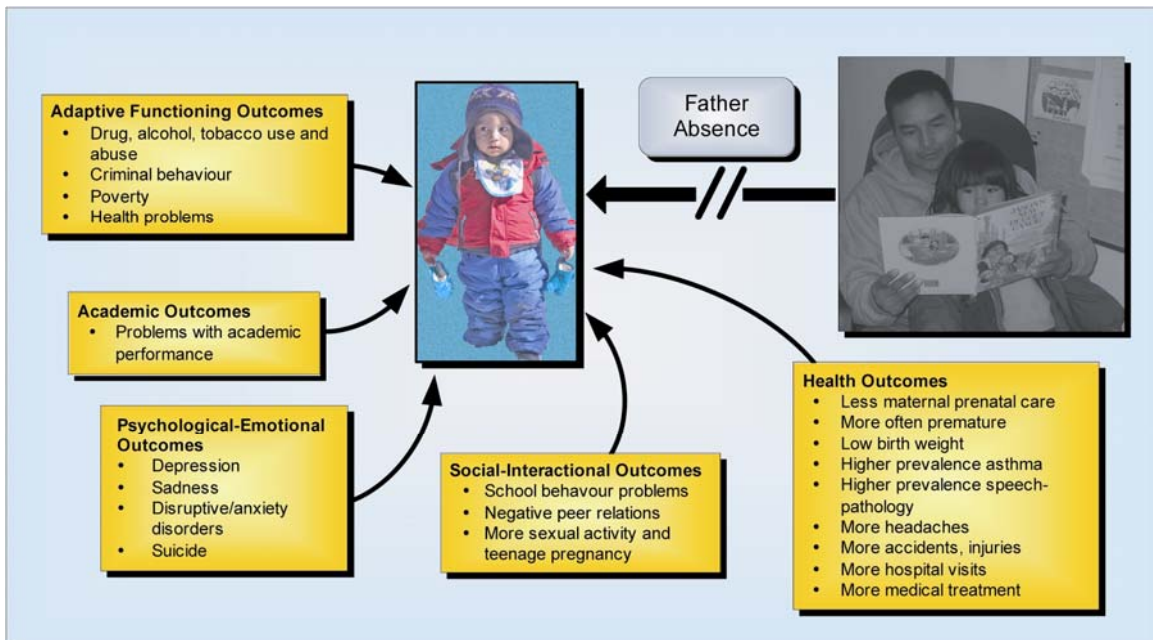
Father's involvement has been shown in some studies to have effects on certain outcomes generally considered under the rubric of 'child development.' It should be noted that not all research has borne out hypothesized relationships between father's involvement and child development outcomes. Further, many studies have had methodological limitations particularly in terms of the research samples, measurement of father's involvement (e.g., using satisfaction ratings, adult recollections of father-child relationships), and measurement of outcomes, often using only one score on one survey or assessment tools. A schematic organization of significant findings of positive effects of father's involvement on dimensions of child development is offered in Figure 3.

Figure 3.
Research Evidence of Direct Effects of Father’s Involvement on Child Development



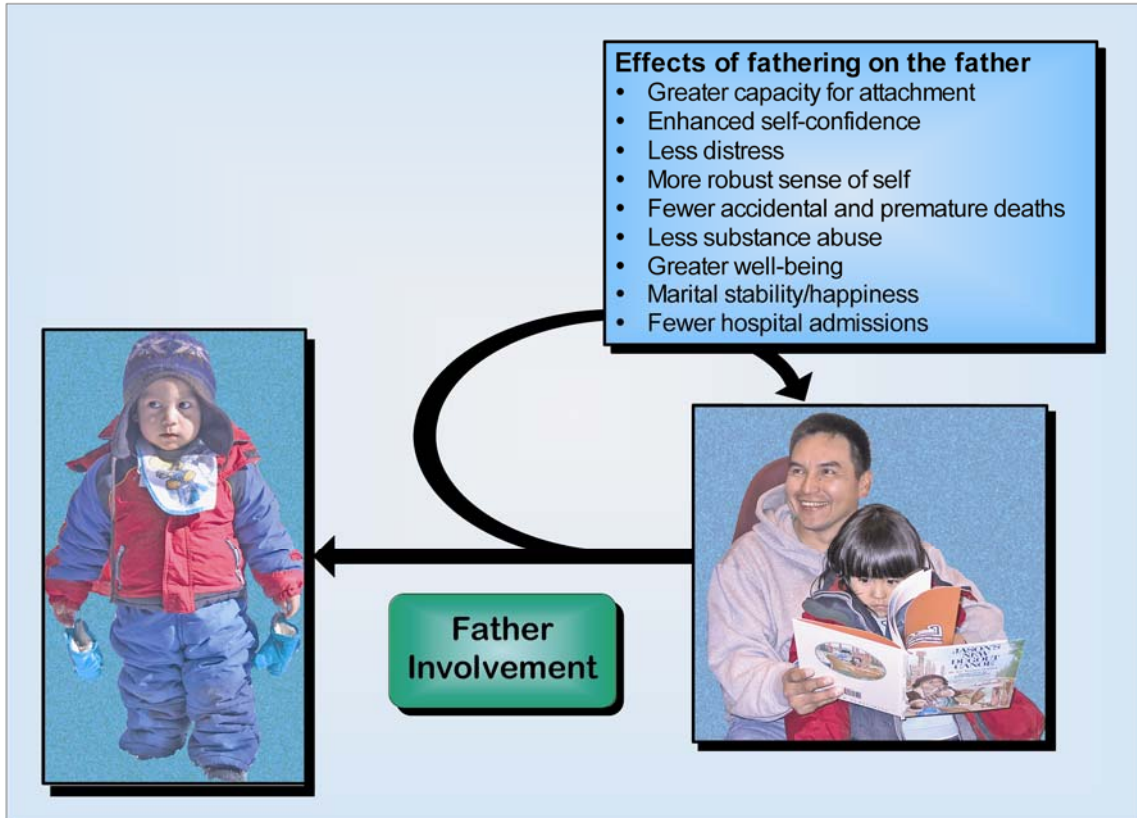
As noted at the outset, this review did not set out to identify effects of father’s absence on children. However, a sample of research on father’s absence that came into view is summarized in Figure 4.

Figure 4.
Research Evidence of Direct Effects of Father’s Absence on Child Development



Father's involvement with their children has been found in some studies to have a salutogenic effect on father's health and well-being. Evidence that came in to view in this project is summarized in Figure 5.

Figure 5.
Research Evidence of Direct Effects of Father's Involvement on the Father



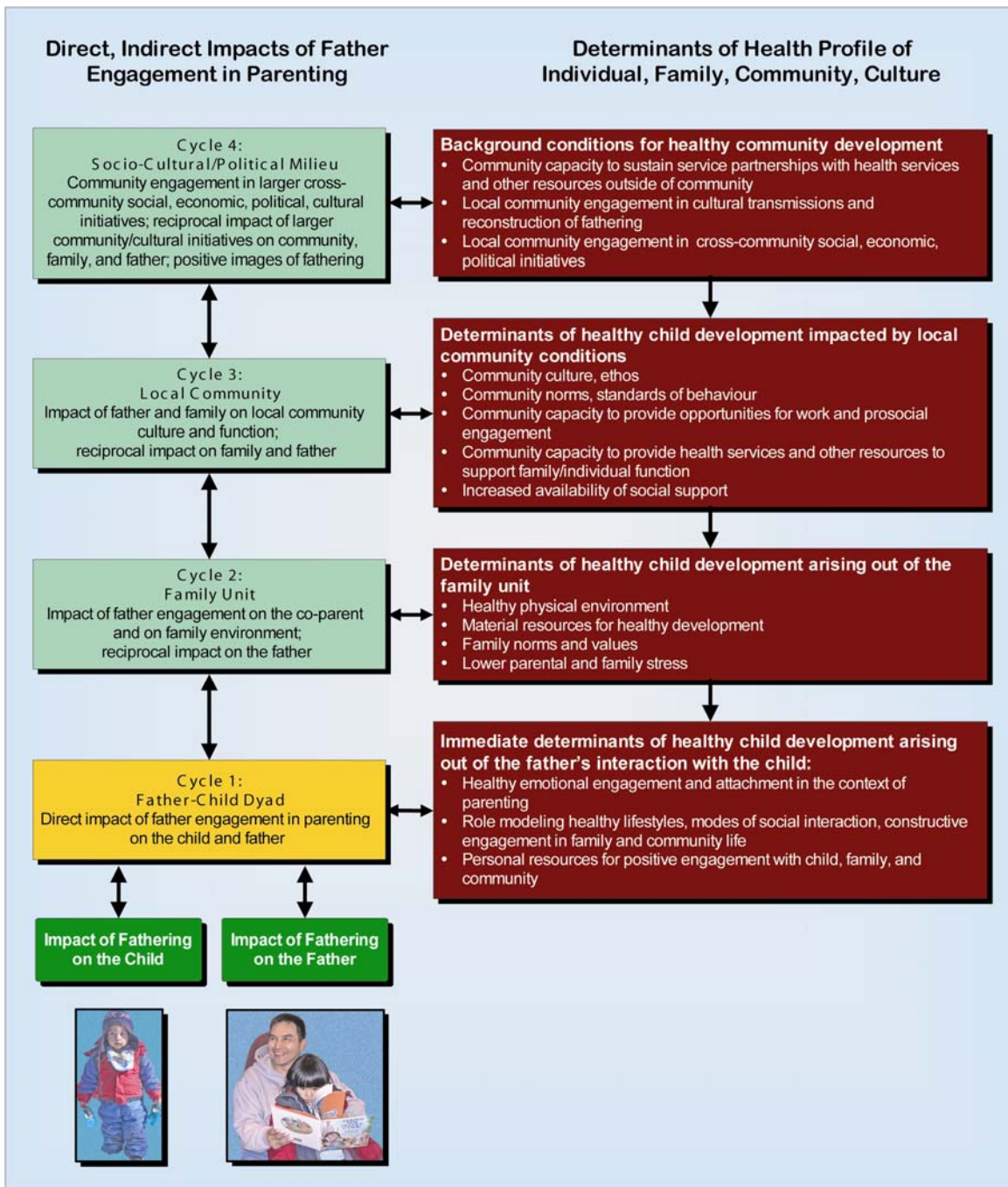
A conceptual framework for future research

The research literature on the effects of father's involvement on father and child outcomes is growing (Allen & Daly, 2002; Horn & Sylvester, 2002; Lamb, 2004). This literature touches on many domains which have been identified as determinants of health. Yet, there is almost no known discussion in theory or research about the possible effects that father's involvement may have on children's or father's health outcomes.

As has been discussed, father's involvement can be incorporated into a number of existing theoretical frameworks in order to generate hypotheses about the roles of fathers in directly and indirectly influencing child health. Research is now needed to explore the pathways for fathers to influence their children's health, the potential strength of these relationships, and factors that can moderate and confound these relationships.

What would be a conceptual framework specifically designed to guide research on how fathers contribute to children's health? The construction of a possible theoretical framework requires making explicit the contexts and pathways by which father involvement may affect child health. The conceptual framework outlined below identifies some of features of an ecological system of core dimensions and dynamics that could be explored in order to investigate both the direct and indirect ways that father's can contribute to children's health and development. As described earlier, the conceptual framework implies a complex system of reciprocally causal processes.

Figure 6.
Reciprocally causal links among health determinants and outcomes of father's involvement



Cycle 1, shown on Figure 6, refers to the microsystem involving the father-child dyad encompassing effects of degrees and qualities of father's involvement or father absence upon both the child and the father. This cycle is immediately determined by, and has implications for, father role modeling, personal resources such as learning to engage with a developing child, and personal growth and development.

Cycle 2 involves the effects of the father-child relationship (including lack of engagement) upon the family unit and the family environment. Cycle 2 also encompasses the impact of the family unit on the extent, quality and timing of father-child engagement. Cycle 2 has implications for the evolution of the family as a cultural and social unit, and the well-being of the family, for example, in terms of satisfaction, stress, and mutual caring.

Cycle 3 refers to the meso-system, whereby a father's involvement or lack of involvement with his children influences the ways that the community responds to the father and to the family. Cycle 3 also encompasses the ways in which fathers engage (or do not engage) community-level services and supports that can directly (e.g., health clinics) or indirectly (e.g., income generating activities, organizations that provide social support, recreation) contribute to family well-being. Cycle 3 has implications for the level, stability and quality of professional, educational, recreational and social supports available to the family and that are a feature of the child's environment for health and development. Moving outwards, Cycle 3 has implications for social change. Involved fathers can be part of a social movement that alters social constructions of masculinity and father roles in family life. These in turn can alter incentives and demands placed on government and employers to recognize and make provisions for father's involvement in caring for children and in promoting child health.

Cycle 4 involves the ways in which the family impacts and is impacted by the larger social, cultural and political systems that influence opportunities for families and for fathers within families to be effective in caring for their children (e.g., policies, legislation, social institutions, media images of fathers, religious values, and so on. On the right column of Figure 5, it is suggested that patterns of fathering affect the transmission of fathering roles in society as a whole and across time. Optimistically, it seems possible that, given the reverberating impacts of fathering on society and society on fathering, the more that fathers' are seen as being positively involved, and the more that families, communities, and institutions promote opportunities and support for positive father's involvement, the more that father's roles will be recognized and the more that future generations of boys and men come to expect fathers to have a pivotal role in child health and development. From this perspective, society's investments in father's involvement are also investments in children's health and well-being.

The conceptual approach outlined here identifies possible dimensions to investigate in order to identify, measure, and characterize both the direct and indirect ways that father's can contribute to children's health and development as part of a complex system of reciprocally causal processes.

Conclusion

While a growing body of research documents father's contributions to children's psycho-social development, research to date has not yielded clear and consistent evidence of links between father's involvement and children's health. Investments in focused research on links between fathers' roles and child health outcomes are urgently needed in order to begin to establish an evidence-based argument for investments in policy reforms and social programs that support father's involvement. This program of research could fruitfully extend existing theoretical models of child health and development as a function not only of biological and constitutional factors but also of the quality of ecological systems in which the child is embedded. This paper argues that father's interactions not only with their child but also with social institutions outside the family create many of the conditions that are considered to be key determinants of health. Conceptual refinements will lead to new developments in measurement constructs and tools that will serve to increase the sensitivity of family systems and child health research to the contributions of fathers. This work in turn will guide efforts to improve child health through policies and programs that promote and reinforce the direct and indirect contributions of fathers to child health outcomes.

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