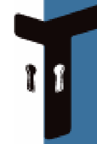

Background Paper:

Socioeconomic Disadvantage: Health and Education Outcomes for School-Aged Children and Youth

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May 16, 2006

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Executive Summary

The Alberta Coalition for Healthy School Communities (ACHSC) commissioned this paper to provide background information as a basis for discussion, debate, and action aimed at improving the lives of school-age youth and their families in Alberta. This document is an exploration of the links in research between health outcomes, educational outcomes, and socioeconomic disadvantage that seeks to outline the effects of disparity on outcomes for children of school age. A number of key insights derived from academic, government and other research literature present a clear and powerful picture of the interrelationship of disadvantage, health and education:

- Increased risk of injury and negative health outcomes are associated with low socioeconomic status.
- Mental health concerns, including hyperactivity, inattention and other behaviour issues, are more common among children from families with lower incomes.
- Mortality differences are pronounced along gradients of socioeconomic status (SES).
- A variety of SES indicators have been linked to poor self-perceived health.
- Higher SES groups have better access to health care, and are more likely to make use of preventive services within the health care system, therefore mediating health risks.
- Socioeconomic disparity has a negative impact on healthy lifestyle such that disadvantaged youth are more at risk due to higher prevalence of obesity and smoking.
- Neighbourhood effects of socioeconomic disadvantage are an important consideration in terms of comprehensive school health, as the health outcomes of school-age youth are clearly affected by the community and school environments to which they are exposed.
- There are clear, negative, and cumulative impacts of poverty and low SES on educational attainment and grades.
- Parental involvement and expectations are both positively associated with educational success for children. Both of these parental variables, however, are affected by income such that poorer parents tend to have lower educational expectations of their children and less time and resources to devote to school involvement.
- Grade failure and greater numbers of absences from school have also been found to be associated with socioeconomic risk. Educational attainment, in turn, affects future socioeconomic circumstances.
- Poverty and unstable financial hardship for families predicts delinquency, negative psychosocial adjustment, and serious manifestations of adolescent antisocial behaviour.
- As with health, educational outcomes are linked not only to personal and familial socioeconomic characteristics, but also to the affluence of the communities in which children live. There is very strong evidence for the positive impact of high-SES neighbourhoods on achievement outcomes for both children and adolescents.
- Education, health and SES interact in such a way as to perpetuate advantage or disadvantage. Better education leads to better health and vice versa.

In light of the significance and the interconnection of health, educational and socioeconomic variables, it would seem that interventions for school-age youth should benefit from taking a comprehensive approach, addressing different facets of the complex phenomenon of

disadvantage. Promising practice in this area, however, seems to be in its infancy. The present project was not able to uncover comprehensive educational and health interventions, though there are a few programs that are beginning to address the intersections between these issues. On the whole, however, comprehensive programming of this type and evaluations thereof are significantly under-represented for school-age youth in practice and in literature.

Introduction

The present document is an exploration of the links in research between health outcomes, educational outcomes, and socioeconomic disadvantage. Broadly speaking, it seeks to outline the diverse and powerful impacts of disadvantage in terms of money, resources, and social capital on the health and the educational achievement of school-age youth and their families. In addition, this review of research and relevant literature included a focus upon promising practices to ameliorate the effects of socioeconomic disparity on health and education.

The Alberta Coalition for Healthy School Communities (ACHSC) commissioned this paper to provide background information as a basis for discussion, debate, and action aimed at improving the lives of school-age youth and their families in Alberta. The Coalition is primarily concerned with issues of school-age children and youth, health promotion, and comprehensive school health. This latter concept, comprehensive school health, is an approach that aims to reinforce health consistently on many levels and in many ways, promoting health in an integrated fashion both within and beyond the classroom. In the course of pursuing these kinds of integrated initiatives for school-age youth, their families, and their communities, the ACHSC has consistently encountered clear linkages between socioeconomic disadvantage and poor outcomes in terms of education and health. It was this practical experience of these issues that motivated the need for this report as background for further discussion, research, and action.

It is important to highlight the scope and the limitations of the present document. It is intended as background information that addresses these issues broadly, but is by no means a comprehensive review of research literature in the fields of health, education, and socioeconomic disparity. As such, salient documents have been selected to illustrate and demonstrate linkages between relevant factors and outcomes, but time and resource limitations prevent including the full texture of research literature available. There seems to be a clear opportunity to demonstrate the importance of socioeconomic disadvantage to the health and education of youth, and the ACHSC is well-positioned to lead efforts to explore and engage these issues.

Methods

The first step in conducting this literature review was a thorough review of documents provided by the ACHSC. This process involved not only examining these documents for their relevant contributions to the present work, but also mining their reference lists for other studies with related information. These documents provided by the ACHSC included:

- Canadian Council of Learning. (2006). *The Social Consequences of Economic Inequality for Canadian Children: A Review of the Canadian Literature*. Prepared for the First Call BC Child and Youth Advocacy Coalition.
- Graham, H. and M. Kelly. (2004). "Health Inequalities: Concepts, Frameworks and Policy." Briefing paper, Health Development Agency [UK].
- Morton, G. "Head of the Class: Clear Water Gets Top Marks in Alberta School Report." *Calgary Herald*. March 5, 2006: B1-B11.
- Nicholson, J., J. Carroll, A. Brodie, E. Waters and G. Vimpani. (2003). "Child and Youth Health Inequalities in Australia: The Status of Australian Research." Paper for the Health Inequalities Research Collaboration – Children, youth and Families Network.

- O'Hara, P. (2005). Creating Social and Health Equity: Adopting an Alberta Social Determinants of Health Framework. Discussion Paper. Edmonton Social Planning Council.
- Public Health Agency of Canada. (2005). *Reducing Health Disparities – Roles of the Health Sector: Discussion Paper*. Health Disparities Task Group of the Federal/Provincial/Territorial Advisory Committee on Population Health and Health Security.
- Shookner, M. (2002). "An Inclusion Lens for Atlantic Canada: Looking at Social and Economic Exclusion and Inclusion." Health Canada, Atlantic Regional Office.
- World Health Organization. (2004). Promoting Mental Health: Concepts, Emerging Evidence, Practice – Summary Report." A Report of the WHO (Department of Mental Health and Substance Abuse in collaboration with the Victorian Health Promotion Foundation and the University of Melbourne.

Next, the relevant references identified within these documents were searched specifically, and reviewed. In addition, the ACHSC provided a brief literature search, which was examined, and pertinent articles were sought out specifically. Following this step, online databases were searched, including:

- Academic Search Premier.
- Medline.
- HealthSTAR.
- CBCA Education.
- Social Sciences Abstracts.

Search terms utilized include various combinations of the following:

- Education, educational achievement/attainment, educational outcomes.
- Health, health status, health outcomes.
- Socioeconomic, socioeconomic status, inequality, social class, income.
- Promising practice, best practice.
- School health, Comprehensive School Health, Coordinating School Health.

Government websites, including Statistics Canada, were consulted next, followed by a broader internet search, using the search terms above. Data was then compiled, analyzed, and synthesized into the current report.

Socio-economic Disadvantage: Links to Health and Education Outcomes

Determinants of Health

Socioeconomic factors are intimately linked with the health of a population. In fact, it has been reported that in Canada, most influences on the health of citizens originate outside the health care system, rather than within (Lalonde, 1974). Some experts have estimated that social and economic environments and factors are implicated in 50% of a population's health status, as compared with 25% that can be associated with illness care systems (Evans, 1994; O'Hara, 2005). Therefore, it seems clear that other key factors, known as determinants of health, are primary influencers on population health.

Various definitions exist for these determinants of health (or *social* determinants of health), including:

> The social determinants of health are "the economic and social conditions that influence the health of individuals, communities and jurisdictions as a whole" (Raphael, 2004:1).
>
> 'Determinants of health' is a term introduced in the 1970s as part of a wider critique of public health and research policy. It was argued that too much research attention and too much health expenditure were being devoted to individuals and their illnesses, and too little invested in populations and their health…In today's debates, the determinants of health include all the major non-genetic and non-biological influences on health. (Graham & Kelly, 2004:3)
>
> The range of personal, social, economic and environmental factors that determine the health status of individuals or populations. (Public Health Agency of Canada [PHAC], 2005:25)

In light of the significance of non-medical determinants of health, it would seem that improving these factors for Canada's most disadvantaged populations is the key to improving their health (PHAC, 2005). It has also been noted that disparities and the size of the socioeconomic gap between groups within a given population greatly affect the health status of the whole (Health Canada, 1994).

There is strong evidence (Health Canada, 1994) to suggest that the social determinants of health:

- Have a direct impact on the health of populations and individuals.
- Are the best predictors of individual and population health.
- Structure lifestyle choices.
- Interact with one another to produce health.

Social and economic factors, therefore, have substantial impacts on the health of Albertans in a variety of ways. Socioeconomic status (SES), in particular, is an important measure within research on health and education. Although SES often reflects a variety of different research variables, it can be loosely defined as follows:

> A term that describes the position of an individual group in a population or society, reflecting the overall hierarchy. The most frequently used indicators of SES are income, education, and occupational categories. (PHAC, 2005:26)

The following sections outline the relationships between health and socioeconomic variables in greater detail.

Physiological health

Health disparities and health risks are known to be differentially distributed by education and income, and other markers of disadvantage or inequality of opportunity (PHAC, 2005; Schoon, Sacker & Bartley, 2003). Health consequences are the most pronounced in the lowest 20% of the SES scale and for Aboriginal Canadians (PHAC, 2005). In spite of higher overall use of health services among lower SES groups, health disparities persist such that "approximately 20% of total health care spending may be attributable to income disparities" (PHAC, 2005).

Living in poverty tends to compromise the immediate and long-term health and development of children (CPHI, 2004), such that they are more likely to suffer physical impairments, disabilities, and accidents (Burnstein 2005). By comparison, children who have regular and sufficient feeding are healthier and experience sufficient mental development, as well as weight and height percentages at normal values (Egeli, Oghan, Ozturk & Harputluoglu, 2004). Adolescent health, too, is associated with parental income, occupational status and education level, such that those from families with higher SES tend to report being healthier (CPHI, 2005). Parental social class at birth has been shown to inhibit the level of subsequent behavioural adjustment, and that this detrimental effect is then carried forward into the future by children and adolescents (Schoon et al., 2003).

The association of health status and many diseases with socioeconomic status has been so widely demonstrated in varied populations that adjustment for socioeconomic status has become routine in epidemiological analyses (Pickett & Pearl, 2001). Moreover, health status is related to socioeconomic status across the socioeconomic gradient; even among populations with relatively high socio-economic status, such that the most advantaged have better health status than the less advantaged. (Pickett & Pearl, 2001)

Other evidence suggests that the association between positive socioeconomic assets and self-worth and health status is cumulative (Canadian Population Health Initiative [CPHI], 2005; Schoon et al., 2003). Youth with more of these assets are less likely to engage in health risk behaviours, and are more likely to report low levels of anxiety (CPHI, 2005).

Injury is another manner in which SES has been linked with health outcomes for children. Injury, whether accidental or intentional, is by far the leading cause of death among Canadian children and teens aged 1-19 years; injuries were responsible for more deaths than all other causes of death combined within this age group, totalling 56% (Alberta Centre for Injury Control & Research, 2001). Similarly, In Alberta in 1997, nearly 60% of all deaths to children and teens aged 1-19 years were due to injury (Alberta Centre for Injury Control & Research, 2001).

Increased risk of injury and negative health outcomes should definitely be of interest and concern to those pursuing comprehensive school health for youth.

Mental health

It is not only within the realm of the physiological that health and SES are linked, but the psychological as well. According to a national study of poverty, family stress, parenting, and neighbourhood social capital, Canadian children living in poverty are prone to exhibit hyperactivity and inattention to a greater degree than more advantaged children (Burnstein, 2005). In addition, low income has been shown to be associated with having seen a social worker or counsellor in the previous 12 months (Abernathy et al., 2002). Behavioural impacts have been observed as well, and these are examined in more detail in a subsequent section. All of these issues, however, are extremely salient among school-age populations.

Studies suggest a “persistent and cumulative influence of social risk,” which is exacerbated by low SES, on psychological health from birth to adulthood (Schoon et al., 2003). However, authors have cautioned that the link between SES and mental health is more profound for individual and family-level variables, and that neighbourhood effects are a comparatively small influence (Beauvais & Jenson, 2003). Indeed, only weak effects of poor or affluent neighbourhoods on children’s psychological health have been observed (Tremblay, Boulerice, Foster, Romano, Hagan & Swisher, 2001).

Mortality along the SES gradient

Socioeconomic status is deeply intertwined with mortality, in addition to health. Essentially, “rich people live longer than poor people and they’re healthier at every stage of life” (CPHI, 2004:8). Numerous studies have demonstrated that, at every step along gradients of SES, there are differences in risk factors and risk conditions, health status, incidence of disease and mortality across a wide range of physical and mental disorders such that the lowest income groups have a greater likelihood of suffering and dying from a wide range of diseases at every stage of the life cycle (PHAC, 2005; Raphael, 2003).

Although the means through which SES shapes rates of disease and mortality are not entirely clear, it has been shown that SES does play a role in terms of related factors, such as self-esteem, life skills essential to making healthy choices, unhealthy physical environments, indifference to risky behaviours, stress of low-wage or precarious employment, cardiovascular diseases and a lack of opportunity to participate in community life (Abernathy et al., 2002; PHAC, 2005; Raphael, 2003).

The results of the linkages between SES and health outcomes are chilling: in 1996, life expectancy for high income women was 1.6 years longer than for low income women, with an even more pronounced difference of 5 years for men (CPHI, 2004). Mortality rates for most causes of death decline as neighbourhood income increases (CPHI, 2004), and one British study has even reported that a child in the lowest social class is twice as likely to die before the age of 15 as a child in the highest social class (Curtis & Roberts, 2003).

In short, mortality differences are pronounced along SES gradients: “it is not just that the poor are less healthy than the rich; the near-poor are healthier than the very poor, the rich are healthier than the near-rich” (PHAC, 2005). For school-age youth, this link will obviously manifest much later in life, yet the significance of differences in mortality rates as a result of income is a result of experiences and environments throughout one’s lifetime.

Self-perceived health

It seems that individuals' perceptions of their healthiness vary according to socioeconomic advantage, in addition to their measurable health outcomes. Among adolescents, for instance, self-perceived health declines with income significantly, as does proportion of individuals with a regular medical doctor (Abernathy, Webster & Vermeulen, 2002). In broad terms, PHAC (2005) has reported that 47% of Canadians in the bottom income quintile report their health as excellent or very good, compared with 73% in the top quintile. The same study relates that people in the lowest quintile are five times more likely to rate their health as fair or poor than people in the highest.

Other studies have observed similar links between lower income and poor self-related health, noting that this relationship is consistent with the preponderance of results describing the social gradient in health, across Western countries and using related but distinct indicators of SES such as income quintile, occupational prestige and education (CHPI, 2004; Orpana & LeMyre, 2004). Given the use of income as an indicator of socioeconomic status, these results are consistent with the idea of income as a resource for access to material goods that is strongly associated with financial and neighborhood stressors (Orpana & LeMyre, 2004).

The link between income and perceived health may not be as simple as it appears, however. One study suggests that higher or lower levels of household income and education are not related to increased odds that youth aged 12 to 15 years will report high levels of health status and self-worth (CPHI, 2005). In spite of qualifications such as this, however, the relationship between income and self-perceived is strongly supported within the literature. In fact, it has been suggested that self-perceived health is a strong indicator because it captures the full range of illness experienced by an individual, as well as symptoms of problems yet to be diagnosed (Hou & Chen, 2003).

Access to health care

One of the significant mechanisms through which SES has an effect on health outcomes is access to health care. Some indicators of differential access based on socioeconomic inequality seem to be directly related to health; for instance, one study reported that the proportion of individuals who required health care advice during a period of 12 months who did not receive it declines as income increases (Abernathy et al., 2002).

It seems that higher SES groups are more likely to make use of preventive services within the health care system, therefore mediating health risks (PHAC, 2005). Similarly, universal health promotion strategies tend to be more effective in higher SES groups (PHAC, 2005), thus bolstering their existing advantage in terms of health outcomes.

It seems, then, that although socioeconomic differences impact upon health outcomes, one of the means through which this differential advantage may be addressed is through improving access to health care and targeting lower SES groups for public health interventions (Abernathy et al., 2002). Access to appropriate health care service impacts the health outcomes of school-age youth directly, and, as such, is an issue of concern for comprehensive school health initiatives.

Smoking

Smoking is a well-known risk contributor to incidence of disease (especially cancer and respiratory difficulties), poor health, addiction and mortality. Evidence indicates that the

proportion of adolescents living in a home with a smoker increases as income level declines (Abernathy et al., 2002), thus exposing these youth to health risks due to second-hand smoke. Moreover, these adolescents who live with other smokers are more likely themselves to be daily smokers (Abernathy et al., 2002).

According to a study in Spain by Gecková and colleagues (2005), more smoking occurs in lower socioeconomic groups, resulting in a probability that adolescents are surrounded not just by smoking parents but also by smoking peers. Moreover, smoking is not only more frequent among low SES adolescents but it can also be more enduring and more risky with regard to health (Gecková et al., 2005). This study also suggests that because low SES parents probably live in more deprived areas, and their neighbours probably come from a similar socio-economic group, it is likely that neighbours of low SES youth smoke more as well, which perhaps impacts their higher rate of smoking.

In Canada, more than a third of current and former smokers began smoking before their 15th birthday, and so youth are a group at significant risk (AADAC, 2004). Among current smokers in Alberta, those with lower levels of education are more likely to be daily smokers than are those with higher levels of education (AADAC, 2004).

Only one study was examined which reported no link between smoking and household income and education levels (CPHI, 2005). These authors noted that their results were singular in the field, differing from recent American and Canadian studies that reported these links (such as Boyce, 2004).

Given the powerful impacts of smoking on health and the early onset of smoking habits, the impact of disparities among individuals, communities and schools with different socioeconomic levels should be a profound concern for implementing interventions in low-income environments.

Physical activity and obesity

Obesity has a major impact on the burden of disease in Canada, and a substantial body of research has linked this problem with major preventable chronic diseases, including Type 2 diabetes, cardiovascular diseases, hypertension, stroke, gallbladder disease and some cancers (CPHI, 2004). It has been found that poverty is associated with lower levels of physical activity among adolescents; a fact that not only impacts their health directly through physical fitness (Abernathy et al., 2002), but must surely contribute as well to the higher levels of obesity among socioeconomically disadvantaged youth.

It is not only sports and physical activity per se, but also participation in extra-curricular activities and community youth organizations that are associated with better self-reported health, higher perceived self-esteem and feelings of control (CPHI, 2005). In this sphere too, however, SES plays a role: current research indicates that children’s participation in organized activities is associated with family income level such that children in low-income families, in single-parent families and children of caregivers with less than a high school education are less likely to have ever participated in organized activities.

Unfortunately, rates of overweight and obesity have increased markedly during the last two decades – for instance, between 1981 and 2001 overweight and obesity among children aged 7 to 13 rose by 1.5 to 5 times (CPHI, 2004). These increases have not proceeded in uniform fashion, however; in 1998–1999, children ages 2 to 11 in low income families were 1.5 times as likely to be obese as children in families that were not in low income (CPHI, 2004).

Young girls seem to be particularly vulnerable to stereotypes with potentially negative effects on their nutritional health and physical activity, such as those promoting dieting and discouraging participation in sports (Hart, Herriot, Bishop & Truby, 2003). Parental participation in their children's choices about diet and physical activity, however, has been shown to promote better health behaviours in these areas (Hart et al., 2003). Hart and colleagues expand upon the role of parents, noting that higher SES parents tend to feel less able to tackle important health issues with their children, and that empowerment may be particularly important for these parents in producing more positive nutritional and physical activity behaviours within their families. These authors also point to the importance of raising awareness amongst parents of the power of their modeled behaviours, attitudes and actions upon their children with respect to these areas.

It seems, then, that organized physical activity is an important consideration for programming in socioeconomically disadvantaged schools and communities as a means to promote health and healthy lifestyles, while combating obesity.

Neighbourhood and community effects

Research has explored the effects of neighbourhood and community factors, such as the affluence or resources of a community, on the health status of its occupants. Veenstra and colleagues (2005), for instance, found a neighbourhood effect on health that persisted even after controlling for several demographic and socio-economic characteristics of respondents, especially for the self-rated health and body-mass dependent variables. Essentially, these authors demonstrated that having more neighbourhood social capital (a measure of socioeconomic and sociocultural advantage) is associated with more positive health status. Further, although many studies of this type are limited to one measure of health, this study utilized measures of both physical and emotional wellbeing, and found that associational involvement and neighbourhood of residence were in fact related to some but not all measures of health (Veenstra et al., 2005). Although not all aspects of neighbourhood-based social capital are linked to health – civic action of neighbourhood residents, for instance, has shown no relationship – it is clear that a number of community characteristics or elements have an impact on the health of residents (Ziersch, Baum, MacDougall & Putland, 2005).

Researchers Hou and Chen (2003) conducted a Toronto-based study that reported a number of significant insights with respect to neighbourhoods, income, and health. These authors explain that low-income neighbourhoods often have relatively few community resources (such as schools, recreational facilities, churches, public transportation, law enforcement, sanitation, and health and family services), and comparatively unhealthy physical environments (in terms of pollution, crowding and inferior housing). Moreover, stressful social conditions (social isolation and high crime rates) may also exist in low-income neighbourhoods, and these communities are likely to have a high prevalence of unhealthy behaviours (smoking, heavy drinking and lack of physical activity) as well as passive attitudes toward health and health care. With this context in mind, Hou and Chen's study determined that whether neighbourhood economic conditions make a difference in individual health status over and above the effect of individual income depends on the health outcome; poorer self-perceived health was significantly associated with lower income, however the number of chronic conditions reported was not significantly related to neighbourhood low-income rate. In sum, then, Hou and Chen found that individuals' low-income status is detrimental to their general health regardless of whether they live in low-income or more affluent neighbourhoods. Thus, low-income people living in low-income neighbourhoods would be subject not only to the effect of individual low income, but also to the contextual effect of neighbourhood low income.

As suggested by the studies discussed above, community health is related to, but distinct from, either single or aggregate measures of individual health (Chappell & Funk, 2004). For instance, individuals surveyed commonly refer to contextual-level aspects of neighbourhood quality when describing the health of their neighbourhoods, such as crime and safety, and the physical environment (Chappell & Funk, 2004). Thus, the health status of a community reflects a variety of elements including social and physical environments, safety, availability of services and community willingness to partake in civic action (Ziersch et al., 2005). In addition, there is evidence that feeling a sense of belonging to one's community is associated with higher levels of health status (CPHI, 2005). This is significant, given that, according to one recent study, only 17% of male and female youth aged 12 to 19 years across the 10 Canadian provinces report a very strong sense of belonging to their community, with 55% indicating a somewhat strong sense of belonging (CPHI, 2005).

Neighbourhood environment may also have a bearing of children's futures before they are even born, through prenatal effects. Farley and colleagues (2006) have reported that, after controlling for various known individual-level risk factors, pregnant women living in neighbourhoods of lower median incomes had infants with both lower birthweight-for-gestational-age and shorter gestations, a finding which is consistent in the literature. This places infants at greater risk of dying in infancy, because low birthweight is a manifestation of one or more of two distinct health problems: intrauterine growth retardation (IUGR) and preterm birth, each of which may influence mortality risk (Farley et al., 2006). Interestingly, these authors also note that the mechanisms by which neighbourhood economic status might influence perinatal health do not involve the availability of consumer products, including fast food, tobacco or alcohol (Farley et al., 2006).

In all, it seems clear that the positive and consistent association between neighbourhood SES and neighbourhood health ratings provides support for the idea of an ecological-level effect of neighbourhood SES over and above individual socioeconomic factors (Chappell & Funk, 2004). Pickett and Pearl have phrased it thus:

> The evidence for modest neighbourhood effects on health is fairly consistent despite heterogeneity of study designs, substitution of local area measures for neighbourhood measures and probable measurement error. By drawing public health attention to the health risks associated with the social structure and ecology of neighbourhoods, innovative approaches to community level interventions may ensue. (2001:111)

Neighbourhood effects of socioeconomic disadvantage are an important consideration in terms of comprehensive school health, as the health outcomes of school-age youth are clearly affected by the community and school environments to which they are exposed.

Education Outcomes

Educational attainment and achievement

It has been well-established in research literature that the strongest single predictor of educational achievement and academic outcomes is the socio-economic status of the student's family (Canadian Council of Learning, 2006; Gutman, Sameroff & Cole, 2003; Levin, 2004). Moreover, academic outcomes are tied to other important life outcomes such as employment, income, health, longevity, and civic participation (Levin, 2004). Students in less affluent families tend to be exposed to a greater degree of socioeconomic and environmental risks that result in

lower grades and a greater number of absences, a finding consistent throughout the literature (Gutman et al., 2003; Pagani et al., 1999).

It is not only income or family affluence, but a number of other socioeconomic factors as well that contribute to a child's educational trajectory. For instance, one study that conceptualized SES in terms of neither income nor parental occupation, but rather education-related possessions and participation in social-cultural activities, sustained the link between high SES and more positive educational outcomes (Klinger & Ma, 2000). Similarly, Pagani and colleagues (1999) speculate that adolescents who experience persistent financial hardship throughout their childhood might be more at risk of poor academic performance by virtue of their limited exposure to environmental stimulation (i.e. books, cultural, scientific, and verbal activities). Parental social class has also been reported as strongly associated with educational attainment such that those whose parents are socioculturally and economically advantaged experience greater success at school and thus greater occupational opportunity. (Burnstein, 2005; Buxton et al., 2005; Schoon, Sacker & Bartley, 2002)

Studies report that some 16 percent of all Canadian children and 35 percent of the children from lone-parent families live in poverty (Burnstein, 2005), and that class inequality actually tends to increase during the primary school period, though it may stabilize thereafter (Schoon et al., 2002). Moreover, there exists wide variation in levels of disadvantage between schools, and those schools with a higher number of disadvantaged families achieve lower testing scores than schools where a small proportion of their pupils come from disadvantaged homes (Demie, Butler & Taplin, 2002).

It is critical to note that the effects on children of socioeconomic disadvantage are not only salient concurrently with those conditions of poverty, but in the future as well. Due to the fact that many of these children fail to acquire the early basic skills needed for future academic success, they often fall further and further behind in terms of achievement (Gutman et al., 2003). In other words, the academic trajectory of the student is impacted in a cumulative fashion. In addition, Gutman and colleagues (2003) note that early personal characteristics of high intelligence and good mental health appear to have no protective effects for children experiencing multiple risks. This seems a compelling argument in favour of early interventions to alleviate socioeconomic risk factors and disparities.

Grades and testing

Studies have demonstrated strong negative links between socioeconomic disadvantage and student achievement with respect to testing. Poverty, for instance, is negatively correlated with school-age children's scores on math tests, as well as tests of vocabulary development (Burnstein, 2005; Dooley & Stewart, 2004). Preschool vocabulary measures are similarly impacted by income, as are reading abilities of school-age children (Dooley & Stewart, 2004). These effects may not be uniform for all demographics; for instance, one study has pinpointed low-income boys beginning school as more vulnerable to SES effects than their female counterparts (Childs & McKay, 2001).

A recent study conducted with a focus on schools under the Calgary Board of Education provides additional insight into the link between SES and testing results in Alberta. This project, conducted by Lytton & Pyryt (1998), analyzed school-by-school achievement test results in language arts and mathematics for Grades 3 and 6, with the following results:

> Social-class variables (average family income of the catchment area of each school and a social-adversity index) explained up to 45% of the variation in

> achievement tests. Characteristics of the student body (mainly the relative absence of English-as-a-second-language and special-needs students from the tests, and the amount of parent involvement) together explained an additional 6%-11% of the variation. School-based variables (particularly teachers' years of experience and principals' positive attitudes to the tests) explained a further 3%-6% of the variation, after the other factors had been allowed for. (p.281)

Of particular note among the results of this study is the finding that class size appeared to have no practical effect on achievement. The authors also note a number of variables that may intervene in the relationship between income and school achievement, for which income is a proxy, including more books in the home, parents reading to their children, parents encouraging their children in school, parents helping their children with homework, parents engaging in general cultural activities, and parents having greater aspirations for their children.

Parental involvement and expectations

The suggestion within the study outlined above by Lytton and Pyryt that parental variables other than income play a significant role in the relationship between SES and educational achievement is by no means unique in the literature. Studies have illustrated strong correlations between strong parental involvement and school achievement. For instance, it has been reported that parents who have high SES are more likely to be involved in schools and to promote their children's academic success, producing better achievement (Klinger & Ma, 2000). Essentially, material deprivation associated with lower SES affects parental involvement because a lack of material resources available to the family precludes outings and other family activities, and also has a debilitating effect on parents' emotional and physical resources for parent-child or parent-teacher interactions (Schoon et al., 2002). These effects in turn impact both educational achievement and psychosocial adjustment (Schoon et al., 2002).

Research points to parental interest in, and enthusiasm for, their children's education as the most important protective factor in terms of academic success for children from poor socio-economic circumstances (Childs & Roberts, 2003). In fact, low student academic achievement is correlated with negative family attitudes and beliefs with respect to education (Klinger & Ma, 2000). Low educational aspirations or expectations of mothers, in particular, have been shown to be associated with academic risk for children of working-poor and welfare-dependent families (De Civita, 2004). These low educational aspirations are also likely to be reproduced when children of disadvantaged backgrounds go on to have their own children, thus exacerbating the effects of poverty on school achievement across generations (Childs & Roberts, 2003).

There are some indications that parental involvement affects education in a more complex manner than is typically expressed by studies within the field. Okpala and colleagues (2001), for instance, reported that hours of volunteering at school by parents were not significantly related to differences in mathematics achievement. As a result, these authors conclude that the effectiveness of parental involvement depends on type of involvement, ethnicity, family income, and home environment, noting that more research should be conducted to explore these relationships. In any case, however, there seems to be a strong argument here for enlisting parents and promoting parental involvement in their children's schooling as a means to improve educational outcomes.

Grade retention, failure and truancy

It is not only academic achievement and testing that are impacted by the SES of a child and their family, but also their success in advancing through grade levels, and their attendance at

school. In one Québec-based study, for instance, researchers found that residing in a persistently poor, welfare-dependent family increased the risk of experiencing academic failure during the elementary school years by 228% (DeCivita, 2004). It was not only the unemployed or welfare-dependant families that were found to be linked to the risk of failure. Children from working-poor families were also observed to have a 59% greater risk of failing a grade when compared with those from never-poor working families (De Civita, 2004). Similarly, Pagani and colleagues examined data for adolescents, concluding that family poverty predicts academic failure at age 16 (1999). This latter study revealed that persistent financial hardship from ages 10 through 15 predicted not being in a grade that was correct for age. Interestingly, De Civita and colleagues have demonstrated that higher levels of maternal aspirations lowered the likelihood of academic failure by 48%, independent of family economic circumstances and co-factors as well as early inattentiveness (2004).

Academic difficulties carry with them additional social consequences for children of disadvantaged backgrounds. Failure at school, for instance is associated with delinquency at age 16 (Pagani et al., 1999). Similarly, poor educational achievement predicts extreme delinquency, but does not moderate the effects of poverty on this measure (Pagani et al., 1999). Essentially, then, children from disadvantaged backgrounds are doubly at-risk of delinquent behaviours.

Lower grades and greater numbers of absences from school have also been found to be associated with socioeconomic risk (Gutman et al., 2003). These effects are sustained independent of neighbourhood economic variables, and also of preschool intelligence and mental health, which were shown to have no protective effect (Gutman et al., 2003). In addition, children from impoverished families are more likely to drop out of school, according to a study by Burnstein (2005). In particular, economically and socially disadvantaged male adolescents are a high-risk group for dropping out of school and joblessness (Leventhal & Brooks-Gunn, 2004). It seems clear, therefore, that socioeconomic disadvantage has serious implications not only for the academic careers of students, but also for their likelihood of completing school according to age-appropriate schedules – or at all.

Behaviour

Behaviour at school is another element of children's academic careers that is related to the socioeconomic advantage of their families. Socioeconomic circumstances have been shown to be negatively related to behavioural adjustment during childhood and adolescence, as well as psychosocial functioning during adulthood (Schoon et al., 2003). Indeed, not only family but also neighbourhood SES is associated with young children's externalizing behaviour problems (Kohen et al., 2002; Tremblay et al., 2001). Similarly, unemployment in the community of residence is correlated with higher levels of children's reported behaviour problems (Kohen et al., 2002).

It would be conveniently simple to assume that personal and family characteristics related to SES were wholly responsible for these observed correlations with behaviour. There is some evidence that children – and boys in particular – from disadvantaged families are vulnerable in making a bad impression on their teachers when they start school (Childs & McKay, 2001). The relative disadvantage of low-income boys in terms of distractible behaviour, in particular, can render them distinctly problematic for their teachers (Childs & McKay, 2001). Researchers report, that this perception is driven by gender attributions even more than by SES per se, or by actual achievement – in fact, teacher ratings displayed poor predictive validity in terms of achievement, according to one study (Childs & McKay, 2001). The impressions of educators, therefore, are perhaps an important mechanism through which socioeconomic disadvantage is

translated into educational disadvantage. Whatever the reason, however, the results are clear: poverty and unstable financial hardship for families predicts delinquency, negative psychosocial adjustment, and serious manifestations of adolescent antisocial behaviour (Pagani et al., 1999).

Neighbourhood and community effects

As with health, educational outcomes are linked not only to personal and familial socioeconomic characteristics, but also to the affluence of the communities in which children live. There is very strong evidence for the positive impact of high-SES neighbourhoods on achievement outcomes for both children and adolescents (Tremblay et al., 2001).

Preschooler's academic competencies are significantly associated with neighbourhood environments, such that children in high SES communities show better school readiness even after controlling for family-level sociodemographic characteristics (Kohen et al., 2002; Leventhal et al., 2005). Verbal ability, in particular, seems to be positively related to neighbourhood affluence and cohesion, and negatively related to neighbourhood disorder (Kohen et al., 2002). Once children enter school, the neighbourhood associations seem to be even stronger. In fact, the most consistent evidence of neighbourhood effects occurs for school-aged children, and among these effects, SES demonstrates the most consistently powerful effects in terms of educational outcomes (Tremblay et al., 2001). According to one study, these community impacts are stronger for cognitive and achievement measures than for behavioural and mental health measures (Tremblay et al., 2001).

Neighbourhood socioeconomic variables may not affect all children equally. As noted above, for instance, impacts seem to be strongest for school-age children, as compared with preschoolers. In addition, boys may be more sensitive to neighborhood influences than are girls (Leventhal & Brooks-Gunn, 2004). Researchers have suggested that this may be because both parents and school officials may provide greater access or exposure to community influences to boys than to girls (Leventhal & Brooks-Gunn, 2004).

In addition to neighbourhood and community-level variables, it is important to consider school-level socioeconomic and environmental conditions in order to better understand the link between SES and educational outcomes. One study, by Leventhal and colleagues (2005), suggests that observed neighborhood effects on educational achievement may actually be due to unmeasured school-level characteristics, including quality, norms, and composition. These authors further suggest that the impact of school composition and quality may outweigh any such neighborhood effects on children's and youths' outcomes. School mean SES has significant effects over and above student-level effects in reading and writing but not in mathematics and science, according to one study (Klinger & Ma, 2000). Other research has examine schools that excel relative to their SES, noting that they typically do better in terms of maintaining a common vision, high expectations for students, strong leadership focused on student success, use of data to guide planning, and strong ties with the community (Levin, 2004). However, it has been reported that only 10% to 15% of the variation in pupil outcomes is attributable to all the things schools do or do not do (Levin, 2004).

It seems, then, that it is not only personal and familial characteristics, but also the socioeconomic composition of neighbourhoods and the composition of schools that impact the educational achievements of children. Broadly, speaking, socioeconomic advantage in a number of forms translates to educational advantage.

Interactions between Health and Education Outcomes

The preceding sections outline the strong research evidence for positive associations between SES and health, as well as between SES and educational outcomes. In light of this discussion, it seems reasonable to examine interconnections between all three of these elements, to discern if health and education, both of which are linked with SES, have an impact on one another.

In fact, research literature does demonstrate associations between health and education. Studies suggest that targeting education interventions to lower SES groups could also assist in reducing the already wide inequalities in health (Wardle, Waller & Jarvis, 2002). This is because research has established that those with higher education tend to be more physically healthy and less prone to depression (Hammond, 2003). A Canadian Population Health Initiative report (2004) relates the Canadian picture in detail as follows:

- Health status improves with your level of education.
- In 2000–2001, people who reported not completing high school were twice as likely to rate their health as fair/poor (19%), compared with people who had completed post-secondary education or higher (8%).
- People with less than secondary education were twice as likely to report problems with their functional health (27%), compared with people with post-secondary education or higher (13%).
- In 2002, Canadians with less than secondary education were nearly twice as likely to be current smokers (24%) as Canadians with a university education (13%). (p.10)

A recent British study conducted by Hammond (2003) provides specific insight into the ways in which education, SES, and health are interrelated. Education improves mental health and impacts physical health indirectly by contributing to the adoption of healthier lifestyles, while also encouraging resilience. The authors also note, however, that education has positive impacts on health through enabling people to become advantaged in terms of money, status, and better access to appropriate health services. Thus, the direct positive effects of education on personal lifestyle and mental health are complimented in the long-term through the benefits of improved SES and advantage. In addition, we should not overlook the fact that those who are more likely to succeed in education are those who come from more socioeconomically advantaged backgrounds in any case; thus not only does education make people healthier, but those who are more likely to be healthier in any case tend to stay in education longer. It is not only the case that education affects health, however. Health has a strong reciprocal impact on educational success as well (Bloom, 2005), as David Canning, professor of Economics and International Health at Harvard University, reminds us in no uncertain terms:

> We have evidence that health improvements lead to better schooling outcomes and better cognition in terms of test scores for children. (presentation to the IMF, April 15, 2004)

A few studies have examined specific mechanisms through which education and health are linked. For instance, a project by Gutman and colleagues (2003) found that positive mental health – which itself is linked to SES – offers some stable advantage to students' grades. Another study examined obesity and education, reporting that men and women who left school early were more likely to be obese later in life, independent of SES effects and a number of other control variables (Wardle et al., 2002). This effect was graded according to years of education completed, as well.

Education, health and SES, therefore, interact in such a way as to perpetuate advantage or disadvantage. Interventions targeted at one of these variables, therefore, may also benefit from including strategies to impact the others as well.

The Current State of Health, Educational and Socioeconomic Inequalities

Socioeconomic Inequality

Despite all of Canada's efforts to the contrary, poverty among children and adolescents remains high. Levels of child poverty in this country are high by international standards (Levin, 2004). Different sources report the exact figures differently, but overall the proportion of children in poverty seems to be within the range of 15-20%:

- According to Abernathy and colleagues (2002), 20% of Canadian children live in poverty.
- A study released in 2005 reports this number at 16%, with 35% of the children from lone-parent families living below the poverty line as well (Burnstein, 2005).
- Statistics Canada (2005) relates that in 2000, 7% of all children living with two parents were in low-income situations. Among children living in lone-parent families, the proportion was 25%. In all, in 2004, 17.7% of persons under the age of 18 are considered to be living in low-income situations.
- Between 1989 and 1999 the number of poor children in Canada rose by 39%, including a large increase in families with at least one person in full-time employment (Levin, 2004).

As many as a fifth of Canadian children, therefore, are subject to the consequences of poverty and low SES outlined above, with the proportion of those living in lone-parent families who are subject to poverty stretching even higher.

Statistics Canada (2002) provides additional insight to the current picture of income inequality in Canada, and Alberta in particular, as follows (data is from the 2001 census):

	Alberta			Canada		
	Male	Female	Total	Male	Female	Total
Unemployment Rate (%)	5.2	5.1	5.2	7.4	7.6	7.2
Median Family Income ($)	60,142			55,016		
Incidence of Low Income in 2000 (%)	16.2			13.8		

Clearly, Alberta's economic hardships are somewhat less than the average levels experienced throughout the nation. Calgary, in particular, fares well in terms of economic indicators, as illustrated below:

	Saskatoon	Calgary	Edmonton	Vancouver	Victoria
Incidence of Low Income (%)	18.0	14.1	16.2	20.8	14.4

In spite of this relative advantage in the province of Alberta, however, issues of child and family poverty remain serious challenges for governments and policy-makers. As reported by Statistics Canada (2005), for those children living with one parent in 1996, over half experienced a spell of low income at some time between 1996 and 2000; for 38%, the spell lasted more than a year. Moreover, Edmonton and Calgary, increases in income inequality have been documented from

1980 to 1995 (Raphael, 2003). Indeed, the cities with the largest proportional increases inequality during this period included Edmonton, Calgary, Winnipeg, and Toronto (Raphael, 2003). While Alberta and its urban centers may be experiencing economic advantage overall, compared to national averages, the situation remains dire for those left on the poor side of an increasing economic divide.

Health Inequality

On average, Canadian parents reported in 2001-2002 that the physical health of 4- and 5-year-old children was generally very good (Statistics Canada, 2005). In spite of this perception, however, a recent document released by the Public Health Agency of Canada (2005) paints a long-term picture that is much more dire for those children living in low-income or impoverished circumstances:

- Men in the lowest income quintile live an average of five years less than men in the highest; the gap among women is two years.
- Personal health practices, such as smoking, diet, and physical activity, are more positive among those with higher education and income levels.
- Injuries, including suicides, are the largest cause of potential years of life lost for First Nations Canadians on reserve – four times the rate for all of Canada (5 times among preschoolers and 3 times among teenagers)
- Infant mortality rates in the poorest neighbourhoods remain two thirds higher than in the richest.
- Canadians in the bottom SES quintile are five times more likely to rate their health as fair or poor when compared with people in the highest.

Educational Inequality

When it comes to education, there are some encouraging and some discouraging trends in Canada. On one hand, research reports approximately 60% of 4- and 5-year-olds have an adult who read to them every day (Statistics Canada, 2005). Moreover, in 2000-2001, the vast majority of 4- and 5-year-olds had normal or advanced receptive language skills (Statistics Canada, 2005). Educational inequalities exist along gender lines, however, with more 4- and 5-year-old girls than boys observed looking at books or trying to read on their own daily (Statistics Canada, 2005). Socioeconomic inequalities are better represented within available research however. For instance, Levin (2004) reports that, according to several different measures (poverty, high school dropouts, and the vulnerability index created from the National Longitudinal Study of Children and Youth), it is estimated that about 25% of students in Canada has some notable level of risk, with about 10% to 15% likely to face serious challenges to their success in the education system. In high-poverty communities, Levin suggests that the levels of challenge could be much higher.

Statistics Canada (2005) offers additional insight into the relationship between socioeconomic indicators and education inequality in Canada:

- The pan-Canadian high school graduation rate in 2001 was 75%. The Alberta rate is comparable.
- In 2002-2003, as in 1997-1998, graduation rates were higher for females (78%) than for males (70%).
- In 2003-2004, just over half of all students aged 17 and older were working while they attended school.

Census data adds further texture to the picture of inequality (Statistics Canada, 2002):

Highest Level of Schooling	Alberta			Canada		
	Male	Female	Total	Male	Female	Total
Population aged 20-34 with less than a high school graduation certificate (%)	20.4	16.0	18.2	17.8	13.3	15.6
Population aged 20-34 with a university certificate, diploma or degree	17.1	22.9	20.0	19.9	25.8	22.9

These inequalities in the level of education achieved have profound impacts upon the future SES of Albertans and Canadians (Statistics Canada, 2002):

Highest Level of Schooling	Income by Territory ($)			
	Canada	Alberta	British Columbia	Yukon Territory
Average, all levels	31,757	32,603	31,544	31,526
Less than a high school graduation certificate	21,230	22,196	21,971	19,265
High school graduation certificate and/or some postsecondary	25,477	25,789	25,671	25,753
Trades certificate or diploma	32,743	37,443	34,196	33,352
College certificate or diploma	32,736	33,572	33,159	33,817
University certificate, diploma or degree	48,648	50,069	44,066	45,982

Alberta School Rankings and Income

On March 5th of 2006, the Calgary Herald published full rankings of 720 elementary schools in Alberta, as reported by the Fraser Institute. These ratings were based on results from Grade 3 and 6 provincial achievement tests in language arts and math over the 2004-2005 school year. The article highlights teaching, program structure and curriculum of schools at the top of the list as contributing to their success, yet makes no mention whatsoever of the socioeconomic factors that underlie the observed stratification.

The following tables outline the average earnings of constituents living within the communities containing some of the best and worst-ranked schools, respectively. Private schools are omitted from these tables, as their students do not generally live in the same community. They do, however, tend to compare very favourably with public institutions, and one can reasonably assume based on higher tuition rates that students of private schools tend to come from more socioeconomically advantaged backgrounds.

The comparison below makes use of rough measures, to be sure, of neighbourhood income and educational achievement. It is a basic, surface-level demonstration of the pronounced, obvious trend related to disparities in income and school achievement, understanding that there are most certainly other factors at play. For instance, differences between cities, between rural and urban communities, and ethnic composition of neighbourhoods and schools are not

considered. Nevertheless, the broad relationship between neighbourhood income and educational measures speaks volumes:

Neighbourhood Income and School Ranking (Public and Separate Schools)

School Ranking	Location	Average Income[1]
2	Calgary	$36,493
3	Sherwood Park	$38,096
726	Fort Vermillion	$26,967
726	Heinsberg (Part of St. Paul County # 19)	$ 27,037

The overall average earnings for Albertans are $32,603.

Clearly, students attending schools whose constituents have incomes above average seem to be achieving better results on standardized tests. This is a powerful, if simple, concrete demonstration of the relationship between income and educational outcomes.

[1] *Represents average earnings among all persons with earnings.*

Promising Practice

Promising practice information is limited for interventions that address disparities in health and educational outcomes among disadvantaged school-age children and youth. Although there are some interventions that seek in limited ways to address these issues, evaluations of their effectiveness are scarce, and moreover no comprehensive health and education approaches were identified. A number of policy implications for such interventions can be found in the literature, however.

Policy Implications

Research presents a number of implications for policies that seek to redress health and educational inequalities among children in Canada. With respect to child health, it has been suggested that accomplishing change depends largely on policies that cut across a variety of sectors in order to address the full range of health determinants which contribute to deficits in both current and future health (Abernathy et al., 2002). Although increasing health spending alone may improve some outcomes, such as mortality (Laporte & Ferguson, 2003), it appears based on the range of mechanisms through which disadvantage impacts health status that an integrated, comprehensive approach is called for.

Improving educational outcomes for socioeconomically disadvantaged children, likewise, appears best addressed through approaches that outcomes involve multiple dynamics, including families, neighborhoods, housing issues, and schools. Often, literature pertaining to education and poverty will assume that anti-poverty work should take place primarily in schools (Levin, 2004), yet it seems clear from the review of literature outlined above that schools themselves have comparatively little impact on outcomes for children. A more promising policy approach to addressing these issues should encompass early childhood, adult education, parental involvement, and community development (Levin, 2004).

Addressing the underlying socioeconomic disparities that contribute to differential health and education outcomes is perhaps an even more difficult and incremental process. In a 2005 report published by the Policy Research Initiative, Meyer Burnstein outlined a number of strategic considerations to be taken into account in devising poverty and social exclusion policies for Canada's at-risk groups. These best practice policy recommendations are listed below as they appear within this Government of Canada report (p.12):

- Successful strategies to address poverty and exclusion require sustained investments that target not just income and employment but abilities, assets, attitudes, and aspirations. The last three are relatively new on the policy scene.
- Neither the problems nor the remedies are simple. Once the focus moves beyond income to exclusion, complexity enters in the form of wider goals, a correspondingly broader range of interventions, overlapping jurisdictions, and scientific uncertainty regarding causes, effects, and mediating variables.
- Objectives will need to be framed carefully (not just in terms of outcomes) to accommodate varying perspectives and avoid engineering singular, middle-class appreciations of what constitutes the good life.
- No matter what clever new policies are devised, income supports will continue to play a crucial role in alleviating deprivation and poverty. Research shows that transfers produce sizable reductions in long-term poverty among all five at-risk groups.

- Universality in the form of tax relief, national child benefits and (passive) information/ education strategies, needs to be complemented by active policies targeting individual circumstance and focusing on at-risk groups.
- Community-based policies may be appropriate for some at-risk groups. The utility of such policies will depend on the spatial concentration of the target group, on the extent to which group members behave as a community, and on the resources available to the group.
- Different at-risk groups require different policies. These policies engage different levels of government, different public agencies, and different civil groups. As a result, consultation, co-ordination, and delivery strategies will also differ.
- Poverty reinforces and reproduces itself, scarring individuals and families. Because of this, early intervention constitutes an essential policy response.
- Because of complexity, uncertainty, and the need for holistic solutions, research, measurement, and experimentation prove especially important in designing and testing policies to combat social exclusion.

With these policy recommendations in mind, it is nonetheless important to avoid "reliance on low cost communitarian solutions" (Bryson & Mowbray, 2005:100). These initiatives may adhere to the language of comprehensive community interventions, "now often called community strengthening or capacity building" (Bryson & Mowbray, 2005:100), yet actually entail minimal commitment of resources and strategies which are by no means comprehensive of all relevant socioeconomic disparities within neighbourhoods.

Promising Practice for Interventions

There are a number of programs and initiative that offer promise in improving particular health and educational outcomes for children of socioeconomic disadvantage. Unfortunately, despite the number of such initiatives across Canada, relatively few have been formally evaluated, and such evaluations as have been conducted have tended to focus on structure and process, rather than outcomes (CPHI, 2005). It is difficult, therefore, to comment authoritatively about their absolute or relative merit. Moreover, these programs, as noted above, tend not to address a significant range of health, educational and/or socioeconomic issues. However, although concrete, comprehensive programming addressing health and educational outcomes for school-age children is scarce, it is nonetheless possible to speak broadly about community intervention approaches and factors which will improve their effectiveness.

Individual and neighbourhood-level effects have been shown to inhibit positive health and educational outcomes for socioeconomically disadvantaged Canadians. Community interventions seeking to reduce disparities must recognize that the relevant factors to be addressed are highly intertwined or inter-related. This is a key theme of a recent report on individual and neighbourhood effects on the well-being of children, produced for the Canadian Policy Research Networks (Beauvais & Jenson, 2003). A number of additional insights pertaining to community interventions that seek to improve childhood development and outcomes appear within this report:

- In order to be effective, programs must simultaneously address the multiple social issues facing community residents. "One-size-fits-all" programs are limited in their ability to address problems of central cities, as there is considerable variation within neighbourhoods considered at-risk. (p.10)
- Neighbourhood and community circumstances are only one of three factors that affect child outcomes. The three enabling conditions for good outcomes are: adequate income, good

parenting, and supportive communities...Therefore, public policy must take care to ensure programs are available that will allow parents to access adequate income, whether via employment, child maintenance, social assistance and/or child and family benefits. (p.39)

- While research continues to look for neighbourhood effects, it is important to recognize that studies consistently find that family and individual variables remain very, if not the most, important. (p.14)
- Simply changing the neighbourhood, without changing a family's income or paying any attention to parenting, is unlikely to make a vast improvement in children's developmental outcomes. (p.38)
- Even if individual factors are important, all studies are now finding neighbourhood impacts, although they probably affect individuals in different ways at different life stages…Encounters with neighbourhood are also shaped by children's different experiences by gender, class and ethnicity. (p.19)
- There are relatively few programs that focus both on children and community development, seeking to shape community involvement and empowerment as well as improve child outcomes. Many more are designed to ensure delivery in a local community, or to respond to the variety of community needs, but they do not actually address the community-level factors of cohesion, interaction, democratic empowerment, and so on. (p.38)

Early intervention and early childhood services appear to be an effective use of government resources to improve outcomes for disadvantaged children and start children off on more equal footing. Early experiences appear to be critical to tackling social inequalities during childhood, suggesting that support for parents and families before secondary school is an important community service area (Schoon et al., 2002). In short, these early interventions can help mediate some of the negative effects on health and education of having a disadvantaged background, particularly if they adopt a more comprehensive approach, taking into account the multiple factors that influence children's school success, including parents, teachers, home and classroom (Connor & Morrisson, 2004; CPHI, 2004; CPHI, 2005; Dooley & Stewart, 2004).

Nutritional Programs

One intervention approach that is much discussed and debated is the practice of providing free food (breakfast or lunch) to children. The basic premise of these programs is that without adequate sustenance and nutrients, it is not only their health but their school performance as well that will suffer. Although these programs show some promise, as outlined below, proponents of a more comprehensive approach, such as the ACHSC, tend to argue in favour of interventions that addresses a wider range of socioeconomic disparities and outcomes.

Poor diets are demonstratively associated with poor health, both in childhood, and later in adult life (Lucas, 2003a). The higher the social class into which a child is born, the better the odds that the child is fed in accordance with public health recommendations (Dubois & Girard, 2003). Early childhood nutrition, for instance, improves with educational level of the mother and with higher SES, a fact which is important because better nutrition may result in better health and cognitive outcomes in childhood and later in life (Dubois & Girard, 2003). Consequently, social disparities of diet in infancy could play a role in the development of social and health inequalities more broadly observed at the population level.

On the whole, nutritional movements to promote less expensive food in the community appear to be a promising approach, promoting general well being, social cohesion through enhanced community interactions, stress reduction for parents, as well as improved diet (Childs & Roberts,

2003). In the USA, for instance, some such programs have reported success in changing diet (Beauvais & Jenson, 2003; Childs & Roberts, 2003; Lucas, 2003a). In particular, programs providing breakfast to low-income students who may not be able to have breakfast at home have been shown to be associated with increased child nutrition, improved school achievement, improved concentration, decreased school lateness, improved mood at school and decreased absenteeism (Childs & Roberts, 2003; Lucas, 2003a). Moreover, breakfast schemes can provide a safe place for children to meet their friends before school (Lucas, 2003a). In Alberta, the Breakfast For Learning program has been well-received by several schools who have chosen to participate in the pilot stages of the program (Breakfast for Learning Research Committee, 2004).

Nutritional initiatives such as these are important, as lower SES families usually have less money to spend on food, and may be less likely to consider health in their choice of food when cost is not a barrier (Vereecken et al., 2005). In addition, one study has reported that consumption of fruit and soft drinks are not only influenced by the individual SES of the pupils but also by the SES of the school population such that lower income children are less likely to make healthy food choices (Vereecken et al., 2005).

Interventions that seek to improve the nutrition of low SES children, therefore, show promise in improving not only their health, but academic outcomes as well. However, they affect only a very narrow segment of the variables associated with reducing health and educational disparities, and should be integrated into more comprehensive initiatives, and not instituted as a one-size-fits-all solution for poor children.

Pathways to Education

One Canadian program that has shown excellent promise is Pathways to Education. Beginning in 2001, this program began in the Regent Park community of Toronto in response to their high dropout rate. Pathways to Education focuses on students living in this disadvantaged community, all of whom must attend high schools in other areas. The initiative engages a community health center with a range of health staff to address a range of determinants of health (Canadian Health Network, 2005).

Pathways to Education involves drop-in tutoring, mentoring individually and in groups, postsecondary scholarships as incentives to complete high school, and advocacy. This suite of services, together with those of the health center, has cut the truancy rate of Regent Park high school students by half, and increased their achievement to the point where they appear to be outperforming other Toronto students, on average (Canadian Health Network, 2005).

Summary and Conclusions

The message of research on health, education and SES is clear: socioeconomic disadvantage produces and perpetuates disadvantage, beginning at a young age and operating throughout the course of a lifetime. A diverse range of physiological and mental health outcomes are negatively impacted by disadvantage and poverty, as are access to health care, perceived health, mortality, life expectancy, and healthy lifestyle choices. In order to be effective, then, interventions that seek to improve neighbourhood and population health must include strategies to address or mediate poverty and disparity. Similarly with education, individual and population achievement and outcomes are mediated by income and other socioeconomic factors. Improving the educational attainment of school-age youth, therefore, involves interventions that are comprehensive enough to address the differential outcomes of disadvantage.

These health, educational and socioeconomic factors are, as outlined above, interconnected in a variety of complex ways in the lives of youth and their families. Health affects education, and vice versa. Socioeconomic variables affect both. Therefore, it seems clear that programming aimed at improving these outcomes for school-age youth should target a variety to these facets to achieve optimal results. Comprehensive school health is a promising movement for this reason.

Our search for promising practices and programming addressing together the health and educational outcomes of children was somewhat disappointing. Although this was by no means a comprehensive review of all programming and literature, very little was discovered with respect to promising practice. There are a variety of early intervention programs and initiatives across North America, but little comparable attention devoted to school-age youth. Moreover, of those programs that seek to impact health, education and disparity, very few have been subject to thorough evaluations. These facts, in and of themselves, seem a strong argument for greater time, attention, and evaluation to comprehensive interventions for aimed at children and adolescents, their schools, their families, and their communities. It is encouraging that groups like the ACHSC are actively pursuing dialogue, advocacy, and programming that seeks to improve on the narrow focus of many school-age interventions.

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