Sept. 2000

Population Health Framework for Designing Population Health Proposals & Projects & Evaluating Population Health Outcomes in Alberta

A Work in Progress

Alberta

Prepared for Health Canada and Alberta Health & Wellness

Edmonton Social Planning Council
September, 2000

Executive Summary

How does health evolve in a population? How can we use that understanding to:

- *develop a business case for population health, and*
- *select the best array of 'population health improving' strategies to use in a particular location, with a particular group of people, and with the amount of funding available to achieve the greatest gain in health outcome?*

The draft Population Health Framework developed in this report is expected to be useful in a practical way to help develop a deeper understanding of how health evolves in a population, and the range of potential factors influencing population health, how they can be linked, and what strengthens or lessens their impact. This understanding will then be used to develop specific tools for population health practitioners working in multi-sectoral partnerships, and for making informed investment decisions about population health initiatives.

The project is a joint effort of Health Canada Population and Public Health Branch (Alberta /NWT Region) and Alberta Health and Wellness and supports their current priorities. These two organizations have a shared history of working together and with multi-sector partners, to improve the health of Albertans.

Health Canada's Population and Public Health Branch is charged with maintaining systems for and carrying out surveillance and health interventions, to promote health and reduce risk factors or change individual or group behavior so as to avoid or mitigate injury, illness or disease. The Branch's activities are a key part of Health Canada's ability to help the people of Canada maintain and improve their health, through its science and policy capacities, and its involvement in cutting-edge research and knowledge. The integrated program structure assists the Branch to work effectively with partners and be innovative and responsive.

The focus of activities in the Alberta health system is on supporting the Premier's Six Point Plan, developed to protect and improve the publicly funded and publicly administered health system in the province. Development of this framework supports the desire to improve the management of the health system, improve access to quality publicly funded health services, increase emphasis on promoting wellness for Albertans and preventing disease and accidents, and to foster new ideas to improve the health system.

Population health is the capacity of people to adapt to, respond to, or control life's challenges and changes, recognizing the range of social, economic and physical environmental factors that contribute.
(Frankish, et.al)

The organizations share a similar understanding of what population health means, the factors that influence it, and the steps which must be taken to achieve more positive outcomes in population health, so it is possible for them to collaborate on using the framework developed in this document.

The framework is a foundation to develop multisector tools for design and evaluation of population health initiatives. A population group working in partnership with people from many sectors (e.g. health, education, social services, justice, and economic development) is most effective at improving their health, economic status, social support network or physical environment. Sometimes the partnership involves a number of sectors from within the health sector – acute care, continuing care and prevention / promotion for example. One of the key success factors for effective partnerships is a common understanding of the influences and how they interrelate to affect the desired outcome but multisector frameworks are rare.

The framework provides a common approach for all population groups, because 'population health' can relate to any size of group. The Population Health Framework is expected to be useful at the family, community, regional, provincial and national levels in a number of ways:

- As a detailed framework to support the holistic approach taken by the Population and Public Health Branch, and by the current Government of Alberta business plan, with its goals related to People, Prosperity, and Preservation.
- As a way to manage the complexity of the interrelationships between human, social, environmental and economic factors of society, in assessing priorities for cross-government action, for developing social policy, and for making informed investment decisions about the wide variety of potential initiatives.
- To guide needs / capacity assessments at the community, province or national level.
- To create an overall 'snapshot' of a population's capacity with an orderly way of mapping key indicators from environment, economic and human / social sectors for families, communities and other aggregations of population.

The framework is not 'health-centric' and is designed for use by multisector groups. Depending on the orientation chosen, the framework can support a holistic perspective or can focus on environment, economic development, social services, health or another sectors. It can focus on families, communities, provinces, Canada, or other aggregation of population.

The framework can be oriented to focus on improving the status of the environment, of economic development, health, or social policy generally. It can focus on families, communities, provinces, Canada, or other population group.

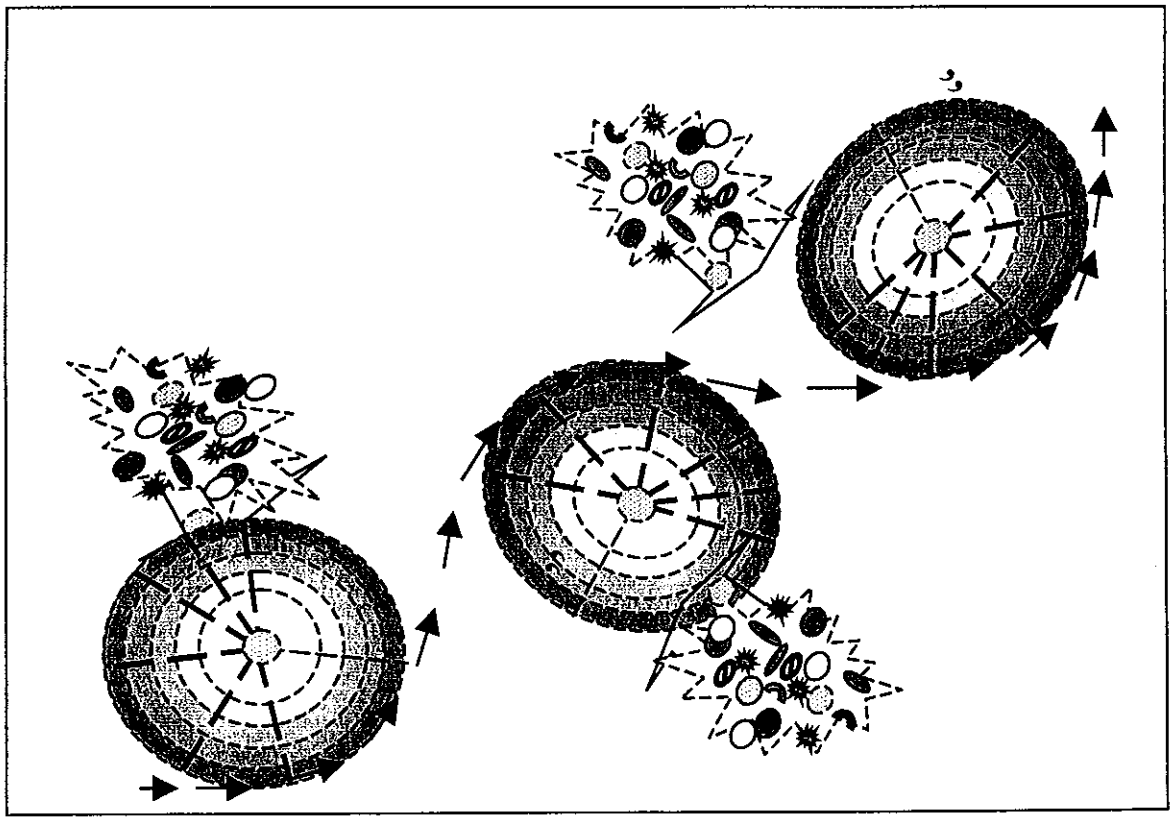
The Framework's orientation in this report is on human health. 'Health' is a word that can mean different things to different people. It includes different dimensions – mental, physical, social, and spiritual. One dimension may be more important than others at different times. Some focus on the health of individuals while others focus on the health of groups, or populations. Some use terms such as 'wellness', well-being' and 'quality of life' to highlight the focus on positive health rather than illness and injury.

In this report, 'health' relates to population health, and means *the capacity of people to adapt to, respond to, or control life's challenges and changes.*

Social, economic and physical environmental factors contribute to a population's health. The Population Health Framework shows how we can start to track the complex inter-relationships between factors that influence a particular population's capacity. Factors are interdependent, and themselves evolve and change.

The Population Health Framework highlights the ***dynamic*** nature of health, and recognizes that it evolves over time, in step wise fashion, as peoples' capacity to adapt to, respond to, or control life's challenges and changes evolves and improves. If this dynamic evolution is 'generative' or supports incremental stages of positive change (i.e. a change that creates or strengthens capacity to cope with life's challenges) it then leads population groups towards improvements in health. Each step can be thought of as an outcome in its own right. This assists in calculating the likely 'health return' of an initiative to make investment decisions about population health initiatives.

The Population Health Framework is represented by the graphic below. Each of the elements of the framework is described in detail in the report.



Population Health Framework

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I. Introduction

1. Background and Purpose

"Why is Jason in the hospital?
Because he has a bad infection in his leg.

But why does he have an infection?
Because he has a cut on his leg and it got infected.

But why does he have a cut on his leg?
Because he was playing in the junk yard next to his apartment building and there was some sharp, jagged steel there that he fell on.

But why was he playing in a junk yard?
Because his neighbourhood is kind of run down. A lot of kids play there and there is no one to supervise them.

But why does he live in that neighbourhood?
Because his parents can't afford a nicer place to live.

But why can't his parents afford a nicer place to live?
Because his Dad is unemployed and his Mom is sick.

But why is his Dad unemployed?
Because he doesn't have much education and he can't find a job.

But why...?"[1]

Some of the 'but why' questions in the above vignette are addressed using an individual services approach, through treatment and care of Jason or his mother by physicians, nurses, physiotherapists, and other practitioners. However, some of the 'but why' questions must be addressed using a population health approach, focusing on factors within the social, economic and physical environments that contribute to Jason's family's capacity to cope with life's challenges and changes, and thus Jason's health and the health of his family as a whole [2].

The draft Population Health Framework developed in this report is expected to be useful in a practical way to help develop a deeper understanding of how health evolves in a population, and the range of potential factors influencing population health, how they can be linked, and what strengthens or lessens their impact. This will help assess the range of possible activities to make investment decisions, by determining the best array of ' population health-improving' strategies to use in a particular location, with a particular group of people, and

[1] *Toward a Healthy Future: Second Report on the Health of Canadians.* Federal, Provincial and Territorial Advisory Committee on Population Health, 1999

[2] Readers wishing an introduction or in-depth discussion on population health will find the documents identified in Appendix A to be helpful.

with the amount of funding available in order to achieve the greatest return in the form of improvement of health outcomes[3].

How does health evolve in a population? How can we use that understanding to

- *develop a business case for population health and*
- *select the best array of 'population health improving' strategies to use in a particular location, with a particular group of people, and with the amount of funding available to achieve the greatest gain in health outcome?*

The framework will help identify the program logic underlying the combination of activities within initiatives, and the steps through which the population 's health is expected to evolve. This will assist in designing evaluation strategies that can assess the success of projects and compare programs across the province. The framework may also be helpful in selecting initiatives to evaluate on a longitudinal basis to assist in understanding the long term impacts of population health initiatives.

The Framework is expected to guide the development of a number of specific tools, including:

- a template for designing and planning population health programs and initiatives at the community or provincial level, and
- an evaluation template to measure short, medium and long-term population health outcomes, which will then help to build a consistent evidence base to support the business case for population health.

The framework provides a common approach for all population groups, because 'population health' can relate to any size of group. The Population Health Framework is expected to be useful at the family, community, regional, provincial and national levels in a number of ways:

- As a detailed framework to support the holistic approach taken by the Population and Public Health Branch, and by the current Government of Alberta business plan, with its goals related to People, Prosperity, and Preservation.
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- To guide needs / capacity assessments at the community, province or national level.
- To create an overall 'snapshot' of a population's capacity with an orderly way of mapping key indicators from environment, economic and human / social sectors for families, communities and other aggregations of population.

The framework can be oriented to focus on improving the status of the environment, of economic development, health, or social policy generally. It can focus on families, communities, provinces, Canada, or other population group.

The framework is not 'health-centric' and is designed for use by multisector groups. Depending on the orientation chosen, the framework can support a holistic perspective or can focus on environment,

[3] For a discussion of the investment portfolio approach to making investment decisions, see Hawe, P. & Shiell, A., Preserving innovation under increasing accountability pressures: The health promotion investment portfolio approach. Health Promotion Journal of Australia 1995; 5 (2): 4-9.

economic development, social services, health or another sectors. It can focus on families, communities, provinces, Canada, or other aggregation of population.

2. Context for this Project

The project is a joint effort of Health Canada Population and Public Health Branch (Alberta /NWT Region) and Alberta Health and Wellness, and supports their current priorities. These two organizations have a shared history of working together and with multi-sector partners, to improve the health of Albertans and this project is a logical next step to a long list of accomplishments.

> *Health Canada's new Population and Public Health Branch is part of a realignment to better integrate program areas to enhance the department s science capacity, its policy capabilities, and improve its access to, and involvement in, cutting-edge research and knowledge.*
> *-News Release, July 2000*

Health Canada's Population and Public Health Branch is charged with maintaining systems for and carrying out surveillance and health interventions, to promote health and reduce risk factors or change individual or group behavior so as to avoid or mitigate injury, illness or disease. The Branch's activities are a key part of Health Canada's ability to help the people of Canada maintain and improve their health, through its science and policy capacities, and its involvement in cutting-edge research and knowledge. The integrated program structure assists the Branch to work effectively with partners and be innovative and responsive.

The focus of activities in the Alberta health system is on supporting the Premier's Six Point Plan, developed to protect and improve the publicly funded and publicly administered health system in the province. Development of this framework supports the desire to improve the management of the health system, improve access to quality publicly funded health services, increase emphasis on promoting wellness for Albertans and preventing disease and accidents, and to foster new ideas to improve the health system.

> *...the six-point plan includes:*
> 1. *Improve access to quality publicly funded health services.*
> 2. *Improve the management of the health system.*
> 3. *Enhance the quality of health services.*
> 4. *Increase emphasis on promoting wellness for Albertans and preventing disease and accidents.*
> 5. *Foster new ideas to improve the health system.*
> 6. *Protect the publicly funded health system.*
>
> *-2000 A New Century. Bold plans for Health in Alberta. February 2000*

The collaborative use of the framework developed in this document is possible because the organizations share a similar understanding of what population health means, the factors that influence it, and the steps which must be taken to achieve more positive outcomes in population health, including the following:

- Population health / wellness must be approached in a broad, holistic view that recognizes the emotional, physical, social, spiritual and mental / intellectual dimensions and is strength or capacity based rather than deficiency based;
- Important health gains are possible by focusing strategies on the health of populations or sub-populations;
- There are complex interactions between the broad determinants influencing health of a population;
- One element of a population health agenda is designing a service system that has the capacity to deliver a holistic care plan to a population;
- Population health is influenced by many sectors outside the traditional health sector and collaboration between sectors is needed to design and implement strategies to improve a population's wellness;
- Outcomes-based design and evaluation of population health initiatives is critical to successfully improving the health of all Canadians.

> *Population health is "the capacity of people to adapt to, respond to, or control life s challenges and changes, recognizing the range of social, economic and physical environmental factors that contribute".*
> *(Frankish et al)*

This is an appropriate time to consolidate the practical and theoretical knowledge in population health and to develop some working tools for general use. Health Canada Population and Public Health Branch and Alberta Health and Wellness share a commitment and understanding of population health, shown in a number of policy and planning documents[4], There are now a substantial number of practitioners, organizations and communities in Alberta with practical experience and capacity in designing, implementing and evaluating population health initiatives. This project builds on the recommendations of the report done by the Alberta Consortium for Health Promotion Research and Education, reported in *Health Promotion Effectiveness in Alberta. Providing the Tools for Healthy Albertans* (Alberta Health and Wellness August 1999).

Ultimately, tools developed from this Population Health Framework, including the design and evaluation templates, are intended to be used for population health projects that are funded by Health Canada Population and Public Health Branch (Alberta /NWT Region) and Alberta Health and Wellness.

[4] Appendix A describes a number of the key policy documents of Health Canada and Alberta Health and Wellness that form the foundation for this project.

II Conceptual Framework for Population Health

1. Why a Conceptual Framework?

The ultimate aim of this project is to create practical templates and tools that can be used by practitioners to design population health initiatives and to evaluate their impact and efficiency. A necessary foundation for such templates and tools is a conceptual framework that demonstrates the underlying assumptions about potential influences and outcomes and their interrelationships. Such a conceptual framework shows the paths by which population health evolves in response to specific strategies, and the stages along that path.

A conceptual framework also facilitates the development of a coherent, intentional program logic model. Such a logic model is explicit about what strategies are being implemented in the program, what outputs will be created, and what outcomes are expected. The logic also describes expected stages of evolution of population health. A 'program logic model' is then used as the basis for selecting the indicators of success, and the methodologies to measure those indicators, for the evaluation process.

2. Process of Development

The development of the framework began by building upon and expanding the classic list of determinants of health[5] to include the variety of potential influences identified in policy documents and current population health literature. Specific references are identified in Appendix A, and include a number of sources:

- major policy documents from Health Canada, Alberta Health and Wellness, and the Federal, Provincial and Territorial Ministers of Health;
- policy documents from other organizations;
- a variety of population health and health promotion references; and
- descriptions of exemplar health promotion projects in Alberta.

A draft framework was considered at two workshops (co-sponsored by Health Canada and Alberta Health and Wellness in March 2000) and in personal interviews, with a total of approximately 30 practitioners of population health from various government jurisdictions, non-government health, environment and social organizations, an Aboriginal health promotion and research organization as well as academic researchers. Participants examined the categories and subcategories of potential health influences and tested them against various

[5] Federal, Provincial, Territorial Advisory Committee on Population Health :*Strategies for Population Health* 1994 identified nine determinants: (1) income and social status, (2) social support networks, (3) education, (4) employment and working conditions, (5) physical environments, (6) biology and genetic endowment, (7) personal health practices and coping skills, (8) healthy child development, (9) health services. Gender, Culture and Social Environment were added in Health Canada's 1996 document *Toward a Common Understanding.*

scenarios, and identified additional subcategories of potential health influences, while confirming the basic approach of the framework.

3. Elements of the Conceptual Population Health Framework

How does the health of a population evolve and improve? 'Health' is a word that can mean different things to different people. It includes different dimensions – mental, physical, social, and spiritual. One dimension may be more important than others at different times. Some focus on the health of individuals. Others focus on the health of groups, or populations. Some use terms such as 'wellness', well-being' and 'quality of life' to highlight the focus on positive health rather than illness treatment. In this report, 'health' and 'wellness' are used interchangeably, and relate to population health.

"The population health approach recognizes that health is a capacity or resource rather than a state, a definition which corresponds more to the notion of being able to pursue one's goals, to acquire skills and education, and to grow. The best articulation of this concept of health is:

*'the **capacity** of **people** to adapt to, respond to, or control **life's challenges and changes** [6]".*

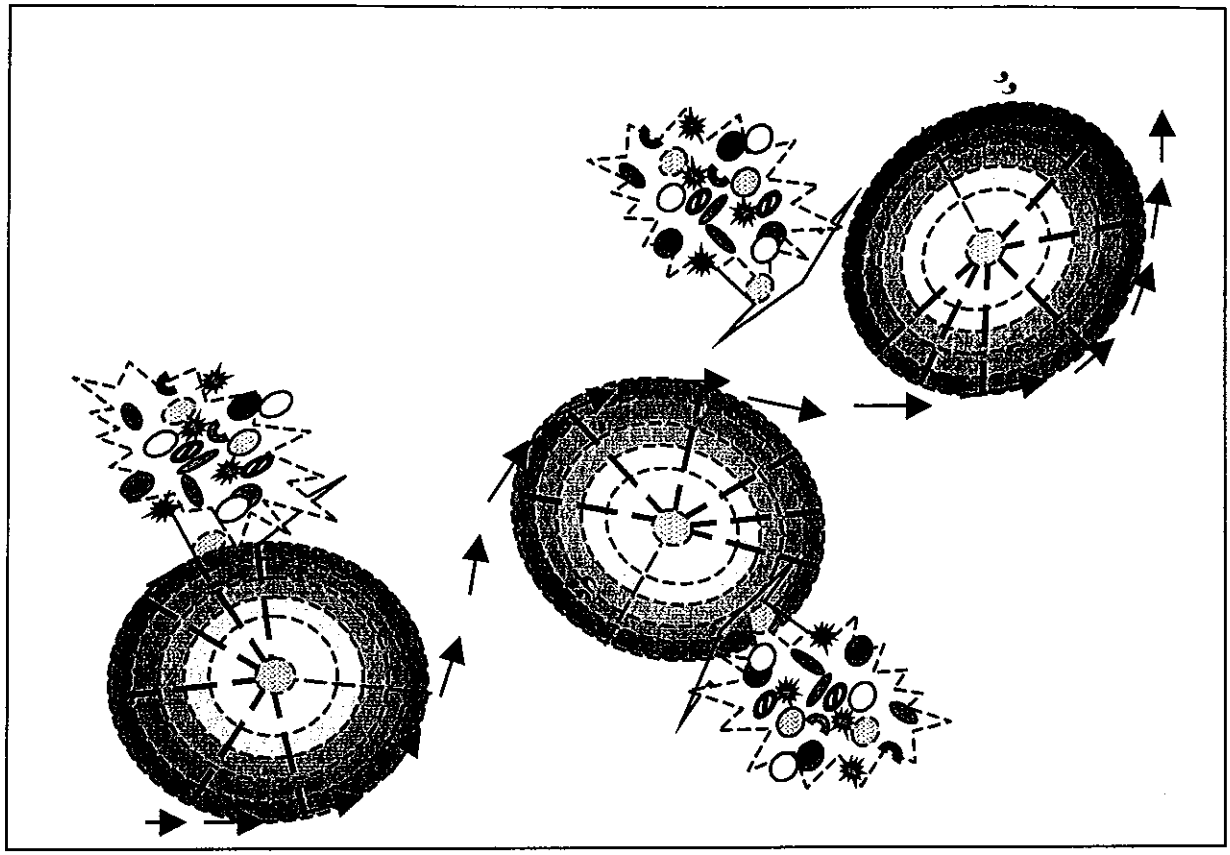
The population health approach also recognizes the **range and interrelationships of social, economic and physical environmental factors** that contribute to a population's capacity.

There are several interrelated concepts within this understanding of population health, as identified by the bold type. If we pull these concepts out and use population health language to enlarge upon their meaning, we arrive at the two elements of the population health framework:

A. Factors which influence a population's capacity;
B. Population health viewed as a dynamic, responding to life challenges and changes and evolving continuously in incremental steps.

The Population Health Framework is represented by the graphic on the next page. Following, both elements of the framework are described in detail.

[6] Frankish, C.I. et al. Health Impact Assessment as a Tool for Population Health Promotion and Public Policy (Vancouver, Institute of Health Promotion Research, University of British Columbia: 1996), cited in: *Taking Action on Population Health, A position paper for Health Promotion and Programs Branch staff.* H



Population Health Framework

A. Factors which Influence a Population's Capacity

This element of the population health framework relates to the terms *'capacity'* and *'range and interrelationships of social, economic and physical environmental factors'* that contribute to a population's capacity and thus its health[7].

'Capacity' is a population's potential to respond to the challenges and changes it experiences, in such a way as to make a positive difference to its social, economic and physical environments, and to the lives of the individuals who make up that population. The challenges and changes may arise internally or external to the population and may be physical, mental / emotional, social or spiritual in nature.

The *range and interrelationships of social, economic and physical factors* can support the development of a population's capacity, and thus its health, if they exert an influence that is health-generating for the population (i.e. the factors will improve a population's capacity for coping or modifying life challenges). Again, these factors may be internal or external and may be physical, mental/ emotional, social or spiritual in nature. If factors are absent, or exert an influence that reduces a population's capacity to cope with life challenges and changes, then they limit the population's capacity or create vulnerability. In other words, it is the

[7] See definition of population health cited on page 5

capacity or ability to respond to the internal and external factors in a dynamic fashion that determines the state of being, the health of the population[8].

One important variable in a population's capacity is its ability to access supportive factors in its social, economic and physical environments (i.e. its ability to call on the resources of other (usually larger) population aggregates or groups). Populations as well as people are a dynamic balance between independence and dependence and interdependence with others. For example, the Winnipeg flood was a 'life challenge' greater than the capacity of that city, and it's individual members and families. Coping successfully with the flood required the city to have access to the resources of other communities and the province, as well as from Canada and other countries. When there is a relationship or connection between population groups, support is forthcoming. These are interconnected since one factor in a population's sense of being valued is the ease with which that support is accessed. Social cohesion, or this sense of being connected, is improved when groups work together for a common purpose. It is therefore one of the positive influences on a population's capacity.

Since a population is a 'whole system' and is in dynamic movement all the time, it is most appropriate to use a sphere to depict the relationships between the various elements and components. An onion cut into wedges is one helpful model for seeing this in three dimensions. In this document the relationships are shown using two dimensional circles and segments to 'freeze' the action. This enables us to see the various factors, and consider them in an orderly fashion.

The 'visual language' best suited to illustrating the complexity and interrelationships[9] in population health was considered. The best visual representation of the framework is a sphere, providing an underlying message of having freedom to move, and interconnectedness. Within the sphere, there are, at the same time, segments and concentric circles[10]. Dotted lines were chosen to illustrate the holistic and dynamic nature of the various aggregates and potential influences on health. Dotted lines are used to illustrate the systems nature of populations and the complex interrelationships of various factors with potential to influence a population's capacity.

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[8] In some cases, 'population health' is concerned with individuals grouped by demographics or a common characteristic. An individual's capacity is the potential to make a difference in one's life, in the lives of others, and in the physical environment. An individual comes into the world with a potential, which translates into capacities over time. The potential is translated into capacities in the early years primarily by external factors, because there is total dependence on others for survival and growth. Over time, the dependence translates into independence and interdependence, and internal factors play a larger role in translating potential into capacities. A dynamic balance between dependence, interdependence and independence is created that has to be continuously recalibrated as each situation demands. The internal and external factors at play are physical, mental, emotional and spiritual in nature. It is this ability to respond to internal and external factors (life's challenges and changes) in a dynamic fashion that determines the state of being, the health of the person. This is what creates the complexity and the richness of life, leading to growth and development for those with a dynamic response capacity and vulnerability for those unable to respond appropriately. (Adapted from Bhatti, T., Personal Communication)

[9] For a discussion of the grammar and syntax of visual language, see Horn, R.E. Visual Language: *Global Communication for the 21st Century*, Bainbridge Island, Washington: MacroVU.

[10] The use of concentric circles with dotted lines is intended to evoke an image of a whorl, with a continuous line of people circling to form supportive circles around each level of aggregation.

This element of the population health framework has two components, which will be considered in detail in this section:

i. Population aggregates; and
ii. Human/social, economic and physical factors with potential to influence a population's capacity.

i. Population aggregates

'Populations' come in different aggregates, or group sizes. The different sizes, or aggregates of populations are represented by a series of concentric circles. Dotted lines are used, to illustrate the mutual interdependence of population aggregates.

As well as differing in size, populations range in the degree of relationship and connection between members. Population aggregates such as a family, extended family, or group of friends have higher degrees of relationship and connection between members – whether expressed in productive or dysfunctional ways. 'Communities of place' share a geographical space, which influences the potential for interaction and thus for relationship and connection. 'Communities of interest' may not share a geographical space but share a common bond, which creates potential for relationship and connection.[11] Advanced communication technologies provide 'communities of interest' with similar advantages to 'communities of place' for frequent interaction. These populations have the potential for acting as a cohesive whole, and even for synergy, which increases the population's capacity from being simply the total capacity of all constituent members. In these cases, the population's capacity is influenced by the quality of the interrelationships between the members.

As noted earlier, in some cases, 'population health' is concerned with individuals grouped by demographics or a common characteristic. The 'periscope' through which population health practitioners view these groups, and direct population health initiatives, can combine a variety of 'lenses' or ways of viewing the population, such as age, gender, culture, social / geographic isolation, history or risk behaviors. Some examples include men over fifty who smoke and exercise less than twice a week, or teenage Aboriginal women living on isolated northern reserves who drink during their pregnancies. In the case of persons with Fetal Alcohol Syndrome / Fetal Alcohol effect, their history, in the form of a lack of appropriate early childhood development is the characteristic that the population has in common. In these cases, there is usually little relationship and connection between members[12] .

This differentiation between types of populations becomes more critical when choosing population health strategies and when selecting indicators of population health. For 'communities of interest', or 'communities of place' where there is significant relationship and connection between members, strategies can expect

[11] Also referred to as spatial and non-spatial communities. Hancock, T., Labonte, R. with Edwards, R., *Indicators that Count! Measuring Population Health at the Community Level.* 1999. University of Toronto Centre for Health Promotion.

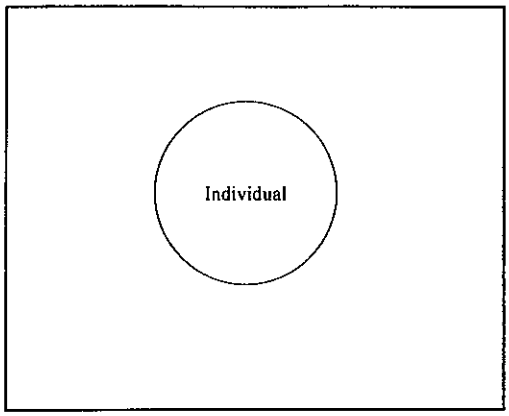
[12] Although in some cases, where there is a common characteristic that creates a common bond, the collection of individuals can respond quickly to a 'call to action' that affects all members. In which case, the population is more similar to a 'community of interest'.

the impact of the intervention to spread much more quickly than with populations where there is little or no relationship and connection between members.

For 'communities of interest', or 'communities of place', indicators of how the population *as a whole* operates as well as indicators of the *distribution* of health across the population will be important, whereas for populations that are comprised of individuals sharing a common characteristic, the indicators focus on the aggregate of the health of the individual members.[13]

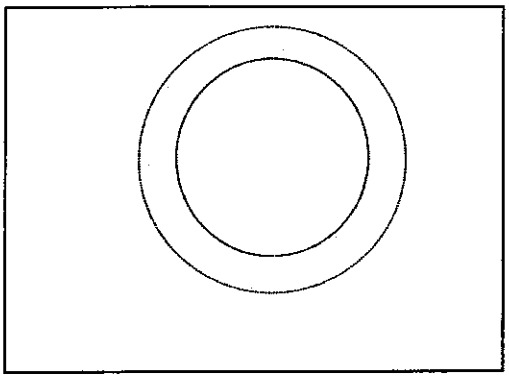
The following series of diagrams builds up the diagram for this component of the Population Health Framework.

[13] Hancock, T. ibid.

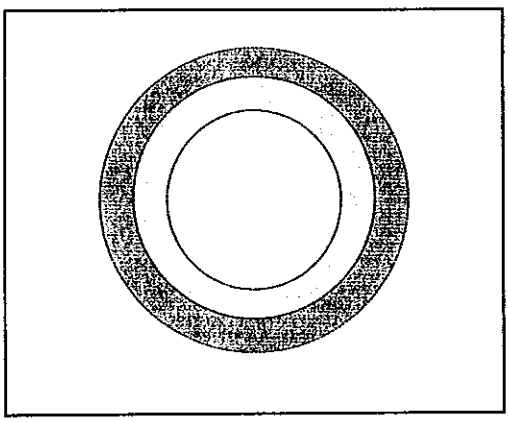


a) Individual and Individuals grouped by demographics or some common characteristic(s. As noted earlier, this is included in a discussion of population health for a number of reasons:

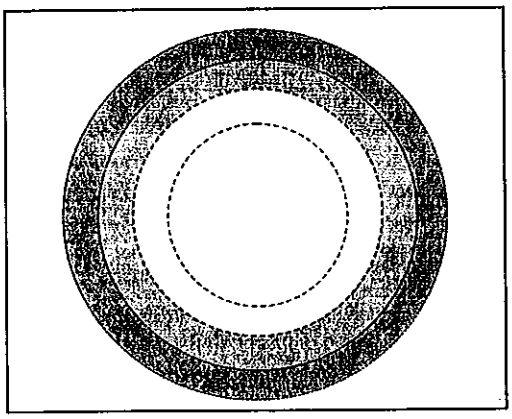
- the capacity of individuals contributes to a population's capacity to 'adapt to, respond to, or control life's challenges and changes';
- many population health initiatives are addressed to individuals who are grouped by demographics or some common characteristic; and
- indicators of population health are often aggregates of individuals' health or disease.



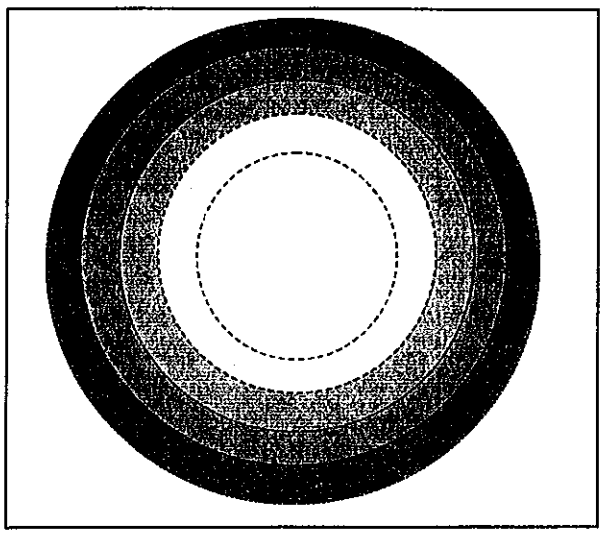
b) 'Family' and close friends. 'Family' is intended to include both the birth family and the family of choice. Close friends are in this aggregate because a person often relies on the support of their close friends as well as or instead of family members to help them meet life challenges. For some, this close circle includes extended family.



c) Worksite, school, prison, elders' residence, church group, extended family. This aggregate includes populations in which members have some connection to each other, though it is not as close as the connections and commitments associated with family and close friends. Nevertheless, these populations are likely to include people with some shared values or characteristics and they can operate as a collective, though larger population groups will have subgroups within them. Indicators of how the population acts as a whole, and indicators of the distribution of health across the population are possible for this and larger sizes of population aggregate.

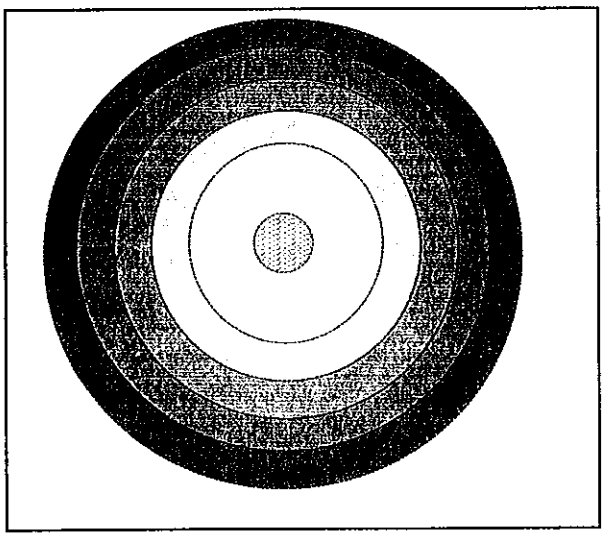


d) Neighbourhoods or communities of place. These populations usually share some common characteristics in addition to their geographic location, though they are more likely to be broken down into other population subgroups who have closer relationships and connections or who share common values and beliefs.



e) Region, Province, Country, Continent, Global Region. These are all population aggregates that may be of interest in a particular population health initiative. They could each have their own circle, but are clustered together in one for the purposes of this framework. The dotted line on the outside circle acts to remind us that each of these exists within a context of a larger population aggregate, some characteristics of which will influence the smaller aggregate. For example, communities, the province of Alberta and the country of Canada are influenced by the values and beliefs of the western nations, and share a representative democracy style of governance, though other characteristics may vary dramatically.

The ultimate population aggregate is the entire world, within its environment of the solar system. These are unlikely to be of major interest in a population health application, though influences such as solar flares have been recently identified as important influences on communication mechanisms, so could become an influence of a smaller population aggregate as a 'life challenge or change'.



Population of Focus. One of the population aggregates identified above (or some sub-population of one of the aggregates) will be the focus of attention in a population health initiative. The Population of Focus is placed at the centre of the diagram. The outer rings become the context for the population of focus, and, as the social, economic or physical environment of the population at focus, include factors that improve the population at focus' capacity or limit its capacity). The outer rings are also the external sources of the 'life challenges and changes' of the population at focus.

ii . Human/social, economic and physical factors with potential to influence a population's capacity

The factors that can influence a population's capacity may be internal or external to the population. Internal factors are the human / social, economic, or physical characteristics of that population. External factors arise from the population's human/social, economic or physical environments. As described earlier, the *range and interrelationships of social, economic and physical factors* can support the development of a population's capacity, and thus its health, if they exert an influence that is health-generating for the population (i.e. the factors will improve a population's capacity for coping or modifying life challenges). If factors are absent, or exert an influence that reduces a population's capacity to cope with life challenges and changes, then they limit the population's capacity or create vulnerability.[14].. One important variable in a population's capacity is its ability to access supportive factors in its social, economic and physical environments (i.e. its ability to call on the resources of other (usually larger) population aggregates or groups). Populations as well as people are a dynamic balance between independence and dependence and interdependence with others.

In other words, it is a population's capacity or ability to respond to internal and external situations or events (life's challenges and changes) in a dynamic fashion, created by factors internal to the population or in its external environments that determines the state of being, the health of the population.

Factors are identified as having *potential* to influence a population's capacity because they are theoretically rather than empirically derived and because not every factor will be applicable to the population at focus at all times. Use of the term 'potential' is also important because an individual or population may not access all the factors that are available to improve its capacity, as a result of the impact of other factors. In other words, a population will be more likely to access, experience and utilize the influence of external factors that have potential to build capacity, such as education or economic opportunities, if it is 'ready' to access those factors because its existing capacity includes the impact of internal and external factors such as hopefulness, high social cohesiveness, transportation to and from work locations and perspective of having the ability to control circumstances. If the population's capacity is limited by such internal factors as collective apathy or despair, it will be unable to access the external factors that could enhance its capacity.

The factors which potentially influence a population's capacity are grouped into the following six major categories. As noted earlier in the report, these are an evolution of the classic 'determinants of health', and the relationship between the two is mapped in Appendix C. In the diagram on the next page, these move

[14] The use of the term 'vulnerabilities' is explained by Silverman, M.M. and Felner, R.D. Part II. Prevention Theory and Models. 5. The Place of Suicide Prevention in the Spectrum of Intervention: Definitions of Critical Terms and Constructs. Suicide and Life-Threatening Behavior, Vol 25 (1), Spring 1995. The concept of internal and external factors is included in the concept of *Developmental Assets* (Search Institute: www.searchinstitute.org)

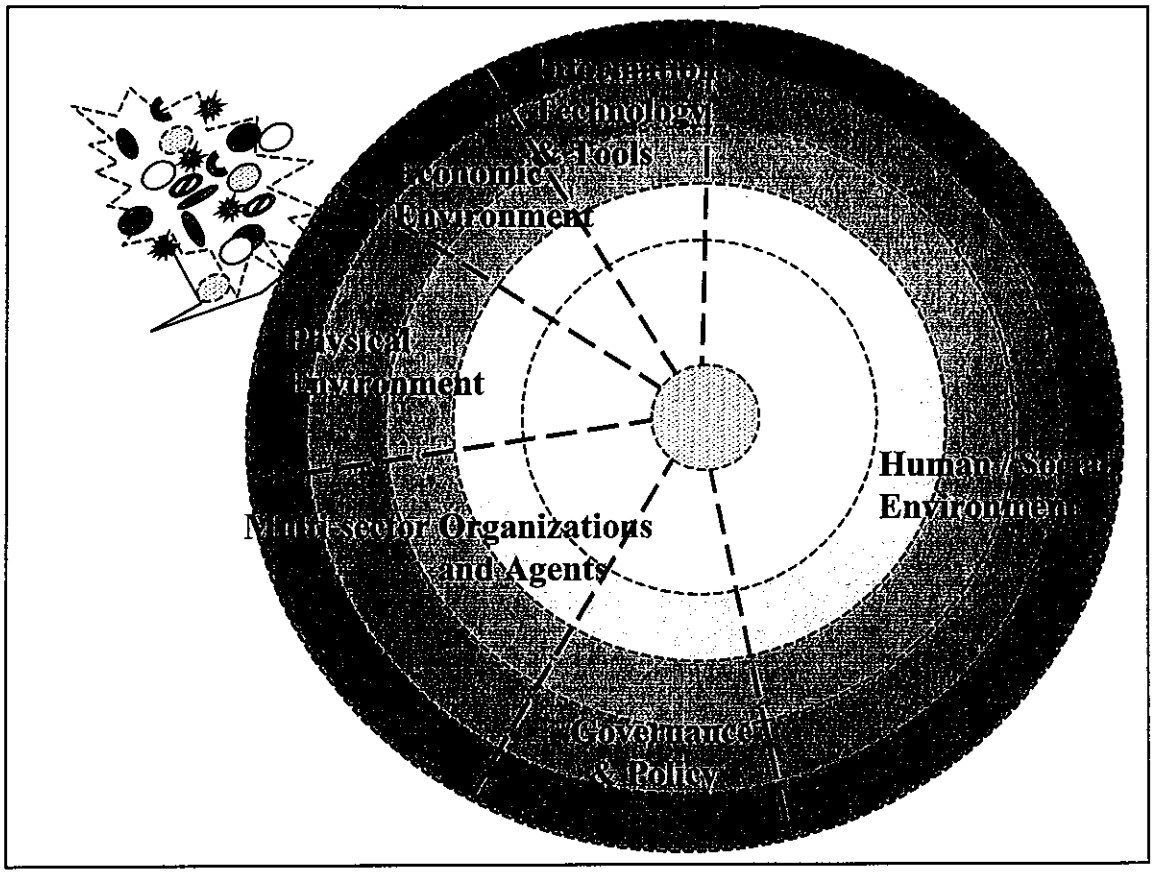
clockwise from the far left. Detailed factors in each category are outlined following the diagram.

- Physical Environment
- Economic Environment
- Information and Technology
- Human / Social Environment
- Governance and Public Policy
- Organizations and Agents

The categories are represented as segments of the population aggregates. Each segment relates to each population aggregate. For example, 'Economic Environment' exists at the regional, provincial and national level (the vitality of the country's economic environment is tracked using GDP and other measures), the community level, the worksite or school level (expressed in the budget available), the family level (e.g. household income) and the individual (income from various sources). 'Culture' within the social environment relates to the individual's meanings and beliefs, cultural icons, language and time orientation. It also is an aspect of the family, the worksite, the community, and the region, province and nation, as well as larger aggregates. The extent of multicultural groups within a country is itself a characteristic of that country's culture in addition to the common elements of the culture.

Because this is a systems model, factors that create the physical, economic and human/social characteristics of a particular population group become the physical, economic and human/social environments of population groups in relation to it. In other words, the physical, economic and human / social characteristics of a community create the physical, economic and human/social environments of neighborhoods, families and individuals within that community, as well as the environments of the region and province within which the community is located.

As noted before, the human/social, economic and physical factors as well as the population aggregates are never stationary and are in dynamic relationship. Thus the diagram on the next page is a 'frozen' image, allowing us to see the various parts at one moment in time. The dotted lines are specifically used to illustrate the dynamism of these relationships in their many dimensions.



The major categories are then subdivided into subcategories to permit us to focus in on more specific factors, and thus to fine-tune the conceptual framework for application to a broad variety of population health strategies, implemented by various sectors or multi-sector coalitions. At this point, the decision on identifying potential factors has been to err on the side of inclusion. Some of the factors may need to be re-categorized, or additional categories and sub-categories created, as more experience is gained in applying the framework in practice. Likewise, over time and with more evaluation information, the factors that tend to be most influential will be demonstrated and some can be dropped from the framework.

Physical Environment includes three subcategories:

- *Natural environment*, including air, water, and land not cultivated;
- *Built environment* ,including air, water and land associated with roads, buildings, waste disposal areas, as well as physical components such as telephone and other communications networks
- *Managed environment* such as air, water and land associated with agriculture, and parks.

Economic Environment also includes three subcategories

- basis of growth, sustainability and vitality of the economic environment as well as nature and diversity of industry, including number, type and consistency of jobs;
- 'management of the household' factors, including income at the family and individual aggregates (includes various sources of financial resources, whether paid work, pension or social assistance);
- source of money and characteristics of the money system.

Information, Technology and Products includes three subcategories:

- Data, information and wisdom (generated, stored and disseminated); and
- Technology (including soft and hard technologies such as processes and tools).
- Products are also included in this category, ranging from chemicals to cars.

Human /Social Environment: Includes factors that are a characteristic of the population itself (internal) and factors that are characteristic of the interaction between humans, and includes a number of subcategories:

- *Physical factors* include
  - biology and genetics (diversity of the gene pool in a population),
  - physical stamina (muscular development and aerobic capacity),
  - sex,
  - physiological factors.
- *Mental factors* relate to both cognitive skills and emotional maturity and include multiple intelligence, critical thinking, decision making, problem solving, creative thinking and project management skills.
- *Social factors* include conflict resolution, communication, listening, leisure skills and play / celebration skills.
- *Spiritual factors* include hope, moral development and sense of identity as well as a sense of a larger essence, rather than specific religiosity.
- *Culture,* including
  - *Meanings and beliefs* include the meanings individuals and populations apply to events. Urban myths are an example of meanings and beliefs circulating generally in a population group that may or may not be based in truth.
  - *Cultural icons* include the various 'forms' that embody the cultural beliefs.
  - *Time orientation* and other characteristics of a culture, including the focus on individual or collective.
- *Size, demographic distribution and stability* (rate of in/out migration).
- *Age*
- *Sexual orientation* is included since an individual's sexual orientation becomes important relative to the level of acceptance of diversity in the social environment.
- *Values* (including those related to health seeking behavior),
- *Perspective of control, safety and security and sense of place* . This is important since perception of no control will mean the individual or population aggregate will not access other factors that improve their capacity. This subcategory also includes sense of self – efficacy.

- *Participation / Meaningful role.* This can include employment, or other meaningful roles that members of a population may have such as elder, volunteer, provider of food for a community, etc.
- *Access to resources* (including nourishing food, housing, money at regular interest rates, quality information, time).
- *History* relates to key incidents that have influenced the development of the individual or population aggregate. For example, early childhood development is an important factor because optimal or poor support in the preconception to six life-stage has a lifelong influence on an individual's capacity to cope with life challenges. Factors in this subcategory also relate to the particular developmental stage of the individual, family, community or larger population aggregate, because an individual or group's capacity needs to be assessed relative to what can be expected for their particular developmental stage.
- *Health Practices* or actions are a result of the interaction of all these factors. However 'practices' themselves are factors that influence the population's capacity to meet life challenges. While this factor has been most commonly used for individuals, it is also appropriate for populations. A population's practices can be seen in its policies, and in whether its actions are congruent with its vision, mission and values, for example.
- *Health Status* is included because health status, using indicators such as 'resilience', 'self-rated health', rates of illness and injury, influences a population's ability to 'adapt to life's challenges and changes'. The extent of perceived wellness improves a population's capacity to take on challenges. The degree to which a population's energies are reduced by the percentage of individuals who are sick or injured is a limiting factor because it uses resources that might be otherwise directed and thus reduces a population's capacity to cope successfully with other life challenges.
- *Connections / Diffusion* includes the closeness and ease by which members of a population connect with one another, influenced by the social linkages and the permission for one member to connect with another. This sub-category relates to the human/social factors. Technologies that support connections, such as roads and telephone grids are identified in the Physical environment category.
- *Social structure* includes the manner in which the society is structured, but also includes the rigidity of that structure and its openness to change.
- *Distribution of Resources* includes the actual distribution of any resources such as financial, power, information, water, as well as the patterns of inequities in distribution.
- *Shared vision* is the degree to which all members of the population have a shared understanding of their common desired future.
- *Acceptance of diversity*, including gender, ethnic origin, sexual orientation and any other aspect of 'difference'.
- *Transmission of knowledge and society wisdom* includes formal schools as well as informal social mechanisms.
- *Use of power* includes whether power is shared or used in abusive or controlling ways.

- *Trust and social cohesion.* In part these factors are created by the influence and interaction of other factors but are included as a specific subcategory to ensure they are considered as an overall potential influence.

Governance and Policy. Governance is the formal mechanism that populations use to make collective decisions. Western nations and communities use representative democracy as the manner of governance. At the family level the governance function is carried out by parents. Governance includes processes for

- Leadership;
- Resolving conflict;
- Priorizing actions;
- Making collective decisions and solving problems;
- Distribution of resources and power, ethical principles underlying decisions for resource allocation; and
- Establishing policy based on values of the population, which identifies the parameters within which decisions are to be made. At the community, province and national level this includes macro-public policy in health and human resources, safety and security, environment, finance/taxes, infrastructure and economic development. The policies of central agencies such as personnel administration, finance and public works are included because they indirectly influence the policy implementation process.

Multisector Organizations and Agents. This category includes the formal mechanisms of producing services, products, information and social interaction in society. These are included as a specific category because each organization or agent, in addition to producing services or products, creates and influence economic, physical, and social environments. For example, public sector organizations, in addition to providing health, social service, economic development and other services, create economic, physical and social environments for individuals and families. They are also are members of the communities in which they exist.

Private sector organizations create and influence social and physical environments as well as generating economic wealth. This is recognized by some organizations that consider 'triple bottom lines' in their management of the company. At the community level, a small business influences the health of that community when it supports a local minor hockey team. It also influences the health of the children of that community by the way in which parents are influenced by their work environment – whether the quality of air, or in the exposure to hazardous products, or in the quality of social environment created by the organization of work. Multi-national companies who choose to establish schools and other community resources to address social and environmental environments in countries and communities in which they operate can have a positive influence on health of those populations beyond the economic influence.

Community and not-for-profit organizations such as churches, advocacy groups and so on, undertake activities that are also influences on health of populations. Arts and recreation organizations provide a vehicle for individuals and groups to come together, and also provide vehicles for individuals and groups to build

capacity and life skills. Individual practitioners who are not part of organizations (e.g. lawyers, architects, fitness consultants etc) also provide advice and services to individuals or groups and populations – a factor which influences their capacity to adapt to life challenges and changes.

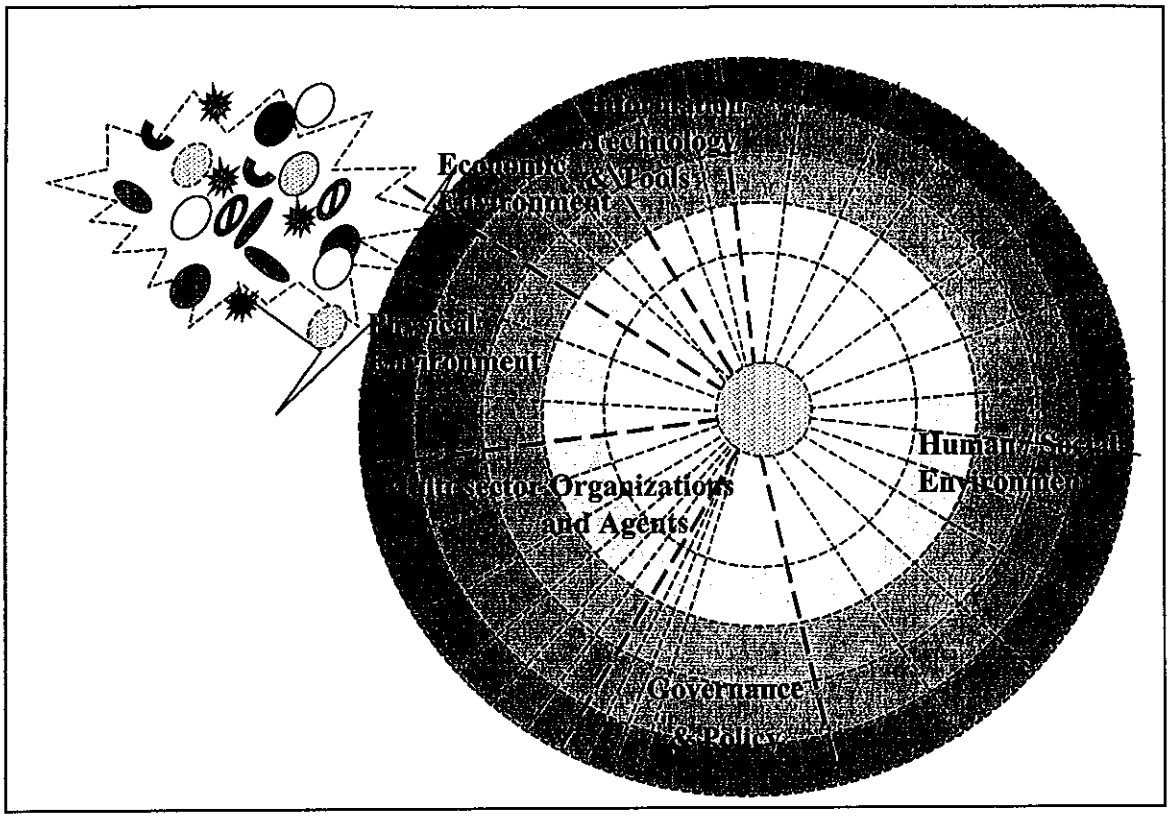
Multisector organizations and agents include:

- *Private sector businesses,* which can be further subdivided into types of industries such as manufacturing, service, financial, telecommunications, agriculture, and private health and human service businesses such as long term care facilities, homemaker services etc.;
- *Arts and Recreation / Leisure organizations*;
- *Media organizations*: Print, Radio, TV. (While these could be categorized as a particular industry within private sector businesses they are identified separately because of their influence on the information people use to make decisions, and to assess risk.)
- *Independent practitioners and professionals*. I.e. those individuals who are not involved with organizations but are self employed or are professional corporations, e.g. architects, accountants, planners, complementary health therapy practitioners, lawyers, recreation trainers;
- *Community organizations, NGO's, churches etc.*;
- *Volunteer groups* such as service clubs, sports clubs and advocacy groups, and
- *Public sector organizations.* This category includes the structures, processes, linkages in and between departments, authorities, and agents of the various Ministries of municipal, provincial, federal and first nation governments, as well as the characteristics of their products and services (e.g. 'cultural relevance' of services). (the macro-public policies which direct their programs and services are included within governance). As noted in the governance section, the public sector organizations include health and human services, parks and recreation and environment, security, justice, infrastructure (water and sanitation, roads, telecommunication systems etc.); and finance and tax structure.

Note that 'systems' (e.g.. the education system, the legal system, the health system) and 'industries' (arts, entertainment industries) are comprised of a number of different types of agents, usually including the public and private sector and voluntary sector, as well as individual practitioners and professionals.

The actions of these various agents influences the health of individuals and populations, and also, modifying the structures, processes, and linkages between these various agents is one important strategy in helping individuals or populations to improve their health.

The diagram on the next page provides the template for the many categories and subcategories of factors that create the social, economic and physical characteristics and environments of a population, that interrelate and influence the population's capacity to 'adapt to, respond to or control life's challenges and changes', and thus the population's health. The graphic presentations of the detailed subcategories described in this section are provided in Appendix D.



An example of identifying factors that influence a population's capacity

As an example, consider an assessment of factors that influence capacity of a small isolated northern community. The community is placed in the center of the sphere as the population at focus, and the array of population aggregates that create the human/social, economic and physical environment for that community are then oriented relative to it. The segments represent the categories of human/social, economic and environmental factors that have potential to influence the capacity of that community, either as characteristics of the community itself (internal factors) or as factors in its human/social, economic and physical environments.

Most community residents are First Nation or Metis, and the history of evolution of this community includes many years of having no children in the community as they were all in residential school. The history also includes the development of a major dam in another province, which lowered the level of the lake that was the source of the community's transportation, economic development, and recreation activities.

The community is isolated, with no land links to the rest of Alberta other than a winter road for a few months in the coldest part of winter. One year the community experienced a crisis in levels of fuel when the winter was not cold enough to create the winter road and the regular methods of bringing in fuel were not workable. Only those community members who have sufficient income for airline tickets, to own a boat, or to buy gas and pay for someone else's boat, can access food and other resources in the nearest major community. Others must do all their shopping at the local grocery store, where prices are high and quality is low. There is no bank or regular source of money so the grocery store loans money for short terms at high interest rates.

The community is divided into three major groups: First Nation, Metis, and European. There are only a few residents of other cultures. There is relatively low social cohesion among the three groups. Levels of alcoholism and other drug addictions are high, so the quality of social interaction in families and between groups is influenced by the dynamics of addictions. Levels of trust between groups are low, and fear is high. Thus, most of the Human /social factors of the population health framework would be considered limits to the capacity of a large proportion of the community.

Considering the factors that influence capacity at the individual community member level – the levels of physical capacity might be considered quite low. In part this is because there is a fairly low level of awareness among most community members of low cost food that is nourishing, and few community members exercise regularly – either in the course of their daily activities, or as a recreation activity. Knowledge and skills to survive in the wilderness is quite high among a significant proportion of the community members. Knowledge and skill levels related to formal employment, and for decision-making and problem solving is fairly low overall. Employment levels among some groups of adults is low, in part because the historical economic base of the community related to hunting and trapping, which are now depressed economies. Only a few community members have more than high school education. Only about 40% of children and youth that get enough sleep, nourishing food, safe shelter and encouragement to go to school regularly, or to do homework.

Factors influencing community capacity relative to the physical environment is high. The state of the natural environment is good, and there is a good infrastructure of roads, telephone connections and water treatment in the community. However there are few recreation facilities so residents lack the variety of opportunities for organized recreation activities that other communities enjoy.

The economic vitality of the community is growing steadily as more and more residents get training and support for jobs in the oil and gas companies in the area. Until now, most jobs in the community come from employment in the government agencies that have branch offices in the community.

The support from other communities in the region, provincially and federally comes through the regional, municipal governance structure, and through provincial and federal support rather than directly from community to community.

(multi-sector agents in the outer ring). The policies of the federal government related to aboriginals are a major influence on this community (Governance, outer ring). The First Nation governments have governance linkages regionally through the Tribal Council, provincially and nationally (Governance, outer ring). Their policies, and development of capacity to deliver service through aboriginal groups are starting to influence the community, indirectly in most cases (Governance and Multi-sector agents, outer ring)

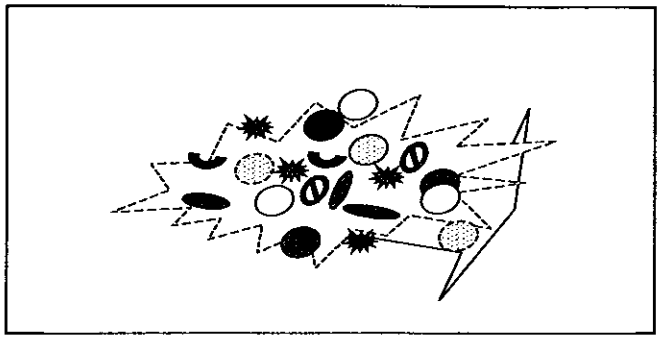
The culture and identity of this community are quite different than much of the mainstream society. The mainstream society does not demonstrate a high 'acceptance of differences' (Human/social, outside ring). Thus, the community does not enjoy high social cohesion with its human/social environment. For the most part, members of the community do not see mainstream society as a source of social support in helping them achieve their vision of population health for their community.

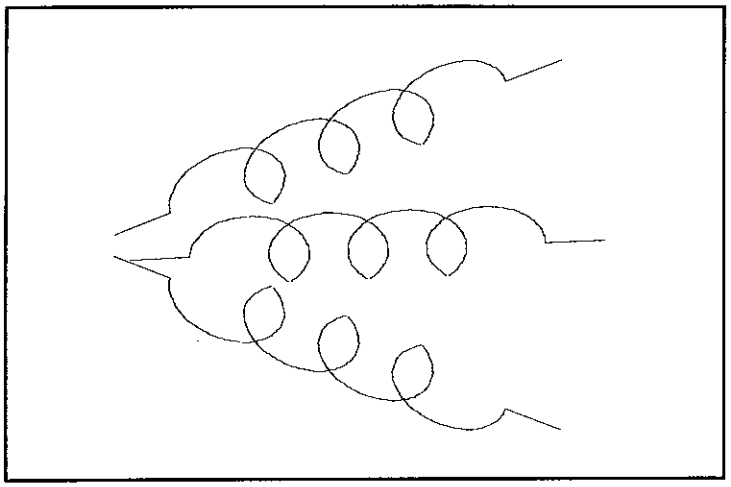
B. Population health as a dynamic, responding to life challenges and changes and evolving continuously in incremental steps.

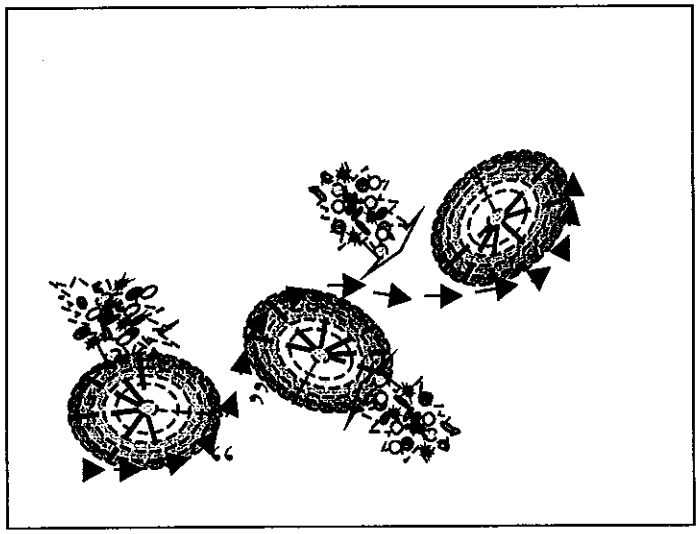
This element in the Population Health Framework demonstrates the dynamic nature of health. A healthy population will change as it responds to life challenges and changes, rather than remaining in a static state. Improved capacity thus evolves, in step-wise fashion. In this sense we can describe population health as a process of lifelong learning – building physical, social, mental, emotional and spiritual capacity as well as cognitive capacity .

In this way of thinking, synonyms for 'health' would be 'vitality', 'vigorous', and 'high- performing'. 'High performing teams' must be very healthy in order to sustain the high performance over a long term. This view of population health might use terminology like 'high performing communities' or 'high performing province'.

This requires us to make room for both 'life challenges and changes' and the stepwise evolution involved in the development of a vibrant, high performing population group.







First, 'life challenges and changes' are depicted in the diagram to the left. This icon illustrates the unpredictable nature of life challenges and changes, and that life provides a mixture of positive, negative and neutral aspects[15]. Some challenges and changes are greater than others. Some will challenge only some factors of a population's capacity; other changes will be of such intensity that they challenge a population's very survival or identity. Some challenges and changes arise internally to the population; others arise in the population's human/social, economic or physical environments. Some appear initially to be negative but turn out to be positive challenges.

The next diagrams show a population responding to life challenges and changes, and moving through various stages in a dynamic way. A population evolves, changing over time continuously. The graphic representation of this process would be like a coil, shown in the upper diagram on the left. If it is a generative growth, the evolution is in a positive direction and is shown as moving in an upward diagonal direction. On the other hand, if it were a change that is not health generating, the overall evolution would be illustrated as a spiral in a lateral or downward diagonal direction.

A 'close up' view of one segment of the coil, however, would show a population aggregate changing in small incremental steps in response to life challenges as one or more of the factors influencing its capacity change in step-wise fashion as shown in the bottom diagram on the left. For example, the

[15] Anderson, in her 'community-as-partner' model, includes the concept of stressor, defining it as "tension-producing stimuli that have the potential of causing disequilibrium in the system. Stressors penetrate the flexible and normal lines of defense, resulting in disruption of the community...Inadequate, inaccessible or unaffordable services are stressors on the health of the community." The Population Health Framework also uses the concept of 'stressor' in 'life challenges and changes' but includes positive, negative and neutral aspects. Anderson, E.T., Chapter 8, A Model to Guide Practice. In Anderson E.T., and McFarlane, J. *Community as Partner. Theory and Practice in Nursing.* 3rd edition. (2000) New York:Lippincott

improvement of knowledge of a particular health practice, or improvement in problem-solving skills evolves in step-wise fashion as more experience is gained.

A population can change in different ways, depending on which type of factor is being influenced. One is through a process whereby individuals within that population change, and then influence the change in people around them, so that the change spreads from individuals to small groups, to larger groups. Once the change is 'institutionalized' (i.e. it becomes the normal way of thinking, feeling or behaving), in a critical mass of individuals, the population can be said to have *changed.* To use an analogy from another field, it is like planting small plugs of grass several inches from each other. These then gradually spread to cover the entire field with grass.

Another type of change is more abrupt. Impacting factors that influence the community as a whole, such as a change in policy or an abrupt change in the physical environment (as from a flood, tornado or other natural event, or from the construction of a road into an isolated community) will exert their change more quickly.

Both Breaking the Silence[16] and Bhatti[17] note the journey of change is a normal evolutionary process, and different factors come to the forefront at different times in a long-term change process. In Bhatti's words: *...Optimal healthy human development, including the physical, mental, emotional, social and spiritual dimensions is an ongoing process. There are times when one of these dimensions is more dominant than the others but progress is being made in all the dimensions in a holistic manner. People may be considered physically disabled but may develop extraordinary intellectual capacity. They may not work but find great purpose and meaning for their lives".*

Note that an episode involving loss or change which as an isolated event seems negative, may in the long run, turn out to be 'an enhancer of community strengths' if the community copes with the experience in a way that increases their collective capacity. For example, a factory may be about to close down, town livelihoods are threatened, and families experience fear and stress – indeed a negative event. However the event may be a catalyst for positive change if community residents turn the situation around by putting together capital to 'buy back' the factory and run it as a viable business, increasing both their income and self-esteem.

The process that community residents go through, to direct their existing capacity towards working together to achieve this end builds their capacity further, strengthening the community's ability to 'adapt to, respond to or control life's challenges and changes'. The process builds or strengthens their common vision, experience of community, knowledge and skill, participation in activities and decision-making, leadership and critical learning -- all critical elements of community capacity[1].

Bhatti uses the perspective of health as a dynamic in describing human development as a life journey. "*In a positive view...there are mishaps and difficulties on the way. By dealing with them there is enhanced development in one or more of the dimensions: physical, mental, emotional, social and spiritual.*

[16] *Breaking the Silence,* Assembly of First Nations and NECHI Education and Health Promotions Institute
[17] Bhatti, T., *Nurturing Healthy Human Development: A Preferred Perspective for Action towards Population Health Promotion.* Draft. December 1999

Life offers continuous opportunity for growth and development. The extent one is able to take advantage of these opportunities for optimal development depends on appropriate access to developmental resources and nurturing experiences that propel people towards optimal development."

In the less than optimal view, "*the decline in healthy human development is due to harmful impact of risk conditions. It is such impact that affects the growth potential to create a gradient of decline in healthy human development."*

The various stages of the element 'population health as dynamic' illustrate that population health evolves in steps or stages. These can be small steps, large stages, and variants in between. A number of references provide 'Stage' models for evolution of individual factors (e.g. Kegan's cognitive stages, Graves' psychological stages), and are included in the reference list in Appendix A. In the normal evolutionary process, motivation for change comes from life's challenges and changes. There are mishaps and difficulties on the way, and to the extent that a population can access resources and experiences that propel it towards optimal development, then by dealing with those mishaps and difficulties, there will be enhanced development in one or more of the dimensions of a population's capacity. If the population cannot access resources and experiences, there will be a decline.

The quality of early childhood development is a critical foundation to an individual's capacity to cope with life challenges throughout their life. Each stage of the life span has particular developmental challenges that, if managed successfully using the capacity developed in earlier stages, build increased capacity and permit the individual to take advantage of opportunities for optimal development, In like fashion, early stages in the evolution of a population's health, are important.

A population health initiative is really a planned way to encourage a population to change in a positive direction, and these too will evolve in stepwise fashion. An example of small stages in an individual's health would be the slow development of trust in a provider and then development of knowledge and skill at a new life habit, such as not gossiping, looking out for neighbors, increasing the time spent in physical activity, in order to cope with life challenges. A population health example would be the slow, stepwise development of relationships between individuals, then small groups, ultimately changing the social environment so the habitual way in which community events are planned is changed to include groups which had previously been excluded from the mainstream community. Another population health example would be the evolution of decision making in governance to more participative approaches.

Examples of larger stages at the individual level are developmental stages. The level of capacity or vulnerability developed at each stage influences a person's capacity at the next stage. For example, early childhood development is critical because the physiological capacity established in the preconception to six stage influences a person's capacity through life. The social and emotional capacity established in the youth life-stage influences the person as a young adult and the choices made as a young adult influence a person throughout life. Groups go through developmental stages as well (the stages of forming, norming, storming

are often identified by group facilitators and stages such as these may apply to other population groups as well).

Various steps have been described by a number of practitioners. Using, for example, the Prochaska Transtheoretical Model of Change, an individual or group moves from the stage of precontemplation to gain an awareness of what is possible. They move to the contemplation stage, and then to the preparation stage. Even the implementation stage evolves in small steps. As an individual or group gains knowledge and skill, and practices that skill until it becomes habit – the individual or group can be said to be a novice. As the skill is tested at higher challenge levels, as long as the individual's or group's capacity is not overwhelmed by that challenge, they will move to another stage – expert and then to mastery level of capacity. (and this evolution of knowledge and skill can then reinforce an attitude change, which sets up the person or group for yet another change process).

Another important aspect to consider is the diffusion from one population group to another. Since all the factors in all the population aggregates are in dynamic interplay, an increase in the capacity of one population aggregate will influence the capacity of all others – the change diffuses. So for example, an improvement in the capacity of a family or small group within a community (e.g. improvement in acceptance of differences, or improvement in prenatal practices among pregnant women and women of childbearing age) affects and influences the improvement of the whole community's capacity over time as the family or group influence the individuals and groups with whom they interact. Some population health initiatives have capitalized on this characteristic by training members of the population group to be trainers and coaches to other population members. Training a group of women in a community to be childcare workers has other positive impacts than simply creating a pool of service providers. The knowledge of child development stages, and quality childcare skills are also taught to other community members in the course of casual conversations and family gatherings. Over time, the level of capacity for parenting, grandparenting, and providing adult mentoring of children in the community rises.

This interplay is easier to see at the level of the individual population health initiative. As an initiative is planned and implemented, it is expected to have some influence on the capacity of the population at focus, expected to be a positive influence. However it also indirectly affects the other population aggregates in relation to that population at focus. Just as when one person in a family changes in some way (i.e. their capacity and practices change), so the other members of the family must change in response – even if they simply resist changing and move to a dissonant relationship – so a larger population aggregate changes in relationship to the change in a smaller unit.

Population health initiatives affect the capacity of the population at focus, the individual practitioners, and the implementing organization itself.

Further, implementation of a population health strategy will impact both the capacity of the population at focus, and the capacity of the organization and individual practitioners that implement that strategy. Each time an organization implements a strategy it gains capacity by improving one or more factors, for

example a better relationship with the population at focus, new or enhanced knowledge about a particular health influence, or new or enhanced skill in implementing a community process. Organizations learn how to work together on multi-sectoral teams – developing better relationships and more skills and infrastructure for collective action with other organizations. Each initiative provides new learning which then provides the organization a greater capacity for the next initiative.

Thus, in any population health initiative the capacities of both populations and organizations develop to degrees that allow them to sustain higher levels of challenge. One example of this is the Alberta Heart Health projects in three communities that managed to sustain their efforts through the restructuring of the health system, which was a greater challenge than many other health promotion projects managed to survive. The Heart Health projects managed to access support from various different environments in helping to ensure that their initiatives remained on the agendas of the health authorities.

Even if an initiative is not 'successful' in the classic sense, the organization and practitioner involved will have been affected. Capacity may indeed have increased (if only to gain an increased knowledge of how not to approach something).

The implications of this element of the Population Health Framework is that a population health initiative would need to be clear about the current and desired level of capacity in a population, and the intermediate steps or stages required to achieve the desired changes. It will also help if the practitioners and the population at focus are clear about the general nature of life challenges and changes that they would optimally be able to cope with successfully. This will give a better idea of the level of capacity required, and perhaps of particular desirable factors to be improved.

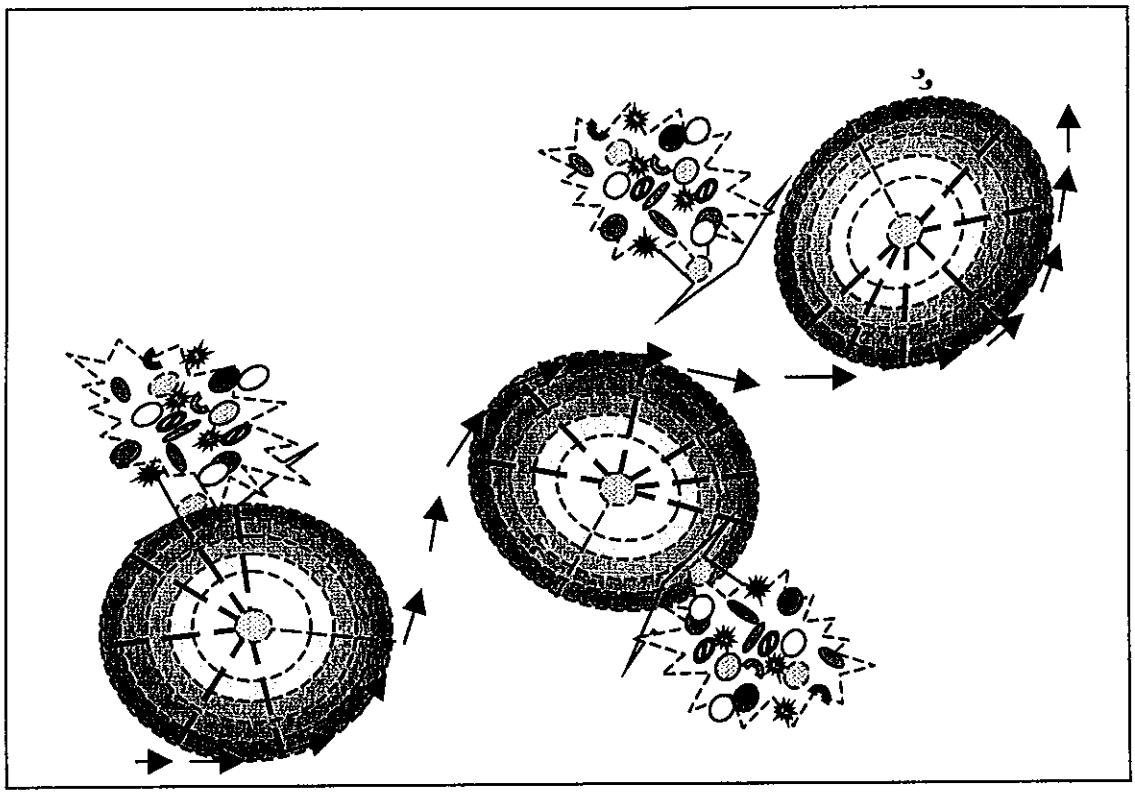
Knowing the current level of capacity and the number of steps or stages required to achieve even a relatively modest outcome is important in choosing the strategies used to influence change, and the most appropriate process. This information will also influence the choice of appropriate outcomes for the resources available to be invested. For example, if most people in a population are at a 'precontemplation' stage (to use the Prochaska Transtheoretical model terminology), then an appropriate outcome for a one-year project will be much different than if most people in the population were at a 'preparation' stage. If the resources are limited and likely to be sustained then the design of the population health initiative must be considered carefully, both to identify the degree of change that is even possible without inappropriately raising the expectations of the population, and to avoid misleading decision makers or funders about the extent of health gain that can be expected from the investment.

Another component of the situation is to assess the organization's capacity for the work and make sure it matches the complexity of the task. For example, if the organization is at a relatively novice level of capacity in health promotion and population health, then taking on the lead role in a complex population health initiative would not be a wise decision.

4. Summary

In summary then, the Population Health Framework, shown in the diagram below, integrates the two elements described in the previous section:

i. Population aggregates; and
ii. Human/social, economic and physical factors with potential to influence a population's capacity.



Using the Population Health Framework requires or permits several shifts from the classic way of looking at a situation such as was described in Jason's situation at the beginning of this document. These shifts are explored in more detail in Appendix B:

- First is a shift to focus on both individuals and populations;
- Second is a shift to look at populations and influences on health in context, in other words a 'systems' view of population health;
- Third is to move from a focus on disease and injury and dysfunctional environments to a dual focus, of factors that both contribute to and limit capacity and thus health;
- Fourth is to move from 'health' as a state, to seeing health as a dynamic, changing process.
- Fifth is to move to seeing populations and groups as a whole, with collective actions (e.g. a high performing team completes a task faster and with higher quality than a group of individuals who are not acting as a group) – as well as

populations as individuals who share a common characteristic but lack relationships and commitments between members of the group (e.g. % of people who exercise regularly).

The Population Health Framework is designed to support interventions that focus on individuals changing, those that focus on groups, and those that focus on changing some characteristic of the place in which the population is located.

The Population Health Framework shows how we can start to track the complex inter-relationships between factors that influence a population's capacity, and thus its health. "Life challenges" provoke change. If the population's capacity is such that it can react to, cope with and manage life challenges in such a way that its dynamic evolution is 'generative' or supports positive change (i.e. a change that creates or strengthens capacity) it then leads individuals or population groups towards improvements in health. Population Health initiatives are a form of 'life challenge', and are intended to support a generative change.

The Framework is an evolution of a great deal of work that has been done in Population Health – in the academic, policy and field operation areas. It attempts to synthesize and extend the conceptual work that has been done by others, and to bring together the material in policy documents of Health Canada, and Alberta Health and Wellness with the experience gained through exemplar health promotion projects in Alberta.

III Applying the Population Health Framework

The framework can be applied at several levels (e.g. family, organization, community, region, province, and nation) and in several ways.

The project to develop this Framework responded to calls from community workers for tools with which to design and evaluate population health initiatives, suitable for multi-sector partnerships. Additional applications include assessing the potential health gain from an initiative to make a case for its detailed design and implementation, and developing a systematic way of selecting the array of population health initiatives that will be included within a population health program. The initial work to develop such tools is described in the next section.

Even at its current stage of development the Framework may be of assistance in some applications. For example:

- At the community or provincial level, a multi-sectoral group could use the framework to guide the assessment of the population's capacity to cope with life's challenges, and identify areas for improvement.
- At a municipal, provincial or national level, one could use the framework to assist in the choice of indicators of economic, environmental and human/social well-being to avoid unintended gaps or duplication.
- A decision maker could simply keep the concepts and the mutual interdependencies of factors incorporated within the Population Health Framework in mind in making decisions in the planning and operation of

health programs. This could help identify potential options for action that might otherwise not be considered.

Using the Framework for other applications would require additional development. It appears to have potential for improving the quality of business case that can be developed for a particular population health initiative, and for improving the quality of investment decisions in population health. In these ways it appears to have potential for more clearly communicating the benefits and costs of population health to senior decision makers. Developing further the explicit stages through which a population moves, in response to a particular population health strategy, will help to articulate the specific outcomes that can be achieved in the short term. This, coupled with work on indicators, measures and benchmarks, will enable us to demonstrate how initiatives have begun to show clear benefit within the political mandate of a government, or of governance boards.

Outside of the health sector, the Framework appears to have some potential for assessing potential initiatives in individual sectors (e.g. justice, education, social services, early intervention, and economic development) or in government-wide initiatives using a common base. For municipalities, provinces and Canada, a common framework would enhance the ability for making decisions and understanding trade-offs across economic development, tax policy, environmental protection and human development. At the very least, it provides a different way of looking at the interactions between these, and thus may provoke some more creative ways of addressing core problem areas.

1. Designing A Population Health Initiative

A design template assists in developing a clear program logic model, which is then translated into an evaluation model. The design template described here has 17 main sections:

A. Identify Population at Focus and your organization's capacity

1. Select candidates for a possible 'population at focus' for a population health initiative. Considerations:
   - Identify capacity / vulnerability through patterns in disease, injury or health practices, and through capacity assessments;
   - Clarify criteria for priorization – will you focus on those most in need of improving capacity and stay with them for the long term to help them build capacity for interacting successfully with average life challenges? Or will you look for those with whom you have an existing relationship? Or will you look for populations who already have a desire to change and some capacity so will be easiest to shift to having the capacity for coping successfully with average life challenges?
2. Assess your organization's capacity for population health initiatives.

- In part, this assessment identifies your capacity for different types of strategies and thus the need for alliances with other organizations;
- Identifies both organization capacity and individual practitioner capacity. Helps determine the 'train or hire' question for selecting practitioners to implement those aspects of the strategy that your organization will undertake.

3. Assess your organization's current relationship with the potential candidates for 'population at focus'.
   - A longstanding positive relationship will allow more ambitious short-term goals. Poor or no relationship signals the benefit of seeking strategic partners.
4. Assess your organization's ability to commit for long term and / or intense involvement.
5. Select a potential population at focus.
6. Explore range of representatives of the potential population at focus who will be willing and able to work with you.
7. Explore potential multi-sector partner(s) to support in achieving common aims.
   - In some cases, health outcomes will be better achieved in a more indirect manner, by partnering with another sector who is already working with the population at focus successfully, to enlarge that initiative to include health outcomes with the assistance of the health organization.
8. Meet with representatives of the potential population at focus to discuss possibility of mutual goals and, if so, what areas the group might wish to address.

The first eight sections of the design template were completed by a health organization who employed a health promotion specialist. Over the course of her work in a particular community, she developed a relationship with a group of immigrant women of a particular cultural background. She worked with them, as the population of focus, as a likely group to improve the health of that population group within the larger community. Thus the organization and the particular individual considering the population health intervention had high capacity in the area of population health and population health, and already had a trust relationship with the group of women. The worker asked the women to list their top ten issues, and the one which they most wanted to address. The women did so, in their own language and in private. They advised the worker that their first priority was to increase their comfort level in wearing bathing suits and in learning to swim.

B. Determine where to start, strategies and approach to use, and intended outcomes.

9. Jointly with the representatives of the 'population at focus', determine current and desired outcomes. The entry point for action may be population groups or subgroups or health issues. Use the Population Health

Framework to work through the categories and detailed subcategories of factors to identify those that are operating to build capacity, and those that are limiting capacity or creating vulnerability.

Returning to the image used earlier in the document, of the population aggregates and factors influencing capacity being more like a sphere, or an onion cut in wedges. This process (of identifying factors that influence capacity) is analogous to using a periscope to look into different levels of the sphere, to identify the different factors and their influences (positive and negative) on capacity.

Create a force field analysis showing those factors that work to improve capacity, and those factors that limit capacity of the population to cope with common life challenges. During this process you may further subdivide the population into various sub-populations, each with a different level of capacity. Each sub-population will likely benefit from a different strategy or from a different way of implementing the same general strategy, or you may choose to target a particular sub-population alone.

In choosing strategies, move as far 'upstream' as possible, to address root causes rather than focusing on the desired behaviour change. For example, while collective kitchens appear on the surface to be a short-term solution to food security; the key upstream aspect of the program is the social support and community networking that they provide. As members develop skills and social supports and reinforcement of changed behavior, they gain confidence in their ability to provide for themselves and their families. Higher order strategies are those that help the population be better able to deal with other health problems as a result of experience with the primary strategy.[18]

10. Jointly assess readiness to change. This assessment will also influence the types of strategies used.
11. Jointly determine strategies that use a population's existing capacity to act upon those factors that limit their capacity, with the support of your organization. Identify which can be addressed through your partnership and which require additional partners.
    - Consider the process to be used in implementing each strategy carefully. Some processes are much better than others at building capacity and some can be quite 'toxic' to a population's sense of being respected.

[18] Green, L.W., Is institutionalisation the proper goal of grant making? American Journal of Health Promotion 1989: 3:44. Hawe, P., Capturing the meaning of 'community' in community intervention evaluation: some contributions from community psychology. Health Promotion International 1994; 9(3):199-210

Discussion between the group of women and the health promotion practitioner (through an interpreter) identified that the underlying reasons for the group's selecting bathing suits and swimming lessons were one way of building closer connections and sense of belonging within their families and with the larger community in which they lived. The cultural prohibition in their country of origin meant they could not go swimming with their children, and have a family outing. This was a source of shame for the children, and also meant they lost the opportunity to interact with women in the larger community and mainstream culture. They felt it was a major impediment to the health of their families, and to their ability to integrate with the larger community.

The women had many factors that created capacity to cope with challenges to bring to the initiative, including the ability to purchase the bathing suits, and the support of their family members, and their previous knowledge of each other. What they needed from the organization was support in arranging swimming lessons, a place to meet as a mutual support group, and ultimately advice and consultation on other issues they decided to take on.

The organization and the health promotion practitioner had a significant level of capacity in population health and in health promotion, and the practitioner had an existing trust relationship with the women, established through previous projects in the community.

Over time, the women found their mutual support group and their improved capacity as a group that had been built through the shared experience of buying bathing suits, learning to swim, and becoming more comfortable in public in swimming activities, motivated them to meet together regularly. They learned more about cooking nourishing Canadian food, and also met with another group of women (from the mainstream culture) to undertake a project to get better playgrounds for children in the neighborhood. The capacity to meet life's challenges, the health, of many populations has been increased through this project – the original group of women, the families, the community at large. And the increased capacity means they take on other challenges to build their capacity yet more.

C. Identify Multi-Sector Partners

12. Identify required multi-sector alliances to address the factors you are trying to influence, and invite them to participate in the initiative. Strategies to influence some factors, (e.g. economic, poor access resulting from geographical factors, poor housing) or some types of desired outcomes (e.g. lower involvement in property crime behaviour among youths) are outside the mandate of health. Where the population at focus sees a priority to change factors such as these, it will be critical to create a multi-sectoral team. The categories 'Governance and Policy' and 'Multi-sectoral Organizations and Agents' give some ideas as to which types of organizations might be helpful partners. Private sector companies, not for profit companies or community organizations, and even self-employed practitioners or professional corporations, as well as other public sector organizations are potential partners.

    - If you do not have existing, positive working relationships with these sectors, you will need to spend time finding areas of common goals and vision, and benefits to collaborative action. In addition, you will

need to identify areas of compatible and mutually supportive organizational capacity.

- Building organizational capacity at being a member of a multi-sector alliance is learned through doing. If you do not have experience working in a multi-sector alliance, or you are working with a new partner, either pick an easy project or hire highly trained staff.

13. Collaboratively refine strategies to be used. In some cases one of the strategies may be to influence other populations, whose actions are influencing the capacity of the population at focus. In some cases the strategies will include multigenerational approaches so that children, youth, adults and elders are all a part of the change process.

14. Collaboratively (among the representatives of the population at focus, your organization and representatives of other organizations) develop a statement of the common values and principles to which people will adhere. Once this has been agreed, develop a plan of roles and responsibilities of each group. Potential areas of capability include:

    - Trust linkages with the population;
    - Technical assistance, including knowledge, skills;
    - Funding, including financial support for direct and indirect costs;;
    - Organization, including the definition and assignment of roles, tasks, activities on a day to day basis;
    - Education and communication, including activities to inform policy makers and the public about population health and the benefit of this particular initiative;
    - Leadership and promotion, including efforts to advance and champion the population health agenda; and
    - Policy development.

D. Complete the standard steps of Population Health Initiative design

15. Sketch broad stages of the project, including development of partnerships and positive working relationships, developing initial trust relationships with the population at focus and inviting them to participate in a process of change, implementation, monitoring progress towards outcomes, evaluation, refining activities in response to feedback.

16. Refine short, medium and long term outputs and outcomes.

17. Develop a summary description of the project (a program logic model), including:

    - Population at focus
    - Other populations to be influenced as part of the overall strategy
    - Outcomes (short, medium and long term)
    - Values and Principles
    - Indicators and measures of the outcomes and of operation in congruence with values and principles
    - Strategies to be used

- Indicators of inputs and outputs of the strategies
- Roles of all the parties – members of population at focus and of the multisector partners
- Reporting and communication processes
- Evaluation processes and relationship to implementation
- Dissemination plans

18. If submitting a proposal for funding from Health Canada and / or Alberta Health and Wellness, identify what support you need from funders over time. For example, the funder might advocate among other provincial and federal departments, assist with dissemination activities, etc.
19. Implement initiative
20. Evaluate and track the increase in capacity of the population at focus and in the organizations undertaking the population health initiative.

Designing a Population Health Initiative – At a Glance

A. Identify Population at Focus and your organization's capacity
- Identify potential candidates for 'population at focus'
- Assess your organization's capacity for population health and your current relationship with potential populations, and ability for short or long term commitment
- Select population at focus
- Explore whether population is willing and able to work with you
- Identify potential multi-sector partners

B. Determine where to start, strategies and approach to use, and intended outcomes
- Jointly determine current and desired outcomes, and factors influencing the capacity of the Population at Focus, using the Population Health Framework
- Jointly assess readiness to change
- Jointly determine appropriate strategies

C. Identify Multi-sectoral Partners
- Collaboratively refine strategies to be used
- Develop statement of common values, principles and roles

D. Complete standard steps of Population Health Initiative design
- Develop and document a program logic model
- Identify the support needed from funders

2. Making the Case for a Population Health Initiative, and selecting the array of initiatives in a Population Health Program

As in public sector programming generally, there is an increasing demand for accountability in health system management. Also, with competition for health system funding, there is a need to demonstrate clearly the measurable outcomes that can be expected from an investment in a particular health initiative. Thus population health managers must justify their programs in terms of measurable health gains, and, in managing their population health program, must carefully consider the array of potential population health initiatives in order to select those that will be included within an organization's population health program. The Population Health Framework can be used as the foundation for these assessments.

As Hawe and Shiell identify, *"the move* [to justifying programs in terms of measurable health gains*] is a welcome one. There is an opportunity to use the health outcomes movement as a way of reorienting the health system toward health gain and consumer participation...By also putting together data on program costs and comparing programs with respect to health gains, health decision makers can set the stage for best use of scarce health promotion dollars."*[19]

Justifying a particular population health initiative, or a population health program with a number of initiatives follows the same process as developing a business case for a capital investment (e.g. decisions on information technology systems often require a business case to justify the expenditure being considered.) In the case of a population health initiative however, the 'outcome' or 'return' refers to the health gains and non-health outcomes that arise from the delivery of health services rather than the financial gains one might achieve by preventing illness or promotion health.[20]

The business case for a potential population health initiative is thus derived from the program logic model. The program logic model shows the pathway by which a particular action or policy, properly implemented, will achieve a specific **output**, which then leads to **short, intermediate and long term outcomes**. The stages of evolution of a population's health described by the Population Health Framework are the steps along this causal chain from intervention to ultimate long-term outcome.

As the evidence base is established through evaluation or through original research, each step on the chain can be confirmed. For example, providing information to teens about the consequences of smoking leads to **the output**, number of teens receiving information. The evidence is that a teen having accurate information is one factor in their deciding not to start smoking. **Short-term outcomes** might be that teens receiving the information have a higher level

[19] Hawe, P. and Shiell, A., Preserving Innovation Under Increasing Accountability Pressures: The Health Promotion Investment Portfolio Approach. Health Promotion Journal of Australia, 1995; 5 (2): 4-9

[20] Russell, L.B. The economics of prevention. Health Policy 1984: 4: 85-100, and Warner, K.E. Selling health promotion to corporate America: Uses and abuses of the economic argument. Health Education Quarterly 1987: 14 (1): 39-55. In Hawe, P. and Shiell, A. ibid.

of awareness of the consequences of smoking and have a higher level of motivation to remain non-smokers. If sufficient number of teens decide not to start smoking, that will lead **to long term outcomes** of a smaller proportion of the region's population being smokers, and thus ultimately a lower percent of the region's residents suffering from heart disease and stroke.

Knowing, and being explicit about the stages in the evolution of a population's improvement in capacity permits the development of a business case for the initiative. A particular level of investment in an initiative can be expected to return a particular return in the form of improved awareness, improved motivation for health seeking behavior, and ultimately improved health. In some cases it may be possible to assign a monetary value to each, but the basic 'return' is in health gain.

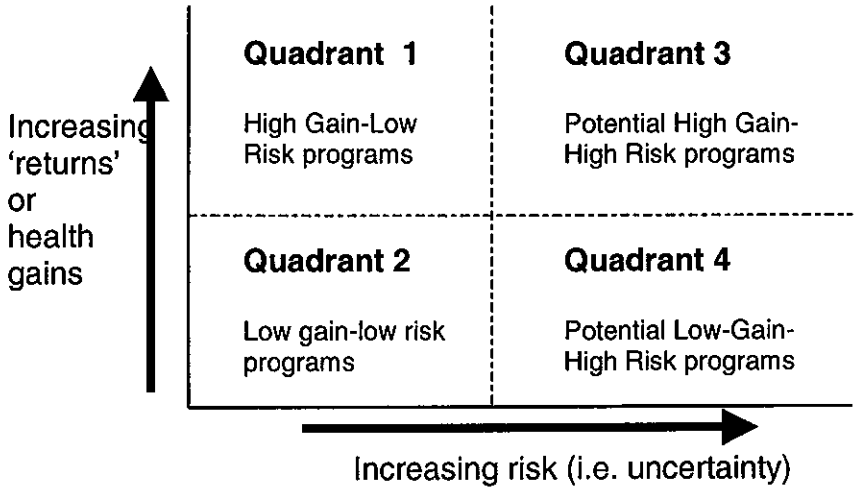
Health gains are the product of three elements – the impact of the program on the individual, population exposure to the program, and sustainability. Highest return initiatives are those which have a large impact on health status (or on a short-term outcome that is expected to lead ultimately to an improved health status), achieve maximum population exposure, and which put effort into ensuring program sustainability.[21] Most valuable initiatives are likely to be those that actually improve the population's capacity in ways that make them better able to deal with other health problems or life challenges.

Development of detailed business cases for population health is not usually possible at this point in time, because the evidence for each step on the chain is sometimes missing or indecisive. Evaluating population health initiatives in ways that can assist in clarifying the steps in evolution of health in a population is an important contribution to the field.

Another challenge for a population health manager is to priorize potential population health initiatives to select those that will be funded within the overall population health program. Hawe and Shiell identify that, in having a fixed budget and needing to select a range of interventions in order to maximize health gain, a [population health] manager faces a similar task to that facing a financial investment manager. The investment manager with a fixed budget has to select a range of financial assets (a portfolio) which maximizes expected future income.

They describe their portfolio approach to planning population health priorities as not unlike the portfolio approach to financial planning. In the case of population health strategy planning, ***risk*** relates to the uncertainty of outcomes and the resources required for these outcomes to be fully ascertained through evaluation. ***Return*** relates to the health gains and non-health outcomes that arise from the delivery of health services. Just as with a financial investment strategy, it will be best if the mix of strategies implemented within a population health program is diversified and covers all the potential categories of risk and return, as shown in the grid below. Using a portfolio approach assures that innovation, and thus potential high returns in health gain in areas not yet completely understood, is not sacrificed for certainty, as would be the tendency in an environment which demands demonstration of health gains for an investment of resources.

[21] Hawe, P. and Shiell, A. p. 6 ibid



Those strategies on the left side of the grid have been evaluated and can be counted on to return a health gain. Those strategies that are on the left side of the grid (Potential high gain – high risk, and Potential low gain – high risk) bring with them a responsibility for careful implementation, with high quality control, and evaluation. It is proposed that, like financial portfolios, deliberately diversifying the portfolio, and including high-risk investments along with the safer bets, overall health returns will be higher in a population health portfolio of strategies.

Using the Population Health Framework as the foundation for making the case for population health initiatives using a business case approach, and for portfolio management approach to selecting the array of population health initiatives in a program offers some potential opportunities for population health managers. It also demonstrates the critical importance of evaluation to assist in improving the understanding of how health evolves in a population.

3. Evaluation Framework for Population Health Initiatives

The evaluation framework will be developed further in future phases of this project. However a mention is made here of the type of short and intermediate term indicators[22] that might be considered important to track in all population health initiatives in Alberta to provide more information on the early steps of improvement in a population's health.

Certainly population health indicators need to be relevant to the particular population at focus. This is one aspect of doing evaluation in a way which itself supports the evolution of a population's health. Those chosen tend to be long term indicators however – and these emerge in sufficient strength to be measured using quantitative methodologies for population health evaluation only after some time has passed. Short and intermediate indicators are those that

[22] The term 'indicator' is used to indicate the broad description of what is desired in a population, rather than the detailed 'measure'. Some groups may use the terms 'indicator' and 'measure' in the reverse.

might emerge within 1 year, and 3 – 5 years respectively, and require identification of early stages of change.

The types of short and intermediate indicators that might be considered useful to track in every population health project are:

- Level of, and change in, **trust** between the population at focus and the organization(s) conducting the population health intervention;
- Quality of **relationship** between members of the population at focus and the individual practitioners involved in the population health intervention, and between the population at focus as a group and the organization(s) conducting the population health intervention;
- **Initial and early stages of change.**
- **Organization capacity for population health and health promotion** initiatives (including capacity of individual employees and quality of relationship between team members).

Evolution of Organization Capacity – Short term and intermediate term
Organizational capacity is a function of three main elements: infrastructure, will and leadership[23]. Infrastructure includes soft (e.g. skills, knowledge and attitudes of practitioners tested through increasingly challenging experience, and 'partnership capital'); as well as hard technologies (e.g. databases, education material, information management systems) The stages of organizational capacity growth could be tracked in a number of ways, so the following is an illustration:

- increasing number of staff are aware of the need and benefit of capacity for health promotion and population health initiatives
- increasing number of staff are making preparation to develop skills and knowledge
- increasing number of staff are engaged in, or have experience in population health initiatives and have novice-level skills (including skills in the particular strategy, in relationship building and conflict resolving skills)
- increasing number of staff have experience in population health initiatives of increasing complexity and have intermediate-level skills
- increasing number of staff have experience in population health initiatives of increasing complexity and have weathered challenging situations and have expert-level skills
- level of will and leadership in the organization is increasing
- teams (inside organization and intersectoral teams) exist with positive relationships and skills at working together at the intermediate level
- policies and procedures and structures in the organization are changing to make population health and health promotion a standard way of doing business (includes committed sustainable financial resources and staff as well as supporting resources such as evidence based decision making capacity and information resources to assess and monitor change in population health.

[23] These have been identified as the elements of capacity being assessed in the current phase of the Heart Health Initiative.

IV Population Health Indicators

One strength of the framework is its ability to map the complexity of indicators that are used in population health, and in other sectors (environment, economic indicators, education, justice) at the various levels of aggregation (family, community, province / nation).

One challenge will be to develop indicators of the various stages that individuals and populations go through in progressing toward the ultimate desired outcomes.

Another future challenge is to incorporate indicators that do more than measure the proportion of individuals who have a particular characteristic. Hancock[24] identifies there are three major areas requiring attention in selecting population health indicators:

- the aggregate of the health of the individual members of the population
- distribution of health across a population (and thus, inevitably, issues of inequalities in health and inequitable access to the determinants of health)
- how well the 'community' (or other population aggregate such as family, worksite, province or country) functions, whether the 'community' as a whole is "healthy".

Seeing that it is important to measure how well a population aggregate such as family, worksite, province or country functions as a whole is clear in theory, but hard to achieve in practice. The David Thompson community capacity web is one example of moving toward 'whole system indicators'.

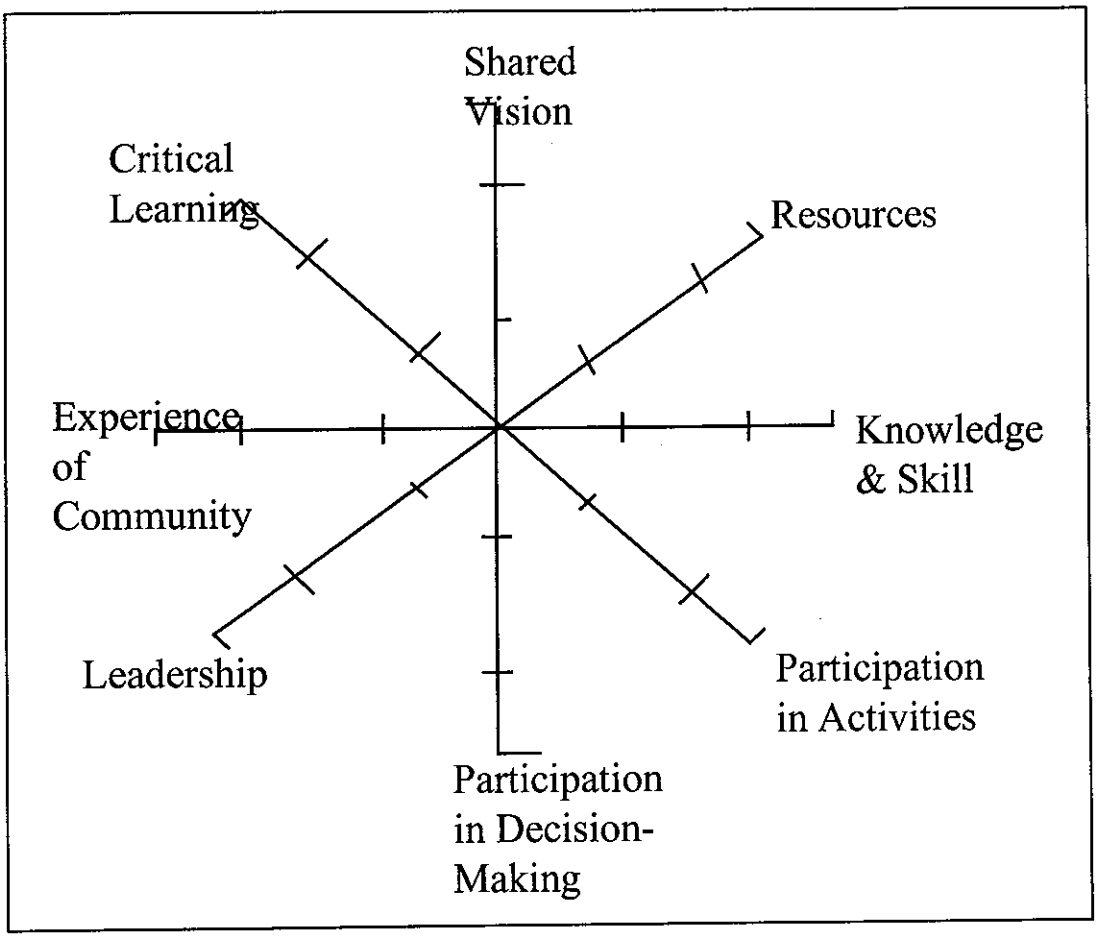
David Thompson Regional Health Authority, in the Alberta Heart Health Project, identified community capacity on eight axes[25]:

- Shared Vision
- Resources
- Knowledge and Skill
- Participation in Activities
- Participation in Decision-Making
- Leadership
- Experience of Community
- Critical Learning

In their assessment tool, they asked respondents to identify the degree to which each of these was in place (scale of 1 – 5 with 1 being 'to a small extent', 3 being 'to some extent' and 5 being 'to a great extent'.

The findings were then mapped on a diagram with 4 intersecting lines, to create a pictoral representation of a 'community capacity web', shown on the next page.

[24] Hancock, T. and Labonte, R. with Edwards, R. *Indicators that Count! Measuring Population Health at the Community Level.* University of Toronto Institute for Health Promotion.
[25] *Heart of the Land Series.* Alberta Heart Health Project, Oct. 1998



Community Capacity Web

V. Conclusion

The Population Health Framework articulates the shared understandings of Health Canada Population and Public Health Branch (Alberta/NWT Region) and Alberta Health and Wellness, and thus is an appropriate foundation for developing tools for design and evaluation of population health initiatives that are funded by these two organizations.

In this way, the Framework is an appropriate first step in meeting the demand that created the original impetus for the project, from community workers asking for templates and common tools for design and evaluation of population health initiatives.

The initial review process incorporated into this phase of development suggests that the Framework is also appropriate for multi-sector teams involving not only human/ social development practitioners from justice, education, social services, immigrant services, etc., but economic development, tax policy and environmental development. The Framework also offers promise in cross-government applications at the provincial and national level.

It appears that the Framework, even at its current level of development, is useful for mapping the diversity of indicators of population health, and in providing a common framework for choosing a core set of indicators to track the development of human, economic and environmental well-being.

Because the Framework has so many potential applications, it will be necessary to establish priority areas for development to assure the best use of resources.

Appendix A

This project is a logical next step in the historical development of population health in the two organizations. The commonalities in the approach of the two organizations make it now possible to proceed collaboratively, developing common tools. The draft framework is built upon a number of key policy documents and several key initiatives in Alberta that relate to population health and health promotion:

Policy Documents:

- A New Perspective on the Health of Canadians (Lalonde, 1974);
- Achieving Health for All: A Framework for Health Promotion (Epp, 1986);
- The Ottawa Charter for Health Promotion (WHO, 1986);
- Strategies for Population Health: Investing in the Health of Canadians (Federal, Provincial and Territorial Ministers of Health, 1994);
- Towards a Common Understanding: Clarifying the Core Concepts of Population Health (Health Canada, 1996);
- European Working Group on Health Promotion Evaluation (WHO, 1998);
- Taking Action on Population Health: A Position Paper for Health Promotion and Protection Staff (Health Canada, 1999);
- Second Report on the Health of Canadians (Federal, Provincial and Territorial Ministers of Health, 1999);

Key Initiatives in Alberta:

- Action for Health initiatives funded by Alberta Health and Wellness;
- Alberta Health and Wellness Business Plans and Health Goals (1994 – 2001);
- You're Amazing program and evaluation (Alberta Health and Wellness with multi-sectoral partners, 1997 – 1999);
- Health Trends in Alberta Report (Alberta Health and Wellness, 1998);
- AIDS
- Alberta Heart Health Initiative: Phase I Survey 1991, Phase II Implementation 1992-98, Phase III Dissemination 1999 – present: (Alberta Health and Wellness);
- Health Promotion Effectiveness in Alberta: Providing the Tools for Healthy Albertans (Alberta Health and Wellness, 1999. Conducted by Drs. Wilson and Thurston & R. Felix on behalf of the Alberta Consortium for Health Promotion Research and Education 1998-99);
- Evaluation of the 1998-1999 Health Promotion and Protection fund projects and of the Population Health Approach of HPPB Alberta/NWT/NT Region;
- Analytical Framework for the Regional Mobilization of Population Health (HPPB Regional Offices, 1999);
- Report on the Health of Albertans (Alberta Health and Wellness, 2000).

The project builds on the work done by the Alberta Consortium for Health Promotion Research and Education, reported in *Health Promotion Effectiveness in Alberta. Providing the Tools for Healthy Albertans* (Alberta Health and

Wellness August 1999) and is one response to the recommendations provided. This work included the development of a Health Promotion Evaluation Framework for analyzing a health promotion project proposal, an evaluation proposal, a completed project, or an evaluation report, as well as assessing an overall strategy. The recommendations were:

- Build upon the expertise in Alberta
- Apply expertise to more determinants of health
- Apply expertise to more action strategies
- Promote intersectoral collaboration
- Encourage standards for evaluation
- Promote use of the Health Promotion Evaluation Framework.

Definitions

Alberta Health and Wellness and Health Canada Population and Public Health Branch share a common understanding of what is meant by population health, as shown in key policy documents. Two particular documents use slightly different terminology but include similar elements:

Population Health

Population health is the unification of prevention, promotion, and health protection; diagnosis, treatment, and care that integrates and balances actions between them. It involves maintenance and improvement of the health of the entire population, while reducing inequities in health between population groups. Health is the capacity of people to adapt to, respond to, or control life's challenges and changes while recognizing the range of social, economic and physical environmental factors that contribute. (Health Canada Health Promotion and Programs Branch 1998)

Population health refers to the health of a population as measured by health status indicators and as influenced by social, economic, and physical environments, personal health practices, individual capacity and coping skills, human biology, early childhood development and health services. . (FPT ACPH1997)

Health

The two organizations have compatible definitions of health. Alberta Health and Wellness, in business plans and other documents, identifies health as including physical, mental, social, spiritual dimensions. Health Canada HPPB describes health as "The population health approach recognizes that health is a capacity or resource rather than a state, a definition which corresponds more to the notion of being able to pursue one's goals, to acquire skills and education, and to grow. The best articulation of this concept of health is "*the capacity of people to adapt to, respond to, or control life's challenges and changes*" (Frankish, C.I. et al Health Impact Assessment as a Tool for Population Health Promotion and Public Policy (Vancouver, Institute of Health Promotion Research, University of British Columbia, 1996)

A **population health approach** maintains and improves the health of the entire population, and decreases inequities in health status among various population groups. It focuses on the underlying and interrelated conditions in the environment that enable all Canadians to be healthy, and works to reduce inequities in the underlying conditions that put some Canadians at a disadvantage for attaining and maintaining optimal health. (FPT ACPH1997)

Determinants of Health and Population Aggregates

Both jurisdictions have policy documents identifying the same determinants of health, and identifying the various levels at which health promotion projects are addressed:

Determinants

- Income and social status
- Social support networks
- Education
- Employment and working conditions
- Social environments
- Physical environments
- Biology and genetic endowment
- Personal health practices and coping skills
- Healthy child development
- Health services
- Gender
- Culture

Effectiveness in Health Promotion[26], in analyzing health promotion projects in Alberta, identified the following common **levels of action:**

- Individual
- Family
- Group
- Community
- Sector
- Society

Background References

AADAC. Transtheoretical Model of Change. AADAC Developments, February 1997

Anderson, E.T. and McFarlane, J. *Community as Partner. Theory and Practice in Nursing.* 3rd ed (2000) New York: Lippincott

[26] Wilson, D.R., Thurston, W.E., and Felix , R., On behalf of Alberta Consortium for Health Promotion Research and Education. Health Promotion Effectiveness in Alberta: Providing the Tools for Healthy Albertans. Summary Report on the Review of the Effectiveness of Health Promotion Strategies in Alberta. August 1999, Alberta Health and Wellness.

Bhatti, T. Nurturing Healthy Human Development: A Preferred Perspective for Action towards Population Health Promotion. Draft. December 1999.

Edmonton Board of Health, Dimensions of Health in Edmonton, Prepared by Macdonald, P.J. & Fraser, N.J. (1989) p 80: Selected Elements of Lifestyle and Factors that influence choice.

Epp, Jake Minister of National Health and Welfare. *Achieving Health For All: A Framework for Health Promotion.* Health and Welfare Canada 1986

The Four Worlds Development Project *Developing Healthy Communities: Fundamental Strategies for Health Promotion.* Faculty of Education University of Lethbridge November 1985

Frankish, C.I. et al. Health Impact Assessment as a Tool for Population Health Promotion and Public Policy (Vancouver, Institute of Health Promotion Research, University of British Columbia: 1996), cited in: *Taking Action on Population Health, A position paper for Health Promotion and Programs Branch staff. H*

Graves, C. The Spiral Dynamics Model. Described in Wilbur, K. Tikkun March 1999.

Hancock, Trevor, MB BS, MHSc; Labonte,, Ron, PhD; Edwards, Rick, PhD. *Indicators that Count! – Measuring Population Health at the Community Level.* February 1999 University of Toronto Centre for Health Promotion.

Hayes, Michael PhD; Glouberman, Sholom PhD. *Population Health, Sustainable Development and Policy Future.* Canadian Policy Research Networks Discussion Paper Number H/01 September 1999

Hayes, Michael V.; Dunn, James R. *Population Health in Canada: a Systematic Review.* Canadian Policy Research Networks Discussion Paper March 1998

Hawe, P. and Sheill, A. Preserving Innovation Under Increasing Accountabiity Pressures: The Health Promotion Investment Portfolio Approach. Health Promotion Journal of Australia 1995; 5(2): 4-9

Kegan, R., *In Over our Heads: the mental demands of modern life.* (1994) Cambridge: Harvard University Press

Keating, D.P. and Hertzman, C., eds. *Developmental Health and the Wealth of Nations* (1999) New York: The Guilford Press

Lord, J. and Farlow, D.M. A study of personal empowerment: implications for health promotion. Health Promotion, Fall 1990, pp2-8.

McFarlane, R.W. & McFarlane, J., Ecologic Connections. Chapter 3 in Anderson, E.T. and McFarlane, J. *Community as Partner. Theory and Practice in Nursing.* 3rd ed (2000) New York: Lippincott

Nekolaichuk, Cheryl L.; Jevne, Ronna, F.; Maguire, Thomas O., Structuring the Meaning of Hope in Health and Illness. *Social Science and Medicine* 1999

Reilly, S.M. *A Pragmatic Approach to Community Health Promotion. P386-402 In Community Nursing: Promoting Canadians' Health.* 2nd edition Miriam J. Stewart, ed. 2000 Toronto:WB Saunders Company

Robinson, S., and Cox, P. *Process Evaluation of the Nepal Health Development Project. A participatory challenge.* Division of International Development, University of Calgary. Presented to Canadian Association for Studies in International Development Learned Societies Conference, June 1994

Raeburn, J. & Rootman, I., *People-Centred Health Promotion.* (1998) John Wiley and Sons

Search Institute, *Developmental Assets*: www.searchinstitute.org

Silverman, M.M. and Felner, R.D. Part II. Prevention Theory and Models. 5. The Place of Suicide Prevention in the Spectrum of Intervention: Definitions of Critical Terms and Constructs. Suicide and Life-Threatening Behavior, Vol 25 (1), Spring 1995.

Standing Committee on Health *Toward holistic Wellness the Aboriginal Peoples.* Research Branch of the Library of Parliament June 1995

Yukon Health Promotion Research Program. *An Accounting of Health What the Individuals Say.* Yukon Government 1994

Whithead M Tackling inequalities: a review of policy initiatives. Benzeval M, Judge K, Whithead M (1995) *Tackling Inequalities in Health. An Agenda for Action.* London The Kings Fund

World Health Organization. *Health Promotion Evaluation: Recommendations to Policymakers.* World Health Organization European Working Group on Health Promotion Evaluation

Appendix B

Using the Population Health Framework requires several shifts from the classic way of looking at Jason's situation:

- First is a shift to focus on both individuals and populations;
- Second is a shift to look at populations and influences on health in context, in other words a 'systems' view of population health;
- Third is to move from a focus on disease and injury and dysfunctional environments to a dual focus, to looking for factors that both contribute to and limit a population's capacity and thus health;
- Fourth is to move from 'health' as a state, to seeing health as a dynamic, changing process.
- Fifth is to move to seeing populations and groups as a whole, with collective actions (e.g. a high performing team completes a task faster and with higher quality than a group of individuals who are not acting as a group) – as well as populations as individuals who share a common characteristic but lack relationships and commitments between members of the group (e.g. % of people who exercise regularly).

Moving from a focus on individual to considering both individual and population, using a systems view:
The 'but why?' questions can go on for a very long time in Jason's story, described in the introductiont. Just as with individuals, the root causes of healthy and safe, or unhealthy and unsafe families, worksites or schools and communities go very deep and form a complex network in the social fabric and physical and economic environment of regions, provinces, countries and even the world. In other words, the influences on the health of families come not only from the individuals within them, but from the community at large.

To use another metaphor, the framework describes how, by the time 'Jason' or any one arrives in the emergency room or in the doctor's office, that event is but the tip of an iceberg. As with an iceberg, the mass of interconnected influences on their lives have operated to bring them to the point of interaction with the health system (or other systems such as child welfare, social assistance, or the justice system). If we wish to see fundamental change in Jason's health over the longer term, then in addition to addressing the immediate illness or injury through individual treatment, rehabilitation and other services, we must begin to help him and his family address these root causes. In like fashion, if we wish to make substantial changes in a population's experience of ill health and injury, or its health, so that fewer 'Jason's' appear in the emergency ward with an infected wound, we must begin to assist those populations to modify the factors that are actually the root causes – such as improved mental, social, and spiritual factors that enhance a population's capacity to cope with life challenges and changes. This is the essence of population health.

2. Moving from a sole focus on disease and injury to look at both these and at wellness.

The framework developed in this report also asks us to look at Jason's situation with additional eyes. We have traditionally believed that each disease or illness or condition had some specific cause – and moving back a step along the causal chain to prevent that cause would act to reduce the number of people who suffered from that disease, illness or condition. We now know that this is but one part of the story.

Another part of the story is the way we in the health system and other sectors can begin to change the likelihood that Jason and the other similar 'Jason's' in his neighborhood will have a different outcome is to pay attention to what makes Jason and his family and his community more 'well'. In other words, these additional eyes come from an element of the definition of 'health':
"Health is the capacity of people to adapt to, respond to, or control life's challenges and changes while recognizing the range and interrelationships of social, economic and physical environmental factors that contribute."

This part of the definition highlights the view of health as a dynamic (as we adapt to, respond to, or control life's challenges, we move and change in a dynamic fashion). Using these additional eyes also means that, in addition to providing interventions that hope to minimize the problems in that community, we must begin to provide interventions that act to build the capacity of that community and the families within it. Because of the systems view used in this framework we know that part of building capacity of a community and of families may be building capacity in the region, province or country.

Rather than focusing on the specific illnesses and injuries, we are concerned with the distributions of illness and injury across a population – the patterns of illnesses and injuries in various sub-populations of the population at focus – are smoking rates higher in some groups than others for example? Significant differences in the pattern of illness and injury may signal maldistribution of the underlying factors that influence those sub-populations' capacity to cope with life challenges. When the differences between sub-populations becomes too extreme, the capacity of all becomes limited.

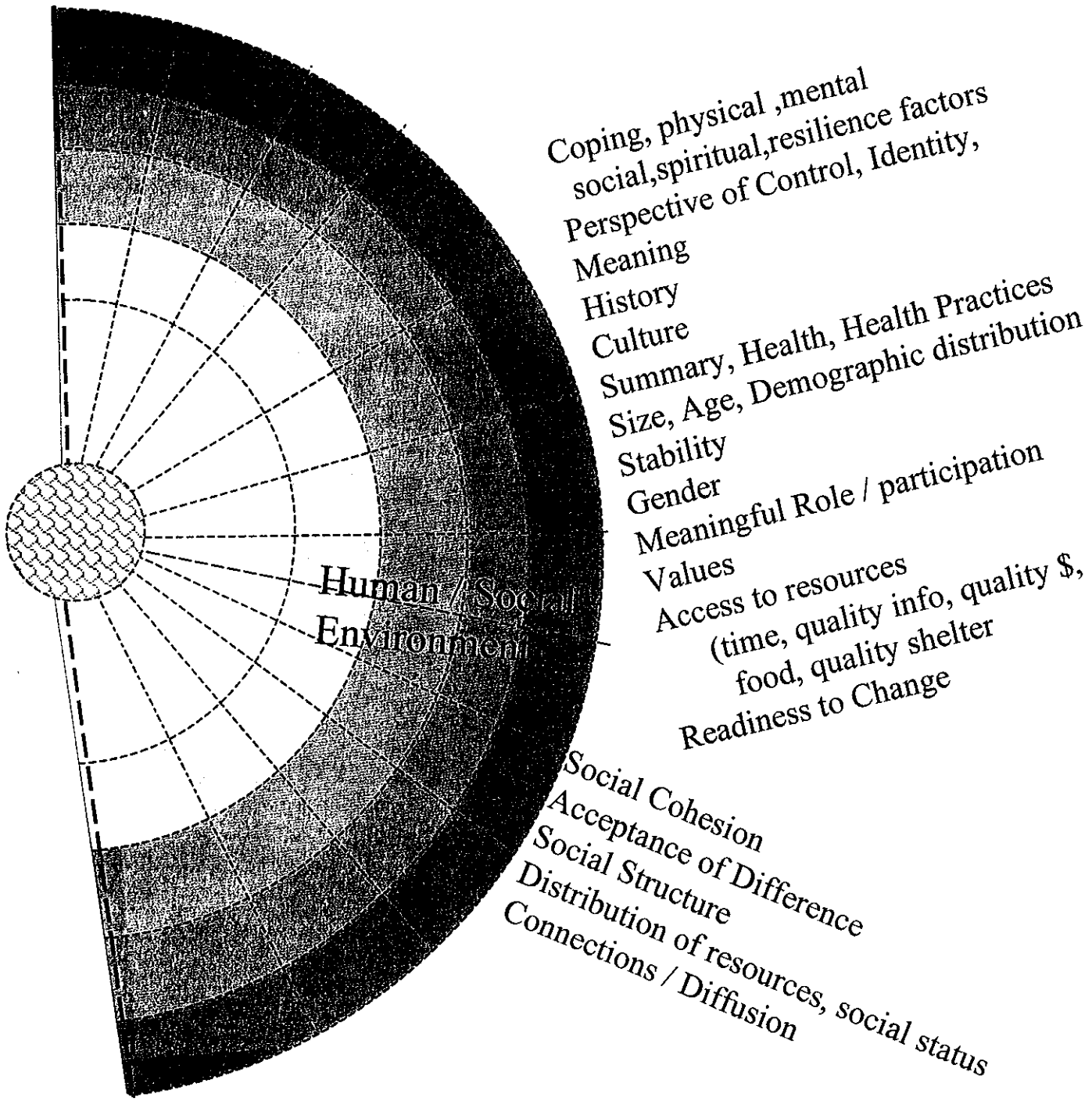
Considering the pattern of distribution also helps assess the extent to which a population's capacity to cope with life challenges is limited by the extent of illnesses and injuries. If a population is largely distracted by a large proportion of its members being ill or injured, or caring for those who are, then it's resources are not available for other life challenges and changes. We see this at the national and provincial level in the concern for the percentage of the budget applied to health care. As the proportion of funding to health care increases, it is not available for providing other types of services, and for building infrastructure such as roads and telecommunications systems which are themselves factors that improve a population" capacity to cope with life challenges and thus its health.

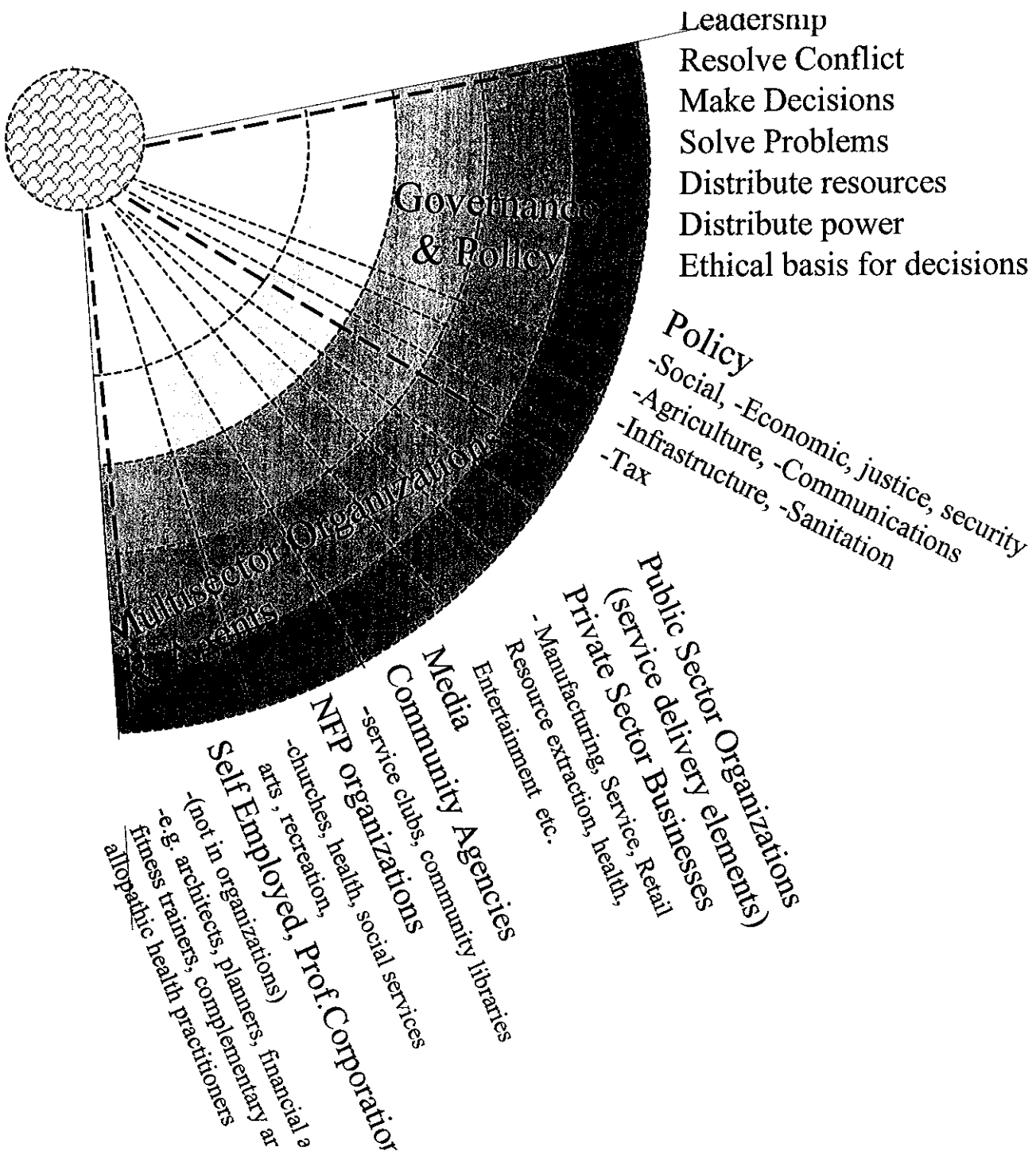
Appendix C

'Classic' determinants of health	Subcategory of Population Health Framework
Income and social status	The various aspects included in this determinant are covered in Income, Economic Environment and Social Status, Social structure and Acceptance of difference in Human/Social Environment
Social support networks	Human/Social Environment
Education	The various aspects included in this determinant are covered in Cognitive skill level in Mental, Human/Social Environment, Transmission of society knowledge, Human/Social Environment and Knowledge identification, storage and dissemination in Knowledge and Technology.
Employment and working conditions	The various aspects included in this determinant are covered in Income, Economic Environment; Meaningful role, Human/Social Environment; and in the worksite aggregate of the social structure and social cohesion subcategories of Human/Social Environment, the built environment subcategory of Physical Environment, and the tools/products subcategory of knowledge and technology.
Social environments	Human/Social Environment
Physical environments	Physical Environment
Biology and genetic endowment	Physical characteristics of Human/Social Environment
Personal health practices and coping skills	Health Practices and other subcategories of Human/Social Environment
Healthy child development	History, Human/Social Environment
Health services	Multisector organizations and agents; Governance and Policy
Gender	Sex, Sexual orientation, Gender and Acceptance of differences, Human/Social Environment
Culture	Culture (with its various sub-categories) and Acceptance of differences, Human/Social Environment

Appendix D

The subcategories within physical environment, economic environment, knowledge and technology, human/social environment, governance and policy, and multisector organizations and agents are illustrated in the following three graphics.


Human / Social Environment
Coping, physical ,mental
social,spiritual,resilience factors
Perspective of Control, Identity,
Meaning
History
Culture
Summary, Health, Health Practices
Size, Age, Demographic distribution
Stability
Gender
Meaningful Role / participation
Values
Access to resources
(time, quality info, quality $,
food, quality shelter
Readiness to Change
Social Cohesion
Acceptance of Difference
Social Structure
Distribution of resources, social status
Connections / Diffusion


Leadership
Resolve Conflict
Make Decisions
Solve Problems
Distribute resources
Distribute power
Ethical basis for decisions
Governance & Policy
Multisector Organization
Policy
-Social, -Economic, justice, security
-Agriculture, -Communications
-Infrastructure, -Sanitation
-Tax
Public Sector Organizations
(service delivery elements)
Private Sector Businesses
- Manufacturing, Service, Retail
Resource extraction, health,
Entertainment etc.
Media
Community Agencies
-service clubs, community libraries
NFP organizations
-churches, health, social services
arts , recreation,
Self Employed, Prof.Corporatio
-(not in organizations)
-e.g. architects, planners, financial a
fitness trainers, complementary ar
allopathic health practitioners