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# **TOWARDS OUTCOME MEASUREMENT FOR ONTARIO BOARDS OF HEALTH**



## **A PLANNING AND EVALUATION MODEL VIA AN ANALYSIS OF THE ONTARIO MANDATORY HEALTH PROGRAMS AND SERVICES GUIDELINES**

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## I. EXECUTIVE SUMMARY

This report responds to a request from the Ontario Public Health Branch (PHB) to the Public Health Research Education and Development Program (PHRED) to review the *Mandatory Health Programs and Services Guidelines*<sup>1</sup> (MHPSG) of the *Health Protection and Promotion Act*<sup>1</sup> (HPPA) to:

- Review the current guidelines' ability to support a planning and evaluation model as part of a move to outcome measurement and reporting for boards of health
- Recommend how the public health sector might adopt such a model

The *Guidelines* contain 14 program standards, each of which includes provincial-level goals and objectives and requirements and standards for board of health activities. Progress on achievement of the requirements and objectives has been assessed through the annual *Mandatory Program Indicator Questionnaire* and the recent *Provincial Health Status Report (Report on the Health Status of the Residents of Ontario)* respectively. Neither of these tools addresses the measurement of board of health outcomes at the local level specific to the MHPSG activities.

To address the issue of outcome measurement, one must view the activities of a board of health in the context of the broader **population health system** (see Figure 1). While boards of health are central and driving forces in local system activity to improve population health, many other factors contribute in diverse ways. Boards of health provide direct services and programming to target populations, yet many of their strategies and activities influence other parts of the population health system with a resultant, but indirect population impact.

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*To address the issue of outcome measurement, one must view the activities of a board of health in the context of the broader population health system.*

To attribute outcomes to board of health activities within the local population health system, it is necessary to distinguish:

- those outcomes which are generally attributable to board of health activity (**Board of Health Attribution**)
- those outcomes for which other local actors are also responsible and where attribution solely to board of health activity is not possible(**Joint Attribution**)
- those outcomes whose achievement rests with broader system management or policy issues (**Population Health System Attribution which may be Local or Provincial**).

A further challenge to developing a system of outcome measurement is that not all parts of the province have similar health needs, outcomes or board of health capacity.

This report analyzes the MHPSPG by identifying inter-relationships between objectives, distinguishing between final and intermediate level objectives, and analyzing which requirements relate to which objective. The relationships are then displayed graphically in **linkage diagrams**.

For many programs in MHPSPG, no intermediate objectives are included. This is significant since intermediate outcomes are more closely linked to board of health activity and changes are easier to attribute to that activity. Most MHPSPG final objectives are population health system objectives which are not solely attributable to board of health activity.

The next step was to develop a planning and evaluation model for organizing the program standards to allow the development of a planning and evaluation model grounded in outcome measures. A **logic model based format** was developed and used to standardize the strategies into which MHPSPG requirements can be grouped for the purposes of measuring outcomes and attribution.

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*A logic model based format was developed and used to standardize the strategies into which current requirements can be grouped for the purposes of measuring and attributing outcomes.*

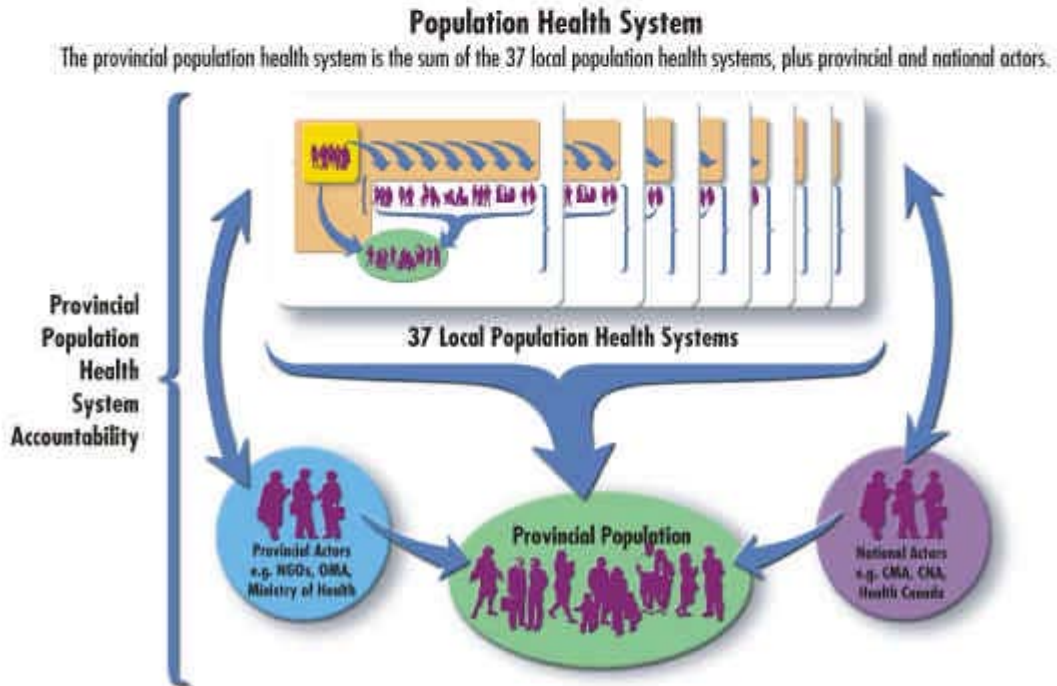
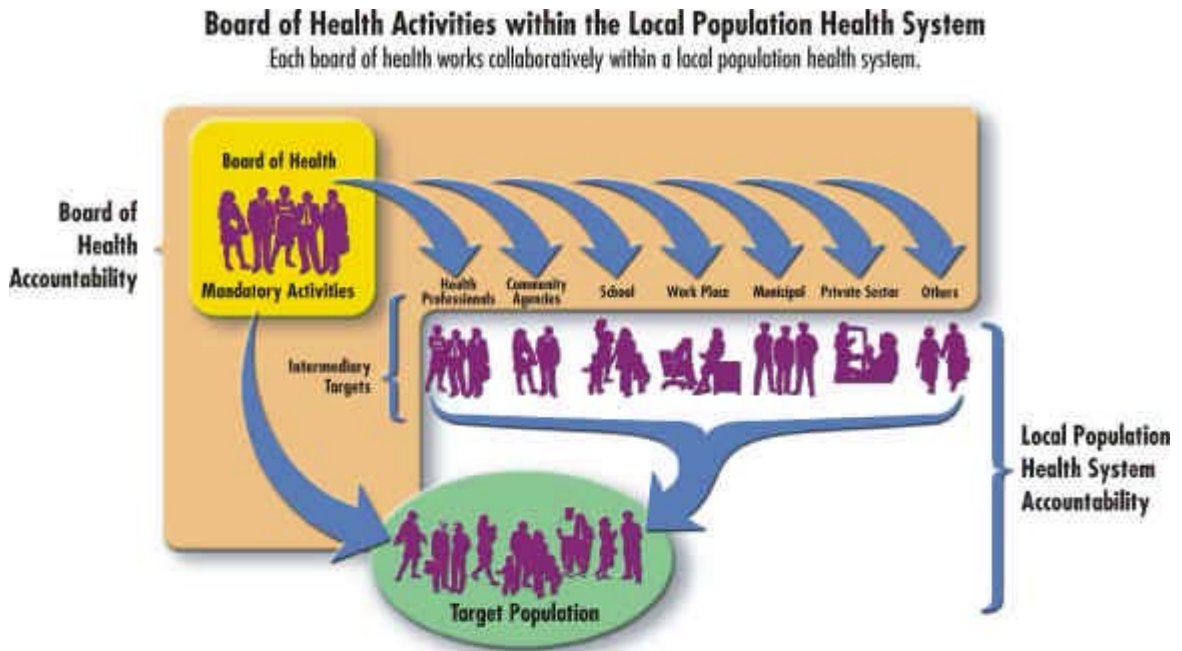
The model defines a realistic and logical system of outcome measurement and attribution. Activities and outcomes are explicitly linked and the role of intermediaries and their impact on accountability recognized. The proposed structure will be particularly helpful to Technical Review Committees as they review the MHPSG.

Accurate measurement of short-term outcomes at the local level requires regular surveying of the target population, standardization of program outcome information from boards of health, and the availability of comparable data for the entire population health system. There are many short-term outcomes generated by the MHPSG requirements and standards. Measuring all of them is impractical. A realistic and useful subset will need to be identified for regular measurement and reporting. Identifying this minimum set of required short-term outcomes and supporting an increased amount of data collection and analysis are necessary adjuncts of the move to outcome measurement and attribution.

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*A realistic and useful subset of short-term outcomes will need to be identified for regular measurement and reporting.*

Figure 1: Board of Health Role within a Population Health System



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## II. INTRODUCTION

### ***Terms of Reference***

The Management Board of Cabinet has established guidelines to measure specific results against stated expectations for all of its programs. The development of a planning and evaluation model for mandatory programs is a first step in this move to outcome measurement and reporting for boards of health in Ontario.

To assist in this endeavour, the Public Health Branch asked the Public Health Research Education and Development program to review the *Guidelines*<sup>7</sup> ability to support outcome measurement and to recommend how the public health sector can move from the current activity based reporting to outcome based reporting under the existing guidelines.

### ***The Mandatory Health Programs and Services Guidelines***

The *Mandatory Health Programs and Services Guidelines* (MHPSG) contains program standards in three groupings:

- Chronic Diseases and Injuries
- Family Health
- Infectious Diseases

Within the MHPSG, there are 14 program standards. Each program standard has a goal, several program objectives, and multiple requirements/standards. Overall, the MHPSG contain over 200 requirements and standards.

The MHPSG also sets out three general standards for planning, evaluation and accessibility. (Because these general standards affect only public health outcomes indirectly, they were not analyzed in this report. However, the authors recommend that general standards be examined in the future.)

The current program standards set out the activities that all public health units are required to offer to their populations. The intent of these guidelines is twofold:

- to ensure that all Ontario residents have equal access to a minimum set of public health services (defined as inputs at the local level)

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*There are no specified links between requirements and standards and individual objectives within a program standard.*

- to contribute to the reduction of preventable disease and disability (defined as outputs at the provincial level),

Current program standards have two components:

**Goals and objectives** are province-wide outcomes generally relating to changes in preventable disease and disability. The objectives vary in their specificity and measurability, a point to which we will return in later sections of this report.

**Requirements and standards** are specific and measurable local activities. These standards and requirements define a minimum set of mandated activities to be carried out by boards of health. The intent of the standards is to codify best public health practice based on available scientific evidence.

The MHPSPG assumes that implementation of these requirements and standards across the province will achieve province-wide goals and objectives. However, the exact degree and manner in which mandated local activities might contribute to the achievement of provincial objectives is not specified. In particular, there are no specified links between requirements and standards and individual objectives within a program standard. Thus, there are no specified lines of attribution from the activities defined in the requirements to the outcomes defined in the objectives.

### ***Reporting on the MHPSPG***

There has been no regular reporting or monitoring of achievement of the MHPSPG objectives. The *Report on the Health Status of the Residents of Ontario*<sup>iii</sup> did this for the first time in the year 2000.

At present, Ontario boards of health demonstrate adherence to the requirements/standards by completing an annual *Indicator Questionnaire*. The *Questionnaire* enumerates whether each mandated activity has been carried out. It does not assess outcomes of the activities. Thus far, three complete years of data (1998 to 2000) have been obtained. The questionnaire continues to be refined to better reflect the content of the standards and to improve the validity and reliability of the responses.

The Ministry of Health wishes to hold its transfer agencies accountable by measuring specific results against stated expectations. The measurement of outcomes at the local level specific to the activities specified in the MHPSPG is an essential first step to achieving this accountability for boards of health. The current reporting mechanisms, described above, do not measure outcomes of board of health activity at the local level. They, therefore, do not satisfy Management Board's accountability requirements for boards of health.

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*The current reporting mechanisms do not measure outcomes of board of health activity at the local level.*

## ***Population Health System***

Any discussion of attribution of outcomes to board of health must consider the factors that influence a population's health and the interventions that can improve it. It is now well recognized that such factors as socio-economic status, education and so forth are far more influential determinants of health than health system characteristics.

Theory tells us that the best way to influence a population's health is through multi-factorial strategies and multiple channels, which address these underlying determinants of health and make the slow, profound, cultural changes which are required.

These multi-faceted strategies involve many actors, including health professionals, teachers, community agencies, childcare agencies, business people and media, all of whom interact with the population and each other in a complex way. We call this complex group and its interactions a **population health system**.

Board of health staff and programs are key elements in each local population health system in Ontario. The MHPSG mandate that the boards of health play a proactive role within this system in collaboration with intermediaries in different channels. The board of health is the only player at the local level whose mandate and role is focused primarily on health promotion, disease prevention and health protection.

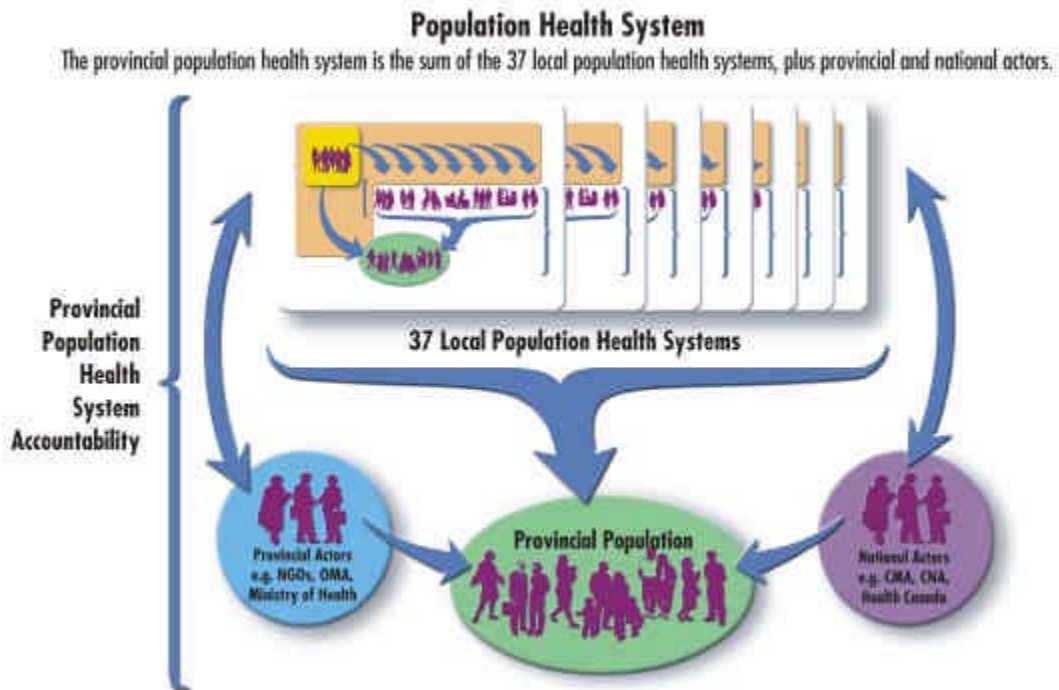
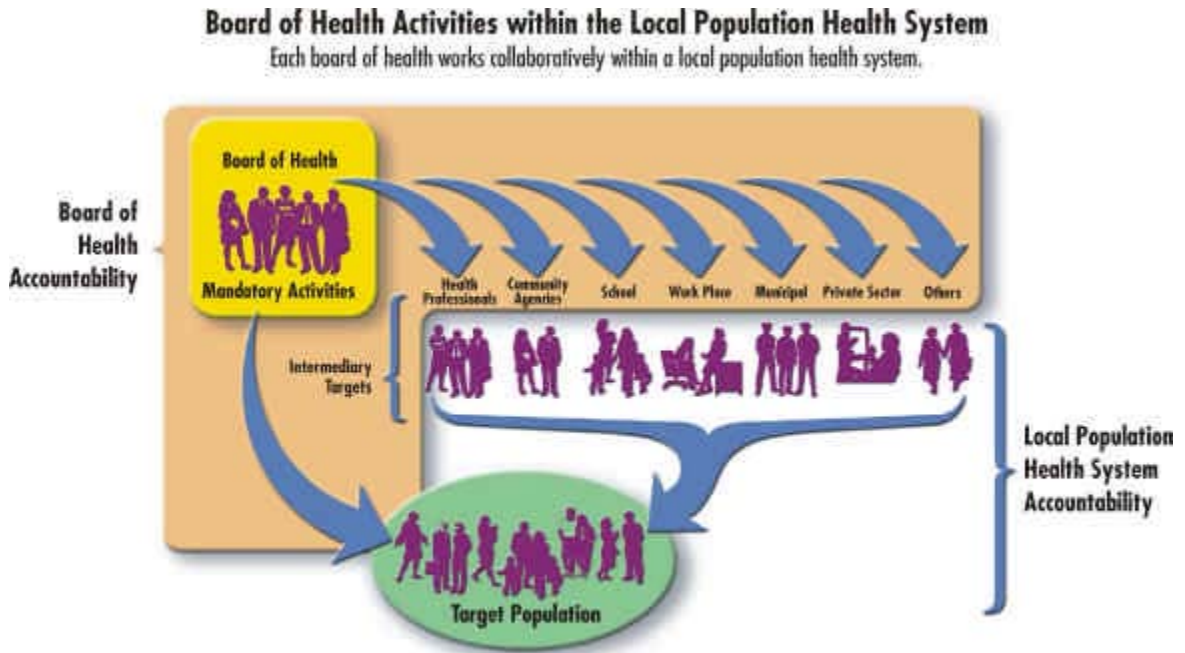
Figure 1 following shows the collaborative and mutually dependent nature of these interactive relationships. Board of health activity influences the target population both directly and through intermediaries.

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*Board of health, staff and programs are key elements in each local population health system. The MHPSG specify that the boards of health play a proactive role within this system in collaboration with intermediaries in different channels.*

To attribute population outcomes to specific activities within such a complex system is difficult. Joint mechanisms are required for planning, priority setting, performance measurement and assessment of outcomes. In some jurisdictions outside Ontario, regional health authorities or other integrated health systems play this role in part. In Ontario as elsewhere in the country, any system management which is in place at the local level, focuses much more on the health care system than the population health system

Fig. 1: Role of a board of health within a population health system



## ***The Challenge of Attribution of Outcomes to Board of Health Activity within a Population Health System***

To attribute outcomes to board of health activities within the local population health system, it is necessary to distinguish:

- short-term outcomes which are generally attributable to board of health activity (**Board of Health Attribution**)
- short-term outcomes for which other local actors are also responsible and where attribution solely to board of health activity is not possible(**Joint Attribution**)
- short-term outcomes whose achievement rests with broader system management or policy issues (**Population Health System Attribution which may be Local or Provincial or Federal**).

Note that all of these different kinds of short-term outcomes contribute to the accomplishment of the long-term outcomes that are specified as objectives in the MHPHG. Because this concept is critical to our discussion of the attribution of outcomes to board of health activity, we will expand on it with an example.

### **1. Youth smoking (Table 1)**

Achieving MHPHG objectives to reduce youth smoking rates requires convergence of such factors as:

- federal and provincial taxation policy
- controls on lifestyle advertising and promotion by the tobacco industry
- school curricula
- passage of stronger by-laws by municipal councils
- passage and enforcement of legislation preventing sale of tobacco to minors
- altering youth attitudes and perceptions of smoking, among many others

These complex local and provincial relationships are well recognized in the formulation of the Ontario Tobacco Strategy and reinforced in a recent review of the strategy.<sup>iv</sup>

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*The rate of youth smoking in a health unit is subject to multiple federal, provincial, and local factors. A number of the local factors are solely or jointly attributable to board of health activity.*

The rate of youth smoking is thus a long-term outcome subject to multiple federal, provincial and local influences, some of which are solely or jointly attributable to board of health activity and some of which are not. The role of the board of health as specified in the MHPSG is to mobilize its local community around the issue and ensure that each local player fulfils its role, to enforce the *Tobacco Control Act* and to conduct community education campaigns. These are the areas for which short-term outcomes should be developed and for which each board should be held accountable.

Applying a similar analysis to almost any public health issue within the MHPSG will yield an equally complex web of influences on long-term outcomes. A planning and evaluation model must come to terms with this complexity by developing short-term outcomes which maximize the degree of attribution to board of health activity.

**Table 1: Attribution of Youth Smoking Outcomes within the Population Health System**

<b>Target/ Channel</b>	<b>Population Health System role and attribution</b>	<b>Joint role and attribution</b>	<b>Board of Health role and attribution</b>
<b>General Population</b>	<i>Tobacco Control Act</i> , taxation policy, social marketing	Coalition activities, passage of local by-law	Direct activities and participation in coalition activities
<b>Schools</b>	Curricula, class time allocation	Implementation in classroom, school board support of TCA	Board of Health staff support and involvement in school and classroom activities, enforcement of TCA
<b>Health Care System</b>	OHIP policy and fee structure, professional school curricula	Support of local health care providers	Provision of training and supportive materials to local health care providers
<b>Coalitions</b>	Provincial infrastructure and support	Participation and commitment of local partners	Mobilization, support and active participation
<b>Tobacco Vendors</b>	Passage of <i>Sales to Minors</i> legislation		Enforcement of <i>Sales to Minors</i> legislation
<b>Workplace</b>	Workplace legislation	Participation and commitment of local workplaces	Mobilization, provision of training and supportive materials to workplaces

### ***Challenge of Assessing individual Health Unit Performance in Achieving Short-Term Outcomes***

An additional challenge to developing outcome measurement and reporting for boards of health is the diversity in health outcomes and risk behaviours regionally in Ontario.<sup>iii</sup> Furthermore, the capacity of local population health systems to support achievement of positive health outcomes also varies dramatically across the province. Each health unit will have a different starting point and a unique set of internal and external factors to consider.

Development of outcome objectives for each board of health then requires consideration of baseline levels of the indicator, resources allocated to the issue by the health unit, and the capacity and priorities of the local population health system. The latter would be of particular importance for outcomes with joint attribution. Objectives would also have to take into account the variable capacity and critical mass of expertise within health units of different size.

The data to measure most short-term outcomes are not currently available in health units in Ontario. Generating this data on a routine basis will require regular and timely population surveys, as well as standardized data collection for both board of health programs, and the rest of the population health system. In our opinion, such a system is most efficiently implemented through provincial leadership and coordination. Independent data collection by each board of health would not only be extremely inefficient but would inevitably generate data of variable quality and dubious comparability. Initiatives such as the Rapid Risk Factor Surveillance System (RRFSS) and the report of the Public Health Information Systems Advisory Committee (PHISAC) are positive moves towards a more standardized provincial approach.

Evaluation of achievement of the short-term outcome objectives would need to consider other external factors that may have independently influenced the results. Examples are an increase in the price of cigarettes (positive) or the closure of a key employer (negative). Short-term outcomes should be selected to minimize susceptibility to external factors, but this cannot be completely avoided.

A benchmarking process that compares the results of a board of health to others with similar characteristics or subject to similar external influences would be one way of addressing this issue. This would allow some control for the influence of external factors and a clearer measurement of the degree to which the change in a short-term outcome is attributable to board of health activity.

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*Evaluation of achievement of the short-term outcome objectives would need to consider other external factors that may have independently influenced the results.*

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### III. GUIDE TO DEVELOPMENT OF A NEW PLANNING AND EVALUATION MODEL

In the preceding pages, this report addressed the issues involved in attributing outcomes to board of health activity within a population health system. We have shown that this is not straightforward, given the fundamentally collaborative and interrelated nature of population health activity. The balance of this report will propose a new planning and evaluation model that clarifies this attribution to boards of health.

This report proposes a planning and evaluation model to provide a framework that will allow Ontario public health to move toward outcome measurement in a systematic and standardized way. It is a general model/framework that allows program and/or strategy specific models to be used for the development of short-term outcomes. The use of 'Strategies' as the organizing principle will standardize the planning approach across programs, while allowing program specific elements to be included as necessary. The selected model - program logic model - is well suited for this purpose because it provides a framework for linking program activities and outcomes.

The proposed framework should have high acceptability among health units as it is based on language and concepts with which Health Unit staff are familiar. Most health units know about, and are actively using, program logic models as a result of the previous dissemination of the Program Evaluation Toolkit. As well, the Government of Ontario is recommending program logic models as a key tool for performance measurement ([Performance Measurement in the Business Planning Process: A Reference Guide for Ministries, December 2000](#)).

We reviewed other causal and planning models - Green's Precede Proceed model and the McMaster Iterative Loop - before selecting program logic models for this exercise. The Precede Proceed model defines steps in a planning process to prioritize among health issues and, in the Public Health sector, could be helpful for deciding if a program should be added or deleted from the Mandatory Guidelines, for instance. The Iterative Loop is a process for ongoing review and refinement of existing programs and may be used in conjunction with the logic model. While all these models have a definite place and value, the logic model was deemed to be the most useful in defining outcomes that can be attributed to activities already specified in the Mandatory Health Programs and Services Guidelines (MHPSG).

It should be noted that the planning and evaluation model does not preclude using a more program-specific causal model for specifying short-term outcomes (which in the MHPSG are generally not specified), describing the relationships among activities, short-term outcomes and long-term outcomes or for planning parts of some programs.

The report begins with a discussion of the difficulties of attributing outcomes in population health and develops a rationale for the proposed approach. It conducts a detailed analysis of the MHPSG with particular attention to the implicit and explicit causal relationships between the specified activities and objectives. Finally, it develops the recommended structure for the planning and evaluation model and applies it to the MHPSG.

The presentation and discussion of the framework falls into three sections:

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*The balance of this report will propose a new planning and evaluation model that clarifies this attribution to boards of health*

1. **Mapping Current Mandatory Programs:** This section of the report analyzes current MHPSG objectives and requirements/standards and shows how they relate to each other. It defines independent clusters of objectives. Within each cluster, the links and relationships of the objectives to each other, and of the requirements/standards to the objectives, is made explicit using linkage diagrams. This demonstrates the shortcomings of the current format and identifies what needs to be addressed in the new planning and evaluation model.
2. **Defining a Structure for the Planning and Evaluation Model:** Working from the linkage diagram analysis, this section proposes a standard set of strategies into which current requirements/standards can be grouped for the purposes of measuring outcomes and defining attribution. It proposes a standard format based on the program logic model for measuring short-term outcomes and attribution for each strategy. The model creates a standard format across all Mandatory Programs, which simplifies analysis and comparison.
3. **Planning and Evaluation Model Application:** This section applies the model to all the objective clusters, using the requirements/standards and objectives specified in the MHPSG, and inferring targets and short-term outcomes. This exercise demonstrates the value of the proposed model and brings attention to some of the implementation issues that will arise when such a model is applied to the MHPSG.

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## IV. MAPPING THE PROGRAM STANDARDS

### *Linkage Diagrams: Process*

The research team created linkage diagrams for each program standard. These diagrams make explicit the logical relationships between each program's goal, objectives and requirements.

The steps taken to create the linkage diagrams are as follows:

**Step 1: Begin with goal statement**

**Step 2: Cluster objectives by topic or theme.**

Program standards may have several objectives. These were assessed and clustered into independent groups reflecting a common topic or theme. The assessment then identified the logical sequence between objectives.

**Step 3: Determine final and intermediate objectives and their linkage to each other.**

Objectives that would be expected to contribute directly to achievement of the program goal were termed *Final Objectives*. Objectives that required achievement of another objective first were termed *Intermediate Objectives*.

**Step 4: Group requirements and standards in relationship to the objectives.**

Requirements were grouped according to the objectives to which they would most likely contribute.

This process is illustrated with two examples: Tuberculosis Control and Child Health. Tuberculosis Control, with its single final objective and a number of intermediate objectives, is a straightforward example. Child health, with its multiple final objectives and missing intermediate objectives is an example of a more complex linkage diagram.

Annotated linkage diagrams for each program standard are presented in Appendix 2. Objectives were assessed for their possible attribution and measurability. For the latter, the team made extensive use of *Core Population Health Indicators for Ontario*,<sup>v</sup> a publication of the Association of Public Health Epidemiologists in Ontario (APHEO). (Appendix 1). Observations on the organization of the requirements have also been included in Appendix 2.

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*The research team created linkage diagrams for each program standard, making explicit the logical relationships between each program's goal, objectives and requirements.*

## ***Linkage Diagrams Examples***

This process is illustrated with two examples: Tuberculosis Control and Child Health.

### ***Tuberculosis Control (Figure 2)***

The Tuberculosis (TB) Control program has the following goal and four objectives.

**Goal:** To reduce the incidence of tuberculosis

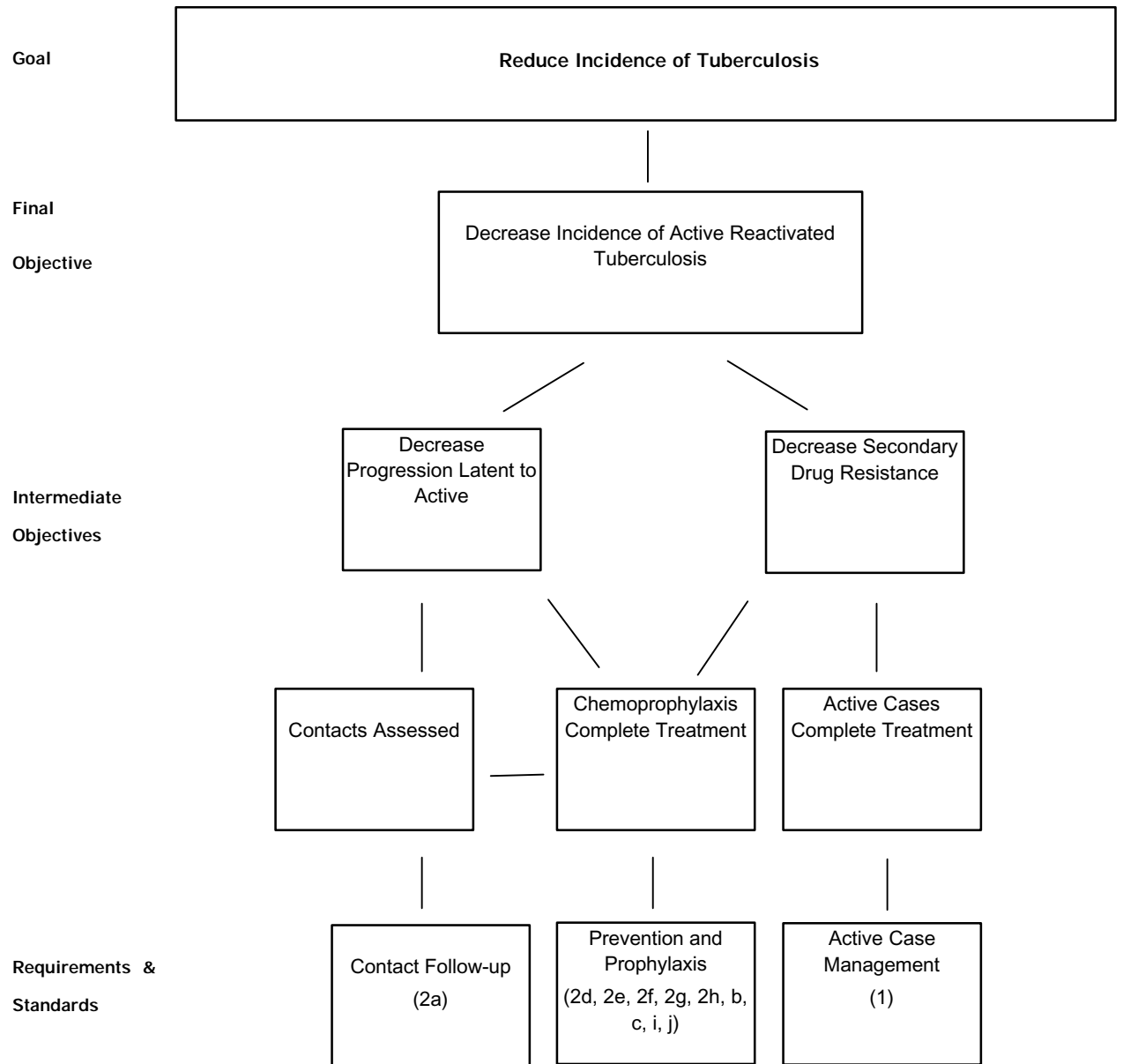
**Objectives:**

1. To reduce the annual incidence rate of active and reactivated TB to 3.5 per 100,000 population by the year 2005.
2. To reduce the progression of latent TB infection to active TB.
3. To reduce secondary drug-resistance by the year 2005.
4. To achieve the following completion rates by the year 2005:
  - a) 95 per cent of active TB cases will complete treatment as prescribed
  - b) 90 per cent of individuals on chemoprophylaxis will complete therapy
  - c) 90 per cent of contacts of active cases of TB will be assessed

The first step was to cluster the objectives. Objective 1 is essentially the same as the goal with a target value having been added. Objectives 2 and 3 are separate, final objectives that will contribute to the goal. The three additional objectives (4a,b,c) are intermediate objectives that contribute to the achievement of the final objectives. Objective 4c contributes to 4b, which then contributes to both final objectives. Objective 4a contributes to the drug resistance final objective 3.

Having identified the clustering of objectives, requirements are then grouped according to the intermediate objectives to which they contribute. These relationships are reflected in the linkage diagram (Figure 2).

Figure 2. Tuberculosis Control: Linkage Diagram



### ***Child Health (Figure 3)***

The Child Health program has a goal and five objectives.

**Goal:** To promote the health of children and youth.

**Objectives:**

1. To increase the percentage of children and youth who meet physical, cognitive, communicative and psychosocial developmental milestones.
2. By 2010 to increase to 50 per cent the number of infants breast-fed up to six months.
3. To reduce the prevalence of dental diseases in children and youth.
4. To increase access to and the use of needs-based services and supports for children who are at risk of poor physical, cognitive, communicative, and psychosocial development, and for their families.
5. To increase effective parenting ability in high-risk families.

Examination of the five objectives identified three separate topics or themes.

These were:

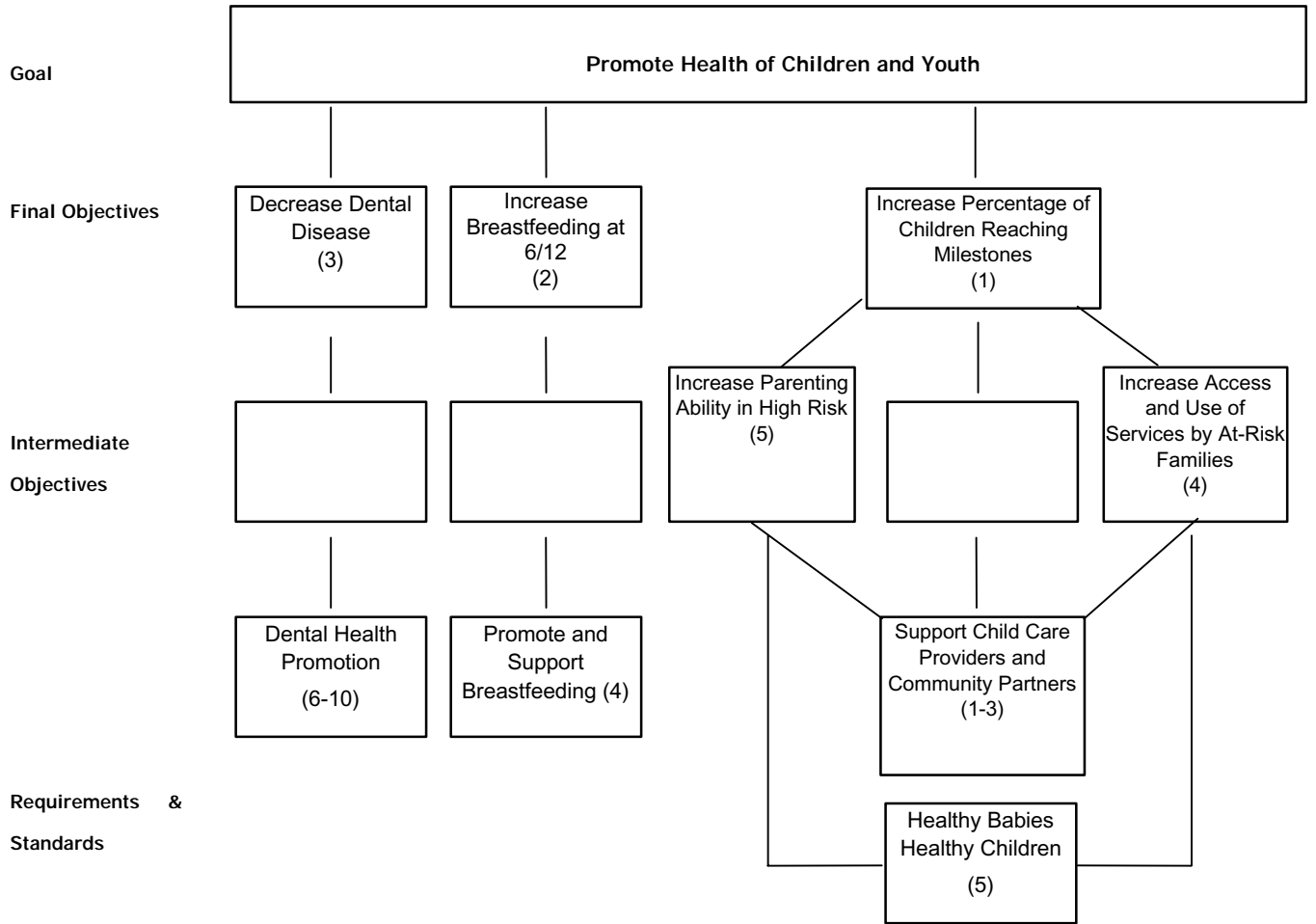
*a)* achieving children's milestones (objective 1)

*b)* increasing breastfeeding (objective 2)

*c)* decreasing dental disease (objective 3)

The remaining two objectives (4 and 5) are intermediate objectives for achieving objective 1. Additional intermediate objectives are possible since objective 5 only addresses parenting ability in high-risk families, yet program requirements will contribute to parenting ability in all families. No intermediate objectives are provided in the program standard for the dental disease and breastfeeding final objectives. The blank boxes in the linkage diagram in Figure 3 represent these gaps in the logical relationships between requirements and objectives.

Figure 3. Child Health: Linkage Diagram



## ***Implications of Linkage Diagram Analysis for Planning and Evaluation Model***

Analysis of the linkage diagrams reveals the following important issues:

### ***Lack of intermediate objectives***

Every program standard included at least one final objective. However, as reflected by blank boxes in the linkage diagrams, few programs had intermediate objectives. This is significant since intermediate objectives are more closely linked to board of health activity and changes are easier to attribute to boards of health. Most MHPSPG final objectives were population health system objectives that are difficult to attribute directly to board of health activity.

The challenge then is, given the activities specified by the requirements and standards and the outcomes defined by the final objectives, to impute intermediate or short term outcomes that can be more directly attributed to board of health activity while also being causally linked to the achievement of the final objectives. The planning and evaluation model developed in the next chapter, will provide a key tool to accomplish this.

### ***Attribution of Achievement of MHPSPG Objectives***

Analysis shows that most of the MHPSPG objectives contain population health system level outcomes. They are not solely attributable to board of health activity. Though boards of health contribute to the accomplishment of these objectives, many other actors also make important contributions. A number of planning and co-ordinating mechanisms have evolved at the local level to address this issue but no joint or system-level accountability mechanisms are currently in place.

Some MHPSPG objectives were identified as having predominantly board of health attribution. Even for these, it can be argued that others could influence the achievement of the objectives. For example, the level of success in completing treatment of acute cases of tuberculosis depends not only on public health staff, but also on clinicians, hospitals and the patients themselves. Nevertheless, boards of health have a clear interest and responsibility to achieve these outcomes.

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*The challenge is to define short term outcomes that can be more directly attributed to board of health activity while also being causally linked to the final objectives.*

### ***Organization of program requirements***

There is no consistent organization of program requirements. Most requirements are organized by strategy, but others are initially grouped by type of intermediary and others are grouped initially by risk factor. The more complex program standards do not generally have strategy as their prime organizing principle.

Several types of intermediaries are specified in the program standards including: health professionals, school staff, workplaces, child care providers, social service workers, restaurants and grocery stores' staff, recreation staff, parents, community agencies, personal service workers and shopping mall managers.

The extensive use of intermediaries in the requirements must be considered in the design of any planning and evaluation model. A more consistent use of strategies to organize mandatory programs is desirable in developing the model.

### ***Objectives: measurability and data availability***

Some objectives (for example in the food safety and child health programs) were too broadly worded to allow measurement and first need to be operationalized. Once this is done, indicators could be defined, and data sources identified or developed.

Other objectives were well operationalized, but no data are currently available to measure their attainment. The osteoporosis objective in chronic disease prevention, and increasing access to contraception in the sexual health program, are examples of this.

An analysis of the availability of data to support the measurement of MHPSG objectives was recently produced by The Association of Public Health Epidemiologists in Ontario (APHEO) in its document *Core Population Health Indicators for Ontario*.<sup>v</sup> Appendix 10 of that document is included as Appendix 1 of this report. It shows that of the 77 objectives, 13 have no identifiable data source and five are process objectives. Those without a data source are predominately in the area of child health and nutrition.

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*The extensive use of intermediaries in the requirements must be considered in the design of any planning and evaluation model.*

The five process objectives are found in two areas: tuberculosis control and food safety. Note that the tuberculosis objectives are in fact intermediate outcomes in that they relate directly to the result of board of health activity and are arguably causally linked to the achievement of the final objective. The food safety objectives require operationalization. Both areas have associated provincial data collection systems, namely, the Reportable Disease Information System (RDIS) for tuberculosis and CISS (Computerized Inspection Services System) for food safety. Incorporation of the required indicators into these provincial systems would provide standard measures in a timely fashion at the local level.

Of the 59 objectives with an identified data source, only those data in local public health systems e.g. (IRIS) for immunization and (RDIS) for infectious disease, are available in a timely fashion. Most outcomes depend on vital statistics (birth and death certificates), hospitalization records, the cancer registry, or population health survey data. These are currently available to boards of health three to five years after the fact. This renders timely priority setting and resource reallocation difficult.

Some objectives such as the dietary intake variables require data that may not be routinely included in population surveys. Vaccination and infectious disease data are available at the local level. (For a more detailed discussion, see the full APHEO document.)

Some data (primarily population health survey data) are not available for individual health units with smaller populations. The most recent 1996/97 Ontario Health Survey (OHS) data are available for analysis by 23 local areas. The Canadian Community Health Survey (CCHS) - 2000, which will replace the OHS, will be available for all 37 board of health territories. However, the sample sizes will be proportional to the population size and will require data from smaller areas to be combined with adjacent areas to produce stable population estimates. It is proposed that by 2002, the CCHS will begin to release regular and timely cross-sectional estimates of health determinants, health status and health system utilization at a sub-provincial level every two years.

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*Some data (primarily population health survey data) are not available for individual health units with smaller populations.*

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## **V. PROGRAM LOGIC MODELS: A BASIS FOR THE PLANNING AND EVALUATION MODEL**

The preceding linkage diagrams' section demonstrated the existing implicit relationships between the program goal, objectives and requirements. While providing insight into these relationships, they reveal the lack of intermediate objectives for many programs and the absence of explicit linkages between activities and outcomes. This section will use a consistent logic model-based structure for organizing the mandatory programs using the requirements as a starting point, and will allow for the development of a planning and evaluation model grounded in outcome measures.

A consistent structure is required to accommodate the 14 programs and over 200 requirements and standards within the three sets of program standards (Chronic Diseases and Injuries, Family Health and Infectious Diseases). A brief discussion of targets and short and long-term outcomes is also needed before putting these pieces together to build a model template to be applied to the Mandatory Programs.

### ***Strategies as an Organizing Theme across Programs***

It is possible to conceptualize public health programming in a variety of ways; see Appendix 3 for examples.

Risk factors, channels, and strategies are the most common organizing principles of the program requirements.<sup>vi</sup> Of these, strategy is the organizing principle used most consistently in MHPHG. As we will show in the section on short-term outcomes, strategies also tend to define different types of accountability. For these reasons, the group selected strategies as the organizing principle for the model.

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*This section will use a consistent logic model-based structure for organizing the mandatory programs using the MHPHG requirements as a starting point.*

*Strategies* can be conceptualized and categorized in several ways. To select the most appropriate categorization for use in the planning and evaluation model, we used the following criteria:

- It should allow classification of all the requirements and standards into strategies.
- It should be possible to identify outcomes for each strategy, which are attributable to board of health activity and which are causally linked to MHPSG objectives.
- The resulting model would support the eventual development of outcome-based reporting to the Ministry for the activities defined by the MHPSG. The responsibilities of the broader population health system vis-à-vis boards of health for the achievement of MHPSG objectives would be more clearly defined.

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*After thorough review of the different models, we chose the Ottawa Charter for Health Promotion as the basis of the strategy categories.*

### ***Recommended Strategy Categorization***

The following five strategies were chosen as the basis for a planning and evaluation model for MHPSG:

- Build healthy public policy (**Policy**)
- Develop personal skills (**Personal Skills**)
- Work in collaboration/partnership with the Community (**Collaboration/Partnership**)
- Provide clinical services (**Clinical Services**)
- Do monitoring/enforcement (**Monitoring/Enforcement**)

### ***Ottawa Charter for Health Promotion***

After thorough review of the different models, the PHRED team chose the Ottawa Charter for Health Promotion<sup>vi</sup> as the starting point for the strategies. The Charter contains the following five strategies: build healthy public policy, develop personal skills, create supportive environments, strengthen community action, re-orient health services.

Upon review of the MHPSG requirements and standards, the strategy *Reorient Health Services* was excluded because there were no related requirements.

Creating supportive environments and supporting community action were generally not specified as the purpose of any requirement/standard. However, requirements in several different programs specified forming and working in coalitions or working in partnership with other agencies or groups. The implicit or explicit outcome of that activity was a combination of healthy public policy, supportive environments and community action. Because of the structure of the standards and because of the increasing importance of the collaborative strategy, we formulated a strategy *Working in collaboration/partnership with the community*.

When requirements referred to working in collaboration within a single strategy such as an education campaign, or promoting and developing policy they were classified under that specific strategy. Requirements that referred to work with a coalition or in collaboration, but did not specify a strategy or specified multiple strategies were classified in the strategy *Working in collaboration/partnership with the community*.

### ***Develop Personal skills***

The majority of MHPSPG requirements and standards fall under the Personal Skills strategy. The Mandatory Requirements generally refer to “education” or the “provision of information and/or skill-building” and then specify the type of activity e.g. media campaign, community event, small group session etc.

We did debate whether, given the volume of requirements and the differences in program delivery and targeting, we should divide the Personal Skills category into Awareness Raising and Skill Building. We decided against this for the following reasons.

For a large proportion of the requirements, it is unclear if the content is awareness raising, skill building or both. Awareness-raising activities are more commonly done via media campaigns or community events; skill-building activities are conducted in small group sessions but this is not universal and cannot in our opinion be inferred.

While it would be possible to define separate short-term outcomes for awareness and skill building, this is not possible using the requirements and standards as they are now written. Therefore, all awareness and skill-building activities were incorporated into the single *Personal Skills* strategy to avoid potential misclassification. This decision could be revisited if the requirements and standards are rewritten to make a clear distinction between the two strategies.

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*A large number of the requirements and standards refer to working in partnership with other groups or agencies.*

### ***Build Healthy Public Policy***

This strategy was restricted to requirements with the explicit intent to modify public policies. It includes municipal bylaws as well as workplace, school and other agency policies

### ***Additional strategies***

Because a number of mandatory requirements within Infectious Disease and the General Standards do not fit into the *Ottawa Charter*, two additional strategies were added: *Monitoring/Enforcement*, and *Clinical Services*.

#### **Provide Monitoring/Enforcement**

This category included activities where assessment or monitoring was the key component: e.g. food premise inspection, school immunization, health hazard follow up. The category also includes any regulatory or enforcement action which results from the assessment.

#### **Provide Clinical Services**

This category was narrowly defined as dental assessment and referral under the CINOT program, administration of immunizations, and the clinical services specified in the Sexual Health and STD standards. Note that individual interventions with a predominantly educational or counselling component such as well baby drop-ins and breastfeeding clinics are better classified in the Personal Skills category and should not be included in the clinical services category. It is recognized that the sexual health clinic services do have a major education and counselling component and a case could be made for classifying them either in Personal Skills or in Clinical Services. An arbitrary decision was taken to classify them in Clinical Services.

## ***Recommended Target Categories***

In identifying the individuals, groups or communities for whom the activities are intended, we distinguished two categories of targets: *direct* and *intermediary*. Many requirements target intermediaries (who are then expected to influence the client group to achieve short-term and ultimately long-term outcomes). For example, in programs whose aim is improving the health of school-aged children, the requirements specify some activities that target the children directly. However, most activities target intermediaries such as parents, teachers, peer educators etc. The implicit program logic is that the activity will alter the attitudes and behaviour of the intermediaries and thus (indirectly), the awareness, skills and behaviour of the children. The degree of control of the board of health on how its activities influence the health of the children is different in the two cases.

The importance of this distinction will be demonstrated in the subsequent sections.

## ***Examples of MHPSG Requirements/Standards Classified by Strategy and Target***

Examples of MHPSG requirements/standards classified by strategy and target are listed in Table 2.

**Table 2: Examples of Activities Categorized by Strategy**

Strategy	Examples of Activities
<b>Develop Personal Skills</b>	<p><b>Targeted at client</b></p> <ul style="list-style-type: none"> <li>■ media campaign</li> <li>■ telephone lines</li> <li>■ newsletters, Internet</li> <li>■ community events</li> <li>■ workshops &amp; education events &amp; small group education</li> <li>■ making information available at point of decisions</li> </ul> <p><b>Targeted at intermediary</b></p> <ul style="list-style-type: none"> <li>■ peer educators</li> <li>■ outreach to physicians and other health professionals</li> <li>■ assistance and consultation to teachers</li> <li>■ parenting interventions</li> </ul>
<b>Build Health Public Policy</b>	<ul style="list-style-type: none"> <li>■ municipal policy development</li> <li>■ school and workplace policy development</li> <li>■ policy development to improve access to healthy foods</li> </ul>
<b>Provide Clinical Services</b>	<ul style="list-style-type: none"> <li>■ sexual health and STD clinical services</li> <li>■ administration of immunization</li> <li>■ dental screening and referral e.g. CINOT</li> </ul>
<b>Provide Monitoring/Enforcement</b>	<ul style="list-style-type: none"> <li>■ inspections, laying of charges under the <i>Food Premises Regulations</i></li> <li>■ Monitoring of tobacco sales to minors and enforcement of the <i>Tobacco Control Act</i></li> <li>■ monitor immunization status and enforce the <i>Immunization of School Pupils Act</i></li> </ul>
<b>Work in Collaboration/ Partnership with the Community</b>	<ul style="list-style-type: none"> <li>■ participation in and support of coalitions/networks such as breastfeeding, heart health, injury prevention, success by six, prenatal etc.</li> <li>■ inventories of programs and services</li> <li>■ coordination of services</li> </ul>

## ***Short-Term Outcomes and Degree of Attribution by Strategy and Target***

Classifying by strategy and delineating 'direct' or 'intermediary' targets, allows us to impute short-term outcomes to the requirements and standards. We can also determine their degree of attribution to board of health activity.

The ability to attribute an outcome to an activity depends upon the strategy and whether there is a direct or intermediary target. Directly targeted personal skills' strategies generally have board of health accountability since outcomes are under board of health control. However, for personal skills' strategies targeted at intermediaries, it is more difficult to attribute outcomes in the ultimate target group. However, impact on the intermediaries can be generally attributed to board of health activity with the proviso that an intermediary's interest and ability to participate in population health activity is subject to multiple external influences. For instance, continuing medical education, OHIP billing policies, time in a busy fee for service practice and preparation for preventive practice in medical school will influence physician outputs as much as board of health interventions. For sexual health education, board policies, the attitude of the school principal, competing educational priorities and the teacher's personal comfort with sexuality will all combine with board of health interventions to influence classroom outcomes.

*Collaboration and Partnership* and *Policy* activities strive to influence decision-making and service delivery outside the direct control of the Board of Health. Outcomes of these strategies are therefore generally attributed to joint accountability.

Thus, the strategies and targets define a hierarchy of control and influence by the board of health. The degree of attribution of the outcomes of these strategies to the board of health will also vary as shown in Table 3.

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*The ability to attribute an outcome to an activity depends upon the strategy and whether there is a direct or intermediary target.*

We have developed sample short-term outcomes for each strategy and target in Table 3. For more detail on recommended short-term outcomes, see Appendix 2.

**Table 3: Proposed Model for Objectives and Accountability by Strategy**

Strategy	Short-term outcomes	Attribution
Personal Skill	<p><b>Direct:</b></p> <ul style="list-style-type: none"> <li>■ proportion of target population reached by intervention</li> <li>■ access to information and services</li> <li>■ change in attitudes, motivation, self-efficacy</li> </ul> <p><b>Intermediary:</b></p> <ul style="list-style-type: none"> <li>■ proportion of intermediary population reached by intervention</li> <li>■ change in attitudes, motivation, self efficacy</li> <li>■ transmission of information, skills to direct client group</li> </ul>	<p>Board of Health</p> <p>Joint With Intermediary System</p>
Policy	<ul style="list-style-type: none"> <li>■ supportive policies in place</li> <li>■ Advocacy campaigns conducted</li> </ul>	Joint
Collaboration and Partnership	<ul style="list-style-type: none"> <li>■ services available in community</li> <li>■ supportive community attitudes, norms</li> <li>■ joint planning and activities occurring</li> </ul>	Joint
Monitoring and Enforcement	<ul style="list-style-type: none"> <li>■ compliance with legislation</li> <li>■ problems identified and effectively followed up</li> </ul>	Board of Health
Clinical Services	<ul style="list-style-type: none"> <li>■ access appropriate by target population</li> <li>■ satisfactory clinical outcomes</li> </ul>	Board of Health

## ***Planning and Evaluation Model***

The preceding discussion of strategies, targets, short- and long-term outcomes defines the components of the planning and evaluation model that will be applied to the Mandatory Programs. An outline of this tool is shown in Figure 4.

**Figure 4: Planning and Evaluation Model**

Name of Mandatory Program Standards					
Long-term Outcomes					
Short-term Outcomes					
Targets					
Requirements & Standards (Activities)					
Strategies	Clinical Services	Monitoring/ Enforcement	Policy	Collaboration & Partnership	Personal Skills

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## VI. APPLYING THE PLANNING AND EVALUATION MODEL TO MHPSG

We applied the planning and evaluation model following these seven steps.

1. Clustering of requirements and standards by strategy
2. Identification of activities by strategy
3. Identification of targets by activity
4. Grouping of activities and targets by strategy
5. Identification of short-term outcomes by strategy
6. Identification of long-term outcomes
7. Insert the elements into the template

To illustrate this process, these steps will be applied to the breastfeeding cluster (requirement/standard 4 of Child Health Program) as follows:

**Step 1:** The activities are already clustered by strategy in the MHPSG

**Step 2.** Requirements 4a and 4d are personal skills directed to the breastfeeding population and to the general population. Requirements 4b, 4e (i), 4e (ii) are personal skills directed at the intermediaries: health professionals, health and social service organizations and peer educators respectively, Requirement 4c is related to policy and 4e (iii) is related to collaboration and partnership.

**Step 3.** Requirements 4a and 4d were targeted directly at breastfeeding mothers. Requirements 4b, 4e (i), 4e (ii) are targeted at health professionals, health and social service organizations and peer educators respectively. Requirement 4c is related to policy and 4e (iii) is related to collaboration and partnership. This fulfils the activity and target portions of the logic model.

**Step 4.** The results of the grouping are illustrated in Figure 5.

**Step 5.** To develop short-term outcomes, we apply the generic outcomes outlined in Table 3 to the requirements and standards in each strategy.

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*We applied the planning and evaluation model following a seven-step process.*

### **Personal Skills-Intermediaries**

There are three separate targets: health professionals, peer educators and community agencies. For each target, we identify the attitudes, information and skills we would try to change with our interventions. For example, we would like health professionals to have the knowledge, skills and confidence to address minor breastfeeding problems and know where to refer more serious difficulties.

We would like women to get support from their doctor and birth hospital, and to feel that their doctor is helpful in addressing any problems. The same sort of analysis would apply to peer educators and community agencies.

### **Personal Skills-Direct**

The requirements and standards identify interventions aimed at the general public to promote positive community norms around starting and maintaining breastfeeding. They also identify interventions targeted at breastfeeding women, including media advertising and telephone consultation to provide women with the information and skills they need to initiate and maintain breastfeeding. The desired outcomes are that:

- women are aware of and use these services if they need them
- women have the information and skills they need to initiate and maintain breast-feeding
- women perceive community attitudes as supportive of breast-feeding

### **Collaboration and Partnerships**

The board of health is mandated to participate in a coalition to coordinate services. The short-term outcome is that coalition partners offer more services and collaborate with each other, and that services are better coordinated.

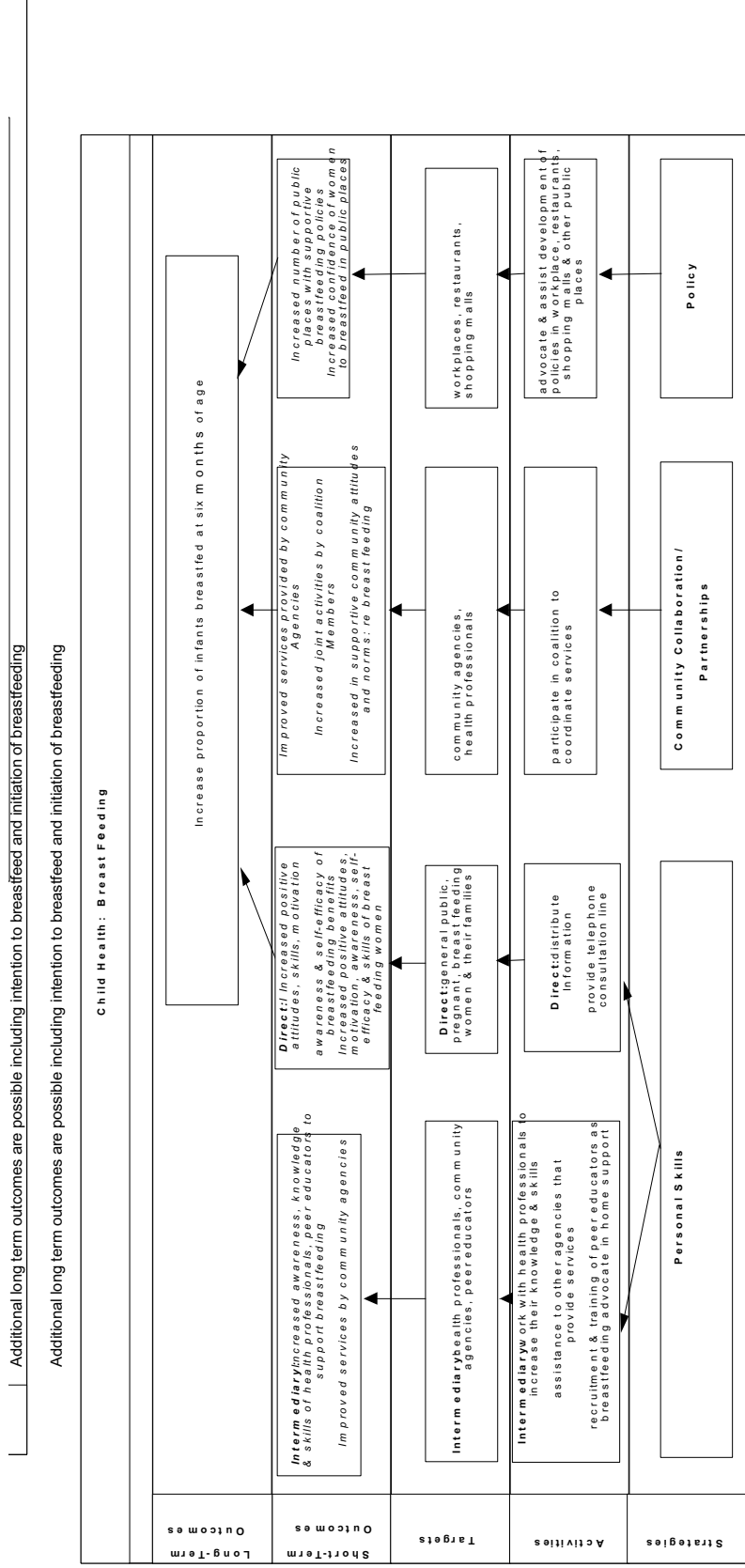
### **Policy**

The board of health is mandated to promote supportive policies in workplaces, shopping malls, restaurants and other public places. The short-term outcome is that the supportive policies advocated by the board of health are put into place and implemented.

**Step 6.** The long-term outcome as specified in MHPSG is the breast-feeding rate at six months of age.

**Step 7.** See Figure 5.

Figure 5: Sample Model for Breastfeeding Cluster, Child Health Program Standard



A similar process was applied to all the program standards (see Appendix 2).

### ***Implications of the Application of the Planning and Evaluation Model to the MHPSG***

It is possible to apply the model to the MHPSG. The requirements and standards fit consistently into the strategies. The differentiation of targets between direct and intermediary assists in attribution of outcomes. It is possible to generate meaningful short-term outcomes for each strategy following Table 3.

It should be noted that due to the lack of intermediate objectives in the MHPSG, short-term outcomes have mostly been inferred. Applying the model will require further work to achieve consensus on a set of short-term outcomes for each program. The number of short-term outcomes to be reported will need to be a minimum set which balances the requirements for accountability with the resources available for data collection and analysis, and the existence of information systems to support and standardize the information. The current report does not attempt this exercise. It will require a consultative exercise on a program-by-program basis tapping into program, systems and epidemiological expertise.

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*The number of short-term outcomes to be reported will need to be a minimum set which balances the requirements for accountability with the resources available for data collection and analysis, and the existence of information systems to support and standardize the information.*

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## **VII. CONCLUSIONS**

### ***A Planning and Evaluation Model for MHPSG***

We have proposed a planning and evaluation model which when applied to the MHPSG allows them to support outcome measurement and reporting. The proposed planning and evaluation model takes into consideration the board of health role within a larger population health system. It also allows the imputation of short-term outcomes more closely related to board of health activity. The result is a set of outcomes based on the MHPSG with determination of the degree of attribution possible to boards of health. Application of this planning and evaluation model should enable the Branch to manage the transition to outcome-based reporting while maintaining the existing MHPSG.

### ***Responsibility for the Achievement for Mandatory Program Goals***

Responsibility for the achievement for mandatory program goals does not lie exclusively with boards of health. It requires both provincial and local level activity and, at each level, committed involvement of actors beyond the public health sector. Boards of health are a key contributor to the local population health system and should identify and account for the outcomes they achieve. Holding boards of health accountable for outcomes needs to be done in conjunction with a provincial population health system perspective, and broad responsibility for the improvement of the province's health through disease prevention and health promotion.

### ***Process to Decide on Outcomes to be Reported***

The draft planning and evaluation models for each Mandatory Program in Appendix 2 clearly show that the existing requirements and standards generate a large and diverse set of short-term outcomes. Requiring boards of health to measure and report all these outcomes would create an impractical burden.

The number of short-term outcomes to be reported would need to be a minimum set which balances the requirements for accountability with the resources available for data collection and analysis, and the existence of information systems to support and standardize the information. This would require a consultative exercise on a program by program basis tapping into program, systems and epidemiological expertise.

### ***A Provincial System of Data Collection***

Measurement of many short-term outcomes at the local level would require regular and timely population surveys, more standardized program outcome information from boards of health, and data collection from the rest of the population health system. In our opinion, implementing such a system would be efficiently done via provincial leadership and coordination. Independent data collection by each board of health would not only be extremely inefficient but would inevitably generate data of variable quality and dubious comparability.

### ***Need to recognize diversity and variable capacity across the Province***

Public health is a complex business, and priorities and methods of working are highly dependent upon the community context. Measurement of outcomes and setting of targets must recognize the diversity of both public health problems and community context across the province, as well as the highly variable capacity of health units and communities.

### ***Continue to monitor provincial objectives***

The *Mandatory Health Programs and Services Guidelines* goals and objectives continue to be an important measure of our progress towards health as a province. There is a need for ongoing monitoring of this progress through regular health status reports.

### ***Continue to Refine Indicator Questionnaire***

This analysis has highlighted the lack of standardized activity reporting in the province. The *Mandatory Programs Indicator Questionnaire* is still a crude tool whose results are often difficult to interpret. Further refinement of the Questionnaire would be cost-beneficial for the Branch, and would provide valuable information. This would assist the Branch in monitoring board of health compliance with MHPSG as the sector moves towards outcome measurement and reporting over the next several years.

### ***Assess the General Standards***

This report has addressed the 14 Program Standards but not the three General Standards. We elected not to address the General Standards, as they apply to the way all the other programs are delivered. The General Standards should be analyzed in a similar fashion.

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# APPENDICES

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## **APPENDIX 1: CORE POPULATION HEALTH INDICATORS**

### **Mandatory Health Programs and Services Guidelines: Objectives and Indicators**

#### **Core Population Health Indicators of Ontario**

Appendix 10, Reprinted courtesy of the Association of Public Health Epidemiologists of Ontario

Information about data sources and data distributors was excerpted from the relevant sections of the "Core Population Health Indicators for Ontario". Produced by Population Health Indicators Working Group. <http://www.cehip.org/apheo/> June 2000. Prepared by: Vijay Patel, June 5, 2000

<b>CHRONIC DISEASES AND INJURIES: Chronic Disease Prevention</b>			
<b>Objectives</b>	<b>Indicators</b>	<b>Data Sources</b>	<b>Data Distributor</b>
<p>1. To reduce the mortality from ischemic heart diseases by 25 per cent by the year 2010.</p> <p>2. To reduce the mortality from stroke by 10 per cent by the year 2010.</p> <p>3. To slow the rise in incidence of lung cancer.</p> <p>4. To slow the rise in mortality from chronic obstructive lung disease.</p> <p>5. To reduce the morbidity from diabetes and hypertension.</p> <p>6. To reduce the incidence of oral cancer by 10 per cent by the year 2010.</p> <p>7. To reduce the morbidity of osteoporosis.</p> <p>8. To slow the rise in incidence of skin cancers.</p>	<p>1. Mortality from Selected Chronic Diseases (6A-1)</p> <p>2. Mortality from Selected Chronic Diseases (6A-1)</p> <p>3. Incidence of Selected Cancers (6B-1)</p> <p>4. Mortality from Selected Chronic Diseases (6A-1)</p> <p>5. Hospitalization for Selected Chronic Diseases (6A-3); Prevalence of Selected Health Problems (6A-4)</p> <p>6. Incidence of Selected Cancers (6B-1)</p> <p>7. No source of data</p> <p>8. Incidence of Selected Cancers (6B-1); Ultraviolet (UV) Radiation Index (3B-2)</p>	<p><b>6A-1</b> Numerator: Vital Statistics; Ontario Registrar General Denominator: Statistics Canada, Population Estimates</p> <p><b>6B-1</b> Numerator: Ontario Cancer Incidence Data, Ontario Cancer Registry, Cancer Care Ontario Denominator: Statistics Canada, Population Estimates</p> <p><b>6A-3</b> Numerator: Vital Statistics; Ontario Registrar General Denominator: Statistics Canada, Population Estimates</p> <p><b>6A-4</b> Numerator: Vital Statistics; Ontario Registrar General Denominator: Statistics Canada, Population Estimates</p> <p><b>3B-2</b> Environment Canada</p>	<p><b>6A-1</b> Numerator: Health Planning System (HELPS), Ontario Ministry of Health; Provincial Health Planning Database (PHPD, i.e., Data Warehouse), Ontario Ministry of Health Denominator: Health Planning Branch, Ontario Ministry of Health</p> <p><b>6B-1</b> Numerator: Health Planning Systems (HELPS), Ontario Ministry of Health Denominator: Health Planning Branch, Ontario Ministry of Health</p> <p><b>6A-3</b> Numerator: Health Planning System (HELPS), Ontario Ministry of Health; Provincial Health Planning Database (PHPD, i.e., Data Warehouse), Ontario Ministry of Health Denominator: Health Planning Branch, Ontario Ministry of Health</p> <p><b>6A-4</b> Numerator: Health Planning System (HELPS), Ontario Ministry of Health; Provincial Health Planning Database (PHPD, i.e., Data Warehouse), Ontario Ministry of Health Denominator: Health Planning Branch, Ontario Ministry of Health</p> <p><b>6A-4</b> Numerator: Health Planning System (HELPS), Ontario Ministry of Health; Provincial Health Planning Database (PHPD, i.e., Data Warehouse), Ontario Ministry of Health Denominator: Health Planning Branch, Ontario Ministry of Health</p> <p><b>3B-2</b> Local weather office</p>

Objectives	Indicators	Data Sources	Data Distributor
<p>The following behavioural and policy objectives are aimed at achieving the above-stated disease objectives:</p> <p>a. to reduce the proportion of 12-to-19 year-olds who smoke daily to 10 per cent by the year 2005;</p> <p>b. to reduce the proportion of adult women and men who smoke daily to 15 per cent by the year 2005;</p> <p>c. to increase the proportion of smoke-free public places and workplaces to 100 per cent by the year 2005;</p> <p>d. to reduce tobacco vendor non-compliance with sale of tobacco to minors legislation to 10 per cent by the year 2000;</p> <p>e. to increase the proportion of smoke-free homes by the year 2010;</p> <p>f. to reduce dietary fat intake to an average of 30 per cent of calories or less among people age 18 and older by the year 2010;</p> <p>g. to increase to 75 per cent the proportion of the population age four and older consuming five or more servings of vegetables and fruit daily by the year 2010;</p> <p>h. to increase to 75 per cent the proportion of youth ages 10-16 years consuming three or more servings of milk products daily, and to increase to 65 per cent the proportion of adults consuming two or more servings of milk products daily by the year 2010;</p>	<p>a. Current Daily Cigarette Smoking (7A-1)</p> <p>b. Current Daily Cigarette Smoking (7A-1)</p> <p>c. No source of data</p> <p>d. No source of data</p> <p>e. Population Living in Smoke-Free Homes (7A-2)</p> <p>f. Average Fat Intake as Percent of Energy (7D-2)</p> <p>g. Percentage of Population Consuming Five or More Servings of Vegetables and Fruit Daily (7D-3)</p> <p>h. Percentage of Adolescent Population Aged 12-17 Consuming 3 or more Servings of Milk Products Daily (7D-4); Percentage of Population Aged 18 and Over Consuming 2 or More Servings of Milk Products Daily (7D-5)</p>	<p><b>7A-1</b> Numerator and Denominator: 1990 OHS &amp; 1996/97 OHS 1990 OHS: Variable F5Q10 At the present time do you smoke cigarettes daily, occasionally or not at all? 1) daily, 2) occasionally, 3) not at all. 1990 OHS: Variable F5Q15 Have you ever smoked cigarettes daily? 1) yes, 2) no. 1996/97 OHS: Variable SMC6_2: At the present time do you smoke cigarettes daily, occasionally or not at all? 1) daily, 2) occasionally, 3) not at all. 1996/97 OHS: Variable SMC6_5: Have you ever smoked cigarettes daily? 1) yes, 2) no.</p> <p><b>7A-2</b> Numerator and Denominator: 1996/97 OHS Variable SMC6_1: Does anyone in this household smoke regularly inside the house? 1) Yes 2) No</p>	<p><b>7A-1</b> Health Planning Branch, Ontario Ministry of Health</p> <p><b>7A-2</b> Health Planning Branch, Ontario Ministry of Health</p> <p><b>7D-2</b> Health Planning Branch, Ontario Ministry of Health</p> <p><b>7D-3</b> Health Planning Branch, Ontario Ministry of Health</p> <p><b>7D-4</b> Health Planning Branch, Ontario Ministry of Health</p> <p><b>7D-5</b> Health Planning Branch, Ontario Ministry of Health</p> <p><b>7D-6</b> Health Planning Branch, Ontario Ministry of Health</p>

<p>i. to increase to 50 per cent the proportion of the population age four and older consuming five or more servings of grain products daily by the year 2010;</p> <p>j. to slow the decrease in the proportion of adults ages 20-64 with healthy weight status (Body Mass Index 20-27) by the year 2010;</p> <p>k. to increase to 40 per cent the proportion of all adults who include at least 30 minutes of accumulated, moderate physical activity on most if not all days of the week by the year 2010;</p> <p>l. to increase to 60 per cent the proportion of youth who include at least 30 minutes of accumulated, moderate physical activity on most if not all days of the week by the year 2010;</p> <p>m. to increase the proportion of children who are active; and</p> <p>n. to increase the proportion of the population of all ages who limit sun exposure, use protective clothing and sunscreens when exposed to sunlight, and avoid artificial sources of ultraviolet light (i.e., sun lamps, tanning booths).</p>	<p>i. Percentage of Population Aged 12 and Over Consuming 5 or More Servings of Grain Products Daily (7D-6)</p> <p>j. Body Mass Index (7D-1)</p> <p>k. Energy Expenditure (7C-2)</p> <p>l. Energy Expenditure (7C-2)</p> <p>m. No source of data, needs to be operationalized</p> <p>n. Ultra (UV) Radiation Index (3B-2)</p>	<p><b>7D-2</b> Numerator and Denominator: 1990 OHS Derived variable FAT_ENE1</p> <p>FAT_ENE1 was derived in the 1990 OHS from the food frequency questionnaire, which asked respondents to identify from a large list of foods whether they had this food or beverage at least once a month, how many times per day, week or month they had the food, and about how much they had each time.</p> <p><b>7D-3</b> Numerator and Denominator: 1990 OHS Derived variable NO_SERV5; NO_SERV5 was derived in the 1990 OHS from the food frequency questionnaire which asked respondents to identify from a large list of foods whether they had this food or beverage at least once a month, how many times per day, week or month they had the food, and about how much they had each time.</p> <p><b>7D-4</b> Numerator and Denominator: 1990 OHS Derived variable O_SERV7; NO_SERV7 was derived in the 1990 OHS from the food frequency questionnaire, which asked respondents to identify from a large list of foods whether they had this food or beverage at least once a month, how many times per day, week or month they had the food, and about how much they had each time.</p>	<p><b>7D-1</b> Health Planning Branch, Ontario Ministry of Health</p> <p><b>7C-2</b> Health Planning Branch, Ontario Ministry of Health</p> <p><b>3B-2</b> Local weather office</p>
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		<p><b>7D-5</b>  Numerator and Denominator: 1990 OHS Derived variable O_SERV7:  NO_SERV7 was derived in the 1990 OHS from the food frequency questionnaire which asked respondents to identify from a large list of foods whether they had this food or beverage at least once a month, how many times per day, week or month they had the food, and about how much they had each time.</p> <p><b>7D-6</b>  Numerator and Denominator: 1990 OHS Derived variable NO_SERV2:  NO_SERV2 was derived in the 1990 OHS from the food frequency questionnaire which asked respondents to identify from a large list of foods whether they had this food or beverage at least once a month, how many times per day, week or month they had the food, and about how much they had each time.</p>	
		<p><b>7D-1</b></p>	

		<p>Numerator and Denominator: 1990 OHS &amp; 1996/97 OHS</p> <p>1990 OHS: Derived variable BMICAT; 1996/97 OHS: Must re-categorize BMI using HWC6DBMI. Do not use the derived variable HWC6DW because of inconsistencies in coding a BMI of 25.</p> <p>SPSS Syntax to re-derive BMI categories in the 1996/97 OHS:</p> <pre>IF (hwc6dbmi &lt; 20.0) bmicat = 1 . EXECUTE . IF (hwc6dbmi &gt;= 20.0 &amp; hwc6dbmi &lt;= 25.0) bmicat = 2 . EXECUTE . IF (hwc6dbmi &gt;= 25.1 &amp; hwc6dbmi &lt;= 27.0) bmicat = 3 . EXECUTE . IF (hwc6dbmi &gt; 27.0) bmicat = 4 . EXECUTE . IF (hwc6dsw = 6) bmicat = 6 . EXECUTE . IF (hwc6dsw = 9) bmicat = 9 .</pre> <p><b>7C-2</b></p> <p>Numerator and Denominator: 1996/97 OHS</p> <p>Derived variable: PAC6DPAL</p> <p>Estimates the number of kcal/kg/day of energy expenditure:</p> <ol style="list-style-type: none"> <li>1) Active - those who averaged 3.0+ kcal/kg/day of energy expenditure. This is approximately the amount of exercise that is required for cardiovascular health benefit.</li> <li>2) Moderate - those who averaged 1.5-2.9 kcal/kg/day. They might experience some health benefits by little cardiovascular benefit.</li> <li>3) Inactive - those with an energy expenditure below 1.5 kcal/kg/day.</li> </ol> <p><b>3B-2</b></p> <p>Environment Canada</p>	
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Early Detection of Cancer			
Objectives	Indicators	Data Sources	Data Distributor
<p>1. To reduce female breast cancer mortality by 10 per cent by the year 2010.</p> <p>2. To increase to 70 per cent the proportion of women ages 50-69 who receive screening mammography through the Ontario Breast Screening Program (OBSP) by the year 2010.</p> <p>3. To reduce the mortality from cervical cancer by 50 per cent by the year 2005.</p> <p>4. To increase the proportion of women screened according to the guidelines of the Ontario Cervical Screening Collaborative Group to 85 per cent and to increase the proportion of ever-screened to 95 per cent by the year 2010.</p>	<p>1. Incidence of Selected Cancers (6B-1)</p> <p>2. OBSP Mammography Rates (6B-5)</p> <p>3. Incidence of Selected Cancers (6B-1)</p> <p>4. Cervical Cancer Screening Rates (6B-8)</p>	<p><b>6B-1</b> Numerator: Ontario Cancer Incidence Data, Ontario Cancer Registry, Cancer Care Ontario Denominator: Statistics Canada, Population Estimates</p> <p><b>6B-5</b> Numerator: Ontario Breast Screening Program, Cancer Care Ontario Denominator: Statistics Canada, Population Estimates</p> <p><b>6B-8</b> Numerator and denominator: 1990 OHS &amp; 1996/97 OHS <b>Ever Screened:</b> 1990 OHS: Variable F5079 When did you last have a PAP smear test? 1) Less than 12 months ago, 2) 1 or 2 years ago, 3) More than 2 years ago, 4) Never, 5) Don't know 1996/97 OHS: Variable WHC6_20 Have you ever had a pap smear test? 1) Yes, 2) No <b>Screened in Past 3 Years:</b> 1996/97 OHS: Variable WHC6_22 When was the last time? 1) Less than 6 months ago, 2) 6 months to less than 1 year ago, 3) 1 year to less than 3 years ago, 4) 3 years to less than 5 years ago, 5) 5 or more years ago</p>	<p><b>6B-1</b> Numerator: Health Planning Systems (HELPS), Ontario Ministry of Health Denominator: Health Planning Branch, Ontario Ministry of Health</p> <p><b>6B-5</b> Numerator: Health Planning System (HELPS), Ontario Ministry of Health Denominator: Health Planning Branch, Ontario Ministry of Health</p> <p><b>6B-8</b> Health Planning Branch, Ontario Ministry of Health</p>

Injury Prevention Including Substance Abuse Prevention			
Objectives	Indicators	Data Sources	Data Distributor
<p>1. To reduce the rate of injuries caused by cycling crashes and motorized vehicle crashes including, boats, snowmobiles and all terrain vehicles that lead to hospitalization or death by 20 per cent by the year 2010.</p> <p>2. To reduce the rate of alcohol and other substance-related injuries or deaths by 20 per cent by the year 2010.</p> <p>3. To reduce the percentage of the adult population who drink more than two drinks per day by 20 per cent by the year 2010.</p> <p>4. To reduce the rate of illicit substance use and the non-medical use of drugs and of other psychoactive substances by 20 per cent by the year 2010.</p> <p>5. To reduce the rate of fall-related injuries in the elderly (aged 65+ years) that lead to hospitalization or death by 20 per cent by the year 2010.</p> <p>6. To eliminate drowning in waters used for specified recreational purposes.</p>	<p>1. Death from Selected Causes of Injury (6C-1); Hospitalization for Selected Causes of Injury (6C-2); Alcohol-Related Injuries and Deaths from Motor Vehicle Traffic Collisions (6C-3)</p> <p>2. Alcohol-Related Injuries and Deaths from Motor Vehicle Traffic Collisions (6C-3)</p> <p>3. Proportion Consuming 15 or More Alcoholic Drinks per Week (7B-1)</p> <p>4. No source of data</p> <p>5. Fall-Related Deaths among Seniors (8D-5); Fall-Related Hospitalizations among Seniors (8D-6);</p> <p>6. Death from Selected Causes of Injury (6C-1); Hospitalization for Selected Causes of Injury (6C-2)</p>	<p><b>6C-1</b> Numerator: Vital Statistics, Ontario Registrar General's Office Denominator: Statistics Canada, Population Estimates</p> <p><b>6C-2</b> Numerator: Canadian Institute for Health Information (CIHI) Denominator: Statistics Canada, Population Estimates</p> <p><b>6C-3</b> Numerator: Motor Vehicle Collision Database, Ontario Ministry of Transportation Denominator: Statistics Canada, Population Estimates</p> <p><b>7B-1</b> Numerator and Denominator: 1990 OHS &amp; 1996/97 OHS 1990 OHS: Derived variable WEEKDR 1996/97 OHS: Derived variable ALC6DWKY</p>	<p><b>6C-1</b> Numerator: Health Planning System (HELPS), Ontario Ministry of Health Denominator: Health Planning Branch, Ontario Ministry of Health</p> <p><b>6C-2</b> Numerator: Provincial Health Planning Database (Data Warehouse), Ontario Ministry of Health Denominator: Health Planning Branch, Ontario Ministry of Health</p> <p><b>6C-3</b> Numerator: Central East Health Information Partnership (CEHIP) Central West Health Planning Information Network (CWHPIN) Health Information Partnership Eastern Ontario Region (HIP) Southwest Region Health Information Partnership (SRHIP) Northern Health Information Partnership (NHIP) Denominator: Health Planning Branch, Ontario Ministry of Health</p>

		<p><b>8D-5</b> Numerator: Vital Statistics, Ontario Registrar General Denominator: Statistics Canada, Population Estimates</p> <p><b>8D-6</b> Numerator: Canadian Institute for Health Information (CIHI) Denominator: Statistics Canada, Population Estimates</p> <p><b>6C-1</b> Numerator: Vital Statistics, Ontario Registrar General's Office Denominator: Statistics Canada, Population Estimates</p> <p><b>6C-2</b> Numerator: Canadian Institute for Health Information (CIHI) Denominator: Statistics Canada, Population Estimates</p>	<p><b>7B-1</b> Health Planning Branch, Ontario Ministry of Health</p> <p><b>8D-5</b> Numerator: Health Planning System (HELPS), Ontario Ministry of Health Denominator: Health Planning Branch, Ontario Ministry of Health</p> <p><b>8D-6</b> Numerator: Provincial Health Planning Database (PHPDB), Ontario Ministry of Health Denominator: Health Planning Branch, Ontario Ministry of Health</p> <p><b>6C-1</b> Numerator: Health Planning System (HELPS), Ontario Ministry of Health Denominator: Health Planning Branch, Ontario Ministry of Health</p> <p><b>6C-2</b> Numerator: Provincial Health Planning Database (Data Warehouse), Ontario Ministry of Health Denominator: Health Planning Branch, Ontario Ministry of Health</p>
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<b>FAMILY HEALTH Sexual Health</b>			
<b>Objectives</b>	<b>Indicators</b>	<b>Data Sources</b>	<b>Data Distributor</b>
<p>1. To decrease the rate of pregnancy in women 15-19 years of age to 40 per 1,000 population by the year 2005.</p> <p>2. To increase access to contraception for individuals in need to decrease unplanned pregnancy.</p> <p>3. To increase the awareness and knowledge about personal responsibility and life skills required to deal with sexual relationships and behaviours including the impact of alcohol and other drugs.</p>	<p>1. Age-Specific Pregnancy Rates Including Teenage Pregnancy Rates (8B-6)</p> <p>2. No source of data</p> <p>3. No source of data, needs to be operationalized</p>	<p><b>8B-6</b> Numerator: Ontario Vital Statistics, Registrar General, 1992+ Therapeutic Abortion Data, Ontario Ministry of Health, 1992+ Denominator: Statistics Canada, Population Estimates, 1992+</p>	<p><b>8B-6</b> Numerator: Health Planning System (HELPS), Ontario Ministry of Health or Provincial Health Planning Database (PHPDB), Ontario Ministry of Health Denominator: Health Planning Branch, Ontario Ministry of Health</p>
<b>Reproductive Health</b>			
<p>1. To reduce the low birth weight rate (under 2500g) to 4 per cent by the year 2010.</p> <p>2. To decrease the prevalence of neural tube defects by 25 per cent by the year 2010.</p>	<p>Low Birth Weight Rate (8B-8)</p> <p>2. Rate of Neural Tube Defects (8B-9)</p>	<p><b>8B-8</b> Ontario Vital Statistics, Registrar General</p> <p><b>8B-9</b> Numerator &amp; Denominator: Canadian Institute for Health Information</p>	<p><b>8B-8</b> Health Planning System (HELPS), Ontario Ministry of Health</p> <p><b>8B-9</b> Numerator &amp; Denominator: Canadian Congenital Anomalies Surveillance System (CCASS), Laboratory Centre for Disease Control, Health Canada</p>

Child Health			
Objectives	Indicators	Data Sources	Data Distributor
<p>1. To increase the percentage of children and youth who meet physical, cognitive, communicative and psychosocial developmental milestones.</p> <p>2. To increase to 50 per cent the percentage of infants breast-fed up to six months by the year 2010.</p> <p>3. To reduce the prevalence of dental diseases in children and youth.</p> <p>4. To increase access to and the use of needs-based services and supports for children who are at risk of poor physical, cognitive, communicative, and psychosocial development, and their families.</p> <p>5. To increase effective parenting ability in high-risk families.</p>	<p>1. No source of data, needs to be operationalized</p> <p>2. No source of data</p> <p>3. DMF /def Index (for children only) (8C-4)</p> <p>4. No source of data, needs to be operationalized</p> <p>5. No source of data, needs to be operationalized</p>	<p><b>8C-4</b>  Numerator: Vital Statistics; Ontario Registrar General  Denominator: Statistics Canada, Population Estimates</p>	<p><b>8C-4</b>  Numerator: Health Planning System (HELPS), Ontario Ministry of Health; Provincial Health Planning Database (PHPD, i.e., Data Warehouse), Ontario Ministry of Health  Denominator: Health Planning Branch, Ontario Ministry of Health</p>

<b>INFECTIOUS DISEASES</b>				
<b>Control of Infectious Diseases</b>				
<b>Objectives</b>	<b>Indicators</b>	<b>Data Sources</b>	<b>Data Distributor</b>	
To reduce morbidity and mortality associated with infectious diseases.	Mortality from Selected Infectious Diseases (10-1); Hospitalization for Selected Enteric Diseases (10-13)	<b>10-1</b> Numerator: Vital Statistics; Ontario Registrar General Denominator: Statistics Canada  <b>10-13</b> Numerator: Canadian Institute for Health Information (CIHI) Denominator: Statistics Canada, Population Estimates	<b>10-1</b> Numerator: Health Planning System (HELPS), Ontario Ministry of Health Denominator: Health Planning Branch, Ontario Ministry of Health  <b>10-13</b> Numerator: Provincial Health Planning Database (Data Warehouse), Ontario Ministry of Health Denominator: Health Planning Branch, Ontario Ministry of Health	
<b>Food Safety</b>				
1. To ensure that food is stored, prepared, served and distributed in a manner consistent with accepted public health practices. 2. To stop the sale or distribution of food that is unfit for human consumption by reason of disease, adulteration, impurity or other cause.	1. Process objective  2. Process objective			

<b>Infection Control</b>			
<b>Objectives</b>	<b>Indicators</b>	<b>Data Sources</b>	<b>Data Distributor</b>
To reduce morbidity and mortality associated with infectious diseases in institutions, day care centres and personal service settings.	No source of data		
<b>Rabies Control</b>			
To maintain the incidence of rabies at zero in the human population.	Incidence of Animal Rabies (10-11)	<b>10-11</b> Numerator: Ontario Ministry of Natural Resources Denominator: Ontario Ministry of Natural Resources	<b>10-11</b> Public health units
<b>Safe Water</b>			
1. To ensure that community drinking water systems meet the health-related chemical, physical, microbiological and radionuclide objectives as published in the Ontario Drinking Water Objectives (revised 1994) and the Guidelines for Canadian Drinking Water Quality (sixth edition). 2. To reduce communicable disease transmission from waters used for bathing at public beaches.	1. Trihalomethanes (THMs) in Drinking Water (3B-3)  2. Posted Bathing Beaches (3B-4)	<b>3B-3</b> Ontario Ministry of the Environment  <b>3B-4</b> Public health units	<b>3B-3</b> Ontario Ministry of the Environment  <b>3B-4</b> Regional Ministry of Health Laboratories and public health units

<b>Sexually Transmitted Diseases (STDs) Including HIV/AIDS</b>			
<b>Objectives</b>	<b>Indicators</b>	<b>Data Sources</b>	<b>Data Distributor</b>
<p>1. To reduce the incidence rate of gonorrhoea to 15 per 100,000 population by the year 2005.</p> <p>2. To reduce the incidence rate of genital chlamydia to 500 per 100,000 women ages 15-24 years by the year 2005.</p> <p>3. To maintain the incidence rate of primary and secondary syphilis at less than one per 100,000 population by the year 2005.</p> <p>4. To maintain the incidence of congenitally acquired syphilis at zero.</p> <p>5. To reduce the number of newly diagnosed human immunodeficiency virus (HIV) infections to less than 800 per year by the year 2005.</p> <p>6. To reduce the incidence of perinatal HIV infection.</p>	<p>1. Incidence of Selected Sexually Transmitted Diseases (10-8)</p> <p>2. Incidence of Selected Sexually Transmitted Diseases (10-8)</p> <p>3. Incidence of Selected Sexually Transmitted Diseases (10-8)</p> <p>4. Incidence of Selected Sexually Transmitted Diseases (10-8)</p> <p>5. Incidence of Selected Sexually Transmitted Diseases (10-8)</p> <p>6. Incidence of Selected Sexually Transmitted Diseases (10-8)</p>	<p><b>10-8</b>  Numerator: RDIS; Ontario Ministry of Health  Denominator: Statistics Canada</p>	<p><b>10-8</b>  Numerator: Public Health Units  Denominator: Health Planning Branch, Ontario Ministry of Health</p>

Tuberculosis (TB) Control			
Objectives	Indicators	Data Sources	Data Distributor
<p>1. To reduce the annual incidence rate of active and reactivated TB to 3.5 per 100,000 population by the year 2005.</p> <p>2. To reduce the progression of latent TB infection to active TB.</p> <p>3. To reduce secondary drug-resistance by 2005.</p> <p>4. To achieve the following completion rates by the year 2005:</p> <ul style="list-style-type: none"> <li>a. 95 per cent of active TB cases will complete treatment as prescribed;</li> <li>b. 90 per cent of individuals on chemoprophylaxis will complete therapy; and</li> <li>c. 90 per cent of contacts of active cases of TB will be assessed.</li> </ul>	<p>1. Incidence of Tuberculosis and Drug-Resistant Tuberculosis (10-10)</p> <p>2. Incidence of Tuberculosis and Drug-Resistant Tuberculosis (10-10)</p> <p>3. Incidence of Tuberculosis and Drug-Resistant Tuberculosis (10-9)</p> <p>4. Process objectives</p>	<p><b>10-10</b> Numerator: RD/S; Ontario Ministry of Health Denominator: Statistics Canada</p> <p><b>10-9</b> Numerator: Canadian Institute for Health Information (CIHI) Denominator: Statistics Canada, Population Estimates</p>	<p><b>10-10</b> Public health units</p> <p><b>10-9</b> Numerator: Provincial Health Planning Database (Data Warehouse), Ontario Ministry of Health Denominator: Health Planning Branch, Ontario Ministry of Health</p>

<b>Vaccine Preventable Diseases</b>			
<b>Objectives</b>	<b>Indicators</b>	<b>Data Sources</b>	<b>Data Distributor</b>
<p>1. To eliminate indigenous measles by the year 2000.</p> <p>2. To maintain at zero the incidence of tetanus and diphtheria and indigenous polio.</p> <p>3. To reduce to zero the incidence of invasive Haemophilus influenzae type b (Hib) among children under five years of age.</p> <p>4. To reduce to zero the incidence of indigenous congenital rubella.</p> <p>5. To reduce the annual incidence rate of mumps to 1.0 per 100,000 and pertussis to 2.5 per 100,000 population by 2005.</p> <p>6. To reduce the annual incidence rate of acute hepatitis B to 1.5 per 100,000 population by the year 2000.</p> <p>7. To reduce the age-adjusted mortality rate for pneumonia and influenza (using a five-year moving average).</p>	<p>1. Incidence of Selected Vaccine-Preventable Diseases (10-2)</p> <p>2. Incidence of Selected Vaccine-Preventable Diseases (10-2)</p> <p>3. Incidence of Selected Vaccine-Preventable Diseases (10-2)</p> <p>4. Incidence of Selected Vaccine-Preventable Diseases (10-2)</p> <p>5. Incidence of Selected Vaccine-Preventable Diseases (10-2)</p> <p>6. Incidence of Selected Vaccine-Preventable Diseases (10-2)</p> <p>7. Mortality from Infectious Diseases (10-1)</p>	<p><b>10-2</b> Numerator: Reportable Disease Information System, Ontario Ministry of Health Denominator: Statistics Canada, Population Estimates</p> <p><b>10-1</b> Numerator: Vital Statistics; Ontario Registrar General Denominator: Statistics Canada</p>	<p><b>10-2</b> Numerator: Public health units or Public Health Branch, Ontario Ministry of Health Denominator: Health Planning Branch, Ontario Ministry of Health</p> <p><b>10-1</b> Numerator: Health Planning System (HELPS), Ontario Ministry of Health Denominator: Health Planning Branch, Ontario Ministry of Health</p>

<p>8. To achieve the following vaccine coverage targets by the year 2000:</p> <p>a. 95 per cent coverage for up-to-date vaccination against diphtheria, pertussis, polio, tetanus, Haemophilus influenzae type b (Hib), measles, mumps and rubella by the second birthday;</p> <p>b. 95 per cent coverage for up-to-date vaccination against diphtheria, pertussis, polio, tetanus, and measles, mumps, rubella and second dose measles by the seventh birthday;</p> <p>c. 95 per cent coverage for hepatitis B vaccination by the end of grade 7;</p> <p>d. 100 per cent coverage for hepatitis B vaccination of infants born to mothers who are hepatitis B carriers;</p> <p>e. 95 per cent coverage for pneumococcal and annual influenza vaccination of residents of long term care facilities;</p> <p>f. 70 per cent coverage for pneumococcal and annual influenza vaccination for persons age 65 years and older and persons with high-risk conditions; and</p> <p>g. 70 per cent coverage for annual influenza vaccination of health care workers in contact with high-risk individuals.</p> <p>9. To minimize wastage of provincially-funded vaccines to five per cent or less.</p> <p>10. To monitor adverse events associated with provincially funded vaccines.</p>	<p>8a. Vaccination Coverage for Selected Diseases (10-3)</p> <p>8b. Vaccination Coverage for Selected Diseases (10-3)</p> <p>8c. Vaccination Coverage for Selected Diseases (10-3)</p> <p>8d. Vaccination Coverage for Selected Diseases (10-3)</p> <p>8e. Influenza and Pneumococcal Vaccination Rates Among Long-Term Care Facility Residents (10-4)</p> <p>8f. Influenza and Pneumococcal Vaccination Rates Among Long-Term Care Facility Residents (10-4)</p> <p>8g. Influenza Vaccination Among Long-Term Care Facility Workers (10-5)</p> <p>9. No source of data</p> <p>10. Adverse Vaccine Reactions (10-7)</p>	<p><b>10-3</b> Numerator: IRIS, Ontario Ministry of Health Denominator: IRIS, Ontario Ministry of Health</p> <p><b>10-4</b> Numerator: IRIS, Public health unit manual collection Denominator: IRIS, Public health unit manual collection</p> <p><b>10-5</b> Numerator: IRIS, Public health unit manual collection Denominator: IRIS, Public health unit manual collection</p> <p><b>10-7</b> Numerator: Reportable Disease Information System, Ontario Ministry of Health Denominator: IRIS, Public health unit manual collection</p>	<p><b>10-3</b> Public health units</p> <p><b>10-4</b> Public health units</p> <p><b>10-5</b> Public health units</p> <p><b>10-7</b> Numerator &amp; Denominator: Public health units</p>
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## **APPENDIX 2: LINKAGE DIAGRAMS FOR MANDATORY PROGRAMS**

### ***Linkage Diagram – Chronic Disease Prevention***

#### ***Goal:***

To reduce the premature mortality and morbidity from preventable chronic diseases.

#### ***Disease Objectives:***

1. To reduce the mortality from ischemic heart diseases by 25 per cent by the year 2010.
2. To reduce the mortality from stroke by 10 per cent by the year 2010.
3. To slow the rise in incidence of lung cancer.
4. To slow the rise in mortality from chronic obstructive lung disease
5. To reduce the morbidity from diabetes and hypertension.
6. To reduce the incidence of oral cancer by 10 per cent by the year 2010.
7. To reduce the morbidity of osteoporosis.
8. To slow the rise in incidence of skin cancers.
9. The following behavioural and policy objectives are aimed at achieving the above-stated disease objectives:
  - a) to reduce the proportion of 12-to-19 year-olds who smoke daily to 10 per cent by the year 2005;
  - b) to reduce the proportion of adult women and men who smoke daily to 15 per cent by the year 2005;
  - c) to increase the proportion of smoke-free public places and workplaces to 100 per cent by the year 2005;
  - d) to reduce tobacco vendor non-compliance with sale of tobacco to minors legislation to 10 per cent by the year 2000;
  - e) to increase the proportion of smoke-free homes by the year 2010;
  - f) \*to reduce dietary fat intake to an average of 30 per cent of calories or less among people age 18 and older by the year 2010;

- g)** \*to increase to 75 per cent the proportion of the population age four and older consuming five or more servings of vegetables and fruit daily by the year 2010;
- h)** \*to increase to 75 per cent the proportion of youth ages 10-16 years consuming three or more servings of milk products daily, and to increase to 65 per cent the proportion of adults consuming two or more servings of milk products daily by the year 2010;
- i)** \*to increase to 50 per cent the proportion of the population age four and older consuming five or more servings of grain products daily by the year 2010;
- j)** to slow the decrease in the proportion of adults ages 20-64 with healthy weight status (Body Mass Index 20-27) by the year 2010;
- k)** to increase to 40 per cent the proportion of all adults who include at least 30 minutes of accumulated, moderate physical activity on most if not all days of the week by the year 2010;
- l)** to increase to 60 per cent the proportion of youth who include at least 30 minutes of accumulated, moderate physical activity on most if not all days of the week by the year 2010;
- m)** to increase the proportion of children who are active; and
- n)** to increase the proportion of the population of all ages who limit sun exposure, use protective clothing and sunscreens when exposed to sunlight, and avoid artificial sources of ultraviolet light (i.e., sun lamps, tanning booths).

\* These sub-objectives should be achieved within the context of a total diet as defined by Nutrition Recommendations for Canadians and Canada's Food Guide to Healthy Eating.

### ***Background to the Chronic Disease Prevention Program and the Linkage Diagram Structure***

The method by which the linkage diagrams have been created is well described in the body of the document. However, the complexity of this Program Standard requires special attention. In the shift from the previous version of the mandatory programs (1989) to the current version, it was decided to combine individual risk factor programs (tobacco, physical activity and nutrition) to create a multi-factorial, multi-channel strategy with multiple target populations. A number of provincial and internationally based reports have recommended that such strategies are the best way to address these complex issues at the community level. viii-xi

This complexity is reflected in the Program Standard. [Yet the Ontario Health Status Report clearly demonstrates that it is precisely in this area of Chronic Disease Prevention that dramatic, and highly significant improvements in the health and well being of Ontarians have been achieved. Notable there has been a 44% reduction in the rate of ischemic heart disease over a period of fourteen years. Despite these gains, it remains our leading cause of premature death and is still highly preventable. This is an area where system accountability and planning are clearly needed but where public health objectives can still be defined.

The Program Standard clearly separates disease outcome objectives from behavioural objectives although does not indicate their linkage. The relationships are complex because behaviours cannot only contribute to more than one disease, but different combinations of risk factors also combine to form different clusters of disease outcomes. Therefore the first part of the linkage diagram focuses on the relationship between behaviours and diseases. The second part of the diagram shows the relationships between the requirements and the behaviours.

Objective	Type	Level	Measurable/Available/Comments
1	Final	Population	Measurable and available. Behavioural changes contribute in addition to other improvements (i.e. treatment)
2	Final	Population	Measurable and available. Behavioural changes contribute in addition to other improvements (i.e. treatment)
3	Final	Population	Measurable and available. Tobacco use a major component of disease
4	Final	Population	Measurable and available. Tobacco use a major component of disease
5	Final	Population	Measurable, data somewhat available. Hospital morbidity and mortality data underestimate these diseases. Depend primarily on population survey data*.
6	Final	Population	Measurable and available. Tobacco use a major component of disease
7	Final	Population	No population measurement. Data not available.
8	Final	Population	Partially measurable and available. Only melanoma available. Non-melanoma skin cancers are more numerous, more linked to sun exposure, but no data available.
a	Intermediate	Population	Measurable and available. Population survey dependent*.
b	Intermediate	Population	Measurable and available. Population survey dependent*.
c	Intermediate	Population	No data routinely available.
d	Intermediate	Board of Health	Measurable and available. Derived from enforcement of the Tobacco Control Act
e	Intermediate	Population	Measurable and available. Population survey dependent. 1997 OHS II but not 1990 OHS.
f	Intermediate	Population	Measurable and was available. Population survey dependent. 1990 OHS only.

g	Intermediate	Population	Measurable and was available. Population survey dependent. 1990 OHS only.
h	Intermediate	Population	Measurable and was available. Population survey dependent. 1990 OHS only.
i	Intermediate	Population	Measurable and was available. Population survey dependent. 1990 OHS only.
j	Intermediate	Population	Measurable and available. Population survey dependent*.
k	Intermediate	Population	Measurable and available. Population survey dependent. Questions differ somewhat between 1990 and 1997.
l	Intermediate	Population	Measurable and available. Population survey dependent. Questions differ somewhat between 1990 and 1997.
m	Intermediate	Population	No data routinely available
n	Intermediate	Population	No data routinely available

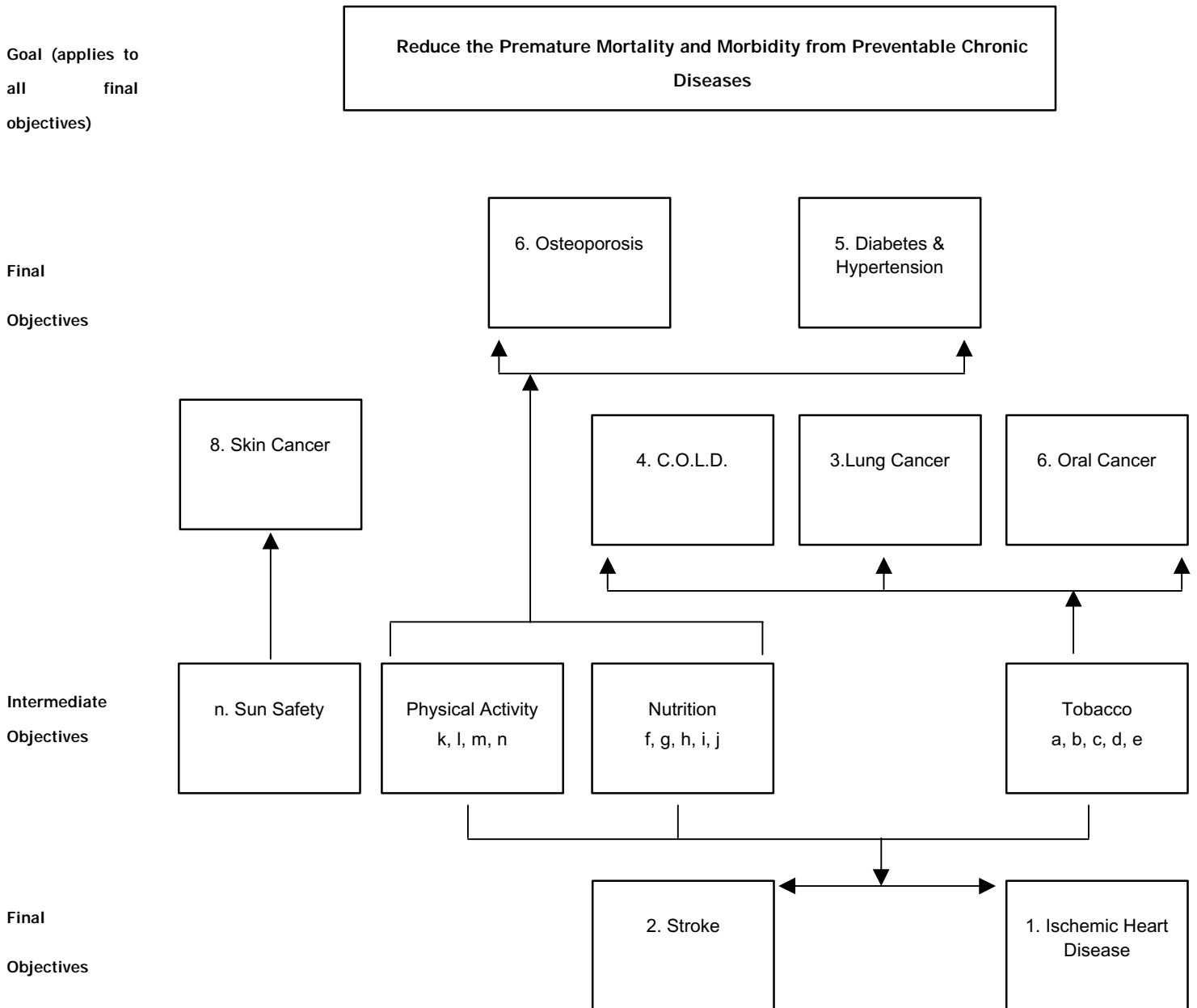
*\*1990 OHS provided data at a health unit level; 1997 OHS-II provided data at health unit level for many but not all health units.*

Dietary intake tends to be difficult to measure and time consuming to include in surveys. Some data is only available from the 1990 OHS. Not clear if data will be available in the future particularly at a local level.

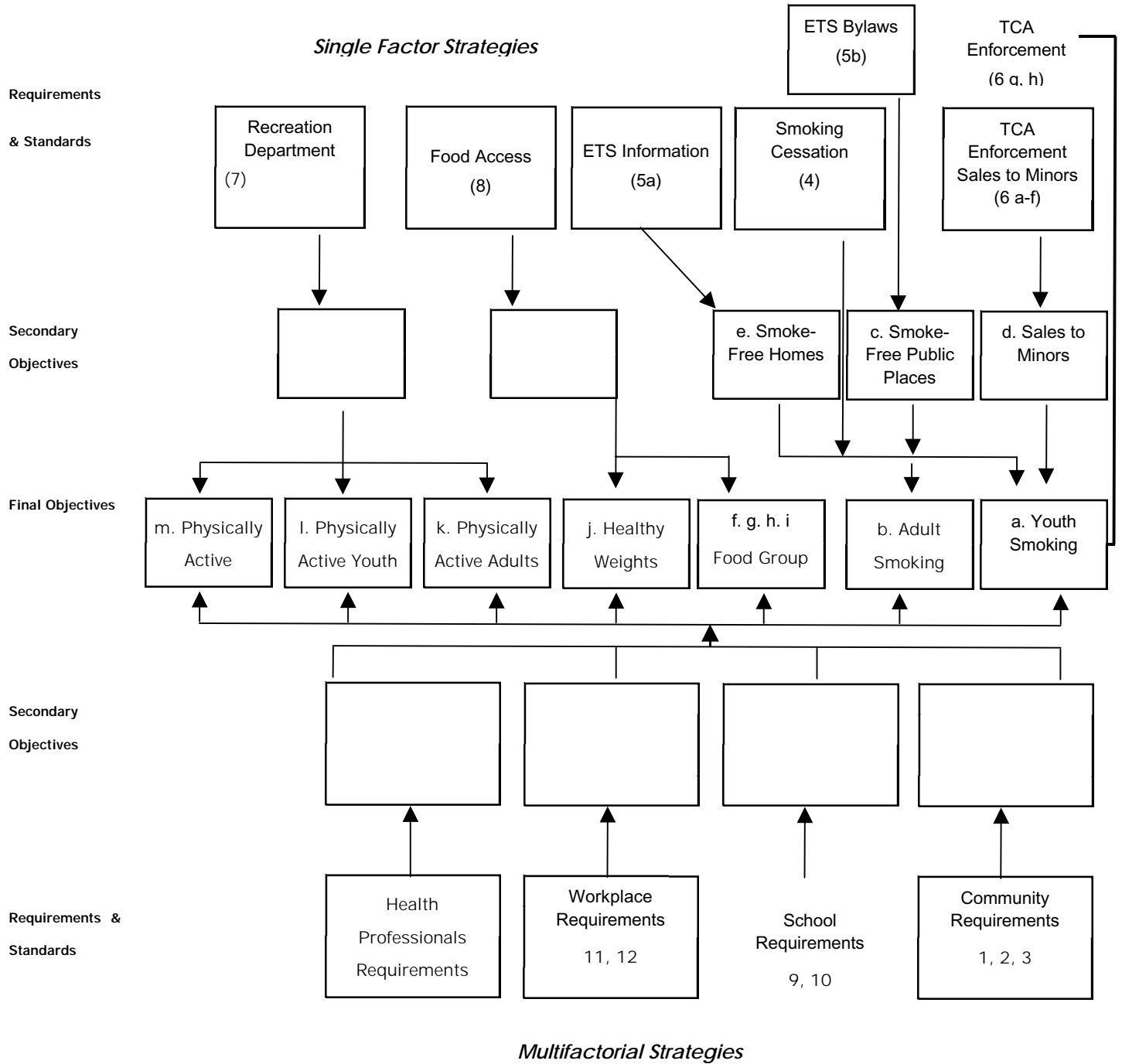
### ***Requirements and Standards***

Many of the requirements are initially grouped by intermediaries and then by strategy. In some instances, the initial grouping has been for specific behaviours and then strategies. Enforcement and education type activities tend to be the most precise; often with specified frequencies.

*Chronic Diseases Prevention  
(Relationship of Disease and Behavioural Objectives)*



*Chronic Diseases Prevention Relationship of Requirements and Standards to Behavioural Objectives)*



## ***Linkage Diagram – Early Detection of Cancer***

### ***Goal:***

To reduce mortality from breast cancer and cervical cancer by increasing early detection.

### ***Objectives:***

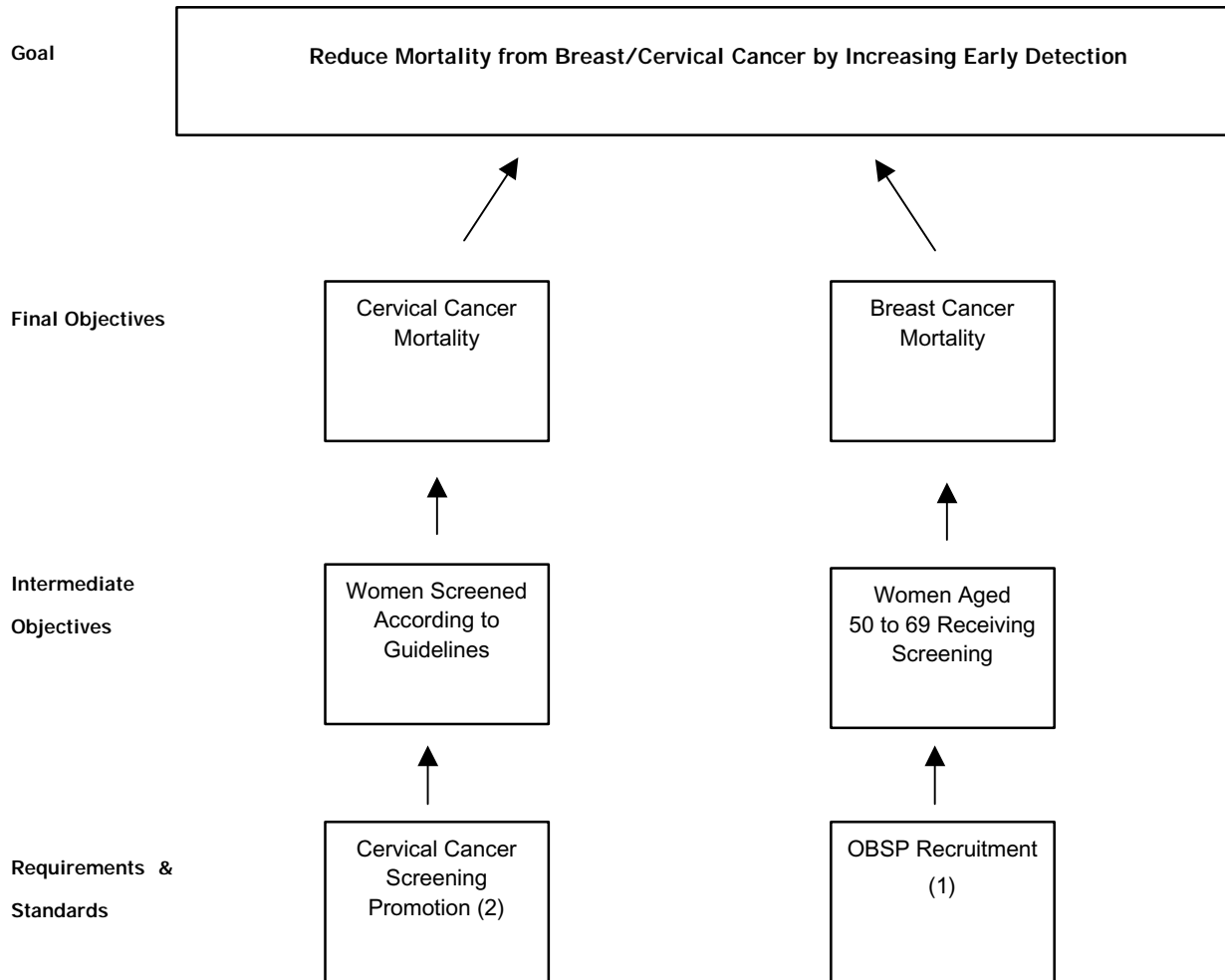
1. To reduce female breast cancer mortality by 10 per cent by the year 2010.
2. To increase to 70 per cent the proportion of women ages 50-69 who receive screening mammography through the Ontario Breast Screening Program (OBSP) by the year 2010.
3. To reduce the mortality from cervical cancer by 50 per cent by the year 2005.
  - a) To increase the proportion of women screened according to the guidelines of the Ontario Cervical Screening Collaborative Group to 85 per cent and to increase the proportion of ever-screened to 95 per cent by the year 2010.

<b>Objective</b>	<b>Type</b>	<b>Level</b>	<b>Measurable/Available/Comments</b>
1	Final	Population	Measurable and available. Screening only one contributor to achieve this objective.
2	Intermediate	Population	Measurable and available.
3	Final	Population	Measurable and available.
4	Intermediate	Population	Measurable and partially available. Data not available to meet specific content of the guidelines in first part of objective statement.

### ***Requirements and Standards***

Breast cancer screening requirements are more detailed than cervical cancer screening requirements. Requirements are organized by strategy. Education-type requirements are more specific and measurable.

*Early Detection*



## ***Linkage Diagram – Injury Prevention Including Substance Abuse Prevention***

### ***Goal:***

To reduce disability, morbidity and mortality caused by motorized vehicles, bicycle crashes, alcohol and other substances, falls in the elderly and to prevent drowning in specific recreational water facilities.

### ***Objectives:***

1. To reduce the rate of injuries caused by cycling crashes and motorized vehicle crashes including, boats, snowmobiles and all terrain vehicles that lead to hospitalization or death by 20 per cent by the year 2010.
2. To reduce the rate of alcohol and other substance-related injuries or deaths by 20 per cent by the year 2010.
3. To reduce the percentage of the adult population who drink more than two drinks per day by 20 per cent by the year 2010.
4. To reduce the rate of illicit substance use and the non-medical use of drugs and of other psychoactive substances by 20 per cent by the year 2010.
5. To reduce the rate of fall-related injuries in the elderly (aged 65+ years) that lead to hospitalization or death by 20 per cent by the year 2010.
6. To eliminate drowning in waters used for specified recreational purposes.

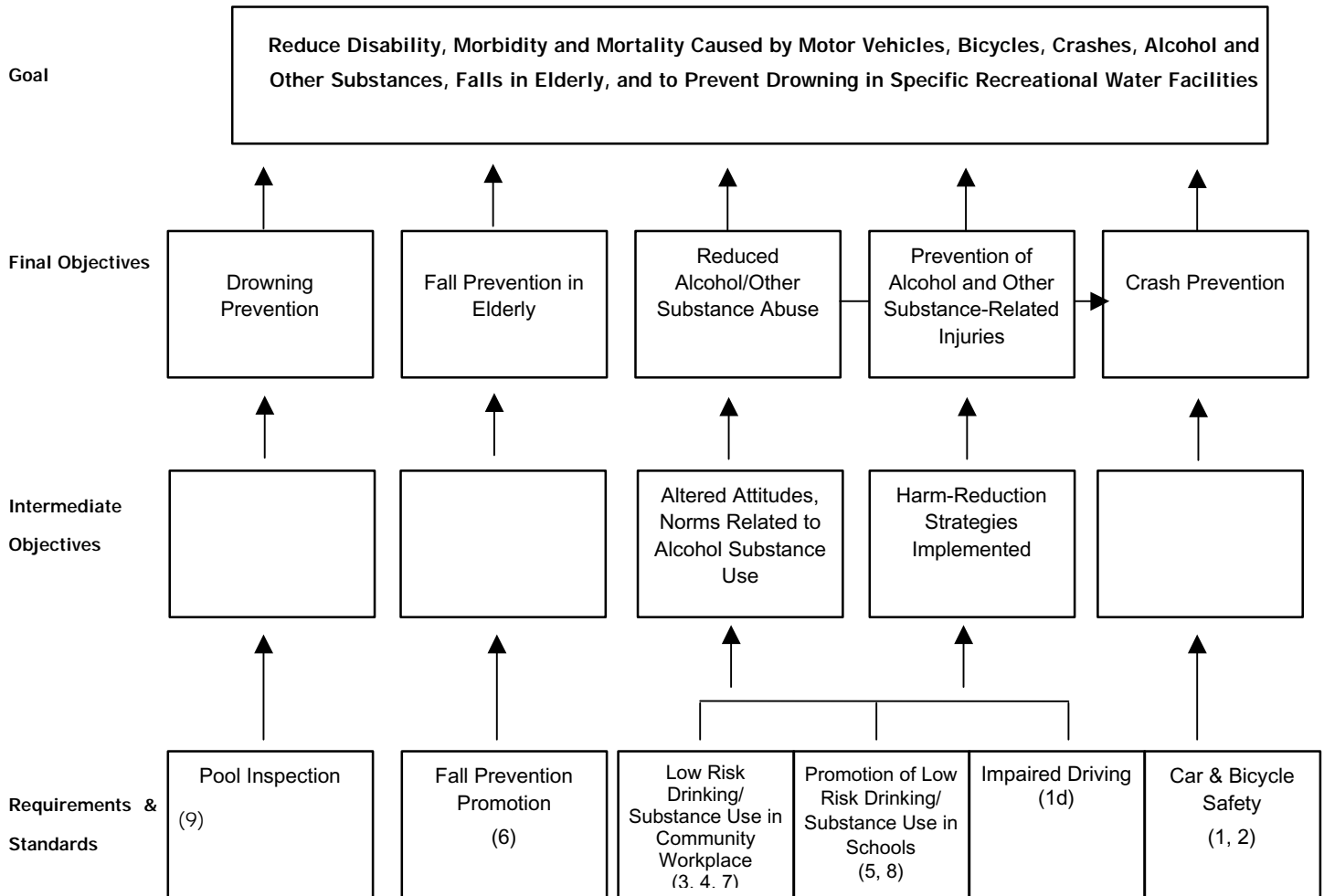
Objective	Type	Level	Measurable/Available/Comments
1	Final	Population	Measurable and available.
2 (MVC)	Final	Population	Measurable and available.
2 (non-MVC)	Final	Population	Measurable and available. Disease rates (e.g. cirrhosis) not exclusively specific to alcohol.
3	Intermediate	Population	Measurable and somewhat available although dependent upon population survey data.
4	Intermediate	Population	Measurable but not available. Provincial level data for some measures available periodically.
5	Final	Population	Measurable and available.
6	Final	Population	Data not available for this particular setting.

Intermediate objectives not included for most of the final objectives.

### ***Requirements and Standards***

The requirements are organized primarily by strategies although three requirements address intermediaries (schools, workplaces and health professionals). The level of detail varies between requirements with the greatest specificity for education-type activities (e.g. community events, education campaigns).

*Injury Prevention/Substance Abuse*



## ***Linkage Diagram – Sexual Health***

### ***Goal:***

To promote healthy sexuality.

### ***Objectives:***

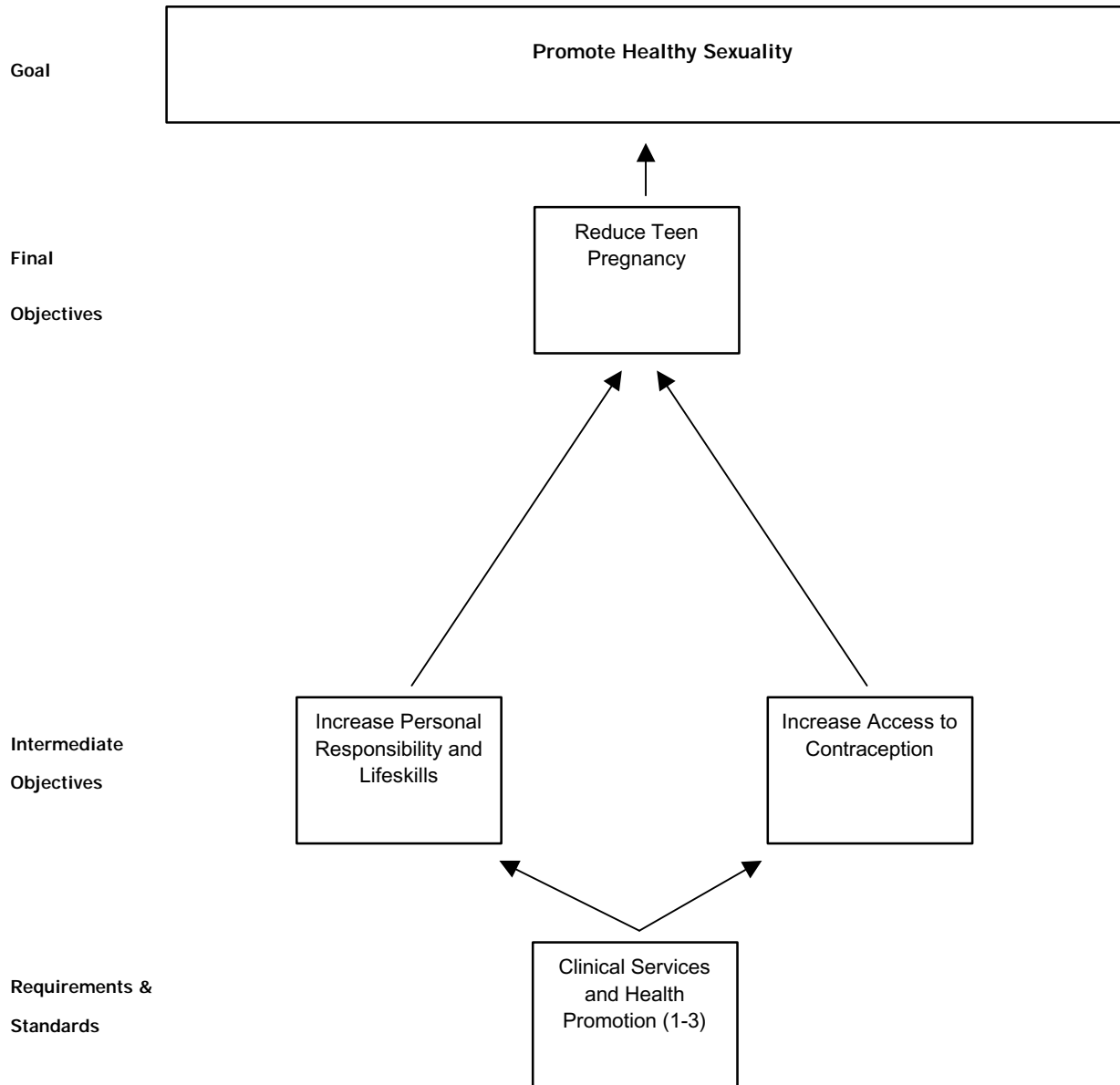
1. To decrease the rate of pregnancy in women 15-19 years of age to 40 per 1,000 population by the year 2005.
2. To increase access to contraception for individuals in need to decrease unplanned pregnancy.
3. To increase the awareness and knowledge about personal responsibility and life skills required to deal with sexual relationships and behaviours including the impact of alcohol and other drugs.

<b>Objective</b>	<b>Type</b>	<b>Level</b>	<b>Measurable/Available/Comments</b>
1	Final	Population	Measurable and available.
2	Intermediate	Population	Not measurable in current form.
3	Intermediate	Population	Not measurable in current form.

### ***Requirements and Standards***

The requirements are organized by strategy. While the clinical requirements are quite specific, the other requirements are not. The requirements can contribute to both intermediate objectives.

*Sexual Health*



## ***Linkage Diagram – Reproductive Health***

### ***Goal:***

To support healthy pregnancies.

### ***Objectives:***

1. To reduce the low birth weight rate (under 2500g) to 4 per cent by the year 2010.
2. To decrease the prevalence of neural tube defects by 25 per cent by the year 2010.

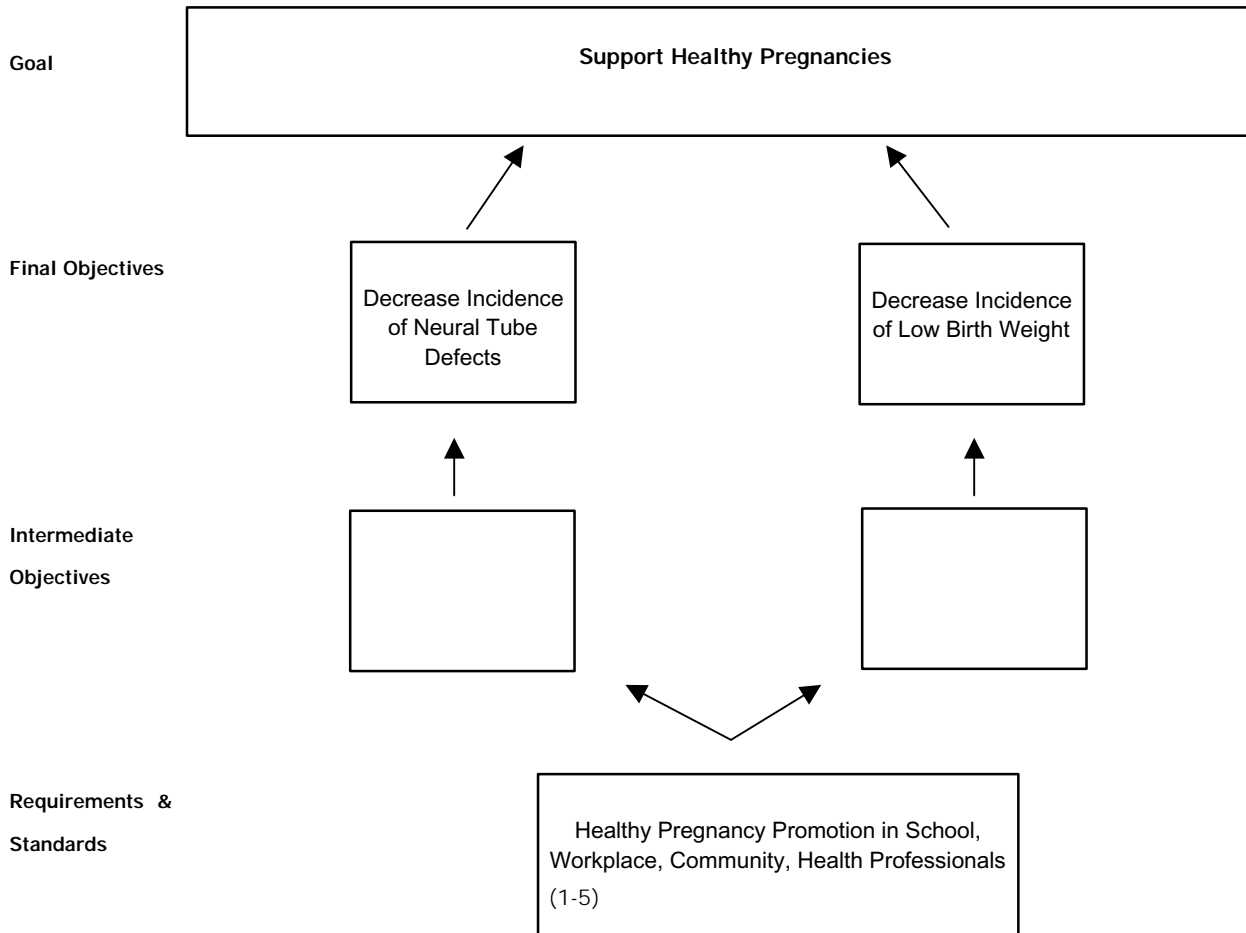
<b>Objective</b>	<b>Type</b>	<b>Level</b>	<b>Measurable/Available/Comments</b>
1	Final	Population	Measurable and available.
2	Final	Population	Measurable and available.

Intermediate objectives are not included for either final objective.

### ***Requirements and Standards***

The requirements are primarily organized by intermediates and then by strategies. The level of detail and specificity varies within the requirements. The greatest specificity is for education-type activities.

*Reproductive Health*



## ***Linkage Diagram – Child Health***

### ***Goal:***

To promote the health of children and youth.

### ***Objectives:***

1. To increase the percentage of children and youth who meet physical, cognitive, communicative and psychosocial developmental milestones.
2. To increase to 50 per cent the percentage of infants breast-fed up to six months by the year 2010.
3. To reduce the prevalence of dental diseases in children and youth.
4. To increase access to and the use of needs-based services and supports for children who are at risk of poor physical, cognitive, communicative, and psychosocial development, and their families.
5. To increase effective parenting ability in high-risk families.

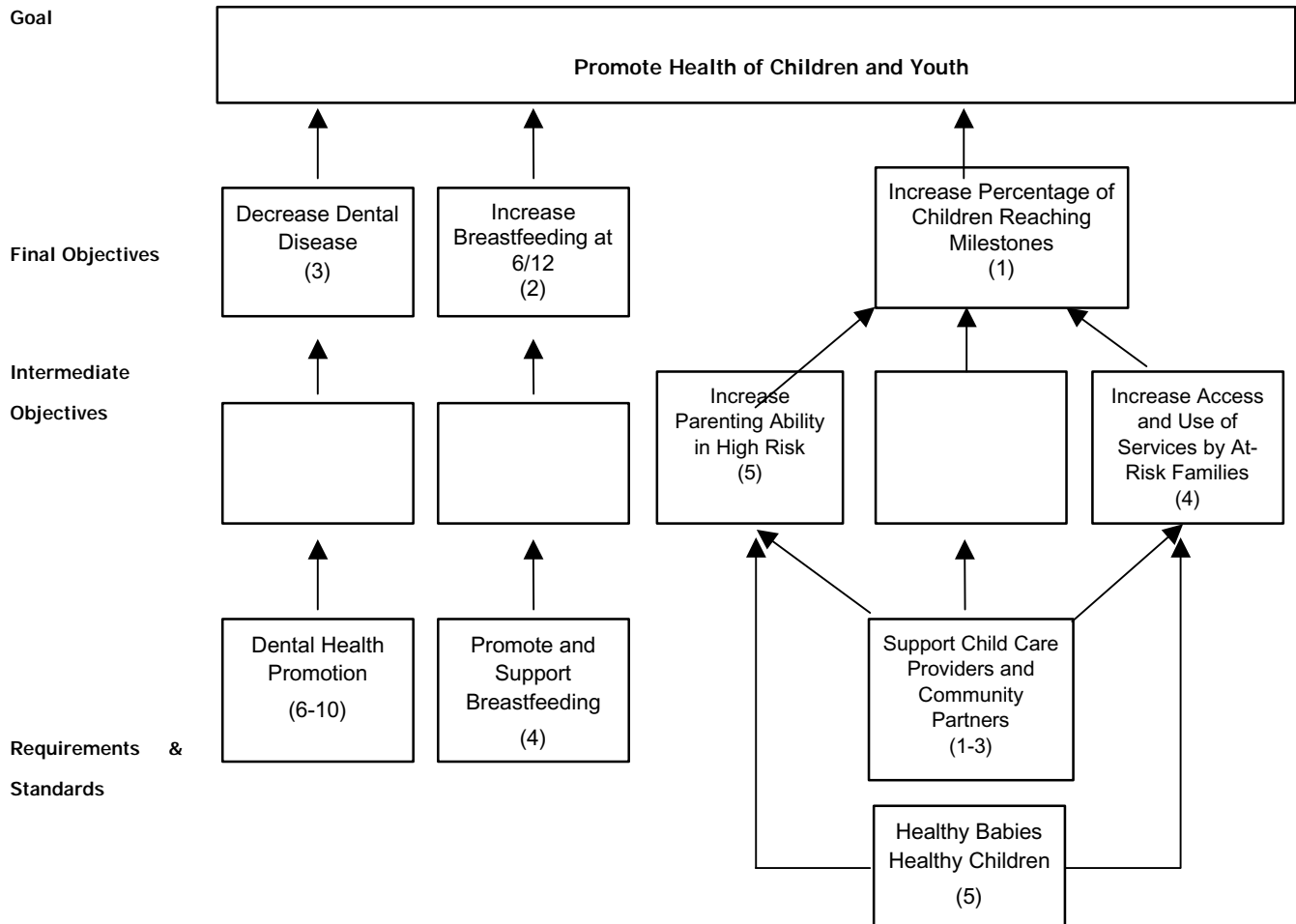
<b>Objective</b>	<b>Type</b>	<b>Level</b>	<b>Measurable/Available/Comments</b>
1	Final	Population	Not measurable. Needs to be operationalized
2	Final	Population	Measurable but not available. Initiation of breast-feeding available from OHS-II
3	Final	Population	Measurable and available. Data generated by public health screening activities. Current screening only kindergarten students.
4	Intermediate	Population	Not measurable. Needs to be operationalized.
5	Intermediate	Population	Not measurable. Needs to be operationalized.

Intermediate objectives not included for all final objectives. No objective included for parenting in non-high families or for dental and breastfeeding objectives.

### ***Requirements and Standards***

The requirements are primarily organized by strategy. Level of detail is variable. Some, such as group sessions, are very specific about the required frequency of sessions, although this is the exception. Greater detail regarding the Healthy Babies, Healthy Children program is present outside the Program Standards.

Child Health



## ***Linkage Diagram – Control of Infectious Diseases***

### ***Goal:***

To reduce the incidence of infectious diseases of public health importance.

### ***Objective:***

To reduce morbidity and mortality associated with infectious diseases.

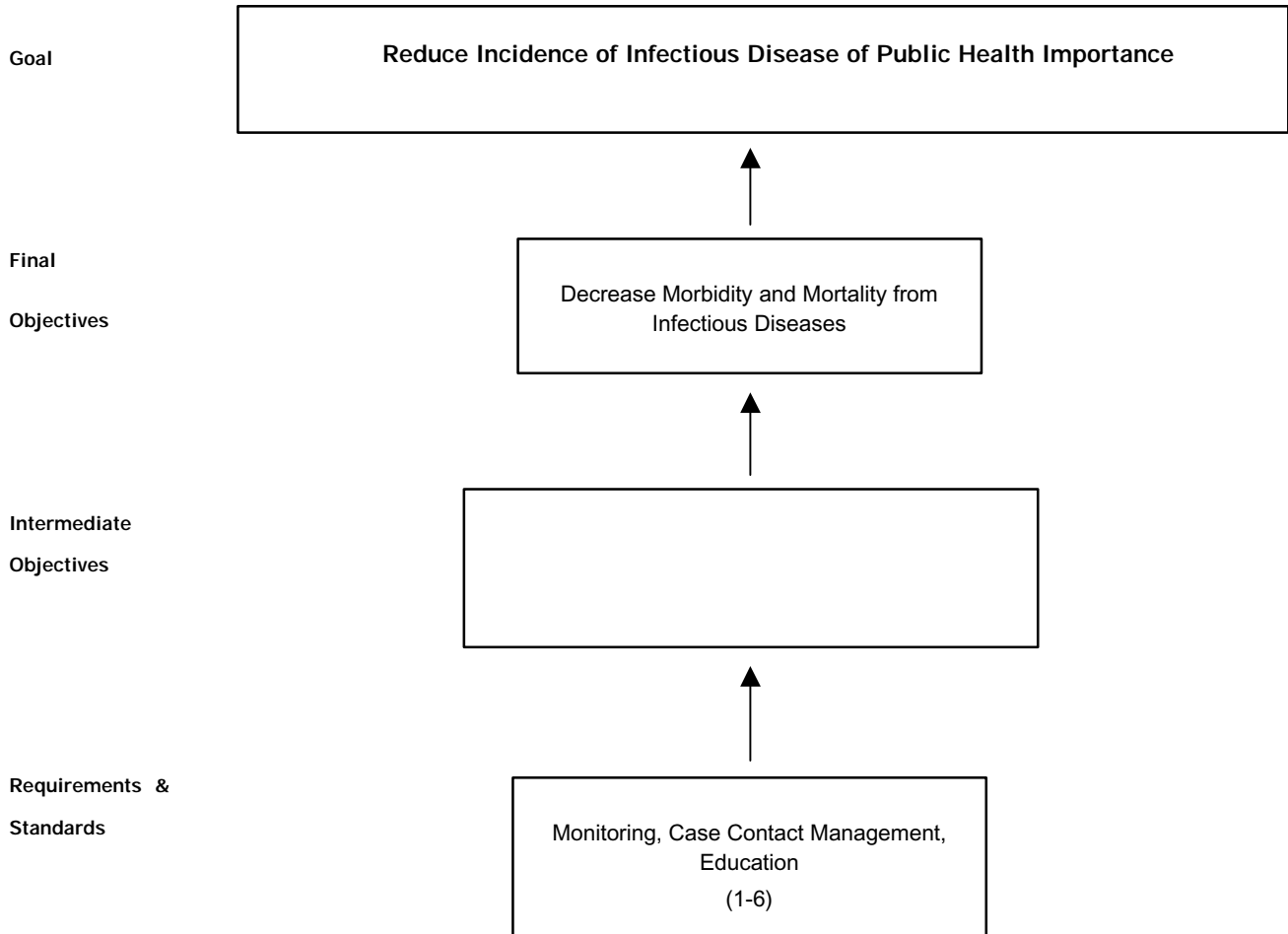
<b>Objective</b>	<b>Type</b>	<b>Level</b>	<b>Measurable/Available/Comments</b>
1	Final	Population	Measurable and available although not clear which diseases to include.

No intermediate objectives are identified.

### ***Requirements and Standards***

The requirements identify the core surveillance and disease control activities of public health units. Many of the requirements are internally focused on these core activities.

*Control of Infectious Disease*



## ***Linkage Diagram – Food Safety***

### ***Goal:***

To improve the health of the population by reducing the incidence of food-borne illness.

### ***Objectives:***

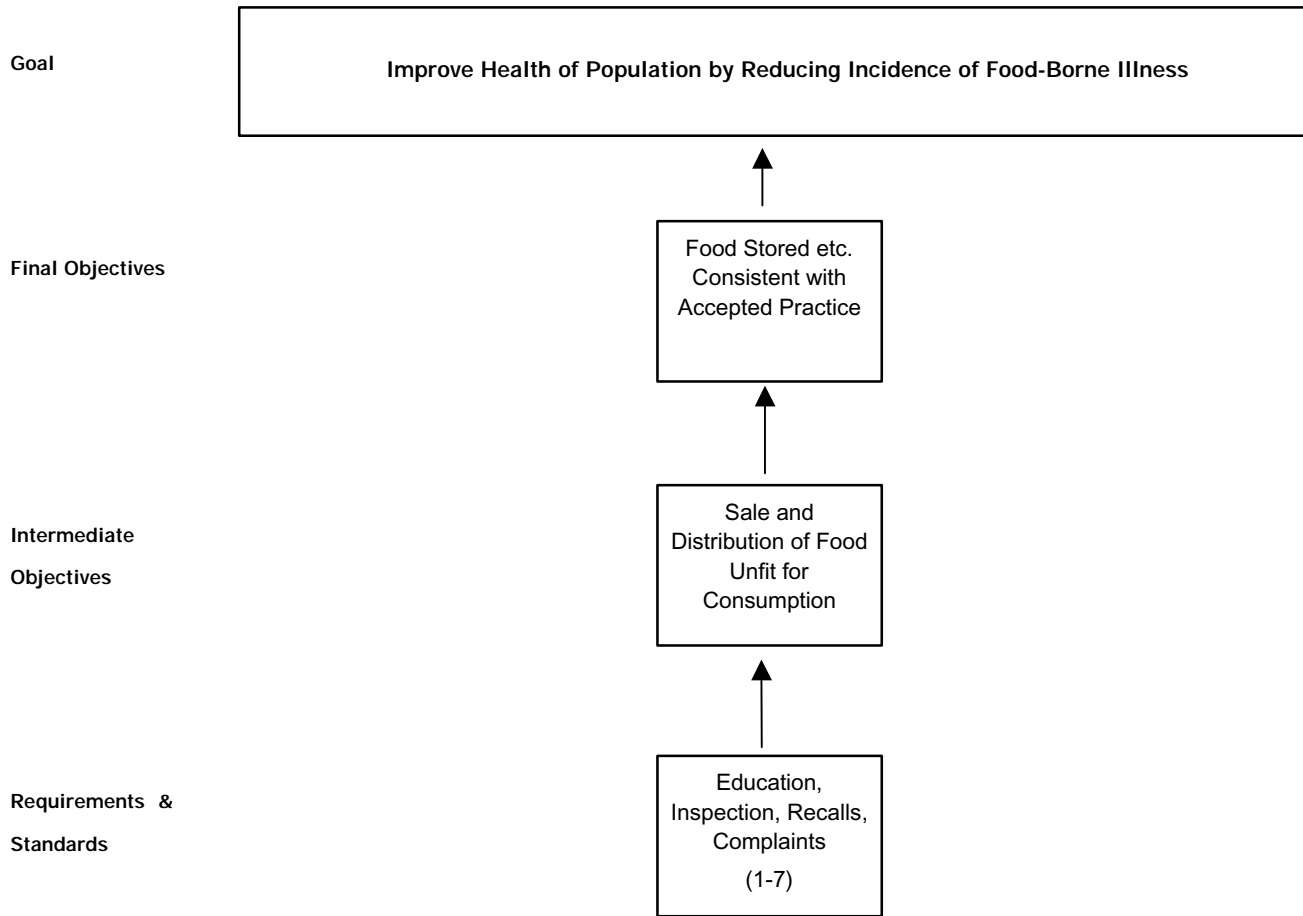
1. To ensure that food is stored, prepared, served and distributed in a manner consistent with accepted public health practices.
2. To stop the sale or distribution of food that is unfit for human consumption by reason of disease, adulteration, impurity or other cause.

<b>Objective</b>	<b>Type</b>	<b>Level</b>	<b>Measurable/Available/Comments</b>
1	Final	Board of Health	Needs to be operationalized. Potentially measurable from public health food premise inspection data; Federal Department of Agriculture and Foods also has involvement
2	Intermediate	Board of Health	Process objective.

### ***Requirements and Standards***

Inspection and enforcement-type activities are specific and measurable. Education-type requirements are less specific. The program is structured primarily by strategy.

*Food Safety*



## ***Linkage Diagram – Infection Control***

### ***Goal:***

To reduce transmission of infectious diseases.

### ***Objective:***

To reduce morbidity and mortality associated with infectious diseases in institutions, day care centres and personal service settings.

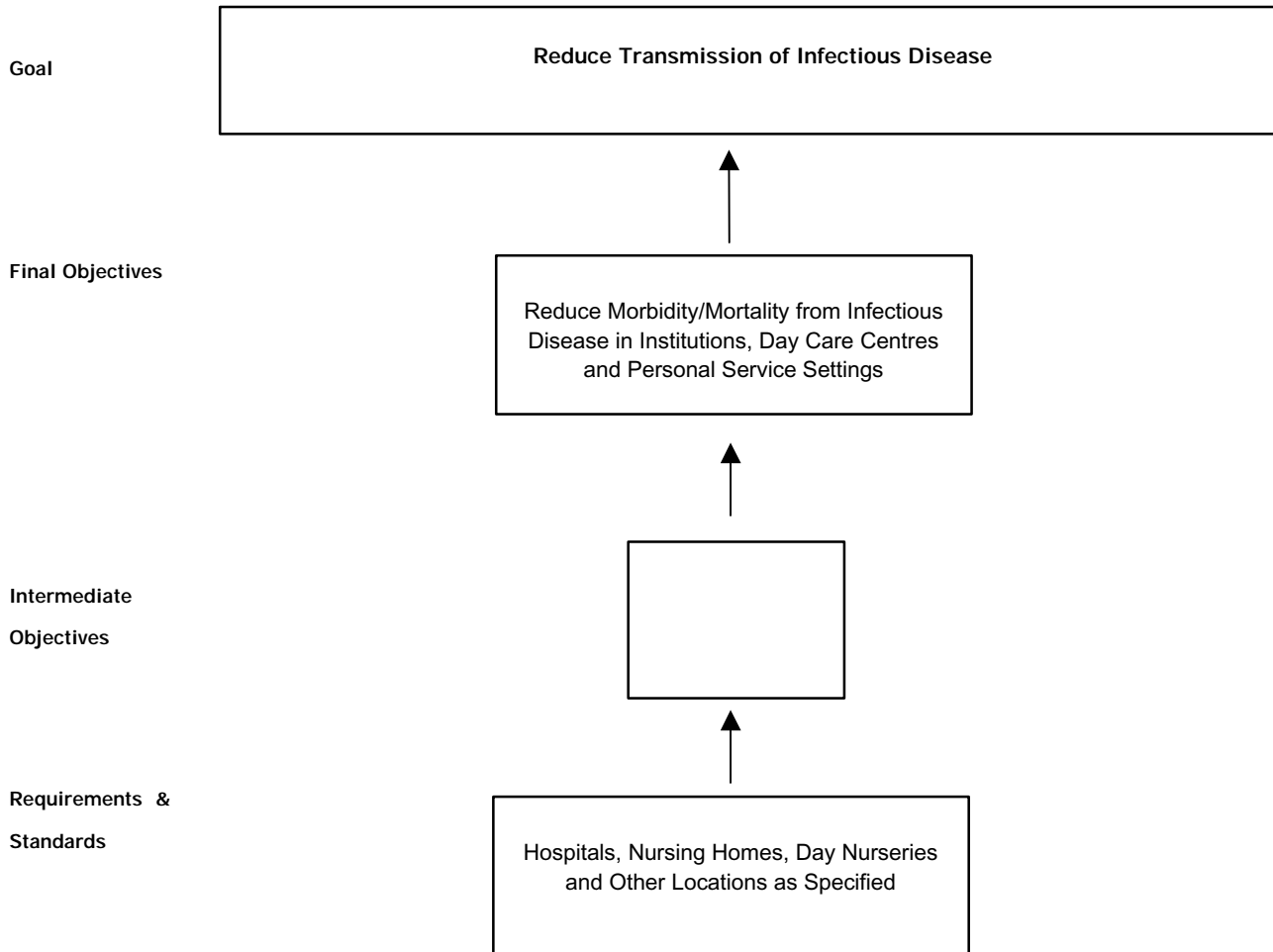
<b>Objective</b>	<b>Type</b>	<b>Level</b>	<b>Measurable/Available/Comments</b>
1	Final	Population	Data not available except for outbreak-related data.

No intermediate objectives are identified.

### ***Requirements and Standards***

The requirements are organized by setting and thus will target intermediaries in these different institutions. Requirements are then grouped by strategies. Many of the required activities are collaborative in nature with the particular organization (e.g. hospital, nursing home, etc.) and focus on the process of infection control.

*Infection Control*



## Linkage Diagram – Rabies Control

### Goal:

To prevent the occurrence of rabies in humans.

### Objective:

To maintain the incidence of rabies at zero in the human population.

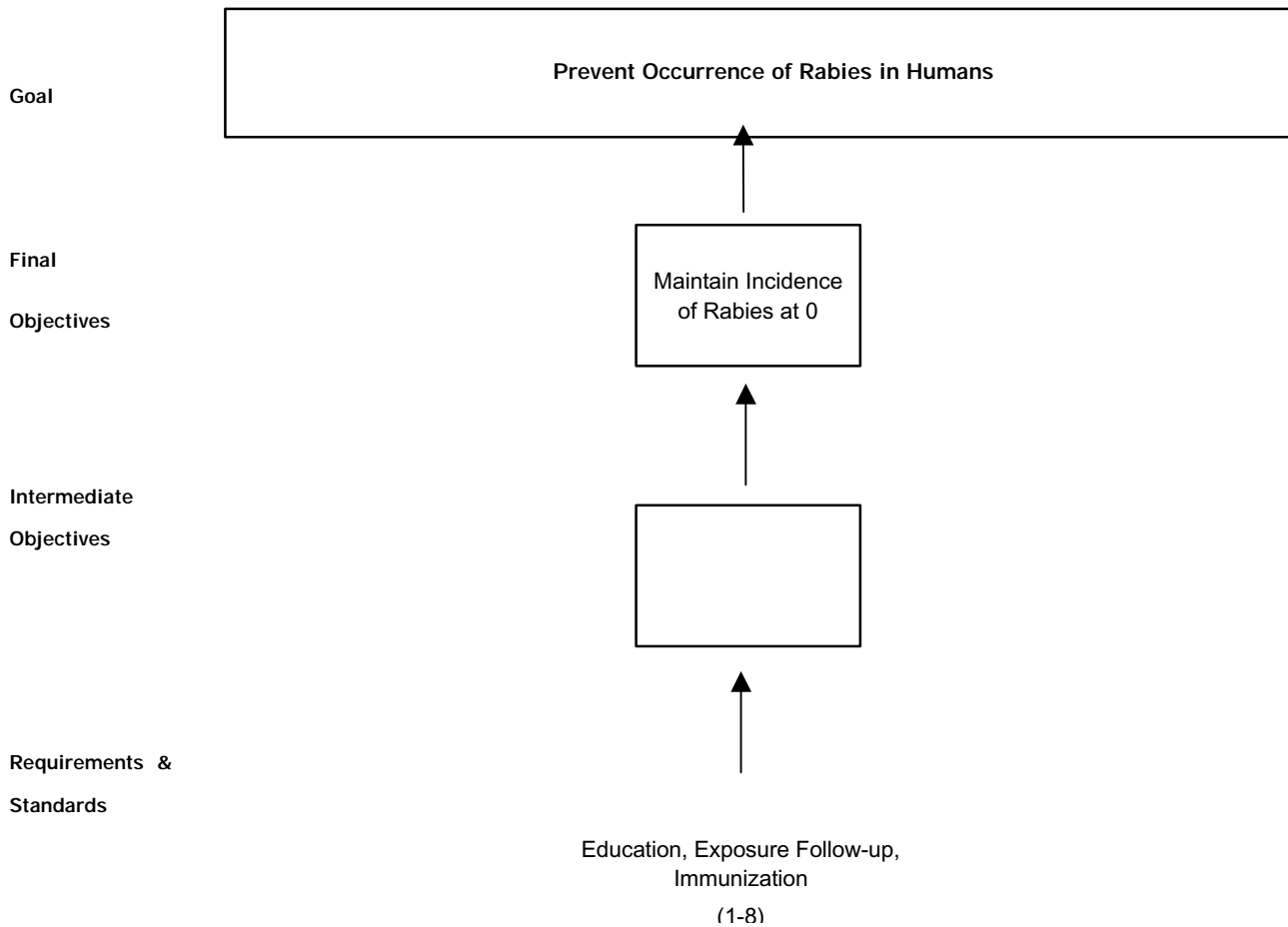
Objective	Type	Level	Measurable/Available/Comments
1	Final	Population	Measurable and available.

No intermediate objectives are identified.

### Requirements and Standards

The requirements are organized by strategy. Requirements are more specific for enforcement related activities.

### Rabies



## ***Linkage Diagram – Safe Water***

### ***Goal:***

To reduce the incidence of water-borne illness in the population.

### ***Objectives:***

1. To ensure that community drinking water systems meet the health-related chemical, physical, microbiological and radionuclide objectives as published in the *Ontario Drinking Water Objectives (revised 1994)* and the *Guidelines for Canadian Drinking Water Quality (sixth edition)*.
2. To reduce communicable disease transmission from waters used for bathing at public beaches.

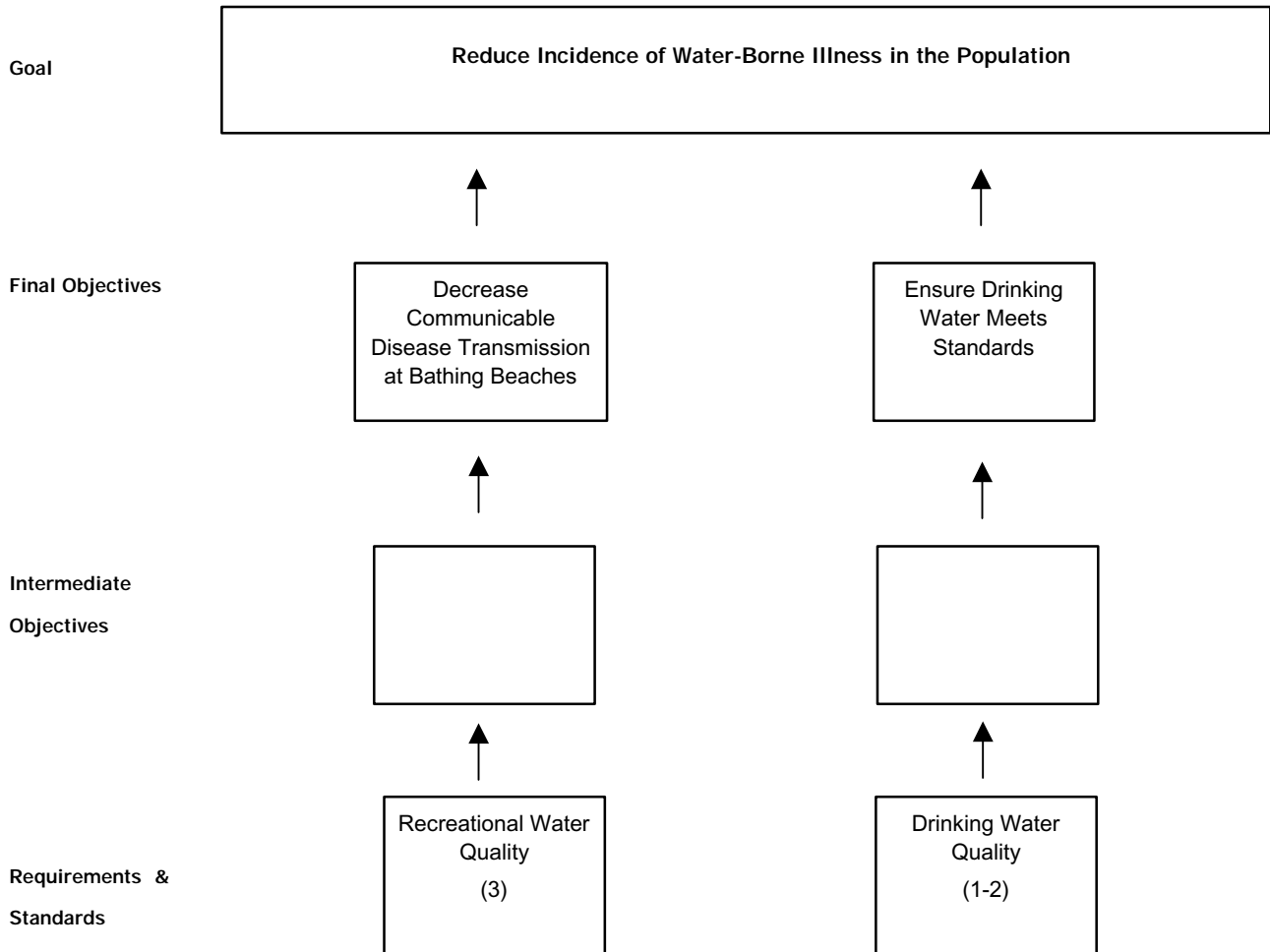
<b>Objective</b>	<b>Type</b>	<b>Level</b>	<b>Measurable/Available/Comments</b>
1	Final	Population	Measurable and available. Dependent upon community water system operator.
2	Final	Population	Not measurable. No measure of water-related communicable diseases.

No intermediate objectives are identified.

### ***Requirements and Standards***

The requirements are all enforcement-type activities and are specific.

Safe Water



***Linkage Diagram – Sexually Transmitted Diseases (STDs) including HIV/AIDS***

***Goal:***

To reduce the incidence of and complications from all sexually transmitted diseases (STDs) including HIV/AIDS.

***Objectives:***

1. To reduce the incidence rate of gonorrhoea to 15 per 100,000 population by the year 2005.
2. To reduce the incidence rate of genital chlamydia to 500 per 100,000 women ages 15-24 years by the year 2005.
3. To maintain the incidence rate of primary and secondary syphilis at less than one per 100,000 population by the year 2005.
4. To maintain the incidence of congenitally acquired syphilis at zero.
5. To reduce the number of newly diagnosed human immunodeficiency virus (HIV) infections to less than 800 per year by the year 2005.
6. To reduce the incidence of perinatal HIV infection.

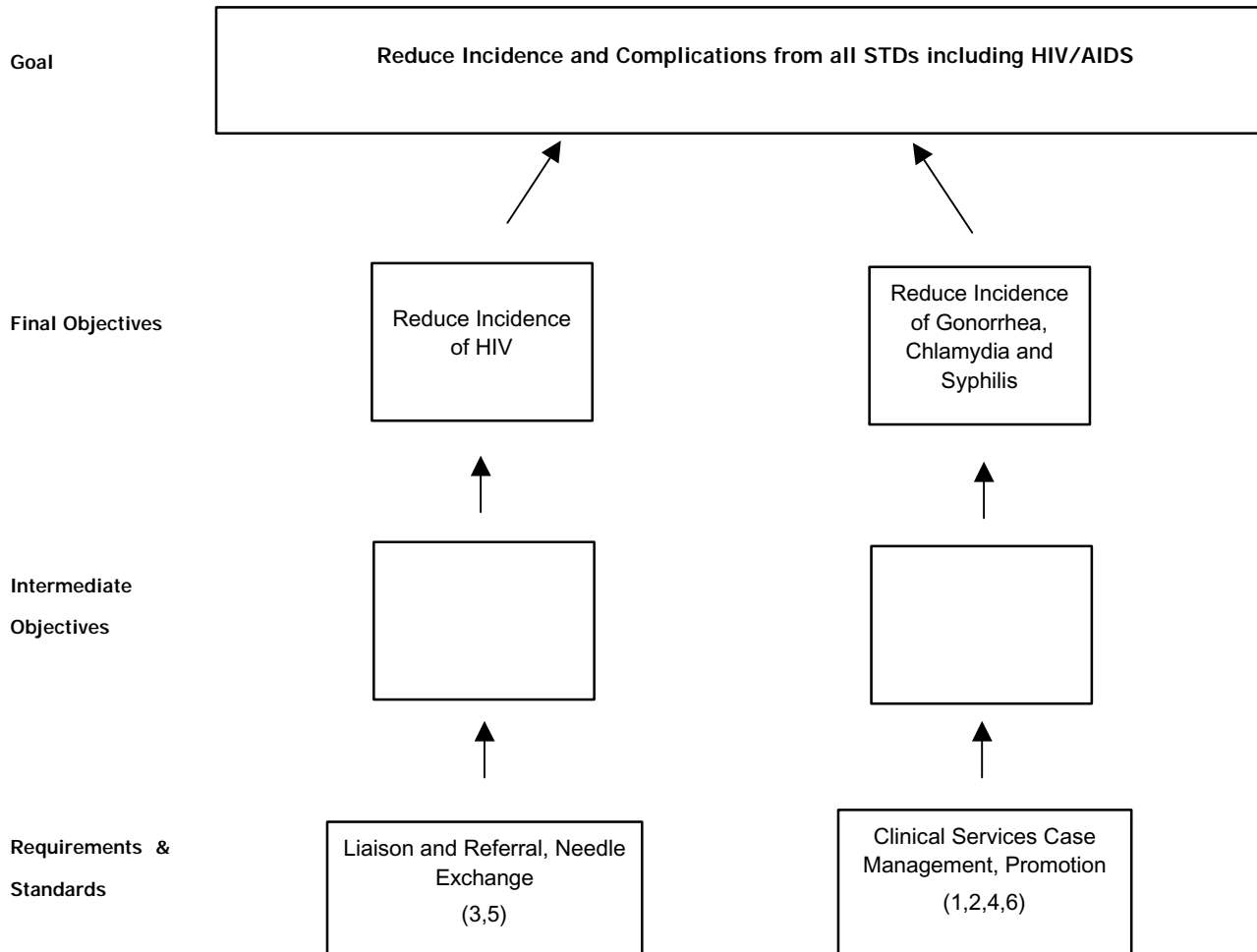
Objective	Type	Level	Measurable/Available/Comments
1	Final	Population	Measurable and available.
2	Final	Population	Measurable and available.
3	Final	Population	Measurable and available.
4	Final	Population	Measurable and available.
5	Final	Population	Measurable and available.
6	Final	Population	Measurable and available.

No intermediate objectives are identified.

***Requirements and Standards***

Requirements are organized by strategy. Clinical services and enforcement activities are much more specific than education and policy related requirements.

*STD and HIV*



## ***Linkage Diagram – Tuberculosis (TB) Control***

### ***Goal:***

To reduce the incidence of tuberculosis (TB).

### ***Objectives:***

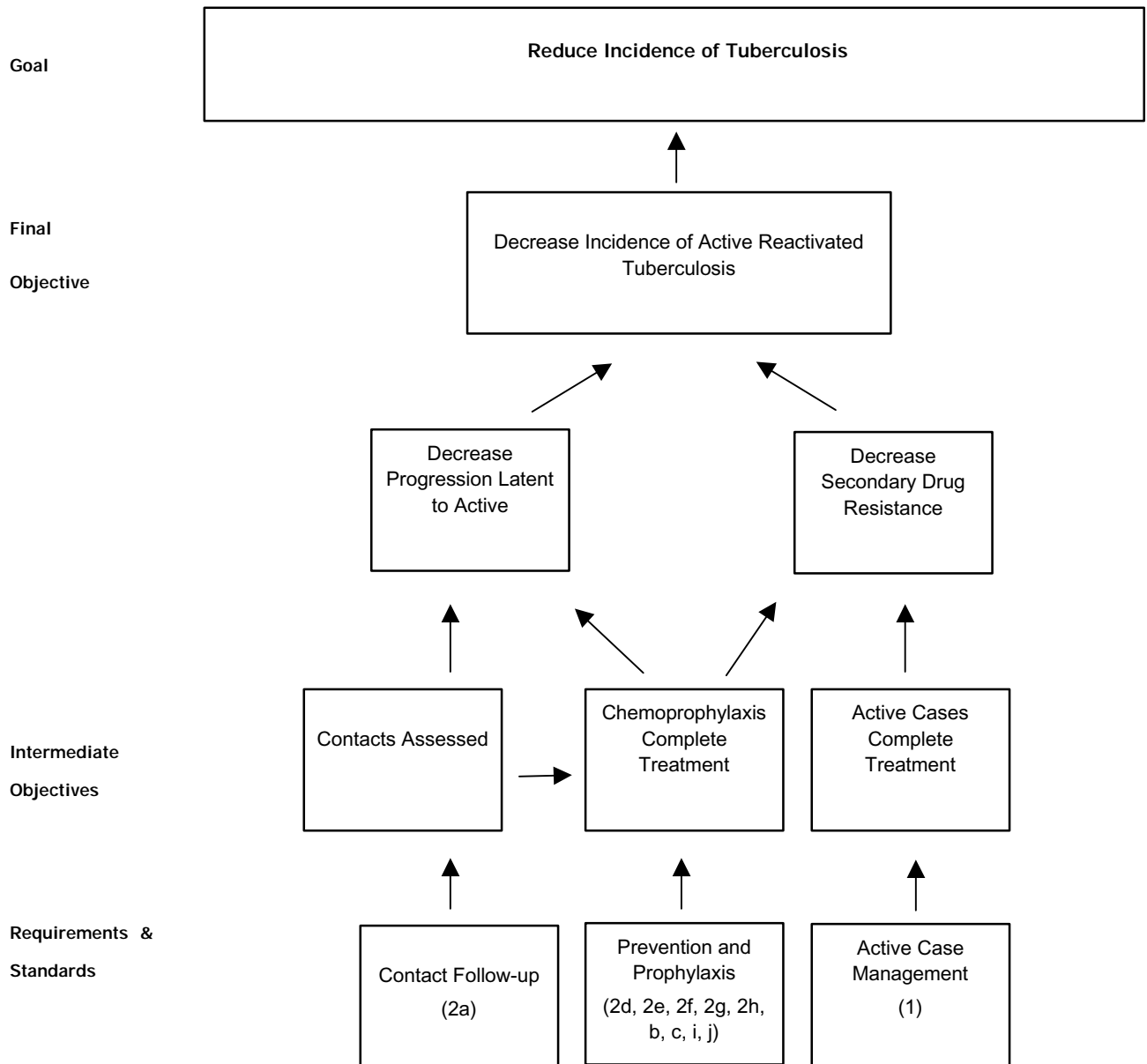
1. To reduce the annual incidence rate of active and reactivated TB to 3.5 per 100,000 population by the year 2005.
2. To reduce the progression of latent TB infection to active TB.
3. To reduce secondary drug-resistance by the year 2005.
4. To achieve the following completion rates by the year 2005:
  - a) 95 per cent of active TB cases will complete treatment as prescribed;
  - b) 90 per cent of individuals on chemoprophylaxis will complete therapy;  
and
  - c) 90 per cent of contacts of active cases of TB will be assessed.

<b>Objective</b>	<b>Type</b>	<b>Level</b>	<b>Measurable/Available/Comments</b>
1	Goal repeated	Population	Measurable and available.
2	Final	Population	Measurable and available.
3	Final	Population	Measurable and available.
4a	Intermediate	Board of Health	Measurable and available. Process
4b	Intermediate	Board of Health	Measurable and available. Process
4c	Intermediate	Board of Health	Measurable and available. Process

### ***Requirements and Standards***

The requirements are organized by strategy. The monitoring and enforcement requirements are more specific than the education-related activities.

*Tuberculosis*



## ***Linkage Diagram – Vaccine Preventable Diseases***

### ***Goal:***

To reduce the incidence of vaccine preventable diseases.

### ***Objectives:***

1. To eliminate indigenous measles by the year 2000.
2. To maintain at zero the incidence of tetanus and diphtheria and indigenous polio.
3. To reduce to zero the incidence of invasive *Haemophilus influenzae* type b (Hib) among children under five years of age.
4. To reduce to zero the incidence of indigenous congenital rubella.
5. To reduce the annual incidence rate of mumps to 1.0 per 100,000 and pertussis to 2.5 per 100,000 population by the year 2005.
6. To reduce the annual incidence rate of acute hepatitis B to 1.5 per 100,000 population by the year 2000.
7. To reduce the age-adjusted mortality rate for pneumonia and influenza (using a five-year moving average).
8. To achieve the following vaccine coverage targets by the year 2000:
  - a) 95 per cent coverage for up-to-date vaccination against diphtheria, pertussis, polio, tetanus, *Haemophilus influenzae* type b (Hib), measles, mumps and rubella by the second birthday;
  - b) 95 per cent coverage for up-to-date vaccination against diphtheria, pertussis, polio, tetanus, and measles, mumps, rubella and second dose measles by the seventh birthday;
  - c) 95 per cent coverage for hepatitis B vaccination by the end of grade 7;
  - d) 100 per cent coverage for hepatitis B vaccination of infants born to mothers who are hepatitis B carriers;
  - e) 95 per cent coverage for pneumococcal and annual influenza vaccination of residents of long term care facilities;
  - f) 70 per cent coverage for pneumococcal and annual influenza vaccination for persons age 65 years and older and persons with high-risk conditions; and

g) 70 per cent coverage for annual influenza vaccination of health care workers in contact with high-risk individuals.

9. To minimize wastage of provincially funded vaccines to five per cent or less.

10. To monitor adverse events associated with provincially funded vaccines.

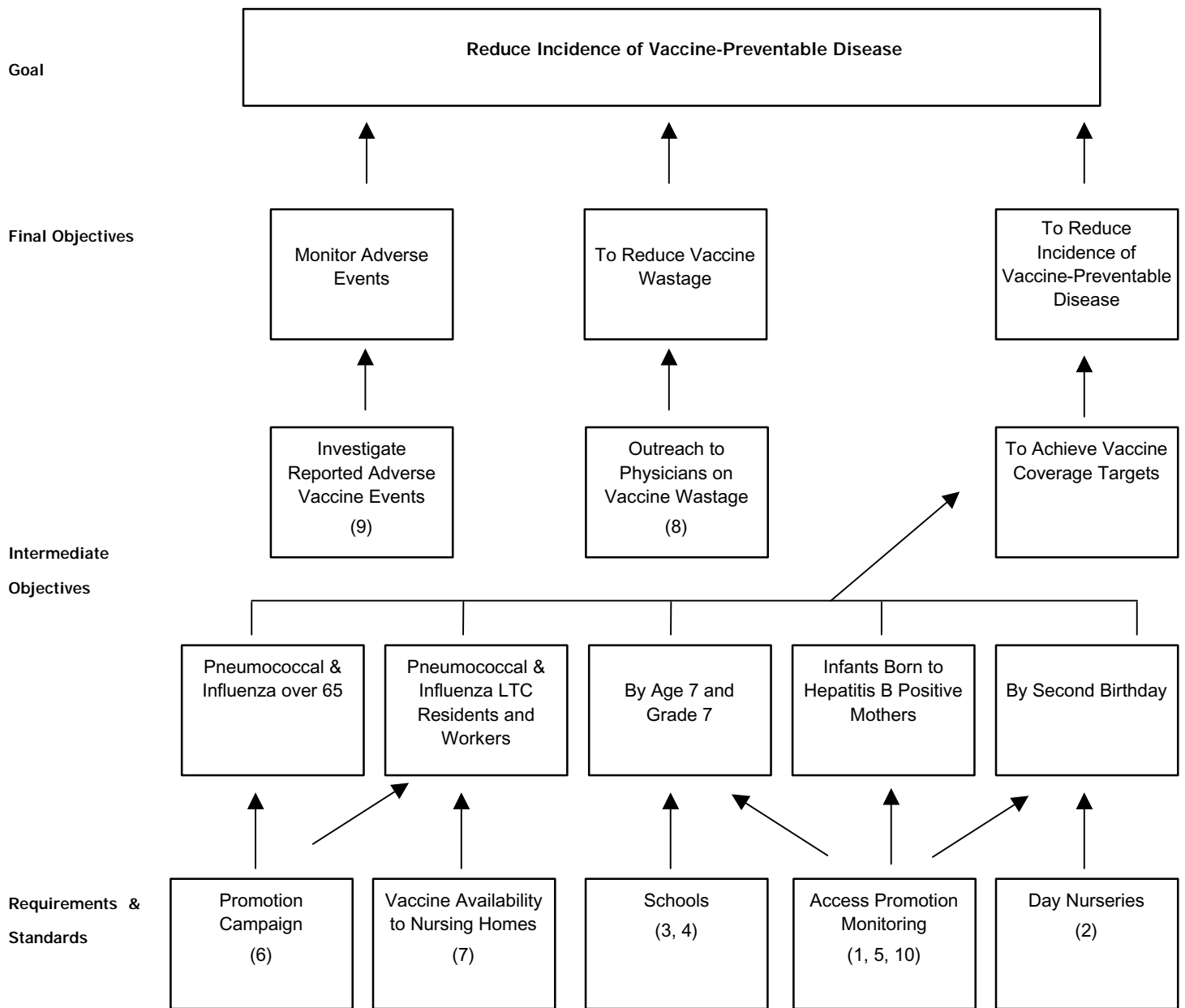
Objective	Type	Level	Measurable/Available/Comments
1	Final	Population	Measurable and available.
2	Final	Population	Measurable and available.
3	Final	Population	Measurable and available.
4	Final	Population	Measurable and available.
5	Final	Population	Measurable and available.
6	Final	Population	Measurable and available.
7	Final	Population	Measurable and available.
8a	Intermediate	Population	Measurable but not available.
8b	Intermediate	Board of Health	Measurable and available.
8c	Intermediate	Board of Health	Measurable and available.
8d	Intermediate	Board of Health	Measurable and available.
8e	Intermediate	Population	Measurable and available.
8f	Intermediate	Population	Measurable but not available.
8g	Intermediate	Population	Measurable but not available.
9	Final	Population	Not measurable or available. Does not directly contribute to achievement of goal.
10	Final	Board of Health	Measurable and available. Dependent upon reporting by MDs

Intermediate objectives not identified for objectives 9 and 10.

### ***Requirements and Standards***

Requirements are organized by strategy. Monitoring-related requirements are more specific than the education and policy type requirements.

### ***Vaccine Preventable Disease***



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## **APPENDIX 3: STRATEGIES AND APPROACHES IN HEALTH PROMOTION**

### ***Heart Health Cube: Heart Health Resource Centre, 1998*<sup>iii</sup>**

Strategies (Awareness Raising, Education and Skill Building, Environmental support, Policy)

- 0 Risk Factors (Tobacco, Physical Inactivity, Unhealthy Eating)
- 1 Channels (Schools, Workplaces, Health Care Settings, Homes, Food Establishments, Community-at-large)

### ***Ottawa Charter for Health Promotion; 1986*<sup>ii</sup>**

- 0 Build Healthy Public Policy
- 1 Develop Personal Skills
- 2 Create Supportive Environments
- 3 Strengthen Community Action
- 4 Reorient Health Services

### ***Population Health Promotion Cube: Health Canada; 1996*<sup>xiv</sup>**

- 0 Ottawa Charter Strategies
- 1 Level of Intervention (individual, family, community, sector, society)
- 2 Determinants of Health (e.g. income and social status, social support networks, education, working conditions, physical environments, biology and genetics, etc.)

### ***Pawtucket Heart Health Promotion Intervention Cube*<sup>xv</sup>**

- 0 Impact Level (individual, group, organization, community)
- 1 Program Phase (promotion/induction/motivation, skills training [specific risk factor, support network development], maintenance/feedback/generalization)
- 2 Risk Factor (fitness, weight, cholesterol, BP, smoking)

### ***Ontario Tobacco Strategy*<sup>xvi</sup>**

- 0 Sites (schools, homes, health care settings, workplaces, community-at-large)
- 1 Strategies (mass media, policy, program services)

2 Objectives (prevention, protection, cessation)

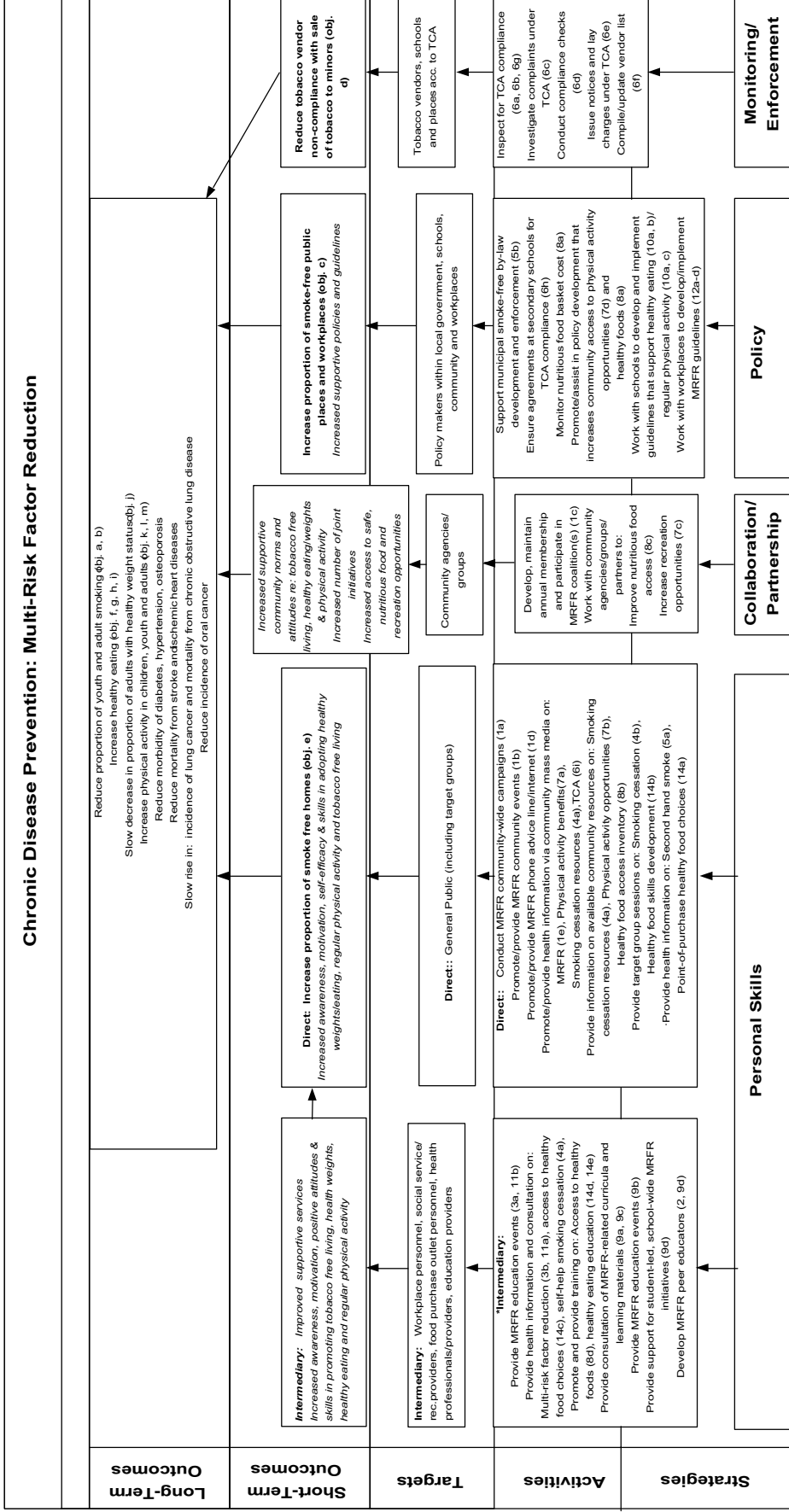
3 Priority Groups

***Essential Public Health Services***<sup>xvii</sup>

1. Monitor health status to identify community health problems.
2. Diagnose and investigate health problems and health hazards in the community.
3. Inform, educate and empower people about health issues.
4. Mobilize community partnerships to identify and solve health problems.
5. Develop policies and plans that support individual and community health efforts.
6. Enforce laws and regulations that protect health and ensure safety.
7. Link people to needed health services and assure the provision of health care when otherwise unavailable.
8. Assure a competent public health and personal health care workforce.
9. Evaluate effectiveness, accessibility, and quality of personal and population based health services.
10. Research for new insights and innovative solutions to health problems.

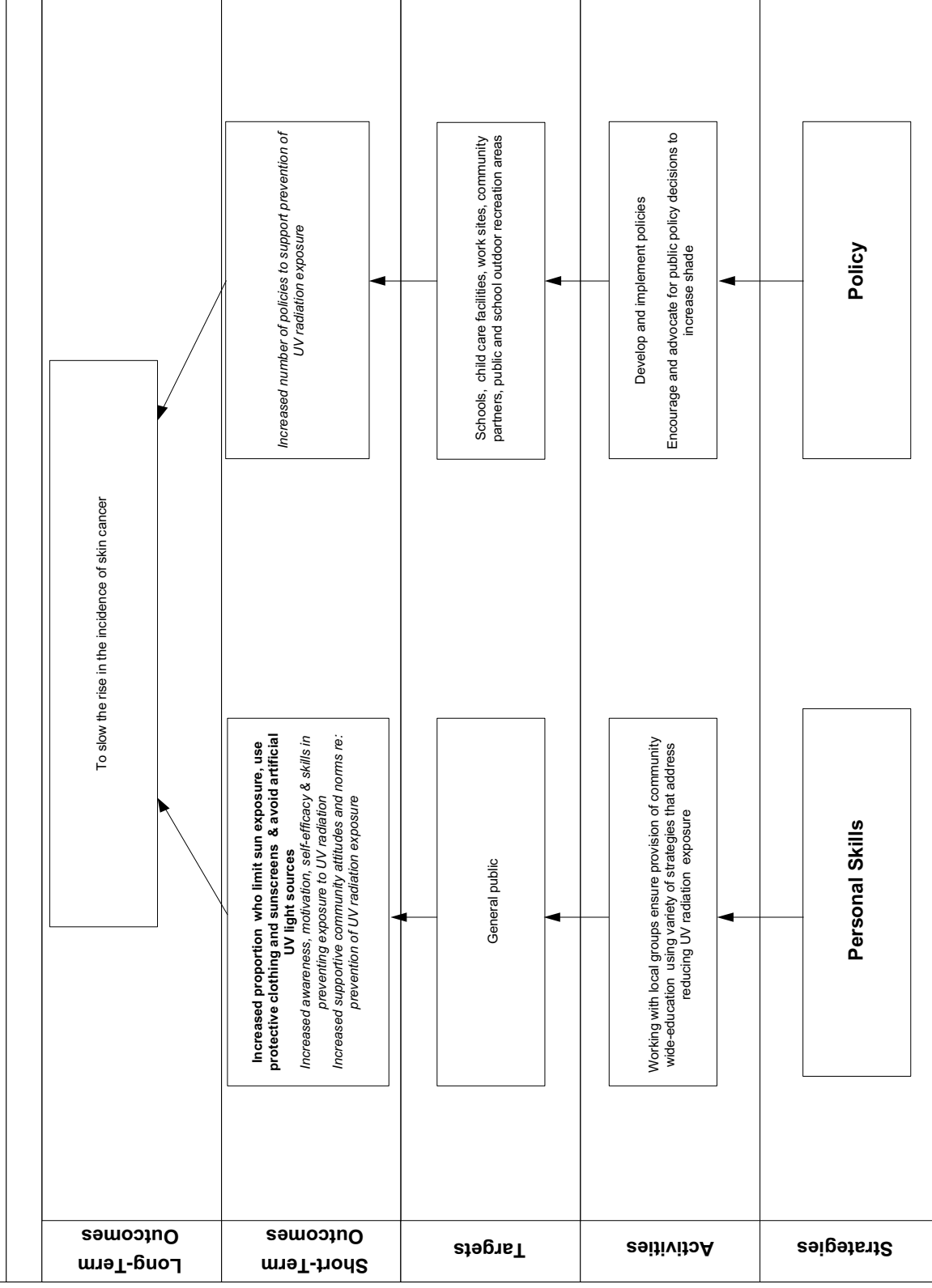
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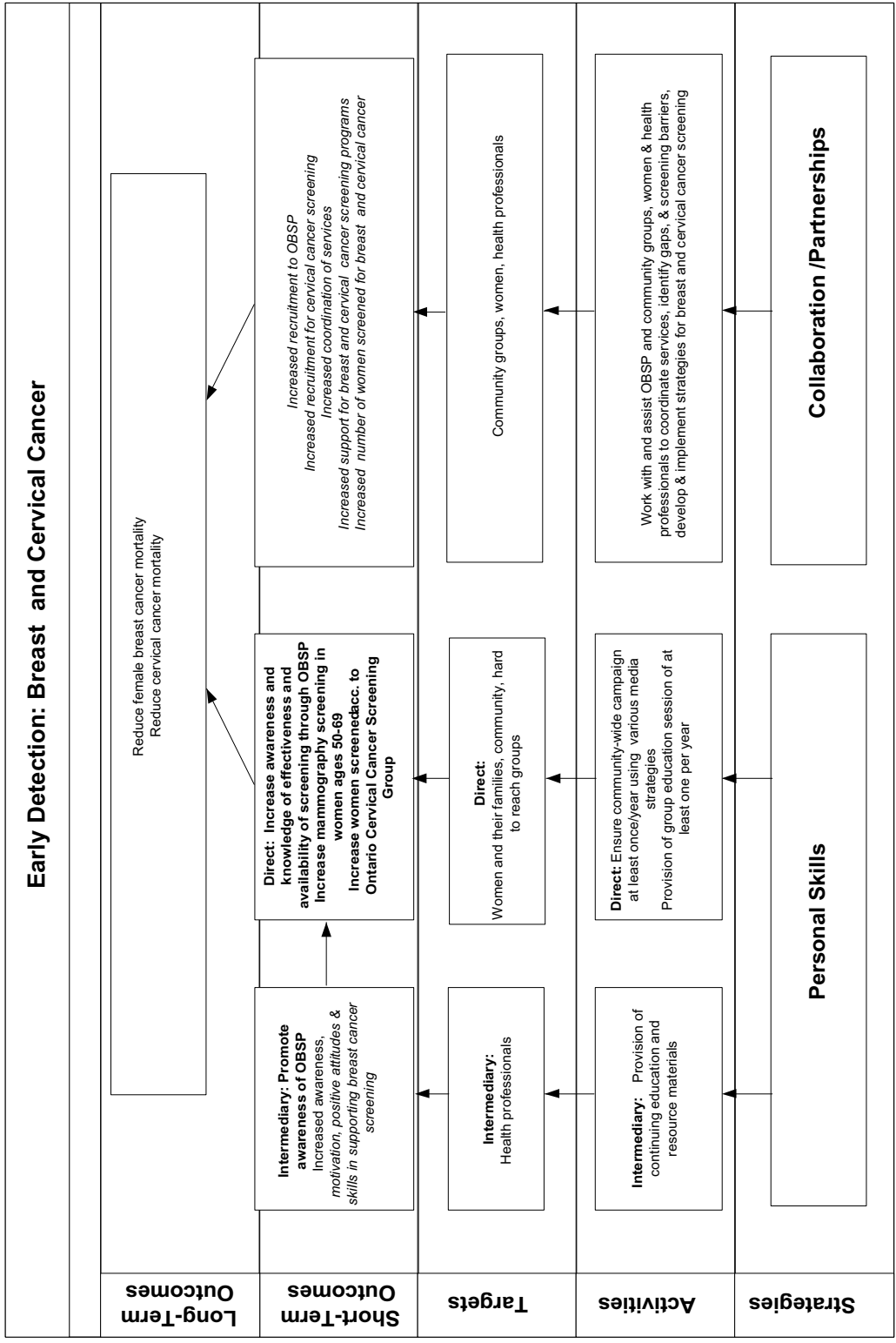
## **APPENDIX 4: LOGIC MODELS FOR THE ONTARIO MANDATORY HEALTH PROGRAMS AND SERVICES GUIDELINES**



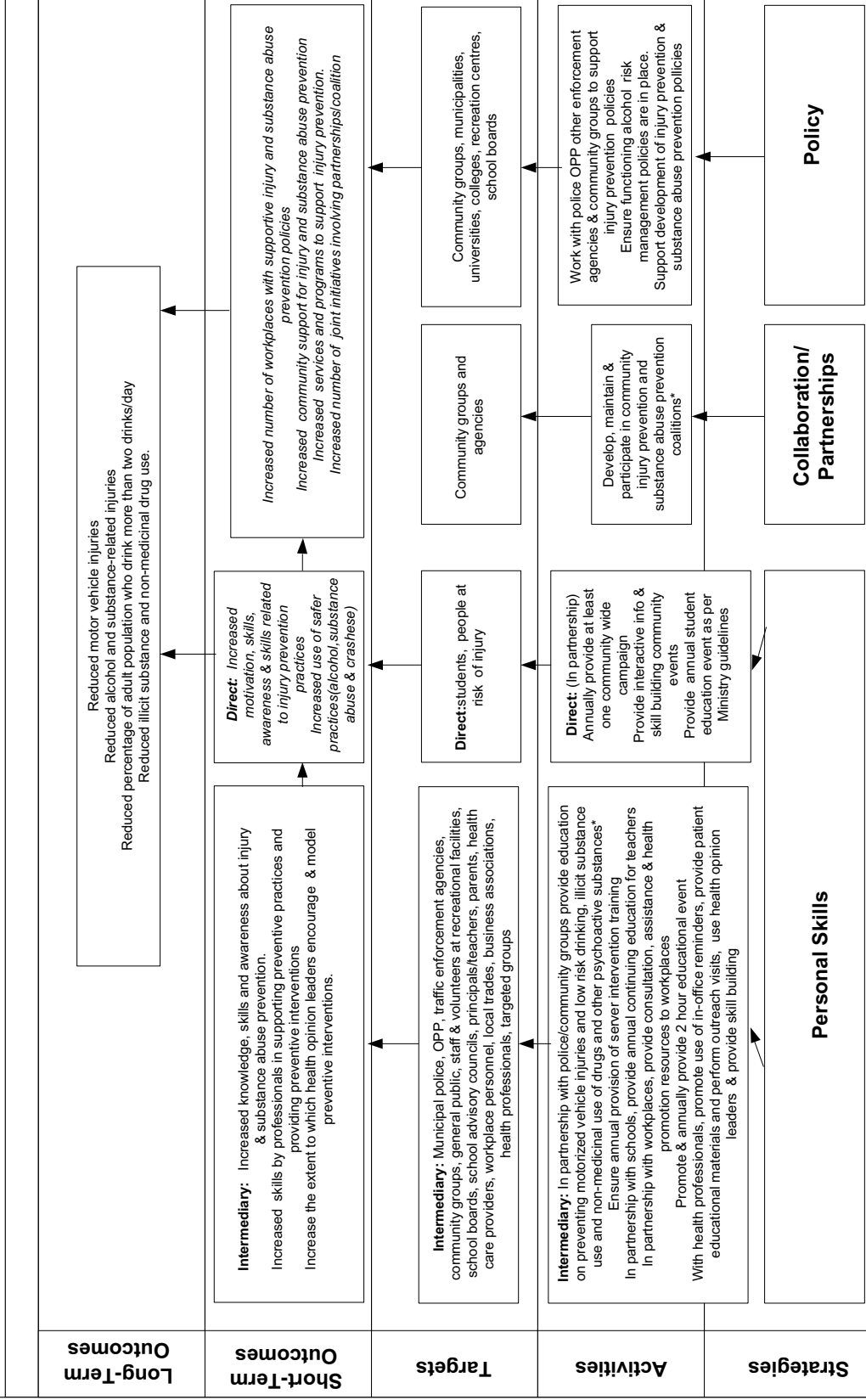
\*Strategies to deliver training/support included: Promote use of MRFR in office reminders (13a)  
 -Provide MRFR patient-education materials (13b)  
 -Perform MRFR outreach visits (13c)  
 -Promote MRFR model interventions (13d)  
 -Participate in MRFR skill building workshops (13a).

## Chronic Disease Prevention: UV Radiation

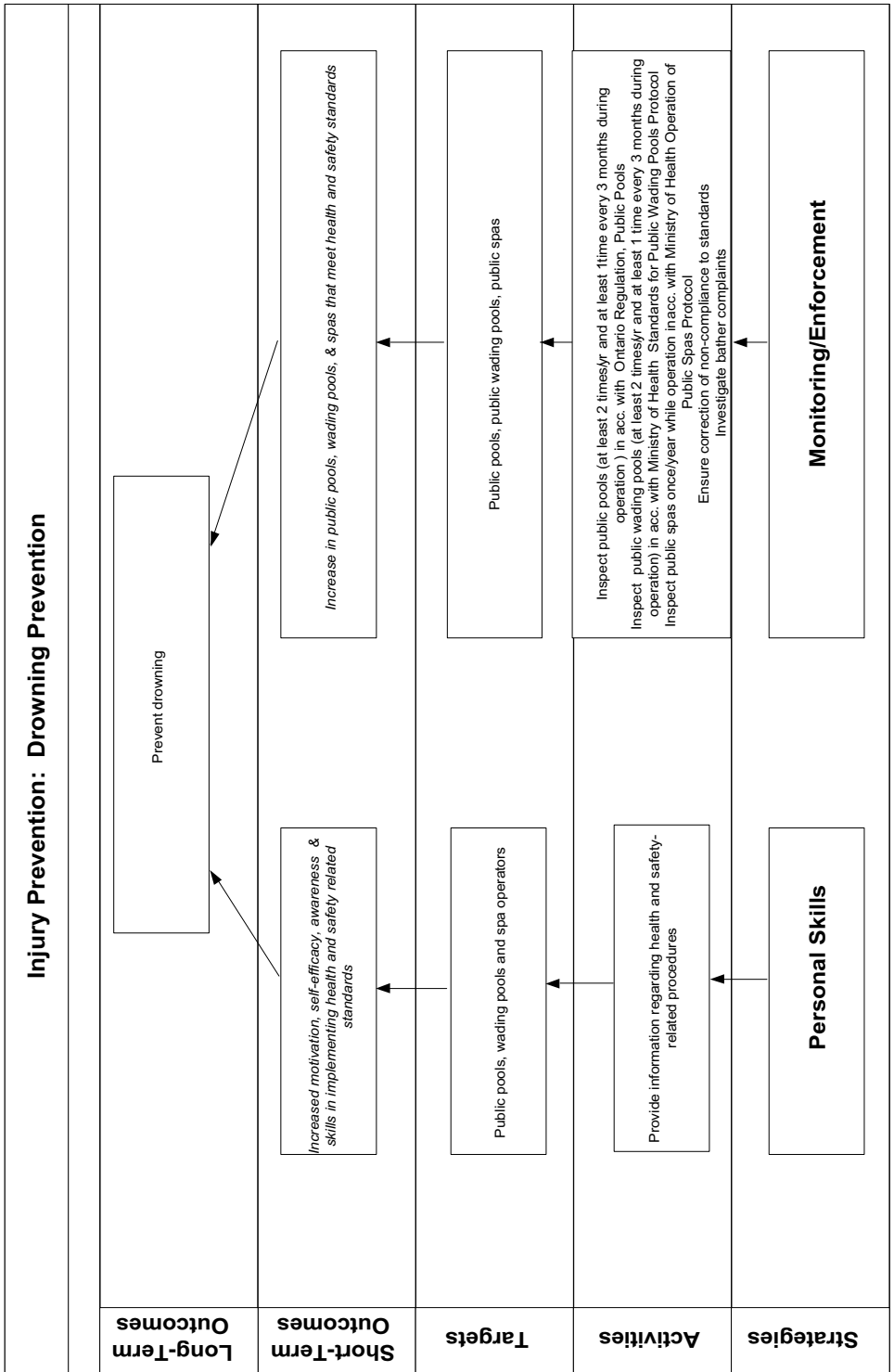


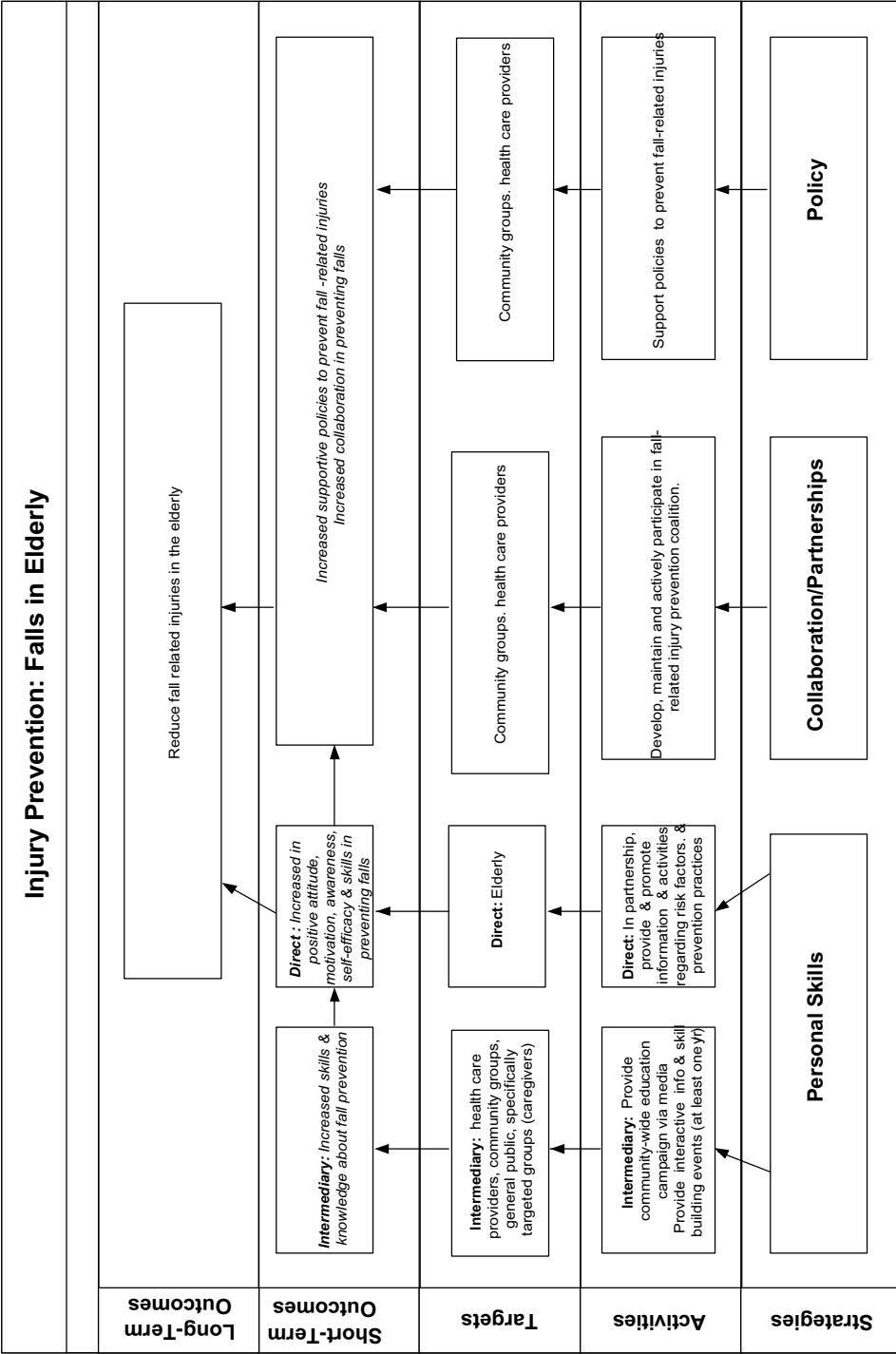


## Injury Prevention: Crash Prevention, Alcohol/Substance Use

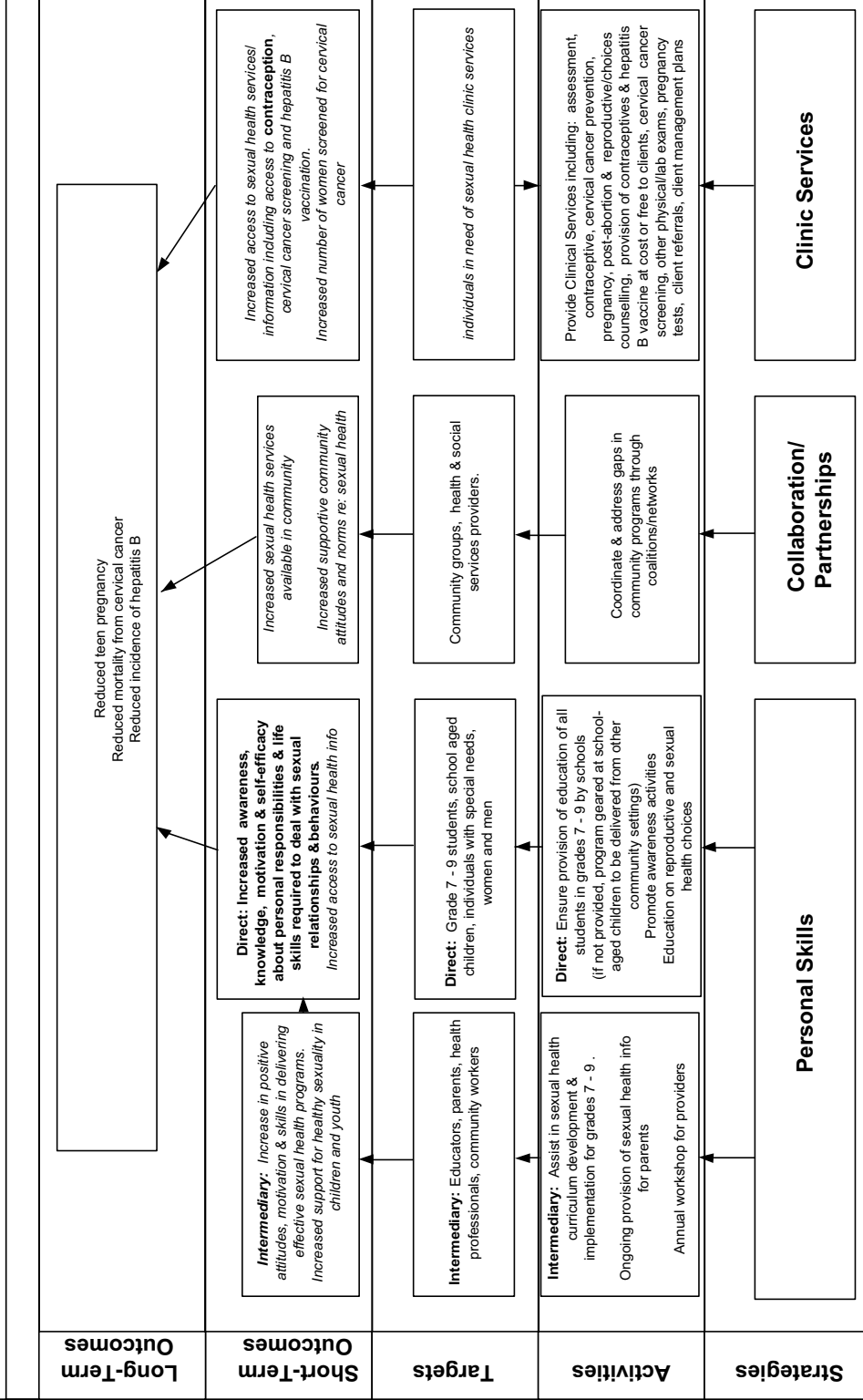


\*Educational Topics to include: road and motorized vehicle safety, correct use of car restraints & airbags, bicycling injury prevention & helmet use, impaired driving & riding with an impaired driver, alcohol use and health status, drinking levels associated with low risk alcohol-related problems, circumstances & populations where limits should be used, countermeasure initiatives, risks associated with illicit substance and non-medicinal drug use .



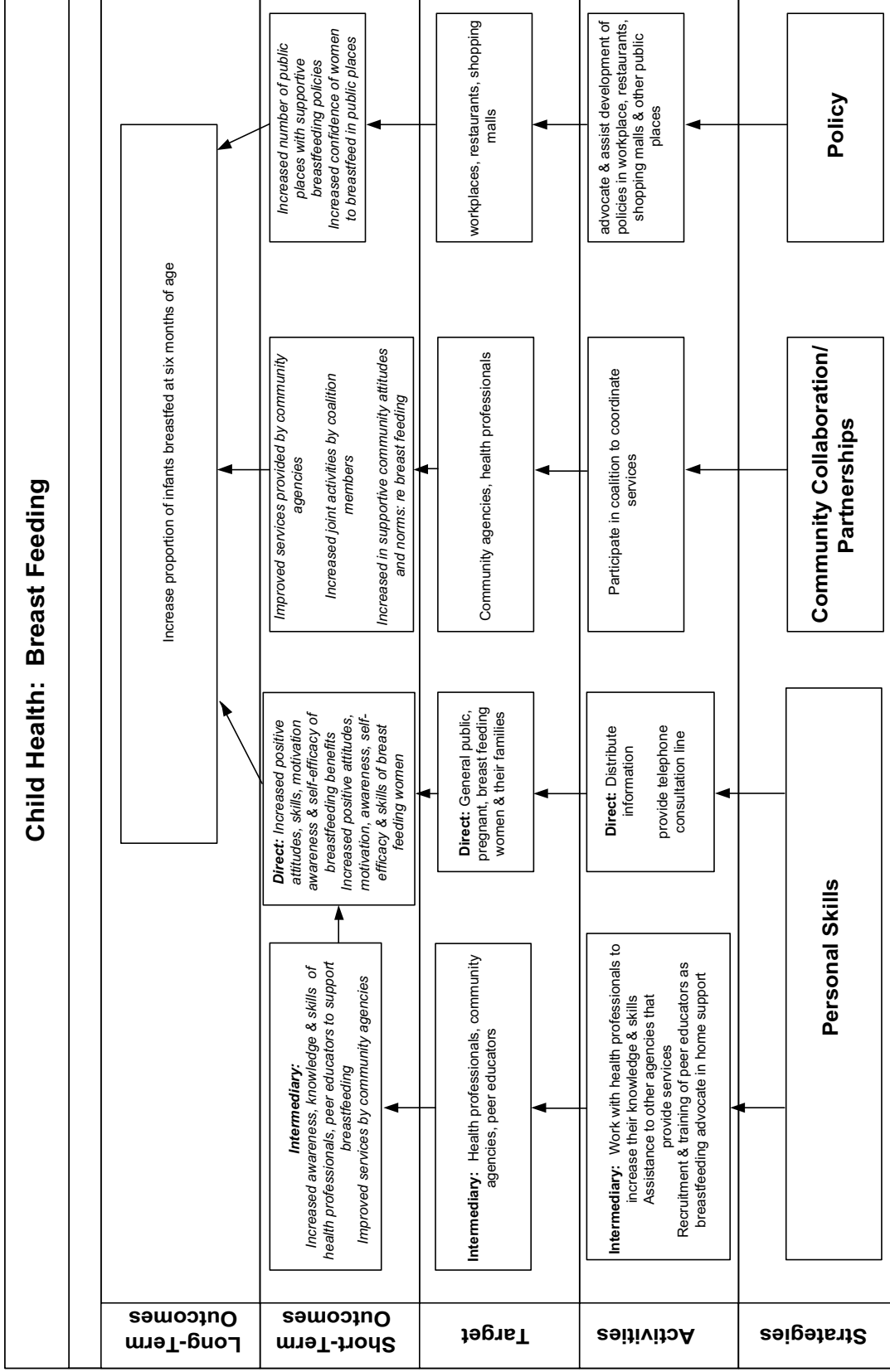


## Sexual Health



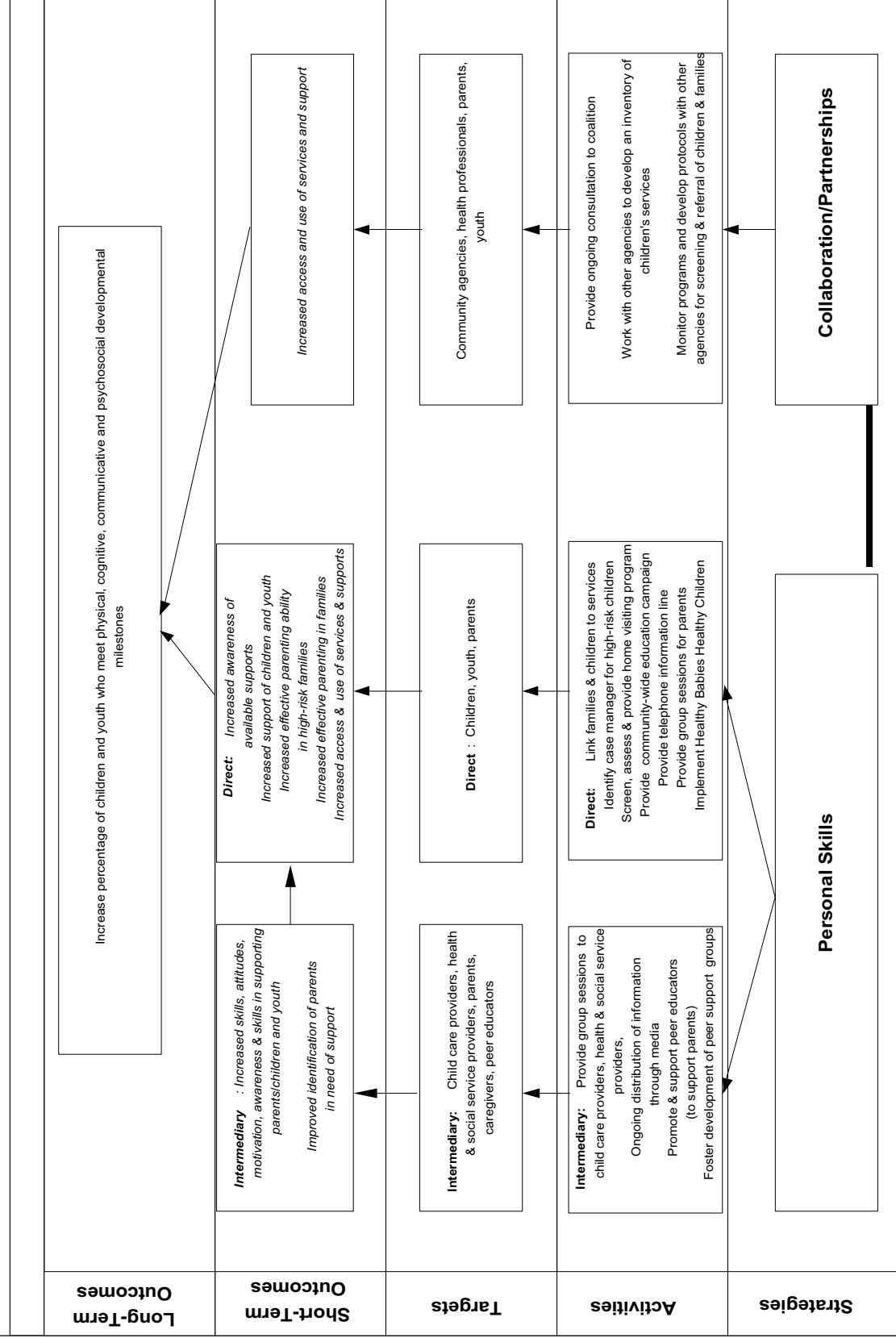
Sexual Health Program to include: sexual behaviour, personal responsibility & decision-making, relationships and assertiveness - negotiating safer sex techniques, methods of contraception (abstinence) STD prevention, sexual orientation & aging , sexual assault & abuse.

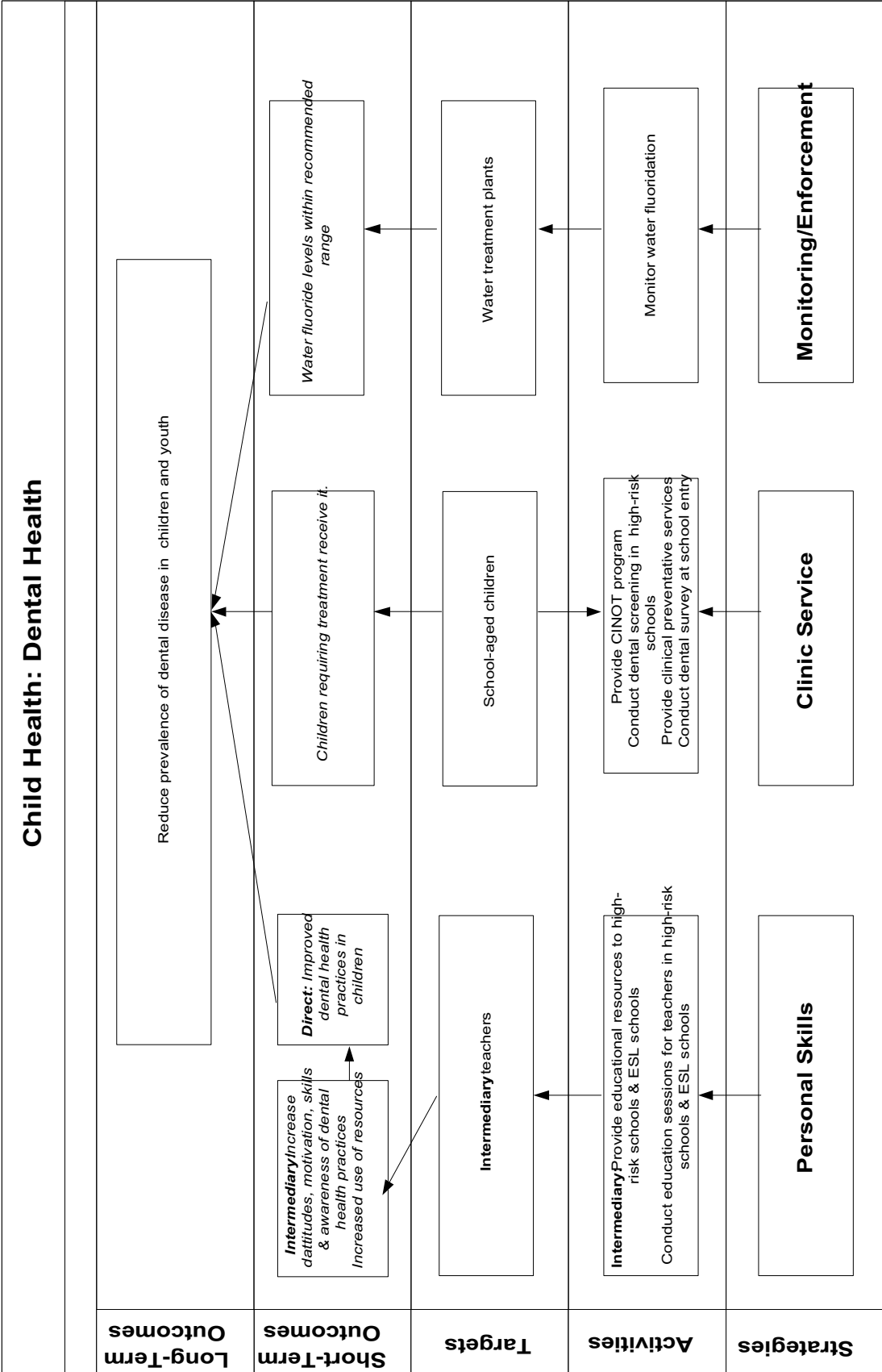


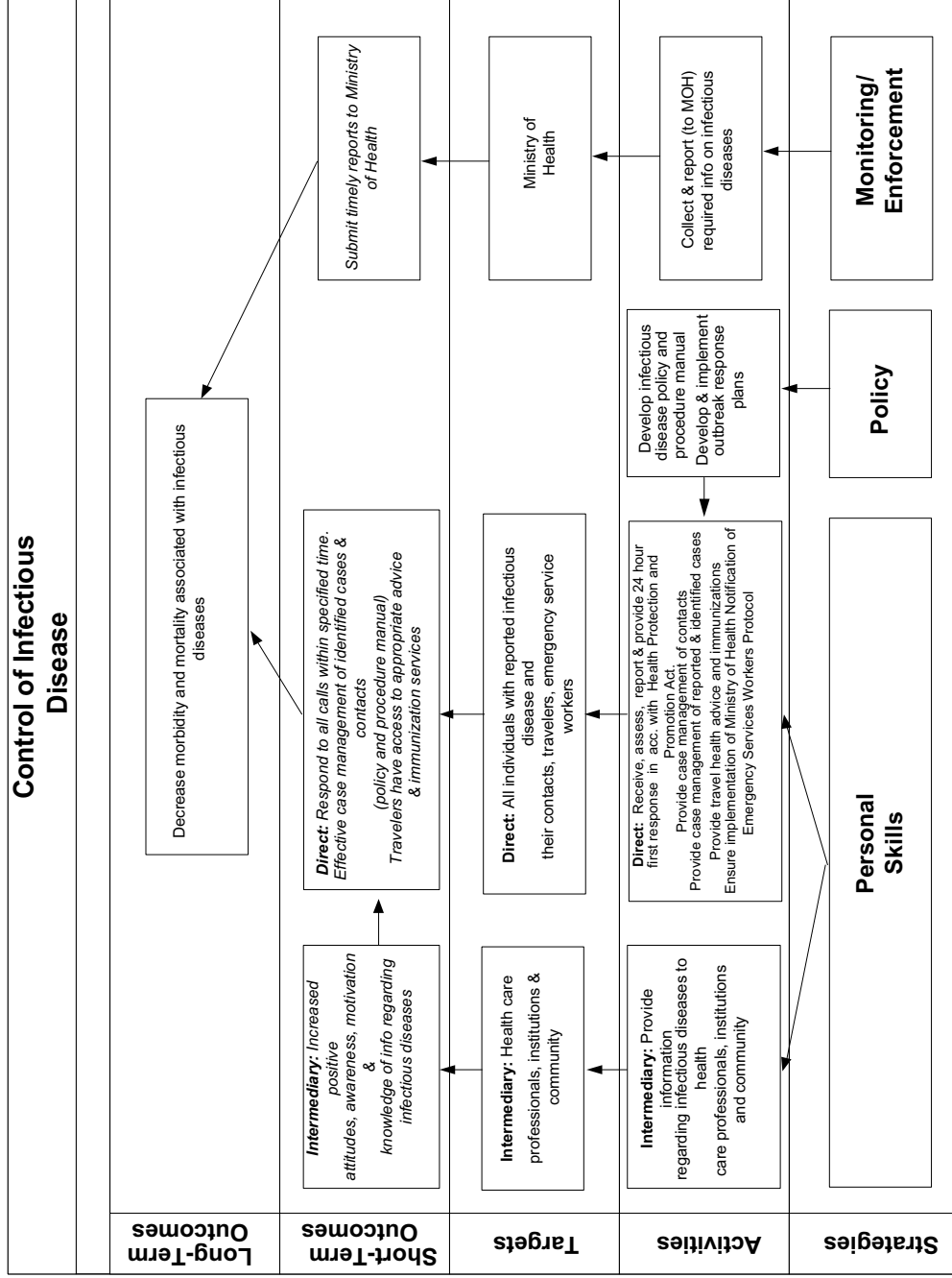


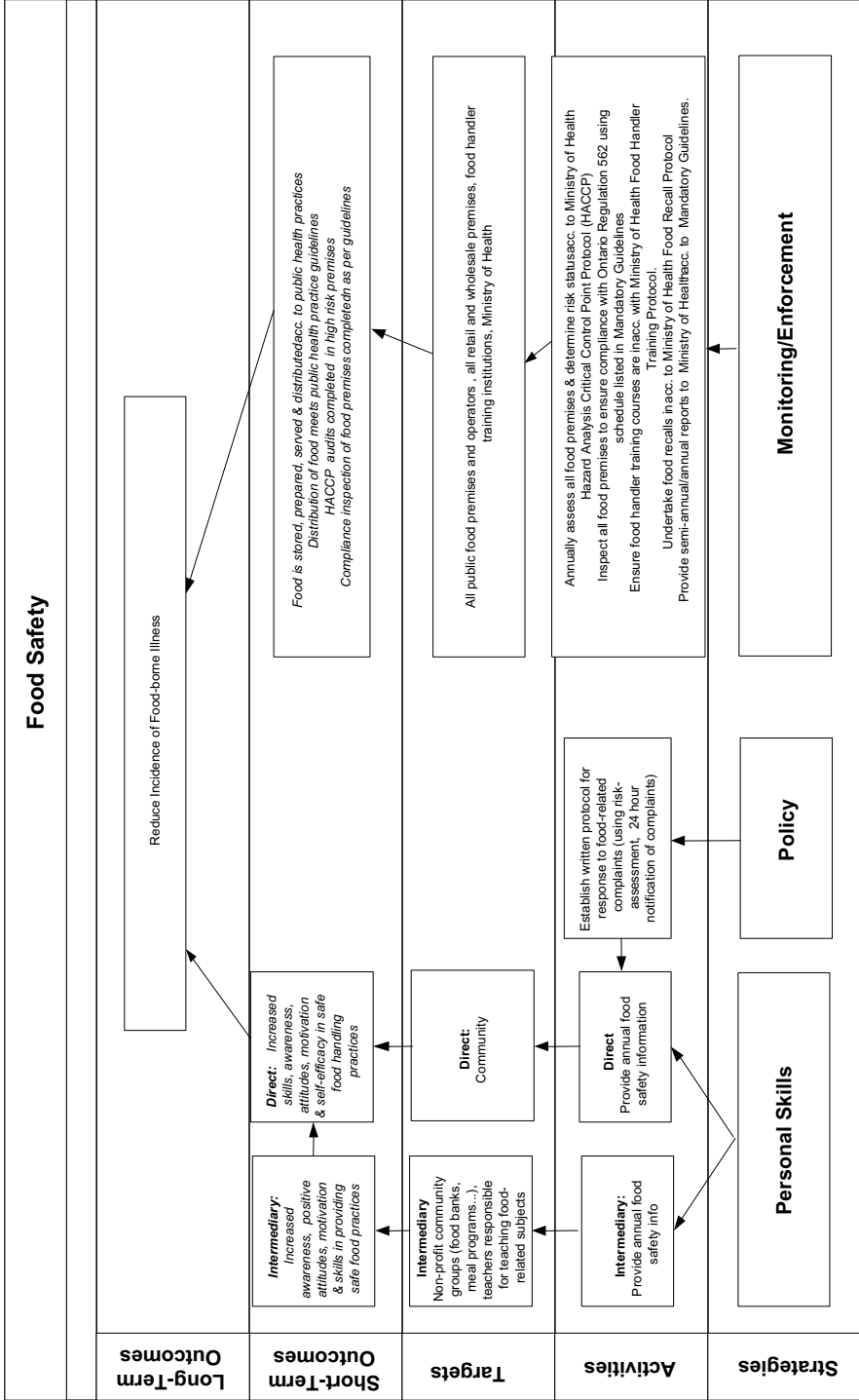
Additional long term outcomes are possible including intention to breastfeed and initiation of breastfeeding

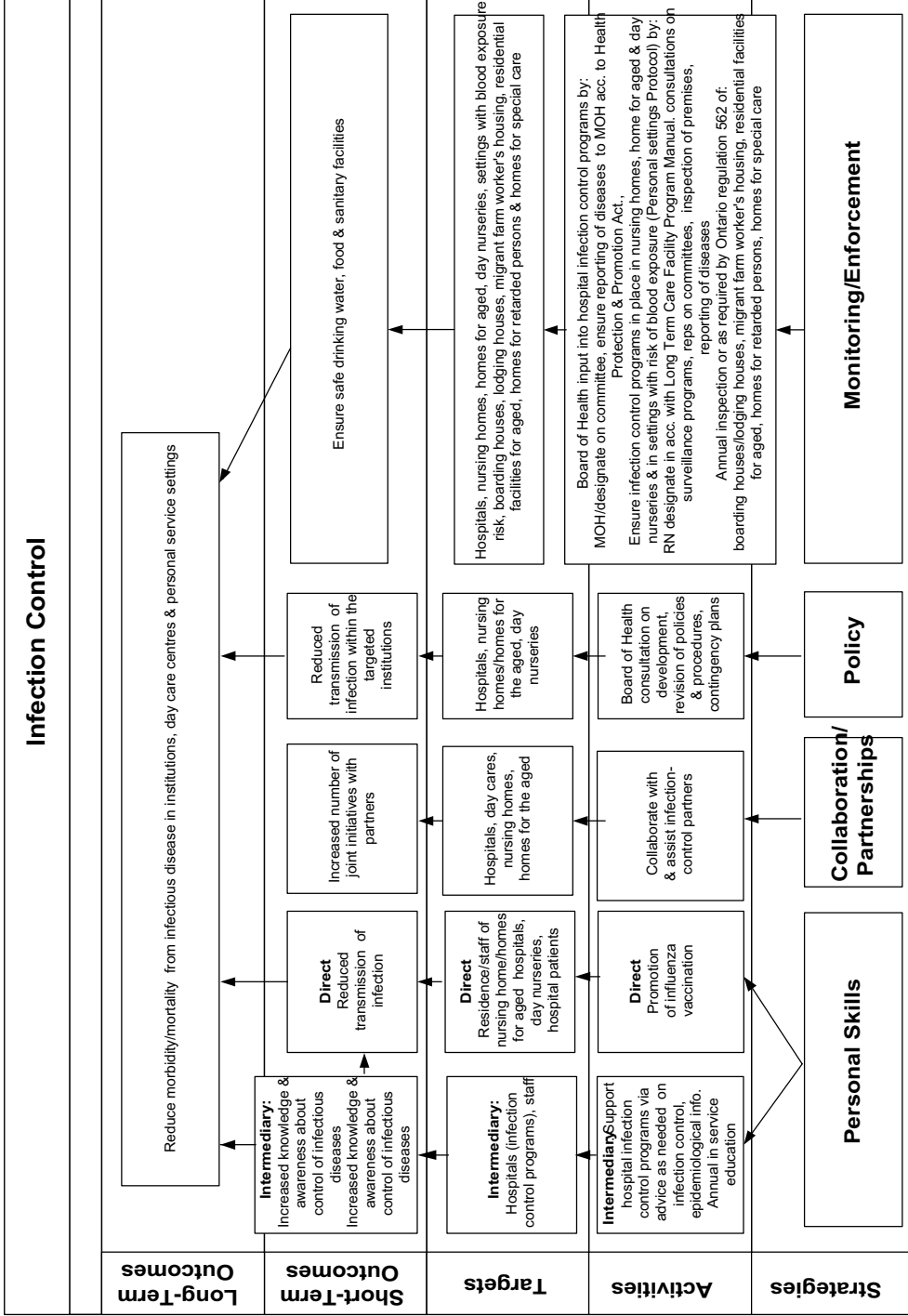
## Child Health: Child/Adolescent Development

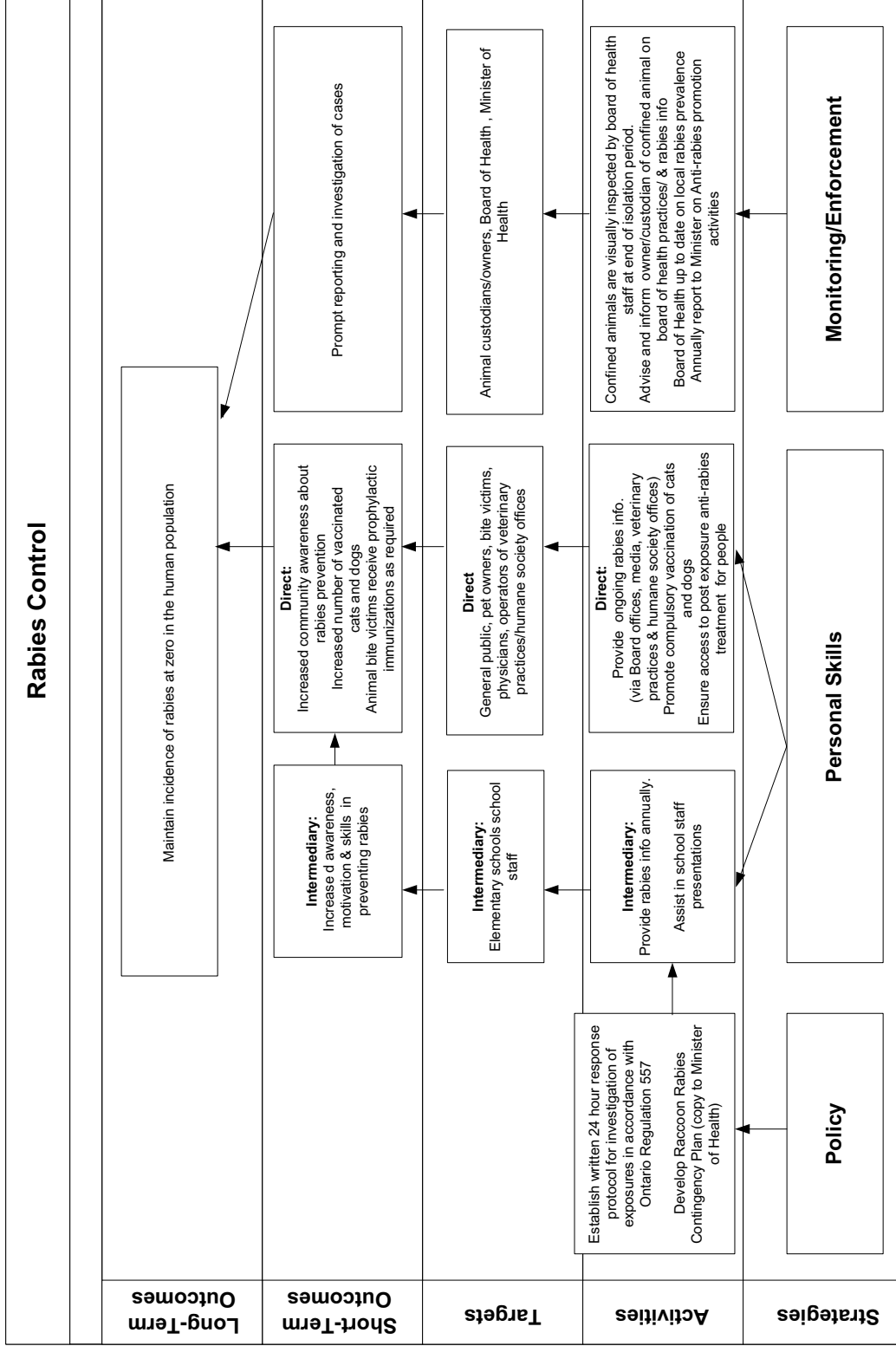






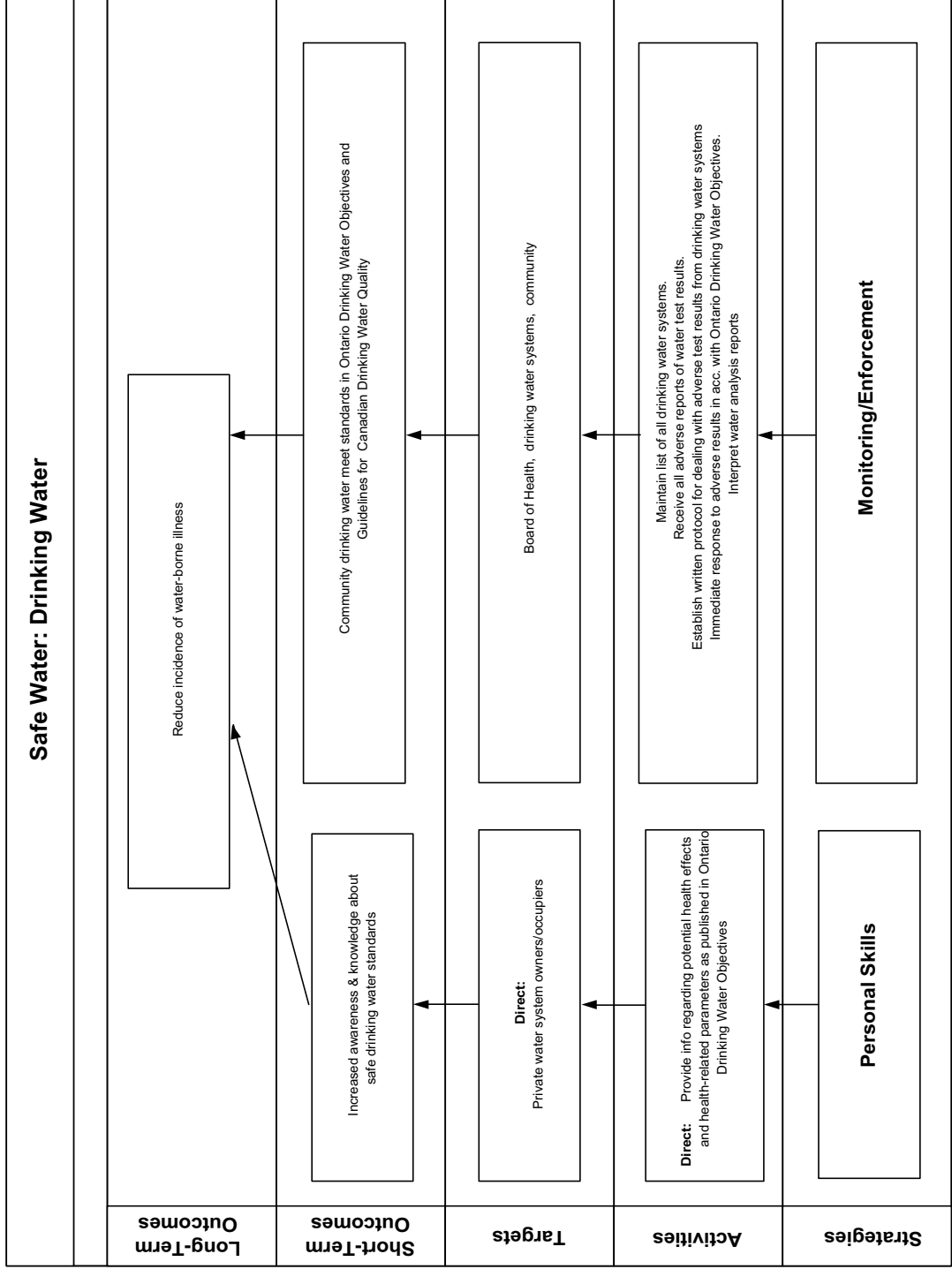


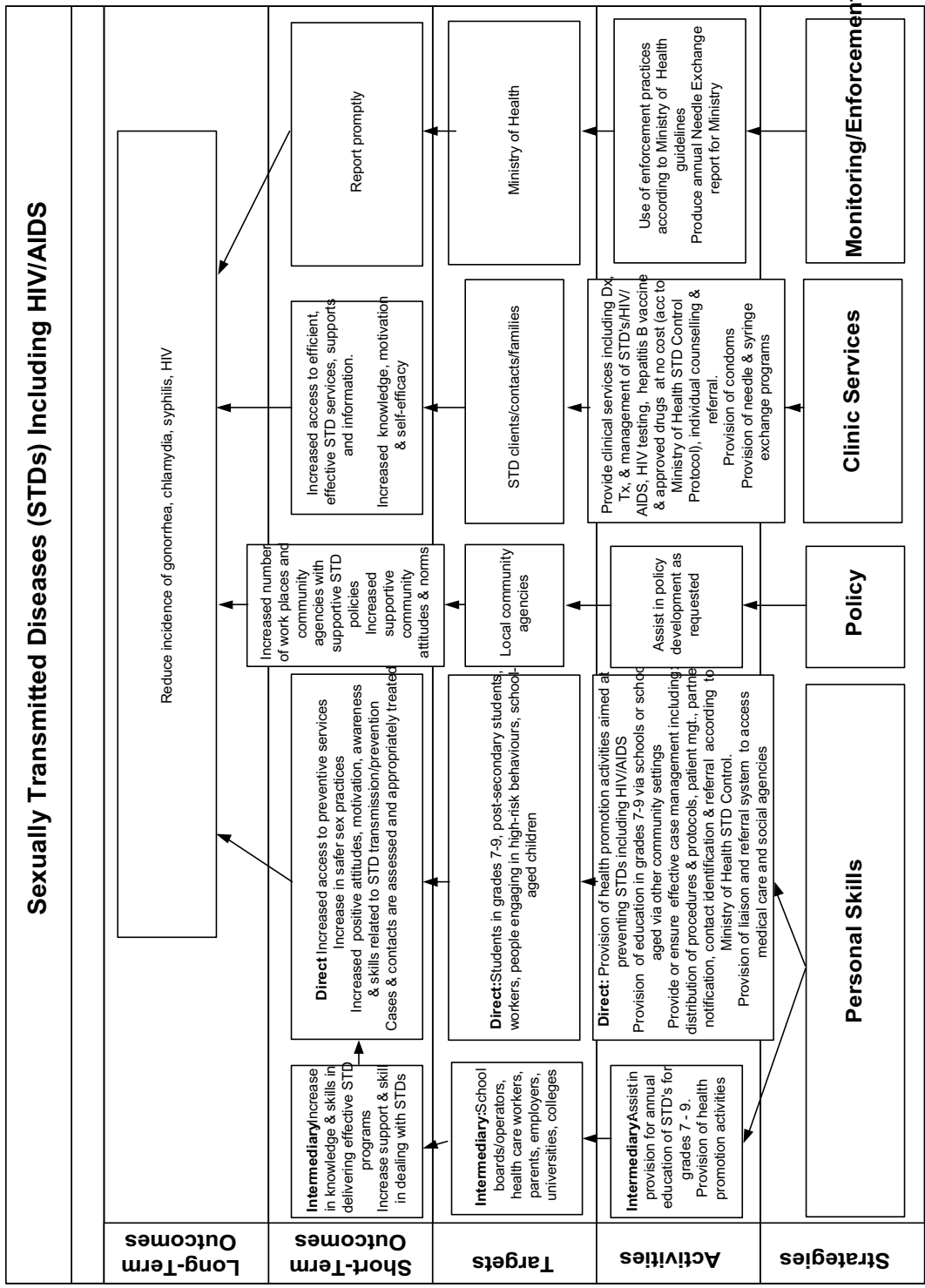


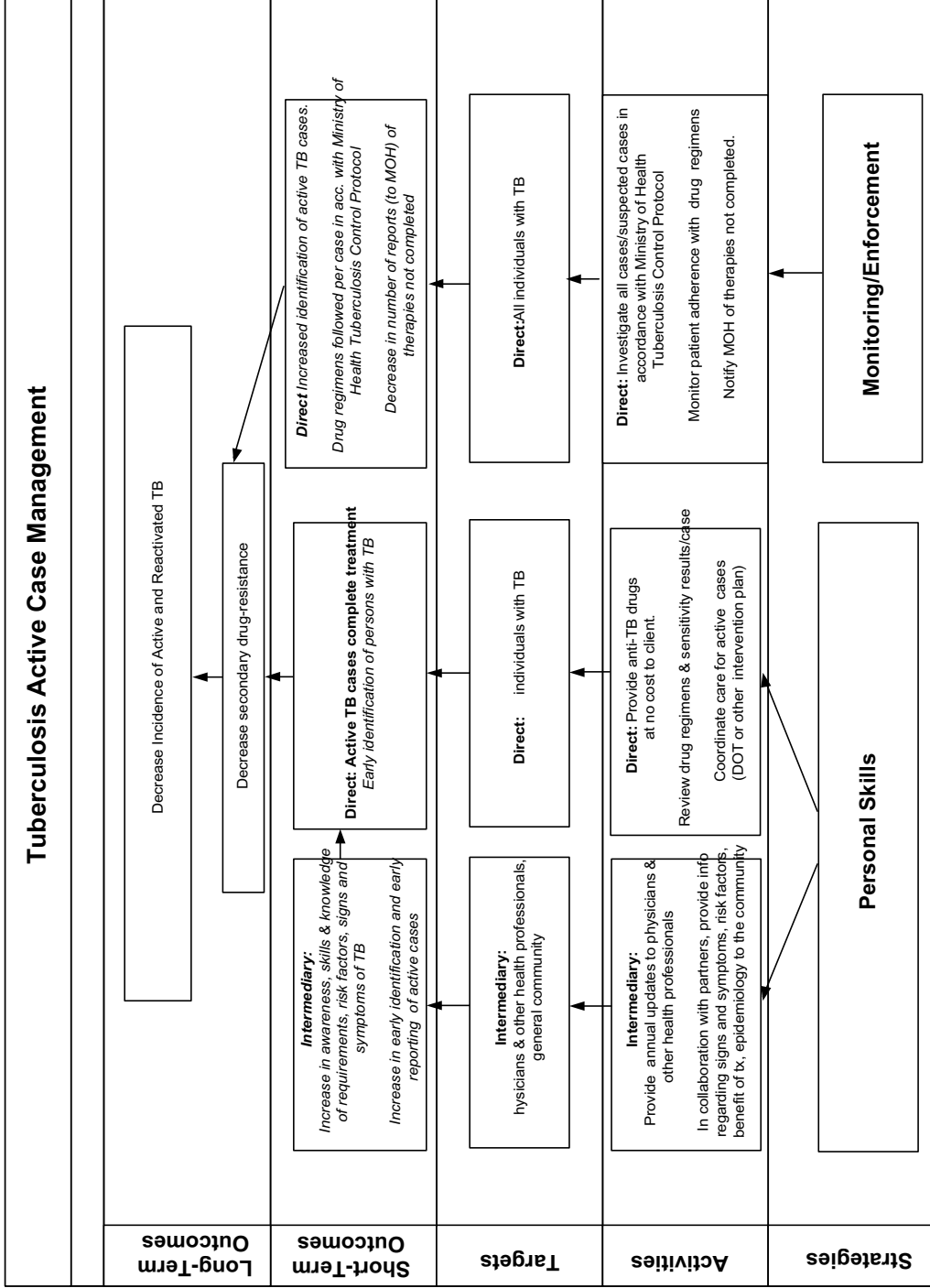


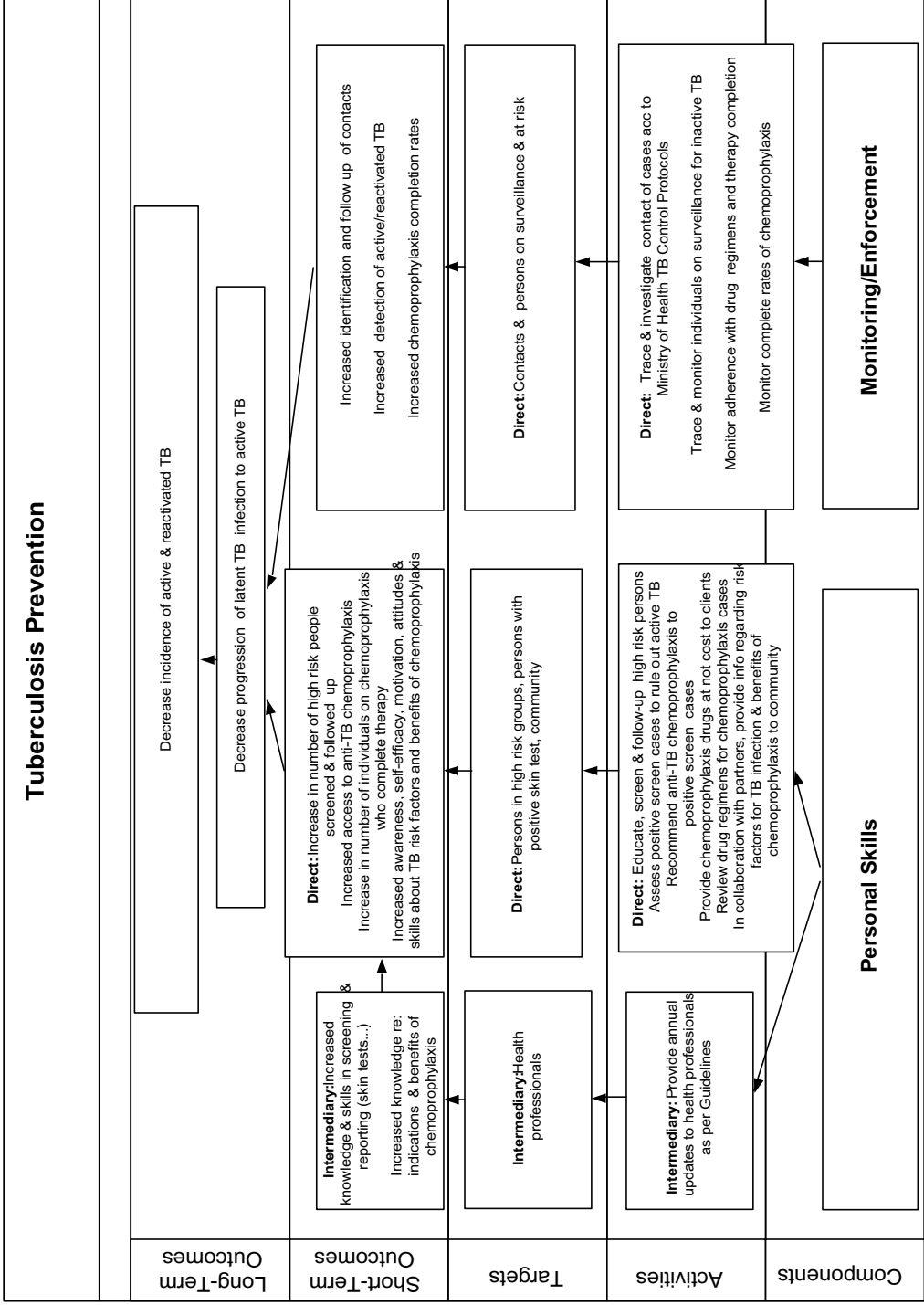
## Safe Water: Bathing Beaches

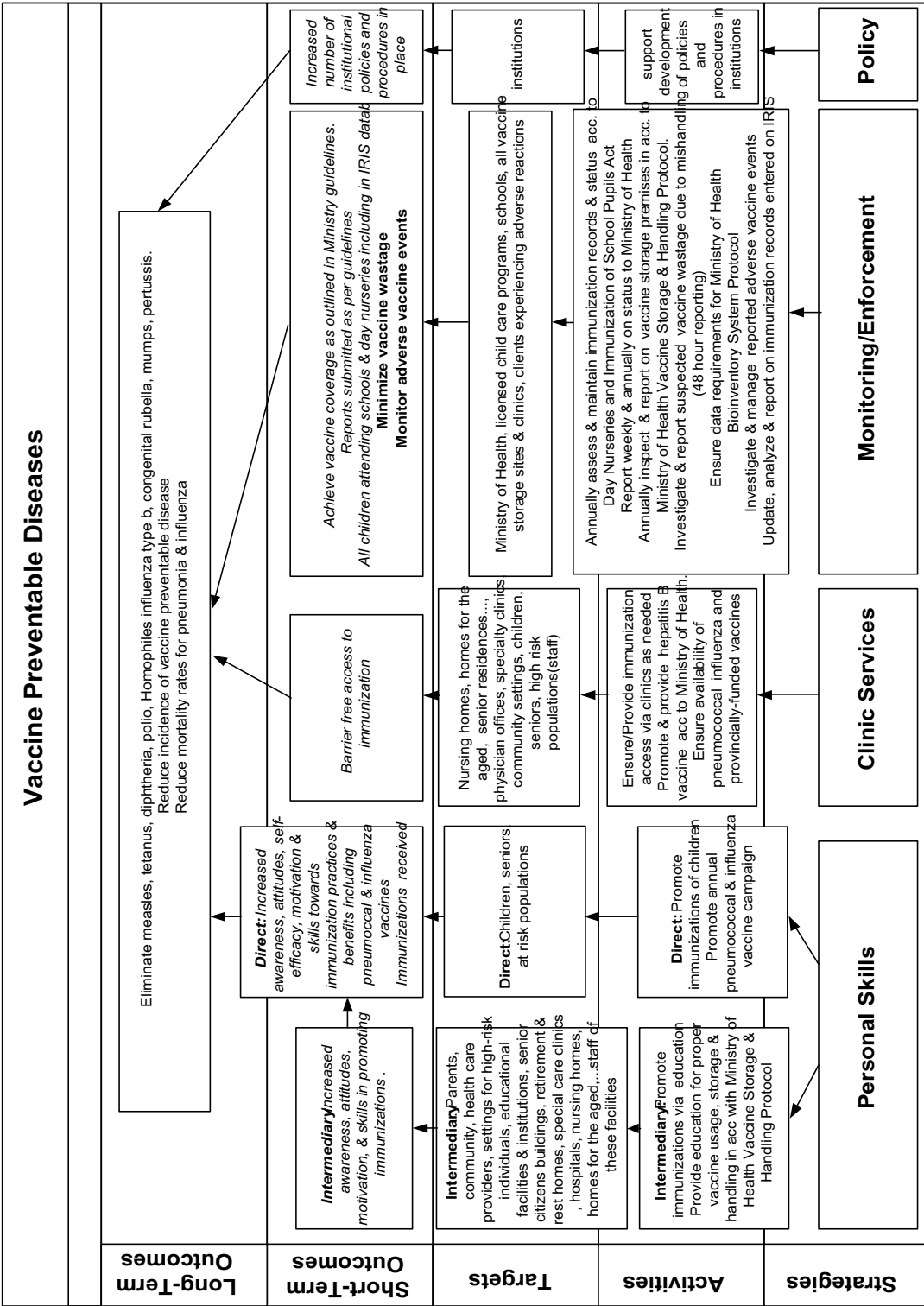
<b>Long-Term Outcomes</b>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">Reduce communicable disease transmission from waters used for bathing at public beaches</div>
<b>Short-Term Outcomes</b>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">Beaches meet water quality standards while open</div>
<b>Targets</b>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">Bathers</div>
<b>Activities</b>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">                     Inspect bathing beaches:                      take water quality samples for each sample site (one sample/week with minimum of five sample sites/ beach                       Inspections begin prior to and continue over bathing season in acc with Ministry of Health Beach Management Protocol.                 </div>
<b>Strategies</b>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"><b>Monitoring/Enforcement</b></div>











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