The Impact of Diabetes on the Health and Well-being of People in British Columbia

Provincial Health Officer's Annual Report 2004

Report overview

- Highlights
- What is Diabetes?
- Prevalence, Incidence, Mortality and Cost of Diabetes
- Diabetes Among the First Nations Population
- Prevention of Diabetes
- Management of Diabetes
- Recommendations

Report's Data and Methodology

National Diabetes Surveillance System

- A Partnership between federal and provincial governments to improve diabetes data

Administrative databases of Ministry of Health

- Hospital utilization
- Medical services utilization
- Prescribed drug utilization
- Provincial health insurance coverage information
- Vital Statistics mortality data

What is Diabetes?

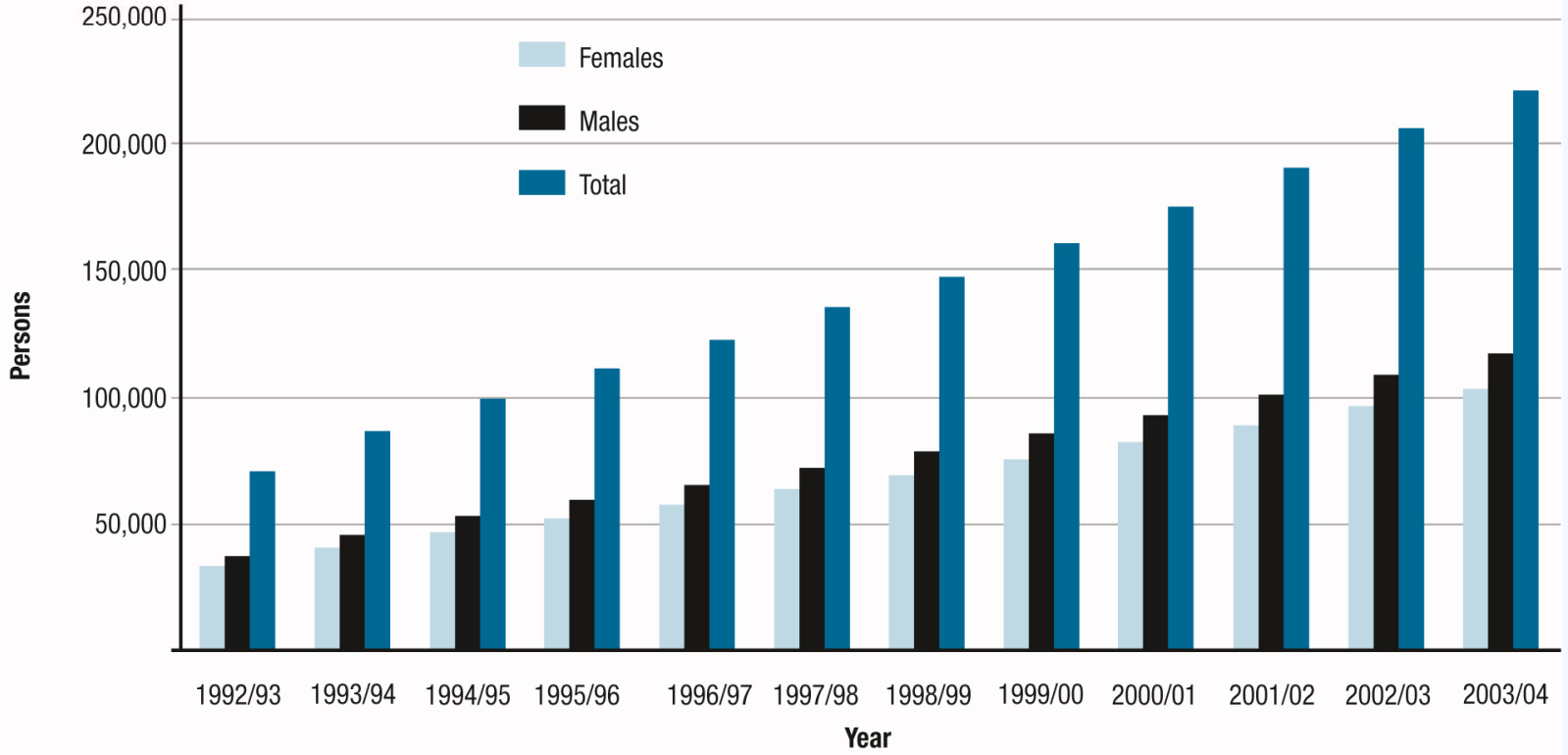
- A chronic condition that results from a deficiency or ineffective use of insulin in the body.
- Types of Diabetes:
  - Type 1
  - Type 2
  - Gestational Diabetes

Diabetes in British Columbia

- In 2003/2004, approximately 220,000 individuals (5.2 per cent of the population) were living with diabetes in British Columbia

Prevalence of Diabetes

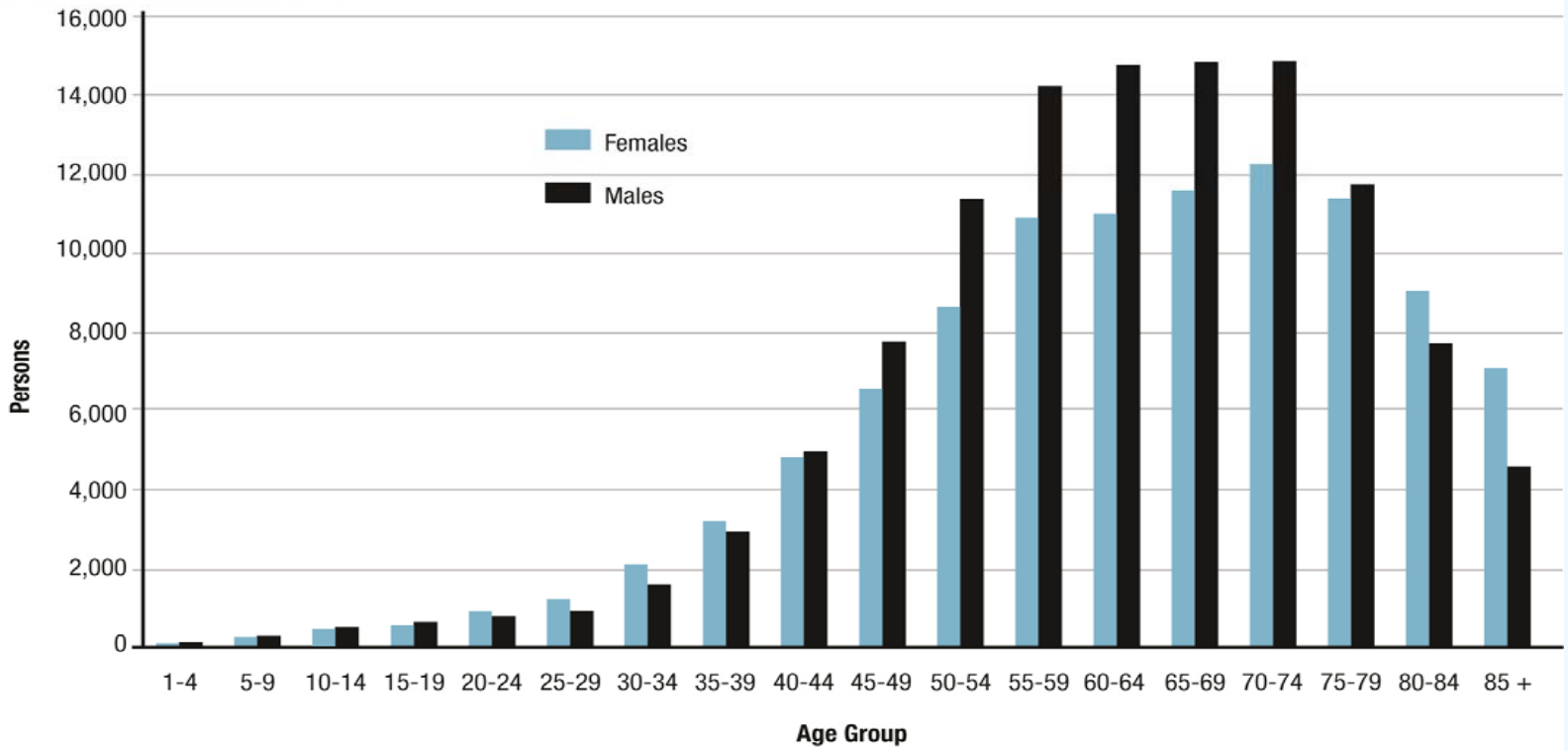
Figure 2.1 **Prevalence of Diabetes, BC, 1992/1993 to 2003/2004***



*Cases for 2003/2004 are adjusted to compensate for incomplete follow-up (12 months) of Medical Services Plan component of the incident case definition.

Source: Population Health Surveillance and Epidemiology, Ministry of Health, 2005.

Figure 2.2 Age Distribution of Persons With Diabetes, BC, 2003/2004*

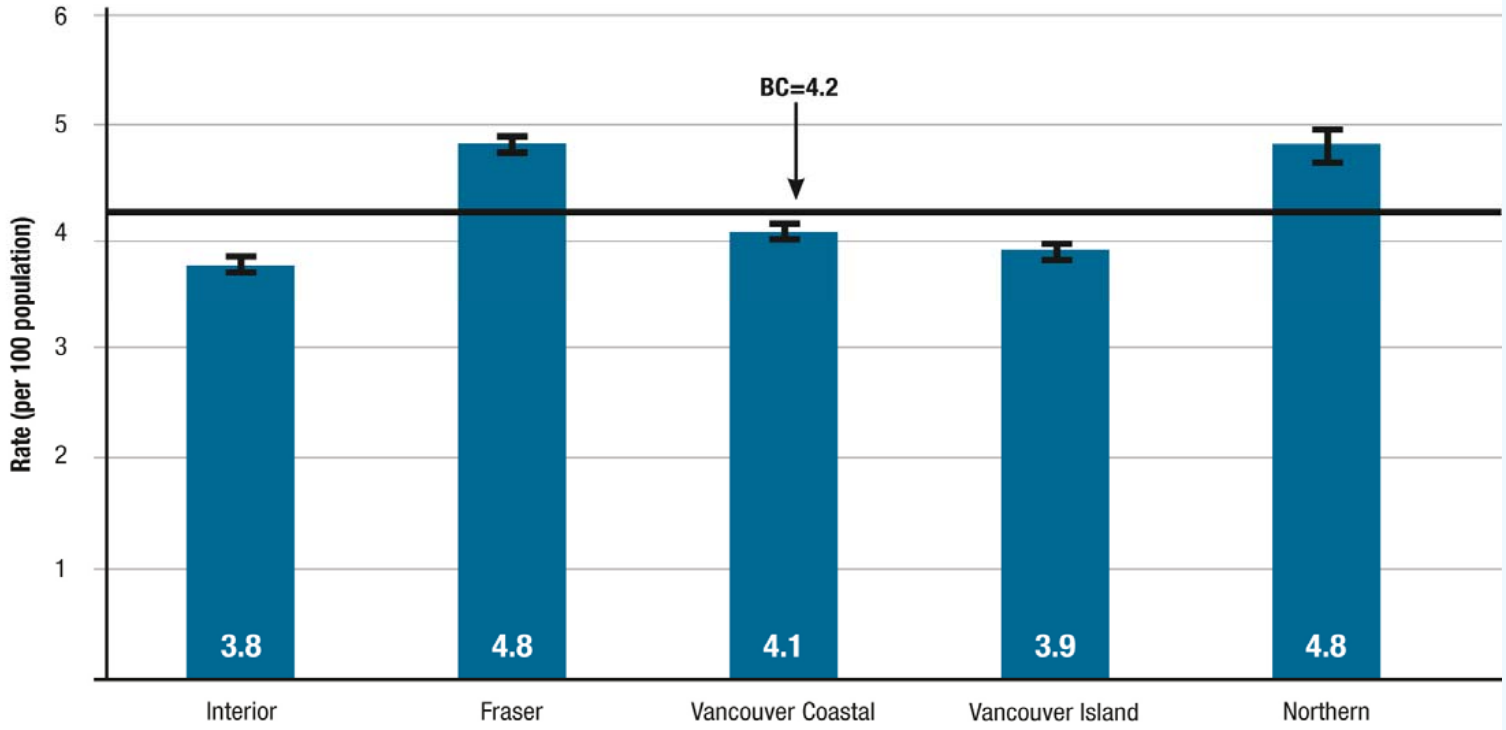


*Cases for 2003/2004 are adjusted to compensate for incomplete follow-up (12 months) of Medical Services Plan component of the incident case definition.

Source: Population Health Surveillance and Epidemiology, Ministry of Health, 2005.

Figure 2.4

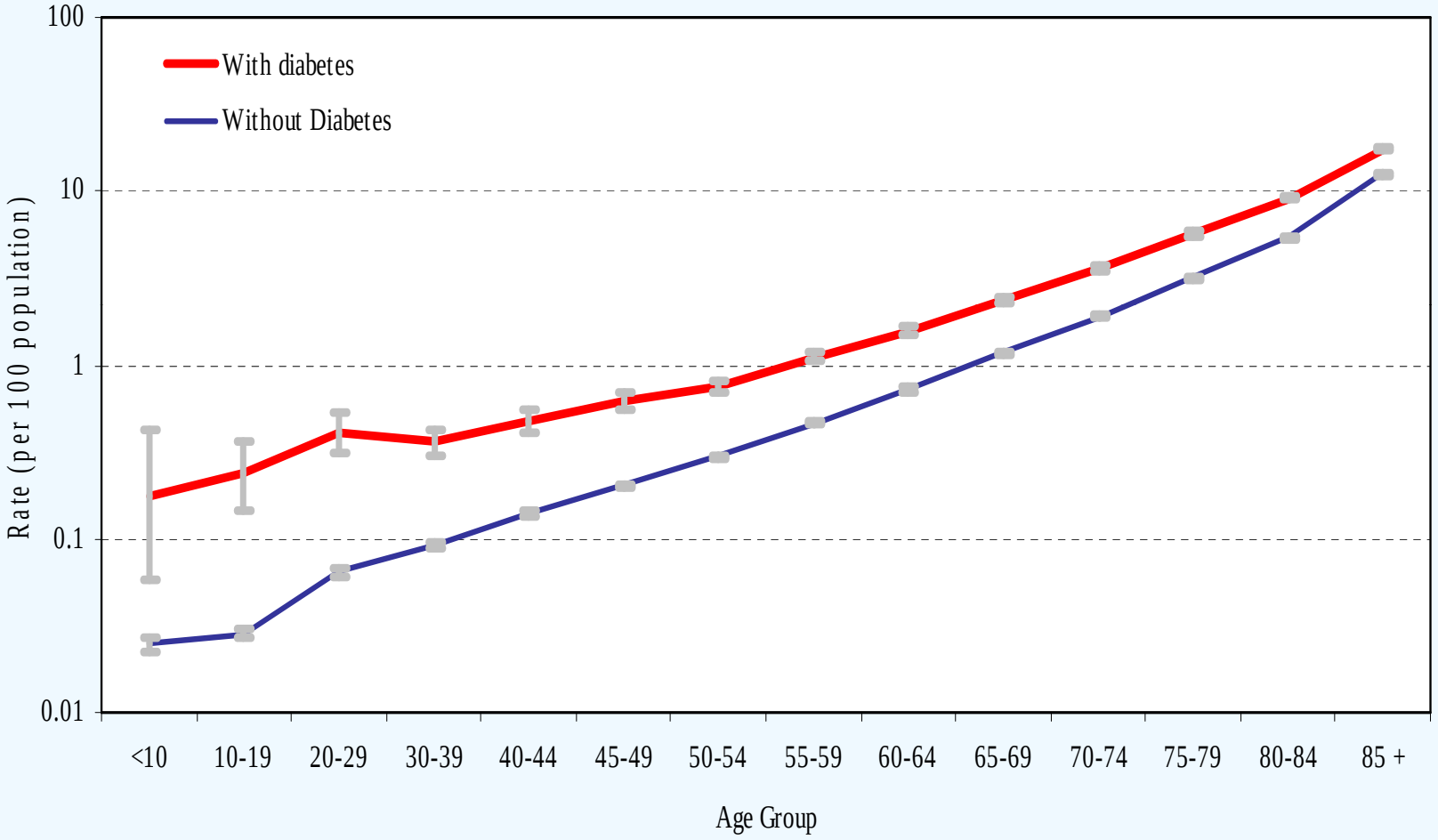
Age-Standardized Prevalence Rate of Diabetes, by Health Authority, 2003/2004*



*Cases for 2003/2004 are adjusted to compensate for incomplete follow-up (12 months) of Medical Services Plan component of the incident case definition.

Source: Population Health Surveillance and Epidemiology, Ministry of Health, 2005.

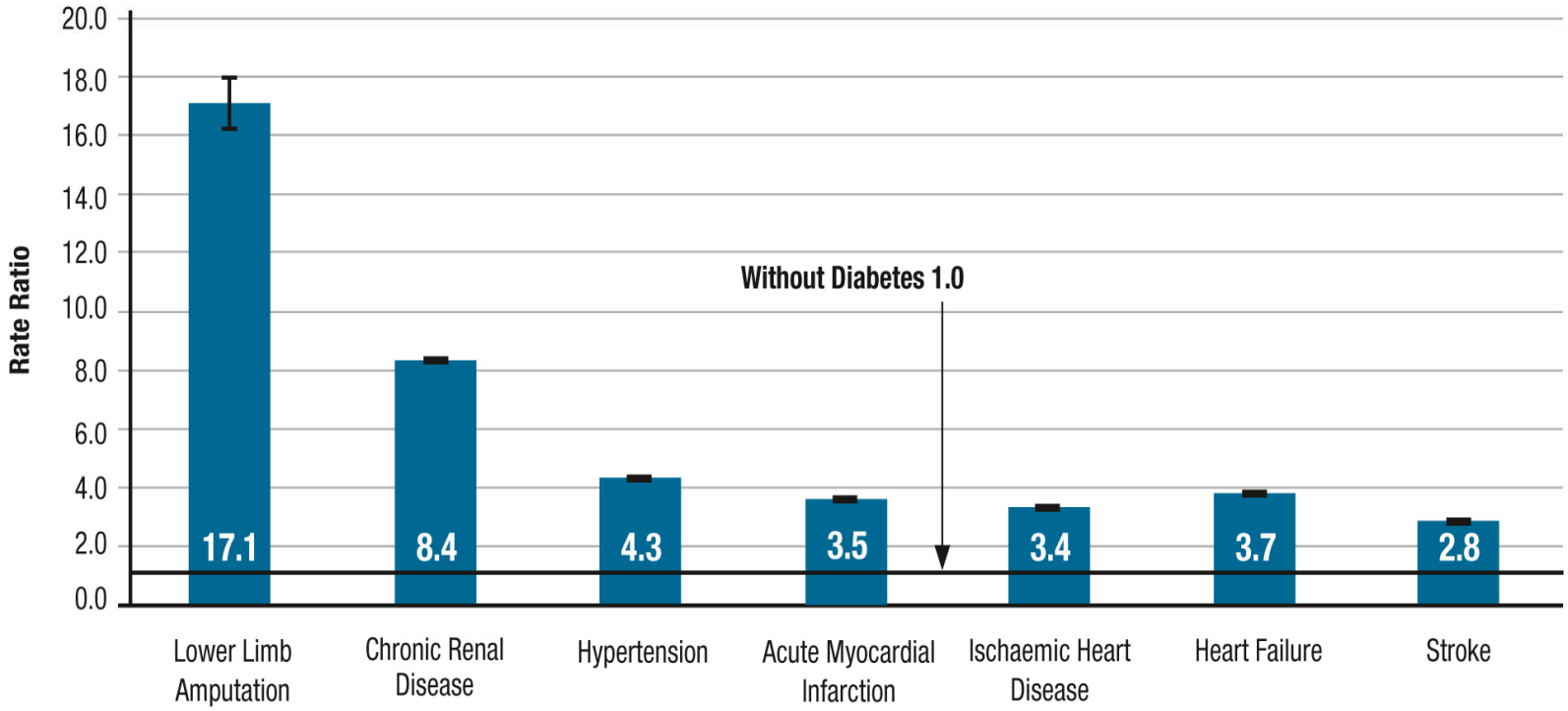
Age-Specific Mortality Rates, Ages <10 to 85+ Years,
Persons With and Without Diabetes, B.C., 1998/1999-2002/2003



Source: Population Health Surveillance and Epidemiology, Ministry of Health, 2005.

Figure 2.11

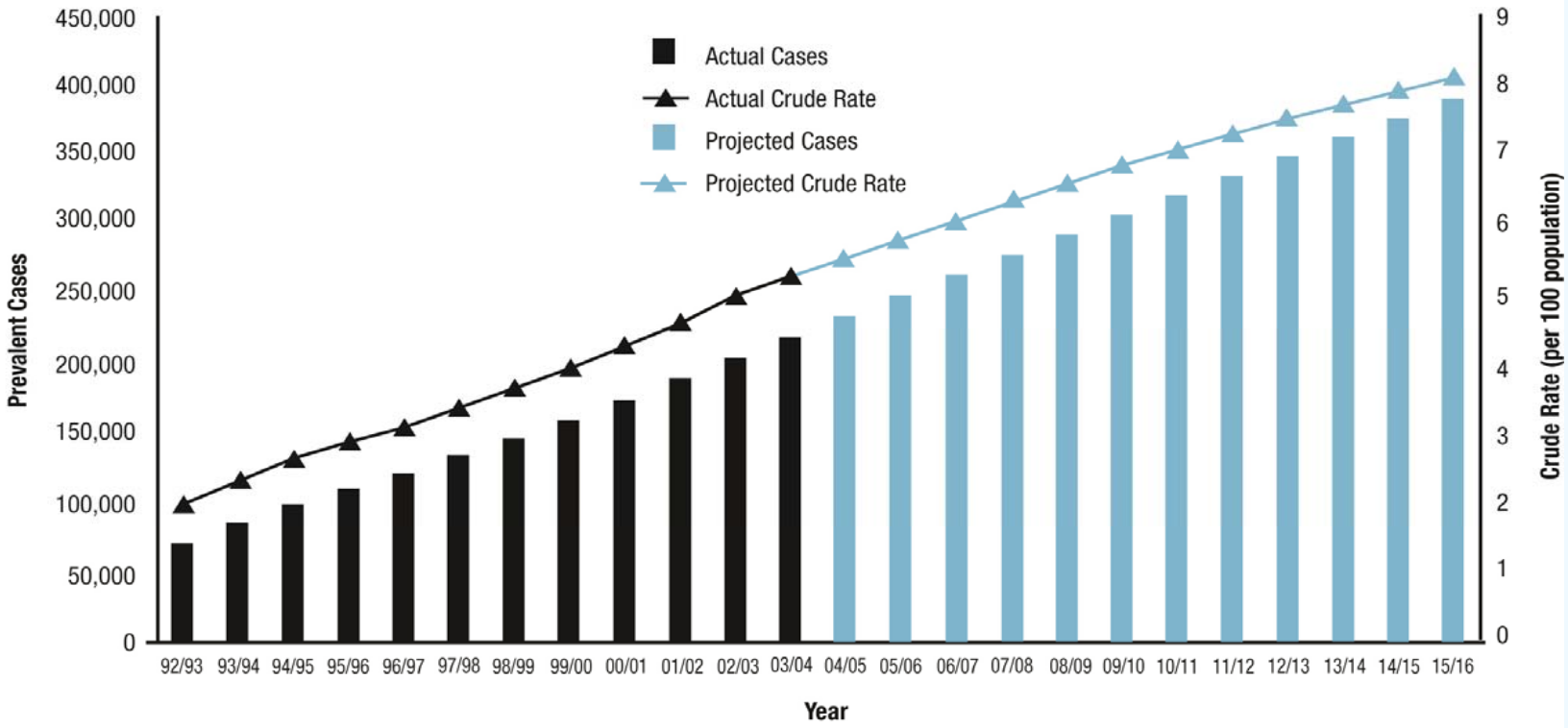
Age-Standardized Hospitalization Rate Ratios for Selected Associated Conditions, Persons With and Without Diabetes, BC, 1992/1993-2003/2004



Source: Population Health Surveillance and Epidemiology, Ministry of Health, 2005.

Figure 2.12a

Diabetes Prevalence Projections, BC, Cases and Crude Rates, 1992/1993 to 2015/2016

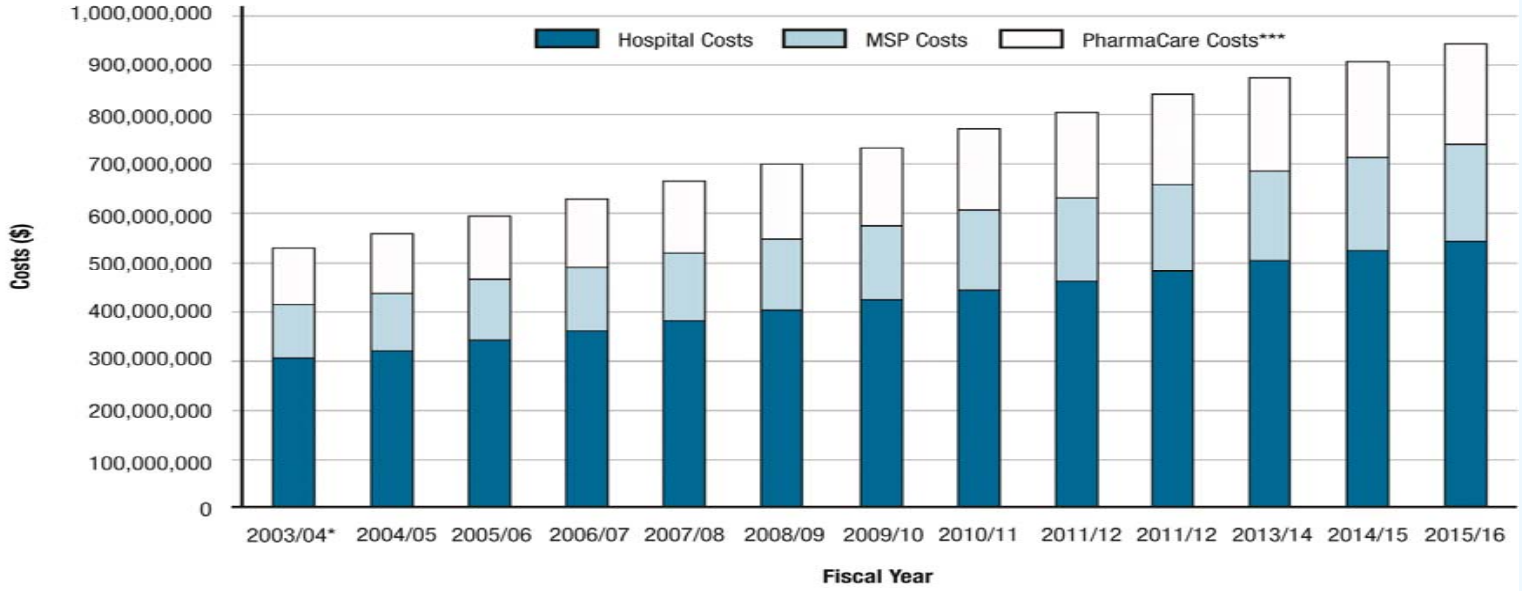


Source: Population Health Surveillance and Epidemiology, Ministry of Health, 2005.

Cost of Diabetes

Figure 2.17

Projected Additional Health Services Costs for Persons With Diabetes, BC, 2003/2004 to 2015/2016**



* Actual costs.

** Cost estimates are derived by attributing all costs (Hospital, Medical Services Plan, Pharmacare) in a given year to two groups—either persons with diabetes or persons without diabetes. Costs are constant 2003/2004 dollars. These estimates exclude both health-related costs for which the responsibility for payment falls on the individual person with diabetes, and other government-funded health care expenses (e.g., costs for long-term care).

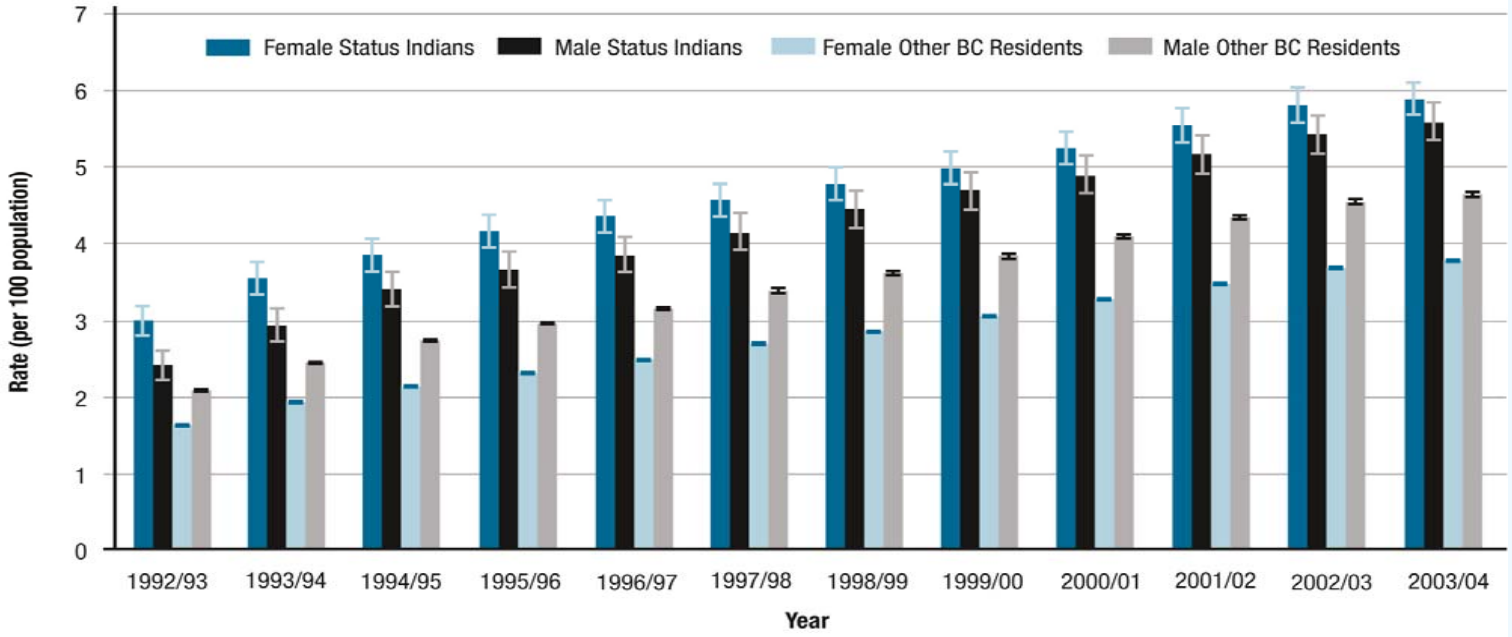
*** PharmaCare implemented significant changes to its deductible structure on January 01, 2002 and on May 01, 2003.

Source: Population Health Surveillance and Epidemiology, Ministry of Health, 2005.

Diabetes Among First Nations

Figure 3.4

Age-Standardized Prevalence Rates, Status Indians and Other BC Residents, BC, 1992/1993 to 2003/2004*

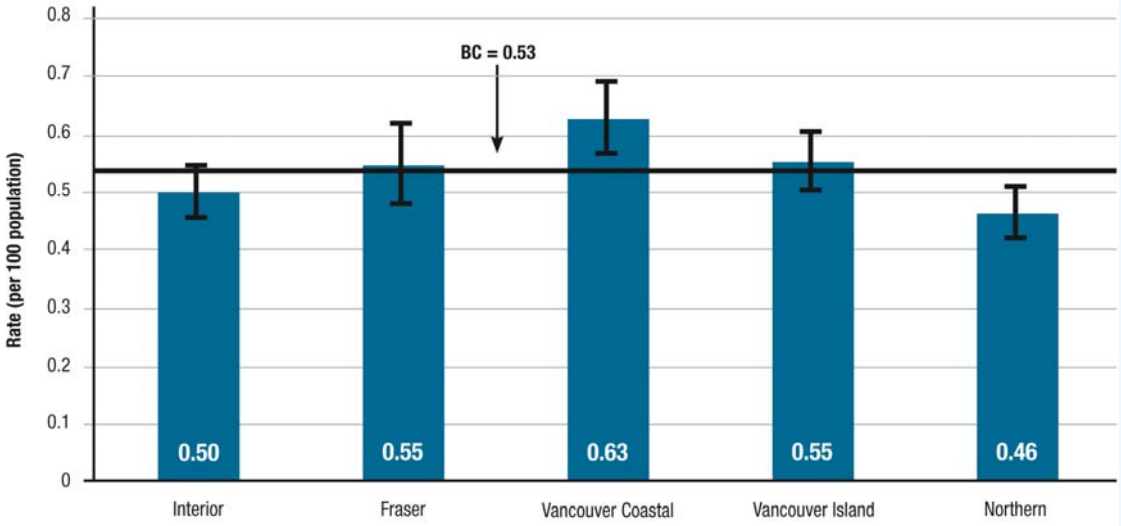


*Cases for 2003/2004 are adjusted to compensate for incomplete follow-up (12 months) of MSP component of the incident case definition. Trends for all populations are statistically significant ($p < 0.001$).

Source: Population Health Surveillance and Epidemiology, Ministry of Health, 2005.

Figure 3.8a

Age-Standardized Incidence Rate of Diabetes, Status Indians, by Health Authority, 1998/1999-2002/2003*

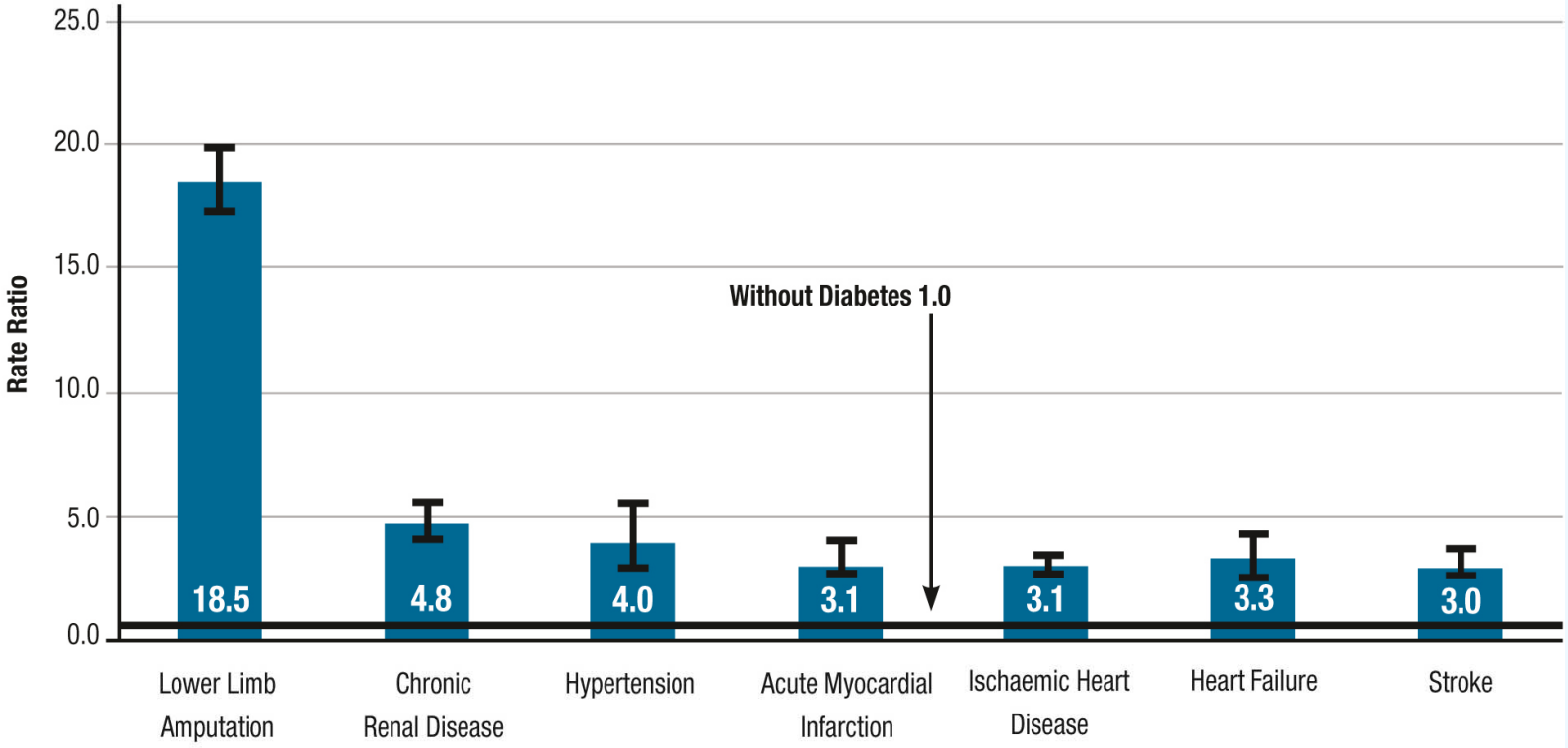


*Note: New cases of diabetes arise sporadically and create volatility in the yearly incidence rates for individual age groups. For this reason, a 5-year period is used to smooth out fluctuations that may arise.

Source: Population Health Surveillance and Epidemiology, Ministry of Health, 2005.

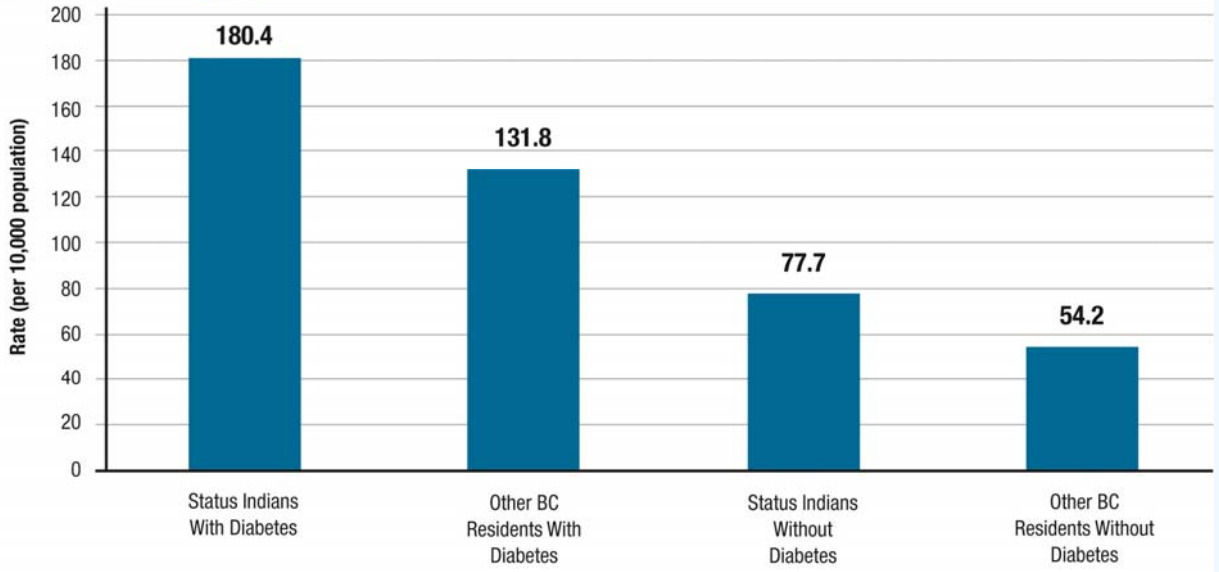
Figure 3.12a

Age-Standardized Hospitalization Rate Ratios for Selected Associated Conditions, Status Indians With and Without Diabetes, BC, 1998/1999-2002/2003



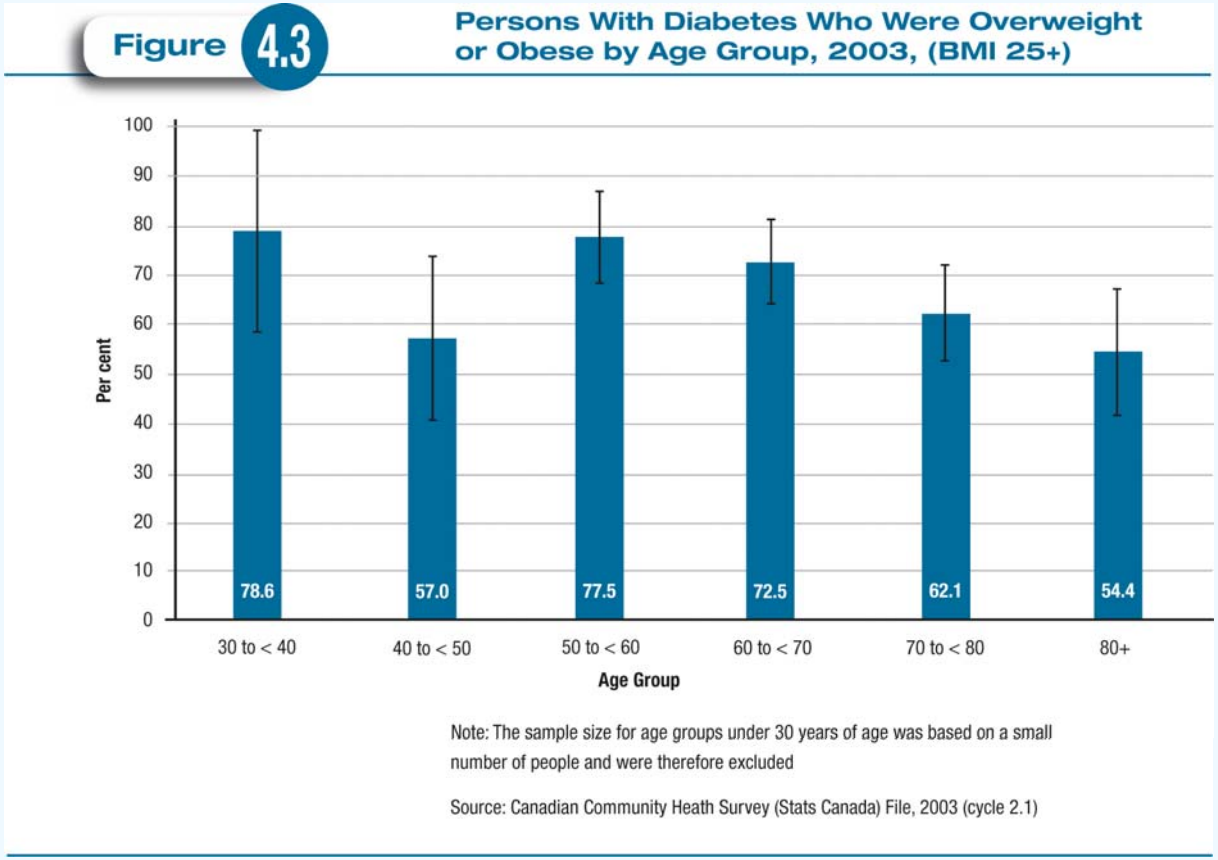
Source: Population Health Surveillance and Epidemiology, Ministry of Health, 2005.

Figure 3.11 Age-Standardized Mortality Rates, Status Indians and Other BC Residents With and Without Diabetes, BC, 1998/1999-2002/2003

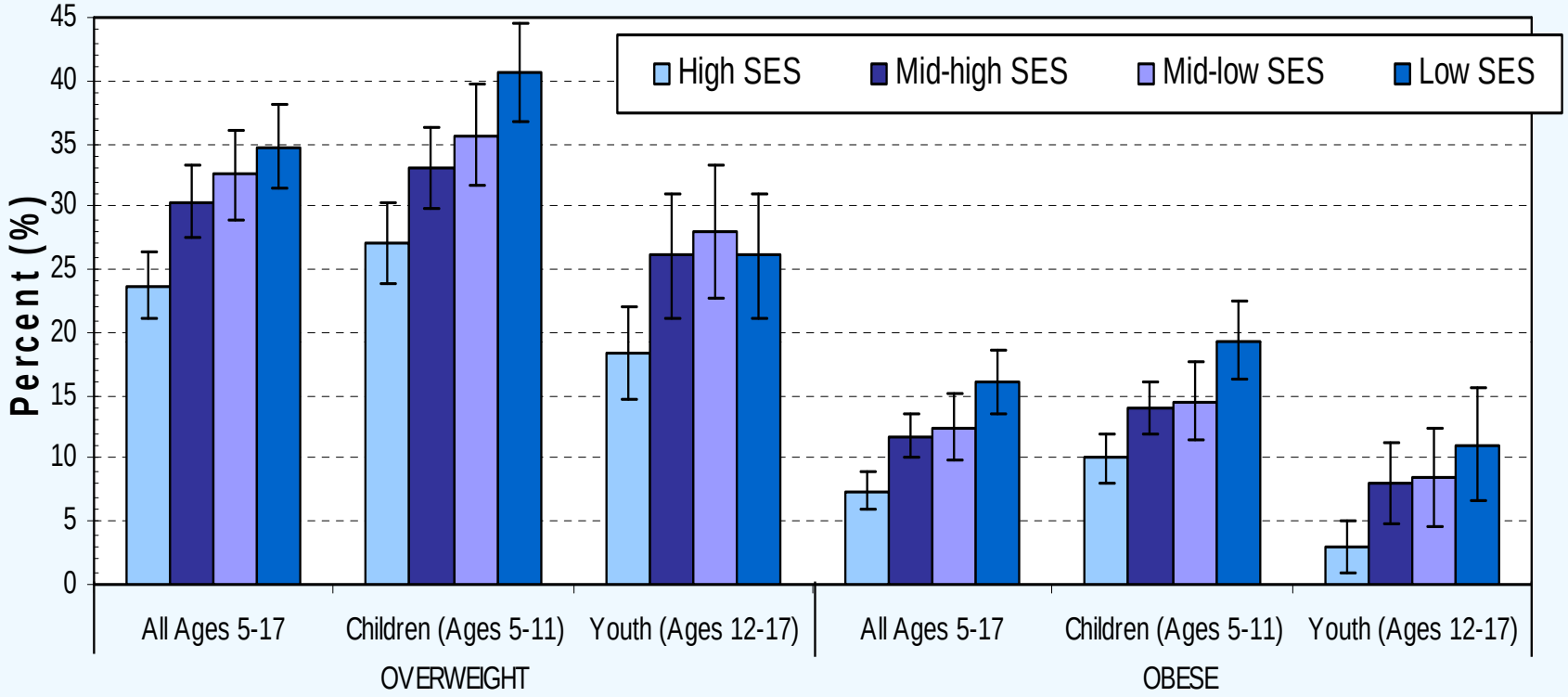


Source: Population Health Surveillance and Epidemiology, Ministry of Health, 2005.

Prevention of Diabetes



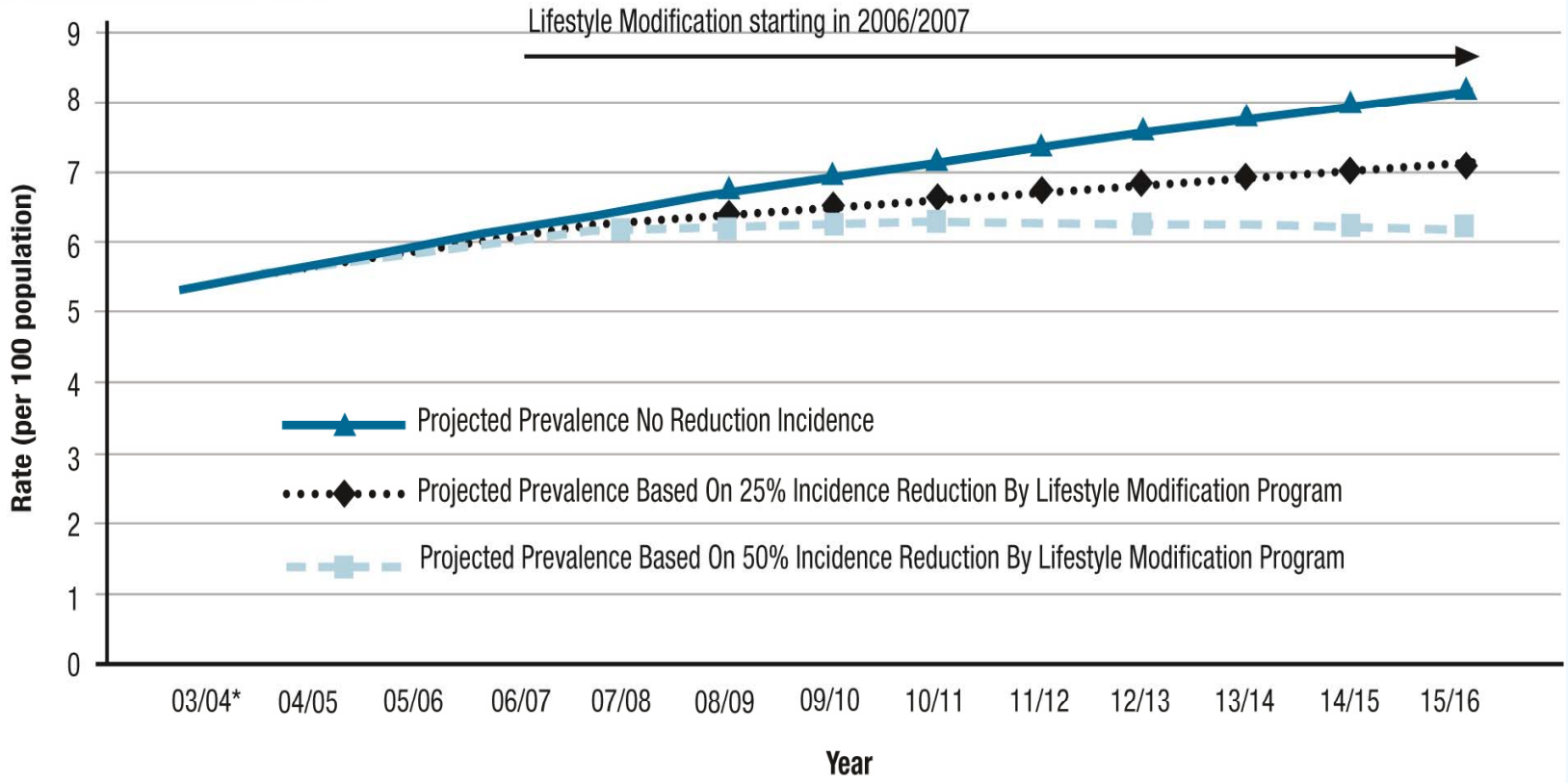
Prevalence of Overweight and Obese Children (ages 5-11) and Youth (ages 12-17)
By Neighbourhood SES Quartiles, NLSCY Cycle 4*



*Percents based on unrounded weighted data, confidence intervals calculated using 1000 bootstrap weights supplied by Statistics Canada to account for the complex sampling design of the NLSCY.
NLSCY=National Longitudinal Survey of Children and Youth; SES =socio-economic status.

Source: Adapted from Oliver, L.N., & Hayes, M.V. (2005, November). Neighbourhood Socio-economic Status and Prevalence of Overweight Canadian Children and Youth. *Canadian Journal of Public Health, 96(6)*.

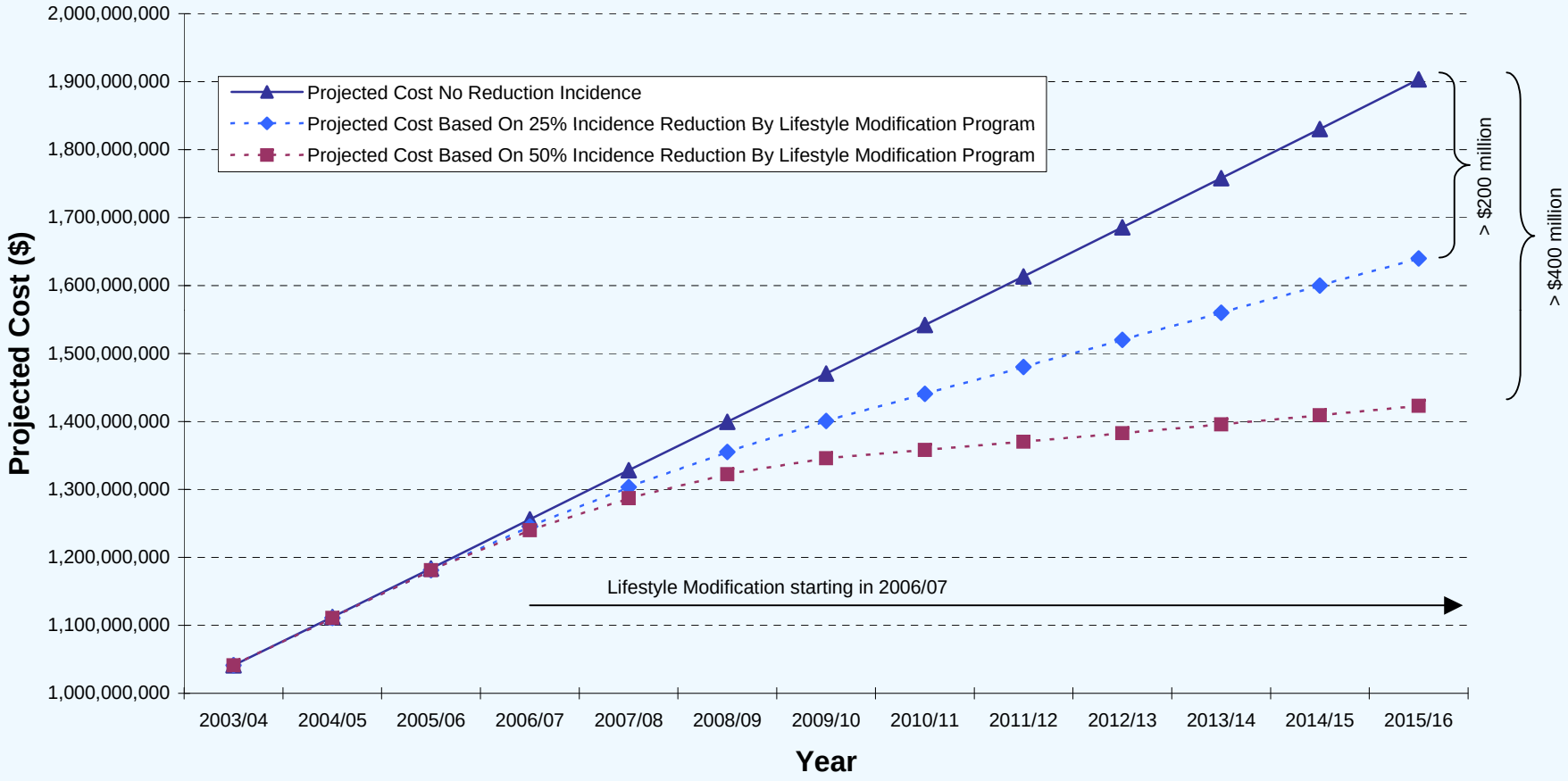
Figure 2.18 Diabetes Prevalence Projections, Crude Rates, BC, 2003/2004 to 2015/2016



*Actual prevalence.

Source: Population Health Surveillance and Epidemiology, Ministry of Health, 2005.

Projected Health Services Costs To The B.C. Ministry of Health for People With Diabetes, With Implementation of Lifestyle Modification Program, B.C. 2002/03 to 2015/16



Source: Population Health Surveillance & Epidemiology, Ministry of Health Services, 2005.

For the purpose of this analysis, the resulting estimates were modelled from a widely reported study involving a nutritional and physical activity intervention for non-diabetics at risk of developing diabetes (Diabetes Prevention Program Research Group, 2002). It must be acknowledged that the results of a specific clinical trial are not necessarily attainable at the population level, but can assist in the development of goals for a population prevention strategy.

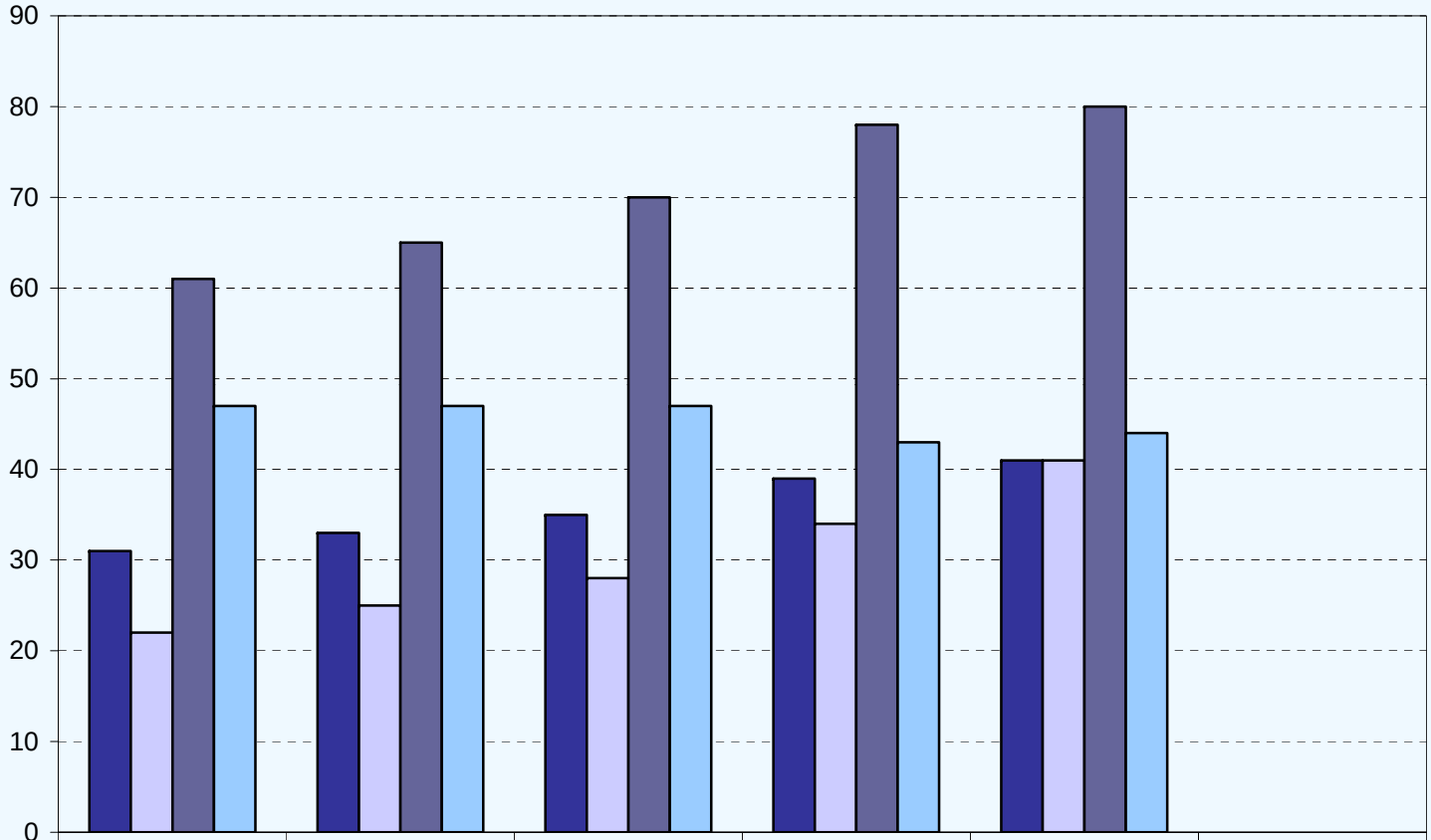
Management of Diabetes

Recommended Services for Persons with Diabetes

- A1C Test – four tests per year
- Microalbumin Test – one test per year
- Lipid (Cholesterol) Test – one test every 1-3 years
- Eye exams – one exam every 1-2 years
- Blood pressure – regular checks and needs to be at 130/80 for all diabetic patients

(From: Ministry of Health, Medical Services Plan, *Clinical practice guidelines and protocols in British Columbia*, 2005)

Proportion of people with diabetes receiving recommended services, BC, 1999/2000 to 2002/2003



	1999/2000	2000/2001	2001/2002	2002/2003	2003/2004	Recommended Frequencies
A1C Test -2 or more per year	31	33	35	39	41	4 per year
Microalbumin Test-1 per year	22	25	28	34	41	1 per year
Lipid Test -1 every 3 years	61	65	70	78	80	1 every 1-3 year
Eye Exams -1 per year	47	47	47	43	44	1 every 1-2 year

Recommendations

Prevention of Diabetes

- Importance of Data and Research
- School Health
- Food Security
- Public Education & Community Interventions

Recommendations

Prevention of Diabetes (continued)

- Monitoring & Regulations of marketing Approaches of the Food Industry
- Urban Design and Transportation
- Prevention of Diabetes in the First Nations Populations
- Commitment to Actions and Goals

Recommendations

Management of Diabetes

- Reliable and Efficient Primary Health Care
- Reliable and Efficient Patient Registry and Recall System
- Provision of Recommended Services
- Education and Diabetes Self-management Program

What can individuals do?

- Reduce overweight and obesity
- Increase physical activity
- Eat a healthy and balanced diet
- Learn about diabetes and screening

What can communities do?

- Promote physical activity, healthy eating and healthy weights
- Provide affordable recreational facilities and access to clean and safe parks, walking paths and bike lanes
- Develop programs such as community kitchens and gardens and encourage provision of better selections of healthy food

What can physicians and healthcare professionals do?

- Identify people at risk of developing diabetes.
- Prevent or delay further complications.
- Recommended services should be provided to all diabetes patients.
- Educate their patients to prevent and reduce risk of diabetes.
- Encouraged a coordinated approach with other health care professionals, diabetes patients and their families.

What can governments do?

- Redesign primary care
- Effective system of monitoring diabetes
- Provide more diabetes education program
- Review option of extending PharmaCare coverage for glucose-monitoring devices and other equipments
- Monitor marketing approaches of the food industry
- Ensure social assistance and low-income supports are tied to the cost of a healthy food basket

What can governments do?

- More resources should be provided for population-based programs such as ActNow BC to ensure that they are effective and sustained enough to make a difference
- More funding for research in diabetes-related fields