

**Table 1:** Summary of changes to TNM classifications for some major cancer sites

Tumour site	Topic	Change
Breast	Regional nodes	cN and pN redefined
Colorectal	Subdivision of stage III	Stages IIIa, IIIb, IIIc defined
Prostate	Histology	Gleason score used to define grade
	Subdivision of T2	T2a, T2b and T2c defined
Pancreas	Identification of potentially resectable disease	T3, T4 and stage groupings defined

Note: TNM = the tumour, node, metastases staging system.

as a conduit for proposals for changes to the TNM classification. Any such proposals for change or comments about the changes in the sixth edition can be directed to the Committee on

Cancer Staging, National Cancer Institute of Canada, 10 Alcorn Ave., Ste. 200, Toronto ON M4V 3B1.

Competing interests: None declared.

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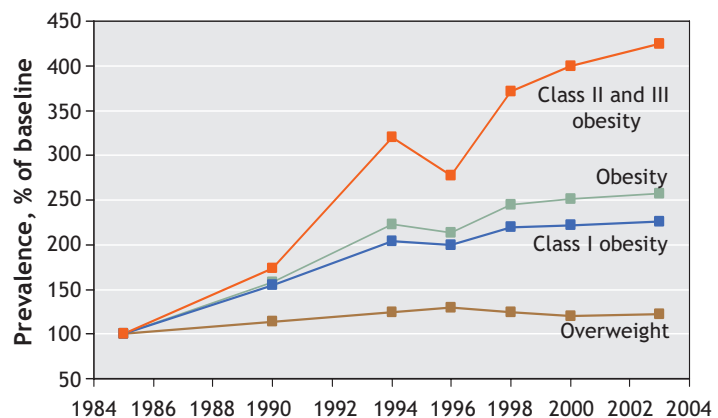
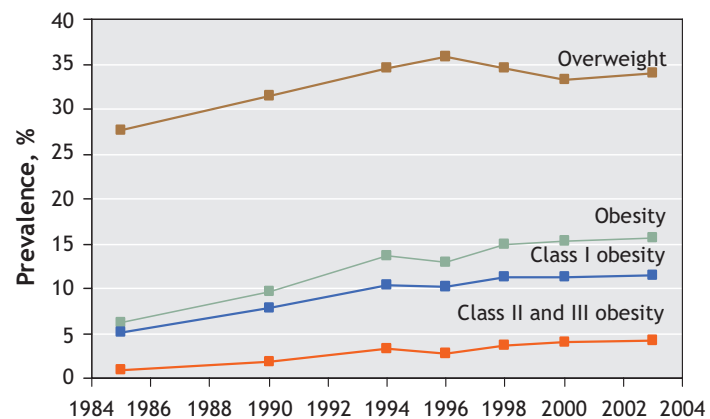
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### REFERENCES

1. Sobin LH. TNM, sixth edition: new developments in general concepts and rules. *Semin Surg Oncol* 2003;21:19-22.
2. Greene FL, Brierley J, O'Sullivan B, Sobin LH, Wittekind C; International Union Against Cancer and American Joint Committee on Cancer. On the use of X in the TNM classification. *Cancer* 2005;103:647-9.
3. Gospodarowicz MK, Miller D, Groome PA, et al. The process for continuous improvement of the TNM classification. *Cancer* 2004;100:1-5.

## Prevalence of class I, II and III obesity in Canada

Obesity places a substantial burden on public health in Canada, and people with more extreme levels of obesity are at substantially increased risk of premature death. In 2003, Health Canada issued updated guidelines for body weight classification in adults (available at [www.hc-sc.gc.ca/fn-an/nutrition/weights-poids/guide-ld-adult/index\\_e.html](http://www.hc-sc.gc.ca/fn-an/nutrition/weights-poids/guide-ld-adult/index_e.html)). Within this framework, adults are considered overweight if their body mass index (BMI, kg/m<sup>2</sup>) is 25 or greater, and obese if their BMI is 30 or greater. Obesity is further separated into 3 classes according to the increased health risks associated with increasing BMI levels: class I (BMI 30–34.9), class II (BMI 35–39.9) and class III (BMI ≥ 40). The obesity class guides treatment options: therapeutic lifestyle changes (e.g., increases in physical activity and reductions in dietary intake) should be considered for all obese people, whereas the use of more aggressive approaches to weight loss (e.g., pharmacotherapy or bariatric surgery) are generally reserved for people with more extreme obesity (class II or III) and those with additional risk factors.



**Fig. 1:** Prevalence of overweight and obesity (classes I–III) in Canada, 1985–2003. Top: Changes in absolute prevalence. Bottom: Changes relative to baseline (1985 = 100%).

Although the prevalence of overall obesity is known to have increased in Canada over recent decades,<sup>1</sup> we sought to determine specific trends for each class of obesity, especially the more extreme classes. We examined the results of 7 surveys of nationally representative samples of Canadians conducted from 1985 through 2003. The surveys included the 1985 and 1990 Health Promotion Surveys, the 1994/95, 1996/97 and 1998/99 National Population Health Surveys, and the 2000/01 and 2003 Canadian Community Health Surveys. Based on the participants' reported heights and weights, we calculated their BMIs and classified them as being not overweight, overweight or obese (class I, II or III). We calculated age-adjusted weighted prevalences of overweight and obesity among the participants (available in an online table at [www.cmaj.ca/cgi/content/full/174/2/156/DC1](http://www.cmaj.ca/cgi/content/full/174/2/156/DC1)).

The prevalences of overweight and all levels of obesity in Canada have increased between 1985 and 2003 (Fig. 1). We found that the prevalence of class III obesity increased from 0.4% to 1.3% between 1990 and 2003, a 225% increase. This trend is similar to that reported in a US study, which reported an increase in prevalence of class III obesity from 0.8% to 2.2% between 1990 and 2000 (a 175% increase).<sup>2</sup> However, the absolute prevalence of class III obesity in Canada remains lower than that in the United States. There are no comparable data from Europe.

Our estimates are likely conservative, since people tend to underestimate their own weight. An important area of future research is to document changes in the prevalence of class II and III obesity using directly measured data. Indeed, data recently released from the 2004 Canadian Community

Health Survey indicate that the prevalences of directly measured class II and III obesity were 5.1% and 2.7%, respectively,<sup>3</sup> which are higher than our estimates of 3.0% and 1.3%, respectively, calculated from the 2003 survey data. Similar differences between directly measured and self-reported obesity have also been reported in the United States.

The increases in prevalence of overweight and all levels of obesity in Canada between 1985 and 2003 are cause for concern given the markedly increased risk of premature death and of metabolic and musculoskeletal complications arising from morbid obesity.<sup>1</sup> The rapid increase in the prevalences of class II and III obesity will undoubtedly have a significant impact on our health care system.

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## REFERENCES

1. Katzmarzyk PT. The Canadian obesity epidemic, 1985–1998 [editorial]. *CMAJ* 2002;166(8):1039–40.
2. Freedman DS, Khan LK, Serdula MK, et al. Trends and correlates of class 3 obesity in the United States from 1990 through 2000. *JAMA* 2002;288:1758–61.
3. Tjepkema M. Measured obesity. Adult obesity in Canada: measured height and weight. In: *Nutrition: findings from the Canadian Community Health Survey 2004*; issue 1 (cat no 82-620-MWE2005001). Available: [www.statcan.ca/english/research/82-620-MIE/2005001/articles/adults/aobesity.htm](http://www.statcan.ca/english/research/82-620-MIE/2005001/articles/adults/aobesity.htm) (accessed 2005 Dec 8).

## IMPACT

*CMAJ* is the 5th leading international general medical journal as ranked by Thomson ISI. 2004 impact factor, 5.9.