

## MONITORING TOBACCO CONTROL OUTCOMES: THE UNINTENDED CONSEQUENCES OF TARGET SELECTION

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**Abstract:** We explore key lessons arising out of target-setting agendas in tobacco control. Two real-world examples are described that illustrate the pitfalls of choosing an omnibus target for a comprehensive strategy: (a) a target to reduce wholesale cigarette sales in Ontario and (b) a First Ministers' target to reduce current smoking. Changing contexts brought about by shifts in illicit tobacco sales made it problematic to interpret success in both cases. The discussion draws attention to key considerations in setting targets, including unintended consequences, data quality, ideal number, and the importance of context such as stakeholder roles in target selection and reporting.

**Résumé :** Cet article concerne les principales leçons qui se sont dégagées du processus d'établissement d'objectifs dans la lutte contre le tabagisme. Deux exemples réels y sont décrits, illustrant les dangers d'établir un objectif général pour une stratégie d'ensemble : (a) un objectif de diminution de la vente en gros de cigarettes en Ontario et (b) un objectif de réduction du tabagisme établi par les premiers ministres. Le changement du contexte, provoqué par des variations dans la vente illicite du tabac, a rendu problématique l'interprétation du succès de ces deux mesures. Notre analyse porte sur des considérations clés dans l'établissement des objectifs, comme les conséquences inattendues, la qualité des données, le nombre idéal d'objectifs, et l'importance du contexte, tel que le rôle des intervenants dans la sélection et la communication des objectifs.

█ Tobacco control is a multifaceted health promotion strategy that seeks to eliminate tobacco-related illness and death (U.S. Department of Health and Human Services, 2004). This aim is com-

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monly addressed by focusing on three primary goals: preventing youth from smoking, protecting the population from the dangers of secondhand smoke, and helping smokers reduce and eliminate tobacco use through smoking cessation initiatives (Health Canada, 2002; U.S. Department of Health and Human Services, 2004). Given this complexity, typically there are numerous available indicators for measuring progress toward tobacco control goals (Copley, Lovato, & O'Connor, 2006; Starr, Rogers, Schooley, Porter, & Wiesen, 2005). For instance, jurisdictions might measure the rate of lifetime smoking abstinence among youth, exposure to tobacco smoke pollution at work, or the prevalence of current smoking in the past 30 days among adults (Ontario Tobacco Research Unit, 2008). Governments and stakeholders committed to monitoring not only tobacco control outcomes but other health outcomes make important decisions about what indicators to measure and how best to use the resulting information (e.g., learning, accountability, dissemination). More generally, governments have recognized that quantitative targets play a vital role in policymaking (Bauld, Day, & Judge, 2008). For instance, high-level targets underscore key policy priorities. They also provide a touchstone for decision makers about program progress and can keep attention and resources focused on particular government initiatives such as tobacco control or health inequality.

The purpose of this article is to draw attention to the converging and diverging interests among stakeholders in establishing targets for performance indicators and the unintended consequences target selection and reporting might have on all actors, including evaluators, managers, and decision makers. In approaching this task, we begin with a brief overview of (a) the context within which indicators are selected as targets, and (b) the function that targets can serve. We follow this overview with a presentation of well-intentioned targets selected by two levels of government (provincial and federal)—illustrative cases that underscore several issues to consider when establishing, maintaining, and reporting on targets.

## TARGET SELECTION AND REPORTING: CONTEXT

Target selection and reporting take place within broad sociocultural, economic, and political structures and processes. Some properties of the context that are relevant for selecting, and reporting on, targets include the social actors involved, the intended purpose or function of the targets, and the general environment within which this process occurs.

In a discussion of performance measures, Behn (2003) has argued that one of the first decisions is to determine who will pick the purpose, the measure, and the performance standard. A variety of stakeholders are involved in the establishment and maintenance of large public health programs—such as a comprehensive tobacco control strategy—including political actors, government directors or managers, policy analysts, practitioners, advocates, evaluators, and funded organizations running programs and services.

Stakeholders have the potential to influence the target-setting process because they bring different aims and objectives to the process (e.g., to mobilize support or resources, to facilitate political ownership of a program), are grounded in different theoretical approaches (e.g., clinical versus population-based approaches), and possibly operate under different time horizons. As a result, stakeholders may view the role of targets quite differently, including those aspects of the process related to selection (establishment), maintenance, and reporting of results. For instance, the focus of political elites might be on achieving targets relating to accountability, whereas program managers might attend to targets that provide feedback on performance. A stakeholder's positionality underscores the very different purposes or functions targets might serve.

The United Kingdom's (UK's) Treasury Department has provided guidance to government departments on establishing key targets (HM Treasury and Cabinet Office, 2003). They have argued that targets serve several interrelated functions (p. 9). Specifically, they suggest that targets function to

- send a clear message about priorities and what the organization is trying to achieve;
- communicate to internal and external stakeholders the direction of the organization and its resources;
- drive performance, with an emphasis on delivering on priorities and expected outcomes and making improvements; and
- provide a basis for monitoring performance whereby stakeholders can judge how well the organization is run and performs.

The functions described by the UK's Treasury Department emphasize transparency, accountability, communications, and performance. Although not all tobacco control stakeholders set targets—nor make use of them once they are established—for those stakeholders that do, these functions will likely influence the targets they select. Likewise,

the sociocultural, political, and economic environment will also help to shape target selection. For instance, the public might voice strong support for protection from secondhand smoke exposure, which might influence government action in this area; the burden of tobacco use might be exceedingly high in some populations; a government might be in a certain phase of their mandate; or a weakening economy might necessitate a re-allocation of government resources. It is not uncommon for government priorities to shift in the face of changing context. This could translate into a re-evaluation of targets, as issues of transparency, accountability, communications, and performance (that is, the functions that targets serve) are re-prioritized.

Within tobacco control, the authors are not aware of a clear consensus on the ideal number of targets to have or of the number of indicators to monitor the performance of a selected target. Stakeholders' positionality, the anticipated function of any given target, availability of reliable population-level indicators (or other data source), and the social climate will help inform the number of high-level targets, secondary targets, and associated performance indicators. A case can be made for both the selection of a limited number or wide range of targets. Context matters. For instance, a program director seeking funds for a comprehensive program might want to get buy-in from his or her Minister or senior-level bureaucrats, which might best be accomplished by a single target that sends a clear message (e.g., health burden of smokers on government revenues). In contrast, an evaluator might suggest multiple targets (each associated with one or more indicators and measures) that reflect the complex goals of a comprehensive tobacco control program (e.g., one with goals related to prevention, protection, and cessation). The decision about how many targets to select is not merely a question of what is the ideal number but arguably one about the appropriate number for the context demanded.

Although context will help inform how many targets to select, there may well be consequences for the total number of targets that are selected. The next section provides an overview of two jurisdictions' experience with setting targets and some unintended consequences of these selections, which provide insights into target selection and reporting.

## ILLUSTRATIVE CASES OF TARGET SETTING IN CANADA

In Canada, several jurisdictions have set targets for measuring progress toward tobacco control goals. In 2005, the Ontario government made a public commitment to reduce per capita cigarette sales

by 20% for the period 2003–2007. In 2007, the then federal Minister of Health, Tony Clement, announced that the new goal of the renewed Federal Tobacco Control Strategy was to reduce Canada's overall smoking prevalence from 19% to 12% by 2011. Three additional objectives of the federal government were to (a) reduce the prevalence of Canadian youth (15–17) who smoke from 15% to 9%, (b) increase the number of adult Canadians who quit smoking by 1.5 million, and (c) reduce the prevalence of Canadians exposed to secondhand smoke on a daily basis from 28% to 20% (Health Canada, 2006, 2007).<sup>1</sup> This section provides an overview of outcomes related to the main provincial and federal targets: reduced per capita sales and current smoking, respectively.<sup>2</sup> We follow with a discussion of some of the consequences of choosing these targets in light of reported data and the context that emerged following the target-setting initiative.

### Illustrative Case 1: Per Capita Wholesale Sales of Cigarettes

In 2005, a publicly stated goal of the Smoke-Free Ontario Strategy was a 20% reduction in per capita wholesale cigarette sales for the period 2003–2007 (Ministry of Health Promotion, 2005). On the one hand, a high-level public target was chosen to underscore the Ontario government's commitment to tobacco control. On the other hand, it was believed that a single target would engage decision makers and political actors in the province's renewed efforts in tobacco control.

By 2006, a 32% reduction in per capita sales from baseline was observed. One question that arose about the interpretation of this reduction was whether an apparent growth in the illicit cigarette market impacted reductions in legal wholesale sales. Illicit sales are not accounted for by Health Canada wholesale sales data. An increase in illicit sales is related to lower wholesale sales volumes if smokers switch from legal cigarette purchases to the illicit market. Although reliable data on illicit tobacco volumes are lacking for 2006, estimates have suggested that contraband might comprise at least 14% of all cigarettes and might be considerably higher (Luk, Cohen, & Ferrence, 2007). What has become apparent, however, is that levels of illicit tobacco have changed over the years from negligible amounts to volumes that appear to significantly affect wholesale sales data and tax revenue.

In an effort to better understand progress toward the wholesale sales data target, three available sources of cigarette volume data can be triangulated: Health Canada wholesale sales data, Ontario

government cigarette tax revenue converted to cigarette volume, and self-reported consumption from population surveys of smokers. Wholesale sales data and tax revenue data include only legal sales of cigarettes. Self-reported consumption, which is obtained by asking survey respondents how many cigarettes they smoke, includes both legal and illicit (contraband) cigarettes.

Table 1 shows that wholesale sales data have declined by 32% from 2003 to 2006, reflecting a decline in legal sales. From these data, it appears that the Ontario government met its 20% target. Similarly, taxes paid on legal sales of tobacco declined by 34% over this period. Since 2003, however, there was only a 20% decline in self-reported Canadian Tobacco Use Monitoring Survey (CTUMS) consumption of cigarettes, which reflects a real decline in total cigarette volume, including legal and illicit sales. (Although CTUMS data, along with the other sources, suggest the Ontario government met its 20% reduction in per capita cigarette target, these data raise questions about the size of the illicit cigarette market).

**Table 1**  
**Annual Change in Per Capita Wholesale Cigarette Sales, Taxed Tobacco, and CTUMS Consumption**

Year	Per capita total wholesale (sticks)	Per capita taxed tobacco (sticks)	Per capita CTUMS (sticks)
1999	2,101	2,111	1,183
2000	1,983	2,025	1,116
2001	1,864	1,849	925
2002	1,711	1,567	886
2003 (Baseline)	1,629	1,501	805
2004	1,476	1,298	796
2005	1,324	1,135	745
2006	1,110	985	644
Change over 2005–2006	-16.1%	-13.2%	-13.5%
Change over 2003–2006	-31.9%	-34.4%	-20.0%

*Note.* CTUMS = Canadian Tobacco Use Monitoring Survey

As Table 1 suggests, year-over-year reductions in cigarette volumes, such as wholesale sales data and tax-converted cigarettes, are sometimes difficult to interpret because reductions could be due to smokers reducing their cigarette use or smokers shifting to the illicit market. Because self-reported consumption derived from survey data includes legal and illegal cigarettes, a decrease reflects real reductions in over-

all consumption and not a shift to the illicit market. However, there is underreporting in self-report consumption data (e.g., self-reported consumption can be 40% to 50% lower than wholesale sales volume), although this would appear to be stable over time. Data from Table 1 underscore that measuring progress toward a target on the basis of a single indicator is difficult to interpret (or in this case, easily misinterpreted). A more accurate picture emerges with the use of additional indicators. (It is also worth noting that an added benefit of moving to multiple indicators, at least in this case, is that the level of illicit contraband can actually be modelled with these data.)

### Illustrative Case 2: Current Smoking Prevalence

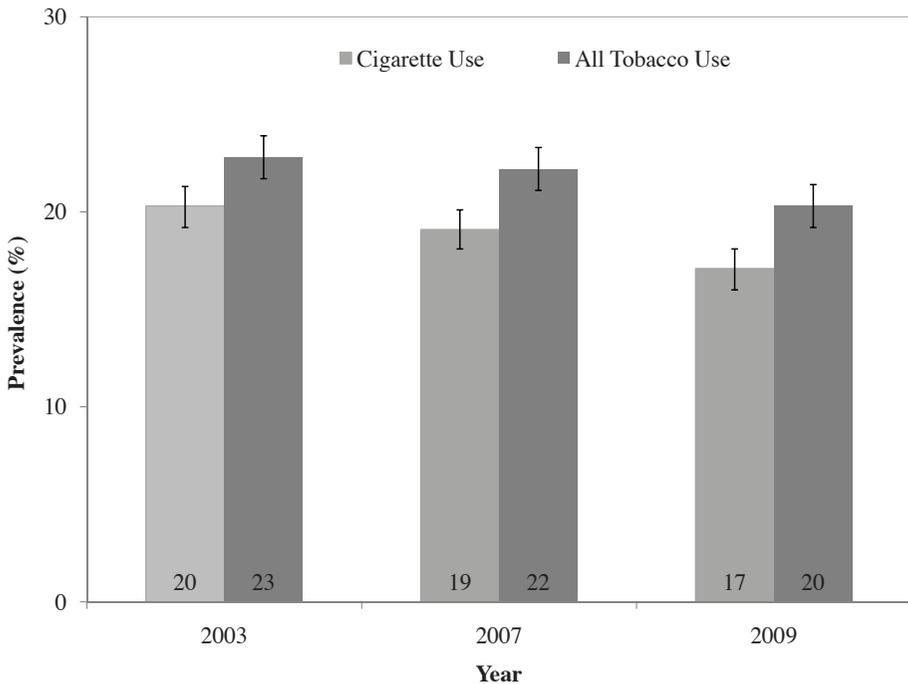
In 2007, the federal government publicly released several targets for the renewed Federal Tobacco Control Strategy, which includes reducing Canada's overall smoking prevalence from 19% to 12% by 2011 and reducing the prevalence of Canadian youth aged 15–17 who smoke from 15% to 9%.

In contrast to wholesale cigarette sales data, smoking prevalence data reflect smokers' use of legal and illicit cigarettes. As such, the contraband market (and any changes in that market) will not affect the reliability of smoking prevalence data. However, recent surveillance data suggest that the overall tobacco market is undergoing a change when one extends beyond cigarettes to include other forms of tobacco (such as cigars or cigarillos, smokeless tobacco, etc.).

Data from the Canadian Tobacco Use Monitoring Survey indicate that cigarette use should not be used as a proxy for tobacco use or the health burden caused by tobacco. In recent years, the prevalence of cigarette use has been significantly lower than total tobacco use (Figure 1). Among 15–17 year olds, the difference is even more pronounced with cigarettes accounting for 83% of total tobacco use in 2003 but only 71% in 2009 (data not shown).

Results from the Canadian Tobacco Use Monitoring Survey highlight that reaching federal targets for current smoking will likely underestimate the real burden of tobacco use. Further, measuring progress toward current smoking targets might be increasingly difficult to interpret in outlying years if (a) rates continue to fall and (b) rates of other forms of tobacco remain stable or increase. A broader understanding of this high-level quantitative target would appear to emerge from tracking several additional performance indicators centred on alternative forms of tobacco.

**Figure 1**  
**Current Use of Cigarettes and All Tobacco Products in the Past 30 Days, by Year, Canada**



Source: Canadian Tobacco Use Monitoring Survey, Health Canada (2003, 2007, 2009).

## DISCUSSION

The two illustrative cases that have been presented underscore potential concerns related to performance monitoring, especially target selection not only in tobacco control but other areas as well. Specifically, when setting targets, consideration should be given to the potential for introducing unintended consequences; data quality; the importance of context, including the role of stakeholders in target selection and reporting; and the ideal number of targets to track.

### Unintended Consequences

When setting targets or monitoring progress toward targets, unintended consequences are a real possibility that need to be given careful consideration. For instance, there is a risk that potentially

distorting effects will obscure the interpretation of selected targets, a consequence of reporting performance data that has been called dysfunctional (Smith, 1995). As suggested by the presentation of data on the decline in per capita sales of cigarettes, questions arose as to whether declines were a result of tobacco control efforts or due to a growing illicit market. If targets become open to interpretation, questions of value or meaning can be marginalized. Discussion is shifted to technical questions about the reliability (precision) and validity (accuracy) of the measure. Interpretation becomes the domain of experts (e.g., researchers and evaluators; Smith, 1995), with the target losing much of its original lustre and purpose, whether as a measure of transparency, accountability, communications, or performance.

### Data Quality

One factor that has the potential to improve performance monitoring of targets is attending to data quality throughout the process to minimize ill-conceived or difficult-to-interpret targets. McKee (2000) points out that target setting in health requires a full understanding of the epidemiology of the disease or risk factor (e.g., smoking). If the quantified target makes little sense, monitoring of progress will likely not be particularly fruitful.

In a recent bulletin of the World Health Organization, Shibuya (2007) has argued that a monitoring strategy should be chosen prior to setting targets, cautioning that not all quantifiable targets are measurable on a cycle demanded by some stakeholders. For instance, population surveys might produce an annual estimate of the targeted indicator, but year-over-year comparisons might not be feasible due to the methodological or statistical limitations of the survey instrument. In British Columbia, it has been recommended that targets should be designed with a feedback loop to facilitate adjustments and course corrections (Stephens, Graham, & Reid, 2002). The United Kingdom's Economics and Finance Ministry has recommended a number of worthwhile steps to improve data quality, including assigning responsibility for data quality, assessing risk, actively monitoring risks, and communicating to users about all data quality issues (HM Treasury and Cabinet Office, 2003).

One key recommendation of the present work is to establish a performance monitoring plan that includes adequately resourced efforts to ensure all facets of data quality of the selected targets on an ongoing basis.

## Context

Choosing appropriate targets is not necessarily as straightforward as it might initially seem. The evaluator has a critical role to play in this exercise but not without potential drawbacks. When working in some contexts, such as those that are highly politicized, evaluators might find themselves in an ethical dilemma of being involved in a process of setting ambitious (or conservative) targets. An overly politicized context might also have implications for reporting in that some stakeholders might want to underscore progress toward targets for purposes of issue management or positive presentation of political actors. Evaluators that have greater awareness of the implications of target-setting schemes, including reporting of outcomes, would appear to be better positioned to offer clients with solid advice that works in everyone's interests.

The two reported illustrative cases underscore the notion that there is potential and real controversy surrounding the selection and reporting of targets. Arguably, there is inherently a political dimension associated with target setting. This can manifest itself in several ways, including the decision to (a) set ambitious targets or too many targets (for instance, in an effort to marshal resources or to create opportunities for great success in the future) or (b) set conservative targets or too few targets (to achieve a goal that one might have arrived at naturally without any sort of intervention). Each of these scenarios might lead to unintended consequences. If reaching the target(s) is viewed as unattainable, political support might falter and resources (financial or otherwise) might be redirected. Failure might have long-term consequences, whereby there may not be the political will to return to the issue at hand. If targets are conservative (or limited in number), they might well be reached without having any impact (for example, on the health of the community). If political elites view the issue as being addressed, they might become politically disengaged and move on to something else (thus effectively ending the program or strategy).

## Ideal Number of Targets

What is the ideal number of targets to select for a particular health area? This article suggests that several factors should come into play in determining this number, including the intended function of targets, data quality, and the sociopolitical context in which targets are selected and reported.

One could argue that it is better to have a few meaningful targets than many poor ones. However, having many meaningful targets can be advantageous, assuming targets are measured correctly and meet stakeholders' needs. Data quality is not selective—quality can be an issue for one or many targets.

Another consideration for making a determination on number of targets is context—including stakeholder positionality, intended purpose of targets, and the social-political climate. A small number of targets might be good for communications centred on issue management but inadequate for understanding contexts, mechanisms, and outcomes, and thus fail to bring useful evidence to bear on decision making. A limited number of targets might also distort priorities (Scottish Executive Health Department, 2003), with stakeholders focusing on outcomes in line with the target(s) while ignoring other important health areas (e.g., Schacter, 2008). In contrast, multiple targets might well allow for greater opportunity to communicate evaluation evidence to stakeholders, whether in reports, briefing notes, storylines, or talking points.

Drawing from the two illustrative cases presented earlier, it is apparent that consideration also needs to be given to changing context. Data quality and the value of seemingly strong targets, such as reductions in per capita sales and current smoking, changed over time. One way to reduce the risks associated with the selection and reporting of targets (e.g., in interpretation) is to have a sufficient number of indicators that adequately measure progress toward reaching the specified target (or targets). For instance, one could have a basket of indicators (Scottish Executive Health Department, 2003) to cover not only a single target but multiple health areas. In the first illustrative case, for instance, data on per capita sales of cigarettes were supplemented with tax data and current smoking data. As reported in Table 1, this broader analysis provided stakeholders with greater confidence that the government target of a 20% reduction in wholesale sales was actually being met. These multiple indicators also provided insight into illicit tobacco, which helped to address growing concerns in this area as well. This example underscores that a reliance on multiple indicators can reduce the risk that might arise if results from one measure become disputed.

There is much room for optimism in approaching the task of setting (and reporting on) targets. Stakeholders who choose targets with an appreciation of context and a clear understanding of purpose will be better positioned to accrue the advantages of such target-setting

schemes. As Leonard Fortuin (1988) indicated, “Target setting requires courage, because it is a quantitative commitment to improvement” (p. 6). Although not all stakeholders will have improvement as their primary objective (rather, see the other functions of targets listed in the introduction), this article suggests that parties must be willing to adapt as new information becomes available—for instance, about data sources, data quality, or changing context. As learning and experience advance, so too should the target-setting process evolve.

## NOTES

- 1 Reducing youth smoking prevalence and exposure to secondhand smoke in homes, vehicles, and public places are also indicators established by the First Ministers Accord on Health Care Renewal in 2003 (Statistics Canada, 2004).
- 2 The publicly reported targets used by Ontario and the federal government are chosen for illustrative purposes. It is acknowledged that both jurisdictions measure progress toward tobacco control goals in a comprehensive manner and might well use additional targets for various purposes (e.g., internal reporting).

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