

Journal of Health & Medical Informatics

Case Report

Setting Quantified Road Safety Targets: Theory and Practice in Sweden

Matts-Åke Belin^{1,2*}, Per Tillgren^{1,3} and Evert Vedung⁴

¹Karolinska Institute, Department of Public Health Sciences, Stockholm, Sweden,

² Swedish Transport Administration, Borlänge, Sweden

³Mälardalen University, School of Health, Care and Social Welfare, Västerås, Sweden

⁴Uppsala University, Institute for Housing and Urban Research, Gävle and Department of Government, Uppsala, Sweden

Abstract

Aim: The Swedish Government has a long tradition of setting quantified time-bounded road safety targets. This article identifies and analyses these targets, and evaluates the national road safety targets adopted in 1989, 1996 and 1998 in order to assess whether the different targets fulfil the SMART criteria of being specific, measurable, achievable, realistic and time bounded.

Methods: This study is a retrospective case study and in order to trace all relevant policy documents that contain information on quantified targets, a snowball technique was applied. The searching process result in a total of 23 key documents and these were analyzed in two steps. The first step examined how the targets have been formulated and the second step assessed whether the targets had been constructed according to the SMART criteria.

Results: This study shows that, although all the specified targets were theoretically achievable, those targets adopted in 1996 and 1998 were, according to this evaluation, unrealistic.

Conclusion: This study raises the question as to the rationality of political leaders when adopting targets which could be difficult to achieve in reality. One explanation for their adoption is that unrealistic targets could serve as a management tool in that they could be rational from a road safety point of view because they could inspire stakeholders to do more than they would otherwise have done. In this article, other motives behind the setting of unrealistic targets are also discussed.

Keywords: Road Safety; Quantified Targets; Health policy; Road safety policies; Sweden; Case study; Prevention; Injuries

Introduction

Public health policies are initiated and implemented in order to change the future. When this future is expressed as something desirable and wanted, we usually refer to it in terms of aims or goals. However, when this future is expressed more specifically as something desirable and wanted, we usually refer to it in terms of objectives or targets [1-3]. In the field of public health, the strategy of setting quantified national targets that are to be achieved by a particular date has been recommended and applied over the last three decades. A milestone in this development was the 1974 Lalonde Report [4]. In the report, a goalsetting strategy was launched which included specific reductions in the incidence of major mortality and morbidity, and the establishment of specific dates by which reductions were to be achieved. According to the report, these targets could provide a united and reinforced sense of direction among different stakeholders. The World Health Organization [5, 6] has also applied this strategy, and in 1981 adopted it as the global strategy for public health by the year 2000 and thereafter for regional health for all strategies. Subsequently, in 1999, it was adopted as the public health strategy in Europe for the 21st Century [7]. This target setting strategy also appears in a number of national public health policy documents and programmes [8].

The road safety sector is one of the sectors in society that has adopted the strategy off setting time-bounded quantified targets. Since the late 1980s, several countries and regions have adopted and institutionalized quantified time-bounded targets in order to promote casualty reduction measures [9-11]. One of the most recent examples of such targets is to be found in the Accra declaration from the Ministerial Round Table Africa Conference Accra, Ghana, 2007. This ministerial conference adopted an overall road safety target for Africa of halving road traffic fatalities by 2015 [12]. International experts have recommended countries to set timebounded quantified road safety targets. Experience reveals that such targets lead to better programmes, more effective use of resources and improvements in road safety performance [10,13,14]. However, according to the OECD, targets that promise very large reductions in the number of fatalities by specific dates could be difficult to achieve and, in the worst case, targets that fail to be achieved undermine the credibility of target setting and road safety programmes in general [11]. Setting targets is both politically and technically difficult [3,8,15]. In order to overcome some of the problems involved, several researchers [2,3] argue that targets should be SMART: specific, measurable, achievable, realistic and time bounded.

Setting quantified targets is also associated with the approach Management by Objectives (MBO). MBO has its origins in the business world, and focuses on a management style in which the senior managers adopt overall goals and targets in order to motivate good performance and promote flexible strategies within an organization. The idea of management by objectives is associated also with the development of the public administration and its way of conducting

*Corresponding authors: Matts-Åke Belin, Karolinska Institute, Department of Public Health Sciences, Stockholm, Sweden, Tel: +46 70 609 65 98; E-mail: <u>matts-</u>ake.belin@trafikverket.se

Received November 30, 2010; Accepted December 28, 2010; Published December 30, 2010

Citation: Belin MÅ, Tillgren P, Vedung E (2010) Theory and Practice in Sweden: A Case Study of Setting Quantified Road Safety Targets. J Health Med Informat 1:101. doi:10.4172/2157-7420.1000101

Copyright: © 2010 Belin MÅ, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

business [16]. Instead of politicians formulating detailed rules about how the administration should behave, they determine overall goals and targets that the administration should achieve [17].

According to the MBO model, a decision-based public policy process should unfold in the following way:

- 1) politicians determine overall goals and set priorities,
- 2) the administration breaks them down into sub-goals and develops plans for the accomplishment of intended results,
- 3) the plans are implemented by the administration,
- 4) the politicians make sure that results are reviewed and evaluated,
- 5) successful work towards goal accomplishment is rewarded and shortcomings and failures are punished by politicians [17].

Aims

A target-setting process with logical steps and clearly separated roles between legitimate decision-makers and bureaucrats who together produce SMART targets, would appear to be a desirable policymaking approach. But is this the way road safety policymaking works in reality? Sweden has long experience of setting time-bounded quantified road safety targets and therefore the aims of this article are to identify and analyze the Swedish official road safety targets adopted during the period 1972-2007 and according to the SMART criteria for target setting, evaluate whether the targets that have been adopted actually succeeded in fulfilling these criteria or not. The research questions are: 1) What are the Swedish road safety goals and targets? 2) Do the targets fulfill the SMART criteria? 3) If they do not fulfil SMART criteria, what could be the underlying political rationality adopting these targets?

Methods

This study is a retrospective case study [18,19] with a focus on the changes in the way quantified road safety targets have been set in Sweden during the period 1972 - 2007. The time period has been chosen according to the first year a public authority recommended a quantified road safety target. The Swedish public policy system at the national level includes four major authority bodies: the parliament and its standing committees, the government, ad hoc policy commissions and responsible agencies [17]. All final documents produced by these authorities are, according to Swedish law, official and are available to the public.

To identify relevant policy documents that contain information on quantified targets, a snowball technique was applied where one document led to another one being identified [20,21]. The searching process result in a total of 23 key documents was identified and analyzed in two steps. The first step examined how the targets have been formulated and the second step assessed whether the targets had been constructed according to the SMART criteria [3].

In order to estimate the likelihood of targets being achieved, the analysis sought information on whether decision-makers based their discussions and decisions regarding the setting of proposed targets on any firm evidence. To analyze and estimate if the targets adopted were realistic or not, a realistic target was defined as the general trend in the number of fatalities from the time when the discussions on quantified targets began in 1972 and the latest adopted target for 2007, i.e. during the period of 35 years. In 1972, 1 194 people were killed in road accidents and 471 in 2007. This is an average reduction of 2.7 % per year, and a realistic target from a historical trend point of view could therefore be somewhere close to an average yearly reduction of 2.7 %.

Results

What are the Swedish road safety goals and targets?

As early as in 1972, the former Swedish Road Safety Office presented four different time-bounded quantified targets for 1977 [22]. This was probably the first time in the world that a public authority suggested this type of time-bounded quantified road safety targets. However, these targets were not adopted by the Swedish government or the Swedish parliament but it started a public debate about managing road safety with support of goals and targets and in 1982 the Swedish government and the Swedish parliament adopted for the first time qualitative goals (Table 1).

In order to improve coordination between different stakeholders, mainly public authorities, the government decided in the middle of 1980s to establish a Swedish National Road Safety Council. The members of the council were director-generals or officials with corresponding ranks from several different authorities and organizations in the Swedish road safety sector, such as the National Police Board, the National Board of Health and Welfare, the Swedish Road Administration, the Transport Research Board, the Swedish National Agency for Education, the Swedish Association of Local Authorities and Regions, and the National Society for Road Safety. The SRSO was the leading agency, responsible for the secretariat.

The main role of the council was to prepare an annual national road safety programme for the government. The first programme was launched in 1986, and in 1989 the Swedish National Road Safety Council agreed, for the first time, on a quantified time-bounded target namely: in the year 2000, there were to be no more than 600 fatalities in road traffic in Sweden. This target was based on all World Health Organization, Europe office, targets for 2000, which stipulated that the number of people killed in accidents should be reduced by 25 % during the period 1980 - 2000. According to the council, a 25 % reduction would be an achievable improvement based on the knowledge of what type of road safety measures could be implemented and their costs during the period in question and a prediction that the annual traffic growth would be around 3 - 4 %. This target was later accepted by the government and parliament in 1989 as an operative target for the road safety work (Table 1).

In 1992, the SRSO was merged with the Swedish Road Administration (SRA), and the National Road Safety Council was close down. At the same time, the number of road traffic fatalities was decreasing and in 1994 the figure had reached 589. There was no point in keeping a target that had already been achieved, and in 1994 the SRA, together with the Swedish National Police Board and the Association for Local Authorities, launched a new national road safety programme for the period 1995 - 2000. The programme stated that because of the recent positive road safety development and the proposed programme, it was possible to change the target to no more than 400 fatalities by the year 2000.

In 1996, the government adopted a target of no more than 400 fatalities by the year 2000 a target that could serve as an appropriate guiding principle for the Swedish Road Administration (Table1).

In October 1997, the Swedish parliament approved a proposal from the government to replace the 1982 road safety goal with the so-called Vision Zero as a new long-term goal for road safety (Table 1) This Citation: Belin MÅ, Tillgren P, Vedung E (2010) Theory and Practice in Sweden: A Case Study of Setting Quantified Road Safety Targets. J Health Med Informat 1:101. doi:10.4172/2157-7420.1000101

Page 3 of 5

Year	Goals/Targets					
1971*	Keep the number of fatalities at the same level as in 1971, i.e. no more than 1 200 fatalities in 1977.					
	Reduce the number of fatalities by 20 %; i.e. no more than 1 000 fatalities in 1977.					
	Reduce the number of fatalities by 40 %; i.e.no more than 750 fatalities in 1977.					
	Reduce the number of fatalities by 60 %; i.e. no more than 500 fatalities in 1977.					
1982	The total number of people killed and injured in traffic should steadily decline.					
	The risk of being killed or injured in traffic should be steadily reduced for all categories of road users.					
	The risk of being killed or injured in traffic should be reduced to a greater extent for vulnerable road users than for protected road users. Particular attention should be paid to the problems faced by children.					
1989	A 25 % reduction in fatalities from the base year 1988, i.e. no more than 600 fatalities in 2000.					
1996**	No more than 400 fatalities in 2000.					
1997	Nobody should be killed or seriously injured as a result of a traffic accident (Vision Zero), and the design and the functioning of the road transport system should be adapted to the requirements resulting from this ruling.					
1998	A 50 % reduction from 1996 year level i.e. no more than 270 fatalities in 2007					

*Not adopted by the Swedish Government or Parliament

** Adopted by the Swedish Government, but not the Swedish Parliament

Tahlo 1	 Pronosed 	and a	ndonted	noals/tarnets	in	Sweden
I able I	. Floposeu	anu a	auopieu	yuais/largels		Sweuen.

Targets	Specific	Measurable	Achievable	Realistic	Time bounded	Outcome target, in final year
Target (2000) 600 fatalities	Yes	Yes	Yes, according to calculations and assessments made in the national road safety programme 1990	Yes, average annual reduction by 2.7%	Yes	565 (average annual -2.6%)
Target (2000) 400 fatalities	Yes	Yes	Yes, according to assessments made in the national road safety programme 1994	No, annual average reduction by 5.0%	Yes	565 (average annual +1.47%)
Target (2007) 270 fatalities	Yes	Yes	Yes, according to assessments made in the national road transport plan 1998	No, annual average reduction by 6.8%	Yes	478 (average annual -0.7%)

Table 2: Road safety targets evaluated with SMART criteria.

decision pointed out the long-term direction of the safety work and it was therefore necessary to complement this long-term direction with a short-term target. In 1998, parliament also approved a short-term target which stipulated that the number of fatalities in road crashes should decrease by 50 % from 1996 to 2007, or to no more than 270 fatalities in 2007 (Table 1). This target was based on an estimation made by the Swedish Road Administration and its proposed road transport plan for the period 1998 – 2007.

Do the targets fulfill the SMART criteria?

Target: reduction to 600 for the year 2000 adopted in 1989

The 1989 target, a maximum of 600 fatalities in the year 2000, was specific, measurable, and time bounded. According to the national road safety programme, there were countermeasures that could be implemented in order to achieve the target which would make the target theoretically achievable. The target stipulated a 2.5 % average reduction over a period of 12 years. Consequently, an average annual reduction of 2.5 % must be regarded as being realistic in historical terms. The actual final outcome in 2000 was 565 fatalities. However, this was achieved despite the fact that one of the most important countermeasures proposed in the national road safety programme was not implemented, namely a new speed limit system (Table 2).

Target: reduction to 400 for the year 2000 adopted in 1996

This target was also specific, measurable, and time bounded.

However, it is not clear whether it was theoretically achievable since the national road safety programme is not clear on what kind of countermeasures were to be implemented. In this programme, ten reforms and problem areas were defined, some of which were also specified in terms of quantified changes.

For example, it was stated that the number of speeding violations should decrease by 35 %. Precisely how this was to be achieved, however, is unclear. If we assume that there were appropriate strategies and countermeasures behind these quantified changes, the target of 400 for the year 2000 could also be interpreted as being theoretically achievable. However, the target stipulated an average annual reduction of 6, 8 %, which makes it an unrealistic target in relation to this study and its assumptions.

Target: reduction to 250 by the year 2007 adopted in 1998

This target was based on similar estimations as the target of 400 for the year 2000. The countermeasures were not clearly specified, which meant that the target was based more on the logic that if certain important risk factors such as speed, alcohol consumption, seat belt wearing and traffic environment could be influenced, a 50 % reduction was achievable. The target stipulated an average annual reduction of 6.2 %, which is also an unrealistic target according to the assumptions of this study.

Citation: Belin MÅ, Tillgren P, Vedung E (2010) Theory and Practice in Sweden: A Case Study of Setting Quantified Road Safety Targets. J Health Med Informat 1:101. doi:10.4172/2157-7420.1000101

Page 4 of 5

Discussion

In this study three adopted road safety targets have been identified and all these targets were specific, measurable, time bounded and at least theoretically achievable. However, it seems that targets adopted 1996 and 1998 are, compared to a general historical trend more or less unrealistic. Therefore one question that arises is: Why do politicians adopt ambitious time- bounded targets despite the fact that they have endorsed other conflicting goals and targets and do not have the implementation capacity in place to achieve the targets? One hypothesis is that setting time-bounded quantified targets is a policy action in itself, aimed at motivating different stakeholders. The underlying reason is not to achieve the target but to use a time-bounded quantified road safety target, although unrealistic, to increase the public visibility of the road safety problem and thereby impose pressure on stakeholders to strengthen their efforts. There is some evidence in support of this conclusion. It is the highest or most difficult goals that produce the highest level of effort and performance [23]. The logic is similar to the old adage: aim for the stars and you will reach the top of the mountain. This perspective is very close to one ingredient of Management by Objectives, in which the target plays the role of motivating [19].

However, setting time-bounded unrealistic targets could also have political costs as well. If you fail to achieve stipulated targets, responsible authorities and politicians could end up in a debate on the question of failure and who to blame. Yet, there are at least three factors that might prevent this from happening.

First of all, lack of road safety is generally seen as a problem of individual road users' behaviour and if the targets are not reached it is of the fault of the individual road user - and it is the individual road user who should thus bear the blame, not authorities or politicians.

The second reason for lack of political risk is the fact that the design and operation of the road transport system is shared by several different stakeholders. On critical assessment, the idea that everyone is responsible really amounts to the fact that no one is responsible. The third reason is that it is generally believed that transport is a major factor in economic and social development, and more important than road safety. When lack of goal achievement is assessed from this perspective it might not be such a large problem [24].

Setting unrealistic targets could therefore be strategically important for a symbolic reason and it shows that there is a political will and an interest in doing something about a public problem of great concern. The politicians can use unrealistic road safety targets as a means of strengthening their political agenda, keeping or attracting voters in the next general election or strengthening collaboration with other parties or groups. Once these covert strategic goals have been achieved, politicians may lose interest in achieving adopted targets [19]. If adopted targets are not followed up with strong effective intervention programmes, the targets could be based primarily on strategic considerations. Research that has been conducted shows that this might be the case and that the political interest in doing something substantial for road safety is low [25].

Despite the fact that politicians may have covert motives for setting clearly expressed goals and targets, it is still important in order to support the parliamentary chain of control. In case there are problems in achieving the targets, a public discussion will follow both on the target itself and on the actions that have or have not been taken. A clearly expressed target can also justify and encourage social research [19].

Methodological aspects

In this study, two major tasks have been carried out. The first task has been to identify and explore different government-adopted road safety targets. The most important methodological challenge in this context is to find targets that are adopted by those institutions in society that have a political mandate. Responsible agencies, road safety councils, experts, etc. can all suggest and adopt road safety targets. However, in this study and in contrast with Elvik's study of target setting in Norway [26], the focus has been on targets finally adopted by institutions that have a clear democratic mandate, namely the Swedish Government and Parliament.

The second task has been to evaluate the targets according to the SMART criteria. The criteria have been used as a tool in benchmarking the different targets. The methodological challenge is how an assessment based on the two criteria, achievable and realistic, should be carried out.

The criterion achievable is based on the knowledge of road safety experts about risk factors and available countermeasures. Therefore, this evaluation is dependent on their assessments, which could be a methodological weakness. Due to road safety research carried out over the space of several decades, the knowledge bank concerning risk factors and road safety interventions is impressive [26,27]. Road safety is therefore a well researched topic, and to suggest a programme with countermeasures that substantially reduce the number of road traffic injuries is not difficult. In a recent Swedish analysis, the experts have shown, once again, that it is theoretically possible to reduce the number of fatalities by 50 % over a period of ten years [28]. It seems therefore that the targets discussed are achievable, is a valid statement.

Although we have provided a definition of a realistic target, it must be noted that there is no easy answer to this issue because there are many different factors, which have been discussed early in this paper, and different stakeholder assessments of these factors that could influence the interpretation of what is a realistic target. Instead of making an indepth study of these stakeholder assessments, this paper is based on the assumption that the assessments eventually result in a historical trend in the number of fatalities. This is a very crude estimation of what could be a realistic target from an incremental practical political point of view.

Conclusion

Setting quantified time-bounded road safety targets is an emerging approach among public authorities. The Swedish Parliament has adopted national quantified time-bounded road safety targets in 1989, 1996 and 1998. This study shows that although all the targets were theoretically achievable, those adopted in 1997 and 1998 were – according to this evaluation and from a general historical trend perspective – unrealistic. However, from a road safety point of view, there might be a rational for leaders to adopt unrealistic targets. The setting of unrealistic targets might be a policy action in itself, and as the old adage goes, it may be rational to aim for the stars in order to reach the top of the mountain. The setting of unrealistic targets can also be a way of strengthening their own group, keeping or attracting voters in the next general election, or strengthening collaboration with other parties or groups. Once these hidden strategic goals have been achieved, politicians may lose interest in achieving adopted targets.

Acknowledgement

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit-sectors.

Citation: Belin MÅ, Tillgren P, Vedung E (2010) Theory and Practice in Sweden: A Case Study of Setting Quantified Road Safety Targets. J Health Med Informat 1:101. doi:10.4172/2157-7420.1000101

References

- Dunn WN (1994) Public policy analysis: an introduction. Englewood Cliffs, N.J: Prentice Hall 2: 480.
- Tones K, Green J (2003) Planning and strategies for promoting health. London: Sage Publications.
- Van Herten LM, Gunning-Schepers LJ (2000) Targets as a tool in health policy Part I: lessons learned. Health Policy, 53: 1-11.
- Government of Canada (1974) A new perspective on the health of Canadians: a working document = Nouvelle perspective de la santé des Canadiens, un document de travail. Ottawa: Information Canada.
- World Health Organization (1979) Formulating strategies for health for all by the year 2000 : guiding principles and essential issues, document of the Executive Board of the World Health Organization. Geneva: World Health Organization.
- World Health Organization. Health Situation Analysis and Projection Unit (1998) Evaluation of the implementation of the global strategy for health for all by the year 2000 : 1979-1996. Geneva: World Health Organization.
- World Health Organization Regional Office for Europe (1998) Health 21 : an introduction to the health for all policy framework for the WHO European region. Copenhagen: WHO Regional Office for Europe.
- Nutbeam D, Wise M (1996) Planning for Health for All: International experience in setting health goals and targets. Health Promotion International 11: 219-226.
- OECD (1994) Targeted road safety programmes: report prepared by an OECD scientific expert group. Paris, France: Organisation for Economic Co-operation and Development.
- 10. Peden M, Scurfiled R, Sleet D, Mohan D, Hyder AA, et al. (2004). World report on road traffic injury prevention. Geneva: World Health Organization.
- 11. OECD/ITF (2008) Towards zero ambitious road safety targets and the safe system approach. Paris, France: OECDpublishing.
- United Nations Economic Commission for Africa & World Health Organization (2007) Accra Declaration, Ministerial Round Table African Road Safety Conference Accra, Ghana 8 February 2007.
- Elvik R (1993) Quantified Road Safety Targets a useful tool for policy-making. Accident Analysis and Prevention 25: 569-583.
- 14. Elvik R, Vaa T (2004) The handbook of road safety measures. Amsterdam New York: Elsevier.

- 15. Lager A, Guldbrandsson K, Fossum B (2007) The chance of Sweden's public health targets making a difference. Health Policy, 80: 413-421.
- 16. Parsons DW (1995) Public Policy An introduction to the Theory and Practice of Policy Analysis. Cheltenham, UK Northampton, MA USA: Edward Elgar.
- 17. Vedung E (1997) Public policy and program evaluation. New Bruswick NJ: Transaction Publishers.
- Eldredge JD (2004) Inventory of research methods for librarianship and informatics. J Med Lib Assoc 92: 83-90.
- Yin RK (1994) Case study research: design and methods (2nd ed) London: Sage Publications.
- 20. Patton MQ (2002) Qualitative research and evaluation methods. Thousand Oaks, Calif.: Sage Publications.
- 21. Trochim WM (2006) The Research Methods Knowledge Base, 2nd Edition, Internet WWW page, at URL: http://www.socialresearchmethods.net/ kb/> (version current as of October 20, 2006) from The Research Methods Knowledge Base, 2nd Edition. Internet WWW page, at URL: http://www.socialresearchmethods.net/ kb/> (version current as of October 20, 2006).
- 22. Swedish Road Safety Office (1972) Ökad trafiksäkerhet: mål och medel : PM med förslag till målsättning för arbetet för ökad trafiksäkerhet. Stockholm: Allmänna förl.
- Locke EA, Latham GP (2002) Building a practically useful theory of goal setting and task motivation - A 35-year odyssey. Am Psychol 57: 705-717.
- Trinca G, Johnston I, Campbell B, Haight F, Knight P, et al. (1988) Reducing traffic injury: a global challenge. [Melbourne: Royal Australasian College of Surgeons].
- Køltzow K (1993) Road safety rhetoric versus road safety politics. Accid Anal Prev 25: 647-657.
- 26. Elvik R (2007) Road safety management by objectives: A critical analysis of the Norwegian approach. Accid Anal Prev 40: 1115-1122
- Kolbenstvedt M, Elvik R, Elvebakk B, Hervik A, Braein L (2007) Effects of Swedish traffic safety research 1971 - 2004: VINNOVA Analys.
- 28. Swedish Road Administration (2008) Målstyrning av trafiksäkerhetsarbetet, Aktörssamverkan mot nya etappmål år 2020 (Vol Publikation 2008:31): Swedish Road Administration.

Page 5 of 5