

# CALL FOR CASE STUDIES

## *Examples of NCD prevention interventions in LMICs*

Low-and middle-income countries (LMICs) bear a disproportionate share of the growing non-communicable disease (NCD) global burden and to respond to the increasing trend, governments and individuals have implemented interventions to prevent and control NCDs, while some interventions can be classified as a 'best buy' (or good investment), others prove themselves to be a 'wasted buy'. An intervention may even be a 'best buy' in one context but not necessarily in another (a controversial buy).

HITAP has been commissioned by the Institute for Population and Social Research, Mahidol University, Secretariat of the Prince Mahidol Award Conference (PMAC) to collaborate with foremost institutions and experts in the field to develop a knowledge product on NCD prevention in LMICS. The proposed book offers to introduce NCD interventions that **should** and **should not be** invested in based on reliable scientific evidence and contextual factors.

To this end, HITAP and partners are putting out a call for the submission of country and context specific case studies of 'best buy' or 'wasted buy' interventions for NCD prevention, specifically in LMICs. Controversial cases, an example of a best buy in one setting but not another, may also be submitted.

### **Instructions:**

If interested, please complete a case study template below and submit to us by the deadline. We have provided examples of completed templates.

### **Summary of opportunity:**

The global consortium encourages health professionals working in LMICs to respond to the call for case studies. We would like to hear from you and your experiences with best buys and wasted buys in NCD prevention. Any stories, experiences, and challenges are welcome.

If you are selected, we would like to cordially invite you to attend **PMAC 2019**, where your travel and accommodation expenses will be covered. Furthermore, applicants that make substantial contributions to the commissioned work will be offered co-authorship and a monetary payment.

To inform the project, we may invite you to participate in a key informant interview to share your knowledge and specific experience.

We welcome you to submit your draft case study to [pmac.hiu@hitap.net](mailto:pmac.hiu@hitap.net), using the template below and the subject heading 'NCD Prevention Case Study Entry'.

Deadline for submissions is **October 10<sup>th</sup> 2018**  
Selected applicants will be contacted in **October 2018**

# TEMPLATE FOR SUBMISSION

***Case studies should follow this general format***

**a. Summary of case study**

*In no fewer than 700 words, provide an overview of the case. Please state the name of the country and the details of the intervention (name of intervention and date it was implemented). Please include the reference or sources of information for the case study.*

**b. Reason as to why this is a best buy, wasted buy, or controversial buy**

*Please include evidence to support this rationale.*

**c. Describe your role in your organization and/or in relation to the intervention**

**d. Main challenges in implementation/disinvestment**

**e. What are the conducive factors and barriers of implementation?**

*E.g. What factors could support the implementation?*

**f. What was the global impact?**

*E.g. Implications of the findings*

**g. Primary outcomes**

*E.g. How do you define the success or failure of the programme?*

**h. Intervention period**

# A CASE EXAMPLE OF A BEST BUY

## a. Summary of case study

China has the largest number of tobacco users (over 300 million) and the largest tobacco manufacturer (China Tobacco) in the world. In 2010, 52.9% of men and 2.4% of women were smokers (Global Adult Tobacco Survey). About 20% of all adult male deaths in China were related to smoking in the 2010s (Chen et al. 2015).

As part of the Healthy China 2030 strategy, the government of China aims to reduce the smoking rate from current 27.7% to 20% by 2030. Curbing the demand for tobacco by increasing the price is one of the strongest measures of tobacco control policy. The Chinese government has increased the tobacco excise tax since 2009, after they ratified the WHO Framework Convention on Tobacco Control (WHO FCTC) in 2005. The most recent tax increase took place in 2015. Currently, the average proportion of the tax in the retail price of tobacco became 55.7%, which is still lower than the WHO's recommended level of (at least) 70%.

Since the WHO FCTC was ratified, the government of China have introduced stronger tobacco control policies other than the tax, including regulations on advertisement and promotion, product package with warning messages, and a ban of smoking in public areas in some cities.

A recent modeling study showed that increasing the price of tobacco by 50% through excise tax in China would result in 231 million years of life gained for men over 50 years; and that the tax would raise additional revenue of 703 billion US dollars (Verguet et al., 2015). The study also found that the tax could be pro-poor, i.e., it would reduce inequality in income and health, favoring households in the lowest income quintile.

Another recent study evaluated the short-term impact of the 2015 tobacco tax increase and found that the retail price of tobacco was increased by 11% in 2016 (Goodchild and Zheng, 2018). The tax decreased the annual sales of tobacco by 7.8% and increased tax revenue by 14%.

Although a direct estimation of the economic cost of implementation was not available, the WHO-CHOICE economic analysis estimated the cost<sup>1</sup> and it is 0.01 million international dollars per 1 million people per year for upper-middle and high income countries including China (World Health Organization, 2017).

## References

1. Chen Z, Peto R, Zhou M, et al. Contrasting male and female trends in tobacco-attributed mortality in China: evidence from successive nationwide prospective cohort studies. *Lancet.* 2015; 386: 1447-56.
2. Verguet S, Gauvreau CL, Mishra S, et al. The consequences of tobacco tax on household health and finances in rich and poor smokers in China: an extended cost-effectiveness analysis. *Lancet Global Health.* 2015;3(4): e206–16. pmid:25772692
3. Goodchild M, Zheng R. Early assessment of China's 2015 tobacco tax increase. *Bulletin of the World Health Organization.* 2018 Jul 1; 96(7): 506-512
4. World Health Organization. Technical Annex (Version dated 12 April 2017) Updated Appendix 3 of the WHO Global NCD Action Plan 2013-2020. 2017. Available at: [http://www.who.int/ncds/governance/technical\\_annex.pdf](http://www.who.int/ncds/governance/technical_annex.pdf)

### b. Reason as to why this is a best buy, wasted buy, or controversial buy

Tobacco tax is listed as one of the WHO “best buys” for non-communicable diseases (World Health Organization, 2017, Tackling NCDs: “Best buys” and other recommended interventions for the prevention and control of noncommunicable diseases. Available at:

<http://www.who.int/ncds/management/best-buys/en/>)

Our judgment that the tax policy is probably a good buy is consistent with WHO recommendations for the following reasons:

#### *Will the tax policy be effective?*

- Considerable health gains (231 million life years gained for over 50 years) and additional tax revenue (703 billion US dollars equivalent) were estimated for the Chinese population.
- The 2015 tax increase has already shown positive signs of success, though a long-term evaluation is needed

#### *Will the tax policy be cost-effective?*

- Although there is no direct evidence for judging cost-effectiveness of the tax policy, there are the following supporting evidence to show that the policy could be value for money.
  - The estimated cost of implementation was only 0.01 million international dollars per 1 million population per year (I\$0.01 per person per year) (World Health Organization, 2017).

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<sup>1</sup> More precisely, WHO-CHOICE estimated the cost to “strengthen the implementation of tax policy and administrative measures to reduce the demand for tobacco products (price increase of 25% through tax)”

- The costs of treatment of tobacco related diseases in China are high: \$2,078 (in 2011 US dollars) for chronic obstructive pulmonary disease; \$2,024 for stroke; \$10,845 for heart disease; \$13,626 for neoplasm (Verguet et al., 2015).
- A study found that the consumption value of health in China (Beijing and Kunming), i.e. willingness to pay per quality-adjusted life years, was estimated to range between \$4,700 and \$7,400, which is close to the local GDP per capita (Reference: Zhao F, Yue M, Yang H, et al. Willingness to pay per quality-adjusted life year: is one threshold enough for decision-making? Results from a study in patients with chronic prostatitis. Medical Care. 2011 49(3); 267-272).

*Will tax policy be best practiced?*

- China has a long history of implementing tobacco tax policy.
- The evidence through the modelling analysis implied a pro-poor population impact (Verguet et al., 2015).

#### **c. Describe your role in your organization and/or in relation to the intervention**

N/A

#### **d. Main challenges in implementation/disinvestment**

- Persistent controversy over regressivity of the tax, i.e., it may penalize poorer households
- Industry lobbying
- The need for a political mandate
- The responsibility for implementation falls outside the remit of NCD managers (the Ministry of Finance officially implemented the tax)

#### **e. What are the conducive factors and barriers for implementation?**

N/A

#### **f. What was the global impact of this case?**

- China has the world's biggest tobacco market with over 300 million tobacco users
- Additional evidence of cost-effectiveness which informs other countries for implementing and advancing tobacco control policy using taxation

#### **g. Primary outcomes**

- Health gains (life years gained, etc.)
- Economic cost of implementation
- Amount of tax revenues

#### **h. Intervention period**

Since 2009 until now

# A CASE EXAMPLE OF A WASTED BUY

## a. Summary of case study

Several countries are implementing population-based or organised diabetic screening programmes in order to ensure that diabetic patients can have access to early intervention and management which has been shown to have significant health and financial benefits. However, annual diabetes screening for general population aged 15 years and above under a national programme has been introduced by the governments of Thailand and Indonesia and the recent studies conducted by each government showed that screening people under the age of 30 years in Thailand and 40 years in Indonesia was unwarranted because the resources could have been used effectively elsewhere. For example, in Thailand, the screening for population aged lower than 30 years costs billions of Thai Baht budget with only marginal health gained due to a very low prevalence and incidence of asymptomatic diabetic patients being diagnosed from this annual screening programme. In addition, in Indonesia, it was estimated that by changing the screening policy from people aged 15 years and above to 40 years and above increased coverage from 28% to 63% of the population, coupled with more health gains, without a change in budget.

## References

- Rattanavipapong W, Luz ACG, Kumluang S, Kusumawardani N, Teerawattananon Y, Indriani C-iD, et al. One step back, two steps forward: an economic evaluation of the PEN program in Indonesia. *Health Systems & Reform*. 2016;2(1):84-98.
- Teerawattananon Y, Kingkaew P, Koopitakkajorn T, Youngkong S, Tritasavit N, Srisuwan P, et al. Development of a Health Screening Package Under the Universal Health Coverage: The Role of Health Technology Assessment. *Health economics*. 2016 Feb;25 Suppl 1:162-78. PubMed PMID: 26774008. Pubmed Central PMCID: 5066643.

## b. Reason as to why this is a best buy, wasted buy, or controversial buy

This case study demonstrates that with the same budget currently invested in the programme, the changes proposed will result in improvements on the current low uptake and poor coverage, thus yielding cost savings for the both governments and a possibility to reallocate resources to the country's priority health concerns, consequently leading to better health outcomes.

## c. Describe your role in your organization and/or in relation to the intervention

My organisation was involved in the evaluation of the diabetic screening policy in both countries.

**d. Main challenges in implementation/disinvestment**

Although a targeted screening policy of high-risk groups of population aged 30 and 40 years and above in Thailand and Indonesia (as opposed to screening for 15 years old and above) could be a favorable option, adopting the new target screening policy poses a major challenge to policy makers due to a potential negative public perception of the disinvestment from an option that yields higher health outcomes.

**e. What are the conducive factors and barriers for implementation?**

N/A

**f. What was the global impact of this case?**

This case example of a wasted buy has shed light on low-value health care practices.

**g. Primary outcomes**

Efficient use of limited health resource that well reflect 'opportunity cost' attached in each of these health care systems?

**h. Intervention period**

Detailed above

# A CASE EXAMPLE OF A CONTROVERSIAL BUY

*Example of a best buy in one context but not necessarily in another*

## a. Summary of case study

Bicycle sharing schemes have been implemented in about 1000 cities across the world with the objectives of increasing population level physical activity and thus preventing disease; and reducing car usage and congestion, so improving air quality and reducing greenhouse emissions.

The London cycle hire scheme was launched by Transport for London in 2010 and was a local government initiative. It comprises 11,500 bicycles that can be accessed through online registration for an access key and paid for by credit or debit card. The primary objective of the scheme was to reduce congestion in London and at the same time promote health.

The health impact of changes to physical activity offset against the harms of air pollution exposure and road traffic injuries were modelled for the London context<sup>2</sup>. The findings demonstrated significant personal health benefits from changes to physical activity even when accounting for observed injury rates -72 (95% confidence interval (CI): -110 to -43) DALYs among men who used the scheme and – 15 (95%CI: -42 to -6) for women (note negative DALYs represent health benefit)<sup>1</sup>. Women had more accidents and therefore less health benefit although they accounted for less usage of the scheme.

The bike hire scheme was implemented in combination with other transportation policies in London to increase cycling, like cycle superhighways and quiet ways and other policies to reduce congestion including the congestion charge and the bus network expansion.

In terms of the objective of reducing car use, it has been recognised in a few studies that use of the bike sharing scheme in London has had little impact on car usage<sup>3</sup>, as most of the journeys replace either public transport (47%) or other means of active travel (38%). Only 6% of cycle hire journeys replaced private car usage. From an inequalities perspective the London cycle hire scheme is predominantly used by affluent, white men and does not reach the most disadvantaged in society and the most at risk of ill health.

Little research has been undertaken to understand the wider economic benefits of bike sharing schemes. The London cycle hire scheme modelling work demonstrated that use of bike share reduced journey times

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<sup>2</sup> Woodcock, J., Tainio, M., Cheshire, J., O'Brien, O., & Goodman, A. (2014). Health effects of the London bicycle sharing system: health impact modelling study. *The BMJ*, 348, g425. <http://doi.org/10.1136/bmj.g425>

<sup>3</sup> European commission: Science for Environmental Policy  
[http://ec.europa.eu/environment/integration/research/newsalert/pdf/bike\\_share\\_programmes\\_reduce\\_urban\\_car\\_use\\_388na6\\_en.pdf](http://ec.europa.eu/environment/integration/research/newsalert/pdf/bike_share_programmes_reduce_urban_car_use_388na6_en.pdf)

by 20% and a review of the Dublin bike sharing scheme demonstrated both decreased journey time and improved spatial connectivity<sup>4</sup>.

Apart from lauding the health benefits of bike sharing schemes, there is also some criticism of them. In Tehran, the bike house scheme is thriving, but only for men, given that it is culturally unavailable for women and thus the scheme is not accessible by all<sup>5</sup>. China is pioneering smartphone applications to find a bike, removing the need for docking stations. This has led to a pile of bikes at railways stations and bikes being left in appropriate places. Critics complain about the lack of controls and mechanisms to redistribute bikes across the city. Some feel the CO<sub>2</sub> emissions avoided calculations in Chinese cities implementing bike share schemes are over estimated given that most journeys are not replacing car travel but walking or public transport and call for more environmental health impact assessments considering the local context<sup>6</sup>.

None of the studies looked at cost effectiveness of bike share schemes as a health intervention. Setting up a bike share scheme requires huge investment by the government and/or private companies. There are also important maintenance and operation costs. In London, despite Santander's £44 million seven year sponsorship deal, London taxpayers have to cover £10m of its £25m annual operating costs. For Transport for London it probably is a cost-effective transport investment given that the set up costs for the London cycle hire scheme were £80 million and the current new cross rail train service across London is £14.5 billion, although this would still need to be calculated as a cost per person served. Seattle has closed its cycle scheme, less than three years after it was launched. The 500 bikes employed had been used on average less than once a day. The hills, the rain, budget cuts and enforcement of the city's helmet law are all reasons for its lack of success. Contextual factors can define whether an intervention will be effective. As the London health benefits modelling demonstrates, the health gains from cycling can be easily diminished when road traffic injuries are high. Each situation needs local assessment and evaluation to inform decision making.

#### **b. Reason as to why this is a best buy, wasted buy, or controversial buy**

So far there is no scientific evidence the bike share scheme in London is a cost-effective public health intervention. The modelling study presented above, however, demonstrates that the scheme is an effective public health intervention for London: it establishes that there is a net benefit to population health. The scheme is available to all those living and working in the scheme zone although it is not utilised by all groups in society and may not be considered affordable by the poorest in society. The size of the scheme continues to grow in the city, as does cycling infrastructure and cycling as a mode of transport, however, it is not clear how much can be attributed to the cycle share scheme alone<sup>7</sup>. It cannot be assumed that these benefits translate to other contexts, as each context would need an

- Assessment of health benefits to health harms- where road traffic accident rates are higher there may be net harm

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<sup>4</sup> Bullock, Craig & Brereton, finbarr & Bailey, Sive. (2017). The Economic Contribution of Public Bike-share to the Sustainability and Efficient Functioning of Cities. *sustainable Cities and Society*. 28. 76-87.

10.1016/j.scs.2016.08.024.

<sup>5</sup> <http://bike-sharing.blogspot.com/2010/03/tehrans-bike-house-shines-green.html>

<sup>6</sup> Zhang Q, Gao X (2018) China's bike- sharing: A New Green washing Industry? Technical report  
doi: 10.13140/RG.2.2.16125.87529

<sup>7</sup> <http://democracy.cityoflondon.gov.uk/documents/s91800/Appendix%201%20-%20Traffic%20in%20the%20City%202018.pdf>

- Assessment of social and environmental impact – CO<sub>2</sub> emission avoidance and air pollution reduction will only be high where journeys replace CO<sub>2</sub> emitting vehicles
- Different accessibility issues – affordability, size and infrastructure, ease of use
- Different social acceptability – cultural acceptability (eg. Gender, social norms)

**c. Describe your role in your organization and/or in relation to the intervention**

None

**d. Main challenges in implementation/disinvestment**

Main challenge is the lack of evidence on effectiveness or ineffectiveness. Studies need to assess not only health benefits, but social and environmental. Seattle decommissioned their cycling sharing scheme because of lack use, not because there was any measure of the potential health benefits which if demonstrated might have encouraged them to look solutions to their challenges.

The London bike share scheme was implemented at the same time as many other transport initiatives, making it difficult to evaluate this one intervention.

There are other challenges with newer style schemes that use smart phone apps rather than docking stations. The lack of control mechanisms are leading to safety and congestion issues in that bikes are being left in inappropriate places.

**e. What are the conducive factors and barriers for implementation?**

**Barriers**

- Ensure involvement and commitment of the health authority. Bike share schemes are often implemented as part of transportation policy, which are outside the remit of them.
- High initial investment. Does not pay for itself in terms of maintenance costs and requires subsidies
- Need for docking stations and methods for redistributing bikes, especially for cities like London where people are typically commuting in in the morning and out in the evening. Transport vehicles cancel out some of the reduced emission gains.

**Conducive factors**

- Government or city council seen to be responding to the community's climate change concerns and in some instances obesity/NCD concerns
- Requires little political will, only opposition might be from the car lobby, but bike sharing schemes are not a major threat to them

**f. What was the global impact of this case?**

- There is often incomplete data on which to base decisions. More social, health and environmental impact assessments are required
- What is effective in one context is not necessarily effective in another
- Interventions in the real world are not implemented in isolation. Understanding their attribution is therefore challenging

**g. Primary outcomes**

- There is a health benefit to the London population using the scheme, but no studies comparing whether the gain might have been bigger on a population level by reaching more people if the investment had been in to the transport system.

**h. Intervention period**

Since 2010 until now