



January 2011 – SUPPORT Summary of a systematic review

Does the provision of economic consumer incentives improve and sustain preventive behaviours?

Improving participation in preventive activities requires methods to encourage and sustain consumer engagement. This review assesses the effects of economic incentives such as monetary transfers (either cash or in kind) that are provided directly to individuals as a way of inducing preventive health-related behavioural change. Behaviours were classified either as ‘complex’ if a number of steps and sustained consumer changes were required, or as ‘simple’ if changes could be accomplished directly (e.g. immunisations).

Key messages

- All the reported studies of economic incentives were conducted in high-income countries
- Most studies of simple preventive care interventions (such as immunisations, cancer screening and follow-up visits) were conducted in vulnerable, low socio-economic populations
- 73% of the economic incentives reported in the studies achieved short-term positive results
- The effectiveness of economic incentives on simple preventive care was not sustained, particularly for complex behaviours
- Increasing the ability of consumers to purchase preventive services may be more effective than other incentives



Who is this summary for?

People making decisions concerning economic incentives to consumers

! This summary includes:

- Key findings from research based on a systematic review
- Considerations about the relevance of this research for low- and middle-income countries

X Not included:

- Recommendations
- Additional evidence not included in the systematic review
- Detailed descriptions of interventions or their implementation

This summary is based on the following systematic review:

Kane RL, Johnson PE, Town RJ, Butler M. A structured review of the effect of economic incentives on consumers' preventive behavior. *Am J Prev Med.* 2004 Nov;27(4):327-52.

What is a systematic review?

A summary of studies addressing a clearly formulated question that uses systematic and explicit methods to identify, select, and critically appraise the relevant research, and to collect and analyse data from the included studies.

SUPPORT – an international collaboration funded by the EU 6th Framework Programme to support the use of policy relevant reviews and trials to inform decisions about maternal and child health in low- and middle-income countries. www.support-collaboration.org

Glossary of terms used in this report: www.support-collaboration.org/summaries/explanations.htm

Background references on this topic: See back page.

Background

The impact of individual behaviour on health outcomes and on the cost of healthcare is attracting considerable attention from policymakers. Financial incentives targeted at consumers are seen as interventions that could potentially increase the uptake of health-improving activities, by positively influencing their costs and benefits. A financial incentive is defined as a monetary transfer, either in cash or in kind, provided directly to individuals as a way to induce behavioural changes, including preventive ones.

Incentives, particularly financial incentives, are some of the most commonly studied methods of improving adherence. Typically, these are rooted in behavioural theories about the benefits of rewarding 'good' behaviour. Financial incentives, ideally, should motivate desired behaviours based on an understanding of both the underlying problem and the mechanisms through which financial incentives could help to influence change.

Disease prevention and health promotion strategies vary considerably: some require simple behavioural responses requiring only one finite action (such as being immunised). Others require complex behavioural changes that may include a number of steps that need to be sustained (e.g. weight control schemes, or smoking prevention programmes). Strategies that fall within this second group require greater psychological effort and significantly greater investments of time. Consumers therefore may be more strongly influenced by economic incentives associated with simple preventive services than those associated with complex decision making which require significant cognitive processing.

How this summary was prepared

After searching widely for systematic reviews that can help inform decisions about health systems, we have selected ones that provide information that is relevant to low- and middle-income countries. The methods used to assess the quality of the review and to make judgements about its relevance are described here:

www.support-collaboration.org/summaries/methods.htm

Knowing what's not known is important

A good quality review might not find any studies from low- and middle-income countries or might not find any well-designed studies. Although that is disappointing, it is important to know what is not known as well as what is known.

About the systematic review underlying this summary

Review objective: To assess the impact of economic incentives targeted at motivating consumers to adopt and/or maintain preventive health behaviours

	What the review authors searched for	What the review authors found
Interventions	'Economic incentive' as a single intervention targeted at specific individuals. These included cash, gifts, lotteries, and other free or reduced-price goods and services provided for the benefit of consumers. Studies examining more than one payment system (e.g. health maintenance organisation versus fees for service) were excluded).	The 59 incentives identified were: 10 lotteries, 7 gifts, 11 cash incentives, 15 coupons for free or reduced-price goods or non-medical services, 6 free or reduced-price medical services, and 10 incentives involving negative reinforcement or the opportunity to avoid punishment. Several studies included additional intervention components, particularly social pressures.
Participants	Consumers saw themselves either as healthy or else they were physically at risk but had not yet been diagnosed.	2 broad categories of participants were included. In 16 out of 24 studies of simple preventive care, vulnerable populations (drug users, teenage mothers, children from low-income families, and patients of public clinics and safety-net hospitals) were included. Of the 23 studies of complex behaviours, 19 included middle-class populations, recruited from work sites or from the general population.
Settings	Clinical and non-clinical settings such as worksites and community-based health promotions	All studies were set in high-income countries: 41 in the United States of America (USA), 2 in the United Kingdom (UK), 2 in New Zealand, and 1 each in Australia and Denmark.
Outcomes	Simple and complex preventive behaviours. Simple behaviours: those actions that could be accomplished directly, usually within a single visit (e.g. immunisations). Complex behaviours: those actions requiring sustained behavioural change (e.g. diets).	78% of incentives required a specific, target behaviour from the participant (e.g. attending a preventive service) as a condition for incentive distribution. The remainder required participants to attain a particular outcome. Simple preventive care studies used hard outcome measures. Studies of complex interventions also used self-reported outcomes.

Date of most recent search: October 2002

Limitations: This is a systematic review of moderate quality. The search was not exhaustive and was limited to published English-language articles. Databases as the Cochrane Central Register of Controlled Trials and Embase were not searched. 27 of the 47 included studies provided only weak evidence.

Kane RL, Johnson PE, Town R], Butler M. A structured review of the effect of economic incentives on consumers' preventive behavior. *Am J Prev Med.* 2004 Nov;27(4):327-52.

Kane R, Johnson P, Town R, Butler M (2004) Economic Incentives for Preventive Care. Evidence Report/Technology Assessment No. 101 (Prepared by the University of Minnesota Evidence based Practice Center under Contract No. 290-02-0009. AHRQ Publication No. 04-E024-2. Rockville, MD. Agency for Healthcare Research and Quality. August 2004 (full report of the primary citation).

Summary of findings

The review included 47 articles (with a combined total of 59 incentives), all which were set in high-income countries. Of these, 24 studies (19 randomised trials and 5 prospective quasi-experimental trials) required simple preventive care behaviours from consumers: immunisation (7 studies); cancer screening tests (6); attendance at prenatal and postpartum checkups (4); attendance at HIV-AIDS/STD educational sessions or the purchase of condoms (3); tuberculosis screening tests (2); attendance at a smoking prevention clinic and a cholesterol retest (1 each).

The remaining 23 studies (20 randomised trials and 3 prospective quasi-experimental trials) required complex behavioural responses: attendance at a smoking cessation self-help programme requiring lab-verified abstinence or the use of nicotine replacement patches/gum (10); attendance at weight loss educational sessions/weight loss (6); self-reported progress on lifestyle goal changes or related actions (3); cholesterol level control (1); self-reported breastfeeding levels (1); and the use of coupons to purchase food (1).

Studies of simple preventive care (including immunisations, cancer screening and follow-up visits) were most frequently studied in vulnerable populations of low socio-economic status (SES): 16 of the 24 simple preventive studies, but only 4 of the 23 complex studies). In contrast, healthy, middle-class populations were the most frequent recruitment bases for studies of complex health promotion lifestyle changes.

Overall, 43 of the 59 incentives (73%) achieved short-term positive results.

Only 7 of the 24 simple preventive care studies, and 14 of the 23 complex preventive care studies provided a theoretical basis for the economic incentives selected. It was unclear how the incentives that appeared to be associated with behavioural changes actually worked.

Incentives that increased the ability of consumers to purchase preventive services worked better than more diffuse incentives. However, the type of incentive mattered less than the specific nature of the incentive, considering that statistically significant and nonsignificant differences were found for the same classes of incentives.

Economic incentives are effective in the short-term for simple preventive care and distinct, well-defined, behavioral goals, but such effectiveness was not sustained, particularly for complex behaviours. Of the four studies that checked for long-term results, all of the significantly improved measures had returned to their original levels.

Direct economic incentives that enhanced purchasing behaviour (e.g. through the reduction of the price of a service) had a positive impact in 6 of the 7 simple behaviour studies (86%) and in 7 of the 8 (88%) complex studies. Coupons, which were perceived by consumers to be more convenient and flexible, were preferred to gifts. Both studies in which coupon incentives were compared to gift incentives, showed the former to be more effective. Small incentives are able to produce finite changes but it is unclear what size of incentive is needed to yield major, sustained effects.

There is minimal evidence of a dose response within consumer research. The higher the cash incentives provided, the greater the responses were to the incentive. Coupons, more convenient and flexible, were preferred to gifts.

About the quality of evidence (GRADE)



High: Further research is very unlikely to change our confidence in the estimate of effect.



Moderate: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.



Low: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.



Very low: We are very uncertain about the estimate.

For more information, see last page

- 73% of the economic incentives reported in the studies achieved short-term positive results
- Studies of simple preventive care, including immunisations, cancer screening and follow-up visits, were most frequently studied amongst vulnerable populations of low socio-economic status (SES)
- There is moderate evidence that economic incentives may improve simple preventive care in the short-term, and help in achieving distinct, well-defined behavioral goals. However, such effectiveness was not sustained, particularly for complex behaviours
- There is moderate evidence that incentives that increased the ability of consumers to purchase preventive services may improve preventive practices more than other incentives

Adopting and/or maintaining preventive health behaviours				
<p>Patients or population: Consumers who are healthy or physically at risk Settings: Clinical and non-clinical such as work sites and community-based health promotion settings Intervention: Economic incentives to consumers Comparison: No economic incentives to consumers</p>				
Outcomes	Impact	Number of participants (studies)	Quality of the evidence (GRADE)	Comments
Simple preventive behaviours	Positive findings reported for 25 of the 34 incentives (74%): cash, coupons*, free medical services** and punishment*** (75 to 100%); lottery and gifts (40%).	(24 studies)	⊕⊕⊕○ Moderate	Simple behaviours could be directly accomplished (e.g. a single visit to receive an immunisation).
Complex preventive behaviours	Positive findings reported for 18 of the 25 incentives (72%): lottery, gift and punishment*** (80 to 100%); cash, coupon*, free medical services** (50 to 65%).	(23 studies)	⊕⊕⊕○ Moderate	Complex behaviours require sustained change (e.g. diet).
<p>p: p-value GRADE: GRADE Working Group grades of evidence (see above and last page)</p> <p>*Coupon category included coupons, vouchers, gift certificates, and free or reduced non-medical services ** Free category included free or reduced-cost medical services *** Simple punishments (e.g., losing access to services or benefits) were administered for non-compliance with simple preventative care. Punishment for complex category was monetary return contracts that included a reward element (i.e., return contracted amount, minimum \$5 per paycheck for worksite employees trying to quit smoking). Studies that measured follow-up periods for these reported a rebound back to non-significant levels</p>				

Relevance of the review for low- and middle-income countries

→ Findings

▷ Interpretation*

APPLICABILITY

- All reported studies were set in high-income countries.
- In most studies, short-term incentives were associated with short-term behavioural changes or outcomes, especially in vulnerable populations. The four studies that reported long-term results, showed a loss of consumer compliance after initial improvement.

- ▷ *There are important differences between high-, low-, and middle-income countries in terms of: the structural elements of their health systems, on-the-ground realities, culture, and consumer preferences. It is therefore not necessarily appropriate to assume that findings reported could be directly applied from one context to another.*
- ▷ *There is no evidence of the long-term effectiveness of economic incentives, particularly for complex behaviours.*
- ▷ *It is unclear what size of incentive is needed to yield major and sustained effects.*
- ▷ *Additional intervention components, such as social pressure, could potentially confound the impact of incentives.*
- ▷ *The capacity of each health system to deal with increased demand should be considered. In low-income country settings, this capacity may not be sufficient.*

EQUITY

- 20 of the 47 included studies were set in high-income countries amongst vulnerable populations.

- ▷ *The assumed effect of economic incentives is the improvement of equity, but the consequences of implementing unsustainable programmes, particularly in LMIC countries, are unknown.*
- ▷ *It may be more difficult and costly for people living in rural and other under-served areas to access preventive health services that are promoted using economic incentives. In such instances, a failure to adjust the incentives would mean that these recipients would benefit proportionately less than those with better access to health services.*

ECONOMIC CONSIDERATIONS

- Only 7 of the 47 studies provided cost-effectiveness calculations. In 5 of these, no incentive was reported as being more cost-effective.
- No studies reported on attempts to extrapolate cost-effectiveness over time.

- ▷ *Unless the preventive service itself is cost effective, efforts to encourage its use are unlikely to be effective either.*

MONITORING & EVALUATION

- There is moderate evidence that economic incentives are effective in the short-term in high-income country settings.

- ▷ *More long-term research is needed to evaluate economic incentives in different populations within LMIC settings prior to wider implementation. Ideally, randomised trials should be undertaken.*
- ▷ *The use of 'packages' of interventions should be assessed, particularly in instances where complex consumer behaviours are required.*
- ▷ *The cost-effectiveness of economic incentives and their impact on consumer quality of life should also be investigated and compared with other policy options.*

*Judgements made by the authors of this summary, not necessarily those of the review authors, based on the findings of the review and consultation with researchers and policymakers in low- and middle-income countries. For additional details about how these judgements were made see: <http://www.support-collaboration.org/summaries/methods.htm>

Additional information

Related literature

Giuffrida A, Torgerson DJ. Should we pay the patient? Review of financial incentives to enhance patient compliance. *BMJ* 1997;315:703-7.

Bosch-Capblanch X, Abba K, Prictor M, Garner P. Contracts between patients and healthcare practitioners for improving patients' adherence to treatment, prevention and health promotion activities. In: *Cochrane Database of Systematic Reviews*. Chichester, UK: John Wiley & Sons, Ltd; 2007.

Oxman A, Fretheim A. An overview of research on the effects of results-based financing. *Rapport fra Kunnskapscenteret* 2008.

Lagarde M, Haines A, Palmer N. The impact of conditional cash transfers on health outcomes and use of health services in low and middle income countries. *Cochrane Database Syst Rev* 2009:CD008137.

This summary was prepared by

Agustín Ciapponi, and Sebastián García Martí, Argentine Cochrane Centre IECS - Institute for Clinical Effectiveness and Health Policy - Iberoamerican Cochrane Network, Argentina

Conflict of interest

None declared. For details, see: www.support-collaboration.org/summaries/coi.htm

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Keywords

All Summaries: evidence-informed health policy, evidence-based, systematic review, health systems research, health care, low- and middle-income countries, developing countries, primary health care, consumer participation/*economics, health behavior, health promotion/*economics, preventive health services/*economics

About quality of evidence (GRADE)

The quality of the evidence is a judgement about the extent to which we can be confident that the estimates of effect are correct. These judgements are made using the GRADE system, and are provided for each outcome. The judgements are based on the type of study design (randomised trials versus observational studies), the risk of bias, the consistency of the results across studies, and the precision of the overall estimate across studies. For each outcome, the quality of the evidence is rated as high, moderate, low or very low using the definitions on page 3.

For more information about GRADE:

www.support-collaboration.org/summaries/grade.htm

SUPPORT collaborators:

The Alliance for Health Policy and Systems Research (HPSR) is an international collaboration aiming to promote the generation and use of health policy and systems research as a means to improve the health systems of developing countries. www.who.int/alliance-hpsr

The Cochrane Effective Practice and Organisation of Care Group (EPOC) is a Collaborative Review Group of the Cochrane Collaboration: an international organisation that aims to help people make well informed decisions about health care by preparing, maintaining and ensuring the accessibility of systematic reviews of the effects of health care interventions.

www.epocoslo.cochrane.org

The Evidence-Informed Policy Network (EVIPNet) is an initiative to promote the use of health research in policymaking. Focusing on low- and middle-income countries, EVIP-Net promotes partnerships at the country level between policy-makers, researchers and civil society in order to facilitate both policy development and policy implementation through the use of the best scientific evidence available. www.evipnet.org

For more information:

www.support-collaboration.org

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