



September 2009 – SUPPORT Summary of a systematic review

## Does how primary care physicians are paid impact on their behaviour?

It is believed widely that the method by which physicians are paid affects their professional behaviour. In the fee-for-service (FFS) model, physicians are paid a fee for each unit of care they provide. With target payments, physicians are paid a lump sum only if a specified target level of service is provided. Under capitation, physicians are remunerated for each registered patient, to cover the services provided to them. Salaried physicians receive a lump sum salary for a specified number of work hours. Payment systems for physicians have been manipulated to attempt to achieve policy objectives such as improving quality of care, cost containment and recruitment to underserved areas.

### Key messages

- **Very low quality evidence suggests that fee-for-service can achieve higher compliance with recommended frequencies of patient visits. The impact of fee-for-service on the quantity of primary care services is not well documented and is likely to depend on fee-for-service rates**
- **A small study found that salaried primary care professionals may have fewer scheduled visits and well child visits, and more emergency visits, compared with fee-for-service primary care professionals. However, fee-for-service physicians have more visits than a recommended schedule**
- **Evidence on the impact of target payments, compared to fee-for-service, on immunisation rates is inconclusive**
- **All of the included studies were from high income countries**



### Who is this summary for?

People making decisions about payment systems for primary care physicians

### ! 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:

Gosden T, Forland F, Kristiansen IS, Sutton M, Leese B, Giuffrida A, Sergison M, Pedersen L. Impact of payment method on behaviour of primary care physicians: a systematic review. *J Health Serv Res Policy*. 2001; 6:44-55.

### 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](http://www.support-collaboration.org)

**Glossary of terms used in this report:** [www.support-collaboration.org/summaries/explanations.htm](http://www.support-collaboration.org/summaries/explanations.htm)

**Background references on this topic:** See back page.

# Background

The payment methods by which physicians are remunerated, are believed to have an impact on physician behaviour.

Because FFS and target payments link payment to outputs, they provide an incentive to physicians to maximise output (the quantity of care), as long as the fees exceed their personal (own time) and financial costs. With target payments, physicians have an incentive to provide the target level of care only and to provide no care if there is a risk of not meeting the target.

Generally, if physicians respond to these incentives, salaried and capitation payments may encourage cost containment behaviour and result in under-treatment whereas FFS may encourage over-treatment. The impact of these payment systems on patient health status is not clear since both under-treatment and over-treatment may be detrimental.

Payment systems may also influence the recruitment and retention of primary care physicians. For example, primary care physicians may be more likely to accept salaried employment in underserved areas, compared with FFS arrangements, since a fixed income provides more financial security.

Payment systems may also have different administration costs. FFS systems entail the highest costs since claims have to be made for each service. In capitation schemes the physician claims a fixed payment per patient. Salary payment is simplest in terms of administrative costs.

## 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](http://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 effects of different reimbursement schemes on physician behaviour

	What the review authors searched for	What the review authors found
<b>Interventions</b>	Comparisons of FFS, capitation, salary, mixed remuneration systems, and target payments. RCT, ITS or CBA designs were included.	Capitation payment versus FFS (1 RCT, 1 CBA); salaried payment versus FFS (1 RCT); mixed capitation versus FFS (1 CBA); target payment versus FFS (1 RCT, 1 ITS).
<b>Participants</b>	Primary care physicians	GPs (3 studies), paediatricians (2 studies), "primary care physicians" (1 study).
<b>Settings</b>	Primary healthcare settings	USA (3 studies), Canada (1 study), UK (1 study), Denmark (1 study).
<b>Outcomes</b>	Objective measurement of: health professional outcomes, health professional processes, health services utilisation, patient outcomes, healthcare costs, equity of care, primary care physician satisfaction.	Enrolled patients (1 study), primary care physician visits (3), compliance with recommended frequency of visits (2), continuity of care (1), service utilisation (1), referrals (2), emergency room visits (2), hospitalisation (2), patient satisfaction (1), and immunisation coverage (2).

**Date of most recent search:** 1997

**Limitations:** This is a good quality systematic review but the included studies have major limitations.

Abbreviations: RCT Randomized controlled trial, FFS Fee for Service, ITS Interrupted time series, CBA Controlled before after

Gosden T, Forland F, Kristiansen IS, Sutton M, Leese B, Giuffrida A, Sergison M, Pedersen L. Impact of payment method on behaviour of primary care physicians: a systematic review. *J Health Serv Res Policy.* 2001;6(1):44-55.

# Summary of findings

The review authors found 6 studies of the impact of payment methods on primary care physicians' behaviour. There was considerable variation in the quality of reporting, study setting and the range of outcomes measured.

## 1) Capitation compared with fee-for-service

One randomised controlled trial (RCT) and 1 controlled before-after (CBA) study compared capitation with FFS. The RCT randomised 80 paediatricians into 3 groups (capitation; a (new) high rate FFS group; and a (old) low rate FFS control group) over 6 months. Children in the capitation and the high rate FFS group had more primary care visits compared with the control group. In the capitation group, compliance with the recommended schedule for child health was lower than in the FFS groups.

The CBA study compared the impact of introducing FFS in a capitation system with a control group of primary care physicians already paid by capitation with FFS. The number of telephone consultations and diagnostic and curative services rose among primary care physicians 6 months after the introduction of FFS and were still higher after 12 months. Face-to-face consultations were higher after 6 months, but not after 12 months. Referrals to specialists and hospitals, which were not paid for by FFS, were lower in the intervention group after 12 months.

→ **There is very low quality evidence that fee-for-service may increase consultations in primary care settings, compared to capitation**

### 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

Capitation compared to fee-for-service			
<b>Patients or population:</b> Paediatricians and primary care physicians <b>Settings:</b> Primary care <b>Intervention:</b> FFS <b>Comparison:</b> Capitation			
Outcomes	Impact	Number of participants (studies)	Quality of the evidence (GRADE)
<b>Number of primary care physician visits</b> (follow-up: median 6 months)	Children in the capitation group had 0.5–0.6 more primary care visits per year and the FFS group had 0.8–0.9 more visits, both compared to the control group	80 (1 study)	⊕○○○ Very low
<b>Compliance with recommended periodicity schedule</b> (follow-up: mean 6 months)	In the capitation group compliance was lower than in the FFS groups (8 to 12% differences)	80 (1 study)	⊕○○○ Very low

p: p-value GRADE: GRADE Working Group grades of evidence (see above and last page)

## 2) Mixed capitation compared with fee-for-service

One CBA study enrolled 116 physicians (77 capitation and FFS [mixed capitation] and 39 FFS). After four years there were no statistically significant differences in patient admission rates or days in hospital between the two groups.

→ **There were no significant differences in patient admission rates or days in hospital when comparing mixed capitation and fee-for-service models**

## 3) Salary compared with fee-for-service

One RCT randomised 18 paediatric residents (trainees) to salary (10) or FFS (8), with a follow-up of 9 months. The average number of patients enrolled per primary care physician was higher in salaried compared with FFS primary care physicians (27% relative difference). There were no statistically significant differences between salaried and FFS primary care physicians in the average number of initial or follow-up visits per patient. However, salaried primary care physicians had a lower percentage of visits in excess of a recommended number compared with FFS primary care physicians. The average number of emergency visits per patient was higher for salaried compared with FFS primary care physicians (a relative difference of 83.3%), whereas the salaried primary care physicians carried out fewer scheduled visits and well child visits per enrolled patient. Salaried primary care physicians attended a lower percentage of visits with their own patients (a measure of continuity of care) compared with FFS primary care physicians. The only statistically significant difference reported across four domains of patient satisfaction was for access, which favoured the salaried primary care physicians.

→ **There is some evidence that fee-for-service physicians tend to carry out more consultations than salaried ones but may provide greater continuity of care**

## 4) Target payment compared with fee-for-service

One RCT randomised 54 practices in the USA to target payments plus FFS (27) or FFS only (27), with 1 year of follow-up. There was no statistically significant difference in influenza vaccination rates between physicians receiving fees only compared to the target payments group.

An interrupted time series study of 313 primary care physicians in the UK, followed over 20 months, showed that the overall linear trend in immunisation rates did not change as a result of the target payments.

→ **There is limited evidence of the effects of target payments on vaccination rates. Low quality evidence suggests that targets payments may not improve vaccination rates**

Target payments compared with FFS			
<b>Patients or population:</b> Primary care physicians <b>Settings:</b> Primary care <b>Intervention:</b> Target payment <b>Comparison:</b> FFS			
Outcomes	Impact	Number of participants (studies)	Quality of the evidence (GRADE)
<b>Rate of influenza vaccination</b> (follow-up: median 1 year)	The physicians receiving target payments had an influenza vaccination rate 9.4% higher than the FFS group, but this was not statistically significant.	54 (1 study)	⊕⊕○○ Low
p: p-value GRADE: GRADE Working Group grades of evidence (see above and last page)			

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

## → Findings

## ▷ Interpretation\*

### APPLICABILITY

→ This systematic review found scant evidence of the impacts of different ways of reimbursing primary care physicians, in studies conducted in high income countries.

▷ *The impacts of financial incentives and payment systems for primary care physicians are likely to depend on clinical, demographic and organisational factors, as well as on the magnitude of the incentives. Differences in payment systems and infrastructure may further limit the applicability of this evidence to LMICs. For example, changing from salary or capitation to FFS might require sophisticated information and billing systems that are not available in some settings.*

### EQUITY

→ The systematic review does not address equity issues

▷ *The potential impacts of different payment systems on equity are largely unevaluated. For example, capitation rates can be adjusted to provide incentives to physicians practicing in disadvantaged areas. Target payments can also provide incentives for providing services to more disadvantaged populations. However, the impacts of such incentives appear not to have been evaluated.*

▷ *Disadvantaged populations often experience a higher burden of disease, including greater complexity of needs. While FFS may be appropriate for relatively straightforward and uncomplicated service delivery, the level of patient co-payments associated with some FFS arrangements may be a significant impediment for disadvantaged groups with complex needs who require well coordinated care from a range of providers working as a team. Capitation or salaried arrangements may offer greater flexibility in the composition and roles within teams*

### ECONOMIC CONSIDERATIONS

→ The systematic review does not address sufficiently economic considerations

▷ *Changes in how primary care physicians are paid may incur costs (or savings) related to the size of the fees that are paid. With the available information, the impact of changes in payment methods on the quantity and quality of services provided, and the costs associated with these, are difficult to predict and could limit the sustainability of any major changes.*

▷ *FFS is largely an uncapped system of payments, whereas capitation and salaried systems are capped. The former therefore gives funders little control over expenditure, which can be an important policy issue where primary care physicians receive government subsidies or reimbursement for FFS.*

### MONITORING & EVALUATION

→ The systematic review recommends rigorous evaluation of different payment methods

▷ *Given the paucity of evidence of the impacts of alternative payment systems, changes should be pilot tested and their impacts rigorously evaluated, ideally using randomised designs and measuring impacts on equity, costs, the quality of care and patient satisfaction, as well as on the quantity of services provided.*

\*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

Donaldson C, Gerard K. Paying general practitioners: Shedding light on the review of health services. *Journal of the Royal College of General Practitioners* 1989; 39: 114–117

Chaix-Couturier C, Durand-Zaleski I, Jolly D, Durieux P. Effects of financial incentives on medical practice: results from a systematic review of the literature and methodological issues. *International Journal for Quality in Health Care* 2000; 12: 133–142

## The systematic review summarized here is based on two other systematic reviews

Gosden T, Forland F, Kristiansen IS, Sutton M, Leese B, Giuffrida A, Sergison M, Pedersen L. Capitation, salary, fee-for-service and mixed systems of payment: effects on the behaviour of primary care physicians. *Cochrane Database of Systematic Reviews* 2000, Issue 3. Art. No.: CD002215.

Giuffrida A, Gosden T, Forland F, Kristiansen IS, Sergison M, Leese B, Pedersen L, Sutton M. Target payments in primary care: effects on professional practice and health care outcomes. *Cochrane Database of Systematic Reviews* 1999, Issue 4. Art. No.: CD000531.

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## Conflict of interest

None declared. For details, see: [www.support-collaboration.org/summaries/coi.htm](http://www.support-collaboration.org/summaries/coi.htm)

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## This summary should be cited as

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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.

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## 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](http://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](http://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](http://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, EVIPNet 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](http://www.evipnet.org)

### For more information:

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