August 2008 – SUPPORT Summary of a systematic review

Do educational, organisational or financial interventions improve outpatient referrals from primary to seconday care?

Patients are referred from primary to secondary care when more specialised care is needed. Referral has considerable implications for patients, the healthcare system and healthcare costs. There is considerable evidence that referral processes can be improved. A number of alternatives has been evaluated including passive dissemination/distribution of referral guidelines, providing secondary-care services in primary care facilities and other educational, organisational and financial interventions.

Key messages

- **Passive dissemination of referral guidelines alone is unlikely to lead to improvements in referral practice.**
- **Guidelines for appropriate referral are more likely to be effective if**
  - –local secondary care providers are involved in dissemination activities;
  - –structured referral sheets are used.
- **There is little evidence on the effects of organisational interventions but the use of 'in-house' second opinion and other intermediate primary care based alternatives to outpatient referral appear promising.**
- **Financial interventions can change referral rates but their effect on the appropriateness of referral is uncertain.**
- **All but one of the studies included in this review were from high-income countries. Factors that should be considered in applying this evidence in low and middle-income countries include:**
  - –the existence of a formal referral system and its ability to absorb additional referrals;
  - –the availability of resources to implement the intervention;
  - –the extent to which referrals are made by physicians or by other health workers.

Who is this summary for?

People making decisions concerning the use of educational, organisational or financial interventions to improve outpatient referrals.

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

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:

Akbari A, Mayhew A, Al-Alawi MA, Grimshaw JM, Winkens RAG, Glidewell E, Pritchard C, Thomas R, Fraser C. Interventions to improve outpatient referrals from primary care to secondary care. Cochrane Database of Systematic Reviews 2005, Issue 3.

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 primary-specialist care interface is a key organisational feature of many healthcare systems. Primary care providers act as 'gatekeepers' with responsibility for deciding which patients require secondary care. Patients are referred to specialist care to obtain advice on diagnosis or management, to obtain diagnostic or therapeutic options not available in primary care, and to obtain a second opinion. Inappropriate referals consume healthcare resources that could have been used to provide other services. Patients who are not referred appropriately do not benefit from specialist care that they should have received, and patients who are referred inappropriately may undergo unnecessary diagnostic or therapeutic procedures (including hospitalisation).

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: 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 interventions to change outpatient referral rates or improve outpatient referral appropriateness

	What the review authors searched for	What the review authors found
Interventions	Empirical studies (randomised trials, non-randomised trials, controlled before-after studies, and interrupted time-series analyses) evaluating the effects of any intervention intended to change outpatient referral rates or improve outpatient referral appropriateness.	17 studies (involving 23 separate comparisons): 10 randomised trials, one non-randomised trial, four controlled before-after studies, and one interrupted time-series analysis. Nine studies (14 comparisons) evaluated professional education interventions, four studies evaluated organisational interventions, and four studies (five comparisons) evaluated financial interventions.
Participants	Primary care physicians, defined broadly as any medically qualified physician who provides primary health care.	General practitioners, family practitioners and other physicians working in primary healthcare settings.
Settings	Primary care	12 studies were based in the UK, two in the US and one each in the Netherlands, Palestine and Finland.
Outcomes	Objectively measured provider performance in a healthcare setting (e.g. referral rates or appropriateness of referral) or health outcomes	Studies of professional education interventions reported a combination of data related to quantity of referrals, quality of referrals and other outcomes. All but one of the studies of organisational and financial interventions reported only data on the quantity of referrals.

Date of most recent search: October 2007

Limitations: This is a good systematic review with only minor limitations.

Akbari A, Mayhew A, Al-Alawi MA, Grimshaw JM, Winkens RAG, Glidewell E, Pritchard C, Thomas R, Fraser C. Interventions to improve outpatient referrals from primary care to secondary care. Cochrane Database of Systematic Reviews 2005, Issue 3.

Summary of findings

The review identified 17 studies involving 23 separate comparisons. Nine studies (14 comparisons) evaluated professional educational interventions, four studies evaluated organisational interventions and four studies (five comparisons) evaluated financial interventions. Most studies (16) were conducted in high-income settings.

1) Passive dissemination of locally developed consensus referral guidelines compared with no intervention

Two studies (one randomised trial and one non-randomised trial) evaluated passive dissemination of locally developed referral guidelines. The RCT was focused on a specific clinical area (dyspepsia) and the guidelines were developed in local consensus meetings between general practitioners, surgeons and radiologists. The controlled before-after (CBA) study evaluated four interventions in four clinical areas (lower back pain, menorrhagia, suspected peptic ulcer and varicose veins) in a complex factorial design. Both were carried out in British general practice settings.

About 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.

➔ **There is moderate quality evidence that passive dissemination of referral guidelines alone has little or no effect on the quantity of outpatient referrals from primary to secondary care.**

Passive dissemination of locally developed consensus referral guidelines

Patients or population: Patients attending general practices in five clinical areas: lower back pain, menorrhagia, suspected peptic ulcer, varicose veins and dyspepsia
Settings: British general practice
Intervention: Passive dissemination of locally developed consensus referral guidelines
Comparison: No intervention

Outcomes	Impact	Number of participants (studies)	Quality of the evidence (GRADE)
Quantity of referrals	One study found no significant changes. The other study reported changes but these are difficult to interpret because of unit of analysis errors (p-values not reported) and uncertainty about whether the intervention was intended to increase or decrease referrals.	295 general practitioners (2 studies)	⊕⊕⊕◯ Moderate
Prescription costs	An increase in mean prescription costs for upper gastrointestinal drugs (absolute change from baseline of £581 [intervention group] versus £291 [control group]) and ulcer healing drugs (absolute change from baseline of £510 [intervention group] versus £199 [control group]) per GP was found.	179 general practitioners (1 study)	⊕◯◯◯ Very low

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

2) Dissemination of referral guidelines with structured management sheets compared with no intervention

Five studies (4 randomised trials, and 1 interupted time series analysis) evaluated dissemination of referral guidelines with structured management sheets. In three studies the intervention was part of a multifaceted strategy including educational meetings or reminders. Four of the studies were carried out in the UK and the other in Palestine.

➔ **There is low quality evidence that the dissemination of referral guidelines with structured management sheets might:**

– decrease referral rates, compared with no intervention

– improve the quality of referral or compliance with guidelines, compared with no intervention.

Dissemination of referral guidelines with structured management sheets

Patients or population: Patients attending practices with specific conditions (eye problems, infertile couples, two common urological conditions, otitis media with effusion)
Settings: Palestine and the UK
Intervention: Dissemination of referral guidelines with structured management sheets
Comparison: No intervention

Outcomes	Impact	Number of participants (studies)	Quality of the evidence (GRADE)
Referral rates	One study reported a reduction of over 50% in the number of referrals to an eye hospital post-intervention. The other two studies did not show any significant differences.	638 physicians + GPs in 76 general practices (3 studies)	⊕⊕○○ Low
Quality of referrals	Compliance with referral guidelines increased significantly in one study. In the other two studies related to the referral of infertile couples, median absolute improvements in post-intervention compliance ranged from +7.3% to +24% for different clinical criteria.	GPs in 372 general practices (3 studies)	⊕⊕○○ Low
Post-referral management	In one study there was a reduction in waiting times for first appointments and the probability of patients receiving a management decision at first appointment increased significantly (OR 5.8 [95% CI 2.9 to 11.5]). In the other study there were no differences in the time from first appointment to establishing a management plan or in the proportion of couples with a management plan one year after referral.	GPs in 290 general practices (2 studies)	⊕⊕⊕○ Moderate
Costs	In one study there was an increase in general practice and hospital costs in the intervention group but the statistical significance was unclear. In the other study there were non-significant reductions in post-referral general practice costs (for prostatism) and in the travel costs of patients attending health services. Furthermore there were significant reductions in the mean hospital management costs per patient of £80.26 for prostatism and £44.79 for haematuria.	GPs in 290 general practices (2 studies)	⊕⊕○○ Low

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

3) Educational activities led by secondary care providers compared with no intervention

Three studies (two randomised trials and one controlled before-after study) evaluated educational activities (workshops, feedback) led by secondary care providers compared with no intervention. The controlled before-after study evaluated four interventions in four clinical areas (lower back pain, menorrhagia, suspected peptic ulcer and varicose veins) in a complex factorial design. The randomised trials evaluated single interventions in specific clinical areas (dyspepsia and patients considered for orthopaedic referral). Two of the studies were carried out in the UK and the other in the Netherlands.

- **The effects of educational activities led by secondary care providers on referrals rates is unclear and the evidence is of very low quality.**
- **There is low quality evidence that educational activities led by secondary care providers could increase the appropriateness of referrals for certain conditions, compared with no intervention.**

Educational activities led by secondary care providers

Patients or population: Population being served by a number of providers (primare care or physician organisations) and pharmacies
Settings: UK and the Netherlands
Intervention: Educational activities led by secondary care providers
Comparison: No intervention

Outcomes	Impact	Number of participants (studies)	Quality of the evidence (GRADE)
Referral rates	Two studies showed an increase in the number of referrals for the tracer conditions after the intervention. In one of the studies the findings were contrary to what was expected. In the other study there were no significant differences in the number of patients receiving laboratory tests, radiography, medication or physiotherapy referrals. However, there was a reduction in subsequent referrals to orthopaedic surgeons (35.4% versus 68%; p<0.001).	128 GPs + 114 general practices (3)	⊕○○○ Very low
Quality of referrals	Both studies showed an increase in the appropriateness of referrals (for upper gastrointestinal endoscopy and management of orthopaedic problems in general practice).	116 GPs + 114 general practices (2)	⊕⊕○○ Low

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

4) Organisational interventions compared with no intervention

Four studies (two randomised trials and two controlled before-after studies) assessed the effect of three diferent organisational interventions on primary to secondary care referrals. A randomised trial (USA) evaluated primary care provision for new patients in an internal medicine clinic compared with a family practice clinic. They observed fewer referrals and a lower annual per patient cost for laboratory tests for those patients seen in family practice. However, the study had a number of methodological limitations. A randomised trial carried out in UK general practice evaluated the effects of an in-house second opinion before outpatient referral. They found that 19.6% of patients in the intervention group were not referred within 12 months (no comparative data available). A controlled before-after study evaluated the effects of providing primary care based physiotherapy services in UK general practice. They observed greater physiotherapy referrals, but fewer orthopaedic and rheumatology referrals. However, as there was baseline imbalance between intervention and controls groups and a unit of analysis error, the significance of these findings is unclear. Finally, a second controlled before-after study evaluated the effect of a 'slot system' used to allocate a predetermined number of consultations to orthopedic surgeons. Both the intervention and the control group had reductions in the referral rates but there was also a baseline imbalance, suggesting that the two groups may not have been comparable.

➔ **There is very low quality evidence that providing primary care in a family practice clinic might reduce the number of referrals compared with provision in an internal medicine clinic.**

➔ **There is low quality evidence that an in-house second opinion before outpatient referral could reduce the number of referrals.**

➔ **There is very low quality evidence that primary care based physiotherapy services decreased the number of orthopaedic and rheumatology referrals, compared with usual care.**

➔ **There is very low quality evidence that a 'slot system' decreases referrals to orthopedic specialists.**

5) Changing physician remuneration systems

One randomised trial assessed the effects of changing remuneration systems on referrals from primary to secondary care. The study evaluated the change from a low cost fee-for-service (FFS) system to either a high FFS system or a capitation-based system.

➔ **There is very low quality evidence that changes in physicians' remuneration systems might reduce the number of referrals from primary to secondary care.**

Different physician remuneration systems

Patients or population: Medicaid eligible children
Settings: US (private office-based practice)
Intervention: Capitation and high FFS; change from capitation-based to same as control
Comparison: Low FFS; mixed FFS and capitation

Outcomes	**Impact**	Number of participants (studies)	Quality of the evidence (GRADE)
Number of referrals (non-primary care visits)	There was a reduction in the number of non-primary care referrals in the capitation group (mean annual change per patient -0.23) but little effect in the high FFS group (mean annual change per patient +0.05) compared with the low FFS group.	80 primary care physicians (1 study)	⊕○○○ Very low

GRADE: GRADE Working Group grades of evidence (see above and last page); FFS: fee-for-service

Relevance of the review for low and middle-income countries

➔ Findings	▷ Interpretation*
APPLICABILITY	
➔ **All but one of the studies were conducted in high-income countries settings and the quantity and quality of the evidence is generally limited.**	▷ *The applicability of the available evidence to low and middle-income countries is uncertain because the effects of the interventions depends on how primary-secondary interfaces are organised and other local health systems issues .* ▷ *Factors that should be considered in applying this evidence in low and middle-income countries include:* – *the existence of a formal and functional referral system and its ability to absorb additional referrals;* – *the availability of resources to implement the intervention;* – *the extent to which referrals are made by physicians or by other health workers (including non-medical;)* – *the intensity of the intervention needed to change specific behaviours in different health workers.*
EQUITY	
➔ **The included studies provided little data regarding differential effects of the interventions for disadvantaged populations.**	▷ *There is a danger that financial interventions may reduce appropriate referrals as well as inappropriate referrals, putting disadvantaged populations at greater risk of not benefiting from appropriate referrals.*
COST-EFFECTIVENESS	
➔ **Only two studies carried out in UK general practice undertook economic evaluations.**	▷ *Because of uncertainty about both the resources required and the potential impacts on referrals, the cost-effectiveness of interventions to improve referrals should be evaluated before these interventions are scaled up.*
MONITORING & EVALUATION	
➔ **There is very little evidence to guide decisions about how to improve referrals from primary to secondary care in low and middle-income countries.**	▷ *The effects of interventions to improve referrals should be rigorously evaluated. Evaluations should measure the appropriateness of referrals, not just the number of referrals, and should include economic evaluations.*

*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

These overviews summarise the findings of systematic reviews of the effectiveness of various guideline implementation strategies across different types of professional practice, including referrals:
Grimshaw JM, Shirran L, Thomas R, Mowatt G, Fraser C, Bero L, Grilli R, Harvey E, Oxman AD, O'Brien M. Changing provider behavior: An overview of systematic reviews of interventions. Medical Care 2001; 39:Supplement 2, II-2 - II-45.

Getting evidence into practice. Effective Health Care 1999; 5:(1).
http://www.york.ac.uk/inst/crd/pdf/ehc51.pdf

This more recent systematic review summarises studies of the effectiveness of various guideline implementation strategies across different types of professional practice, including referrals:
Grimshaw JM, Thomas RE, MacLennan G, Fraser C, Ramsay C, Vale L et al. Effectiveness and efficiency of guideline dissemination and implementation strategies. Health Technol Assess 2004; 8:(6).
http://www.hta.nhs.uk/fullmono/mon806.pdf

NorthStar - how to design and evaluate quality improvement interventions in healthcare: NorthStar is a tool that provides a range of information, checklists, examples and tools based on current research on how to best design and evaluate quality improvement interventions.
http://www.rebeqi.org/?pageID=36&ItemID=18

Coulter A. Does the referral system work?. Roland M, Coulter A, editor(s). Hospital Referrals. Oxford: Oxford University Press, 1992.

Wilkin D. Patterns of referral: explaining variation. Roland M, Coulter A, editor(s). Hospital Referrals. Oxford: Oxford University Press, 1992.

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Conflict of interest

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

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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.pdf

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.epoc.cochrane.org

The Evidence-Informed Policy Netowrk (EVIPNet) is 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.who.int/rpc/evipnet/en/

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