April 2017 – SUPPORT Summary of a systematic review

# Does integration of primary healthcare services improve healthcare delivery and outcomes?

Primary healthcare in many low- and middle-income countries is organised through vertical programmes for specific health problems such as tuberculosis control or childhood immunisation. Vertical programmes can help deliver particular technologies or services, but may lead to service duplication and fragmentation. To address such problems, the World Health Organization and other organizations promote integration, where inputs, delivery, management and organization of particular service functions are brought together. Integration may involve adding a service to an existing vertical programme or full integration of services within routine healthcare delivery.

## Key messages

- **Adding family planning to other services probably increases the utilisation of family planning; but probably results in little or no difference in the number of new pregnancies.**
- **Adding provider initiated HIV counseling and testing to sexually transmitted infection services and to TB services probably increases the number of people receiving HIV testing.**
- **Integrating sexually transmitted infection services for female sexual partners of truck drivers into routine primary care may reduce women's utilisation of these services and their attendance following referral.**
- **Integrated community and facility provision of HIV prevention and control improves the proportion of STIs treated effectively in males but leads to little or no difference in the proportion treated effectively in females.**
- **Integrated community and facility provision of HIV prevention and control results in little or no difference in sexually transmitted disease incidence or HIV incidence in the population.**
- **'Integration' is a complex intervention and is understood in different ways in different settings. Evaluations need to describe clearly the interventions being compared, including how services are integrated in practice.**

### Who is this summary for?

People deciding whether to integrate primary healthcare services.

### This summary includes:

- **Key findings** from research based on a systematic review
- **Considerations about the relevance of this research** for low-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:

Dudley L, Garner P. Strategies for integrating primary health services in low- and middle-income countries at the point of delivery. Cochrane Database of Systematic Reviews 2011, Issue 7. Art. No.: CD003318. DOI: 10.1002/14651858.CD003318.pub3.

### 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** was an international project to support the use of policy relevant reviews and trials to inform decisions about maternal and child health in low- and middle-income countries, funded by the European Commission (FP6) and the Canadian Institutes of Health Research.

**Glossary of terms used in this report:** www.supportsummaries.org/glossary-of-terms

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

# Background

Government health services in many low- and middle-income countries are frequently organised through a set of vertical programmes, each responsible for organizing a set of inputs to ensure delivery for the specific health problem being addressed (for example, HIV/AIDS or malaria prevention). Specialized, separate, vertical programmes allow central technical supervision to 'reach out' directly to the service delivery level. This approach is seen to have the advantage of being able to better ensure service delivery for a particular health issue. Vertical programmes, however, can also lead to service duplication, inefficiency and service fragmentation.

Integration of primary healthcare was defined in this review as "a variety of managerial or operational changes to health systems to bring together inputs, delivery, management and organization of particular service functions." The review focused on integration at the point of delivery.

## 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-income countries. The methods used to assess the reliability of the review and to make judgements about its relevance are described here: www.supportsummaries.org/how-support-summaries-are-prepared/

## Knowing what's not known is important

A reliable review might not find any studies from low-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.

A lack of evidence does not mean a lack of effects. It means the effects are uncertain. When there is a lack of evidence, consideration should be given to monitoring and evaluating the effects of the intervention, if it is used.

## About the systematic review underlying this summary

**Review objective:** To determine whether strategies that aim to integrate primary health services or strengthen linkages at the point of delivery in low- and middle-income countries produce a more coherent product and improve healthcare delivery and/or health outcomes.

| Types of | What the review authors searched for | What the review authors found |
|---|---|---|
| **Study designs & Interventions** | Any management or organisational change strategy applied to existing systems that aimed to increase integration at the service delivery level in primary health. The review included randomised trials, non-randomised trials, controlled before-after studies, and interrupted time series studies. | 5 randomised trials and 4 controlled before-after studies.<br>- Adding a family planning clinic to: an expanded program of immunisation (1 study), a maternal and child health service (2 studies), and a voluntary HIV counselling and testing service (1 study).<br>- Different forms of integration of nutrition and infectious disease control (1 study)<br>- Integrating sexually transmitted infection, HIV/AIDS and TB health services with routine services (4 studies). |
| **Participants** | Users and providers in primary healthcare facilities in low- and middle-income countries | Individual patients, couples, households, and communities using primary healthcare services; and providers of primary healthcare services. |
| **Settings** | Primary healthcare facilities in low- and middle-income countries | India (2 studies), South Africa (2 studies), Nepal, Tanzania, Togo, Zambia, Zimbabwe. |
| **Outcomes** | Healthcare delivery, healthcare received, and health behaviour and status outcomes. | Processes and outputs of healthcare delivery (9 studies)<br>Health status (5 studies)<br>Knowledge and behaviours of service users (3 studies)<br>Users' perceptions of the service (1 study) |
| **Date of most recent search:** September 2010 | | |
| **Limitations:** This is a well-conducted systematic review with only minor limitations. | | |

Dudley L, Garner P. Strategies for integrating primary health services in low- and middle-income countries at the point of delivery. Cochrane Database of Systematic Reviews 2011, Issue 7. Art. No.: CD003318.

# Summary of findings

Nine studies were included in the review. They were conducted in primary healthcare services in South Africa (2 studies), India (2 studies), Zimbabwe, Tanzania, Togo, Nepal and Zambia. The identified interventions fell into two categories: adding a service to an existing vertical programme; and comparisons of vertical service delivery with a fuller integration of services.

## 1) Adding family planning services to other services vs usual care

A cluster randomised trial in Togo, a randomised trial in Zambia and a controlled before – after study in India evaluated this comparison in facilities providing primary health services.

➔ **Adding family planning to other services probably increases the utilisation of family planning; but probably results in little or no difference in the number of new pregnancies. The certainty of this evidence is moderate.**

### About the certainty of the evidence (GRADE) *

⊕⊕⊕⊕
**High:** This research provides a very good indication of the likely effect. The likelihood that the effect will be substantially different† is low.

⊕⊕⊕◯
**Moderate:** This research provides a good indication of the likely effect. The likelihood that the effect will be substantially different† is moderate.

⊕⊕◯◯
**Low:** This research provides some indication of the likely effect. However, the likelihood that it will be substantially different† is high.

⊕◯◯◯
**Very low:** This research does not provide a reliable indication of the likely effect. The likelihood that the effect will be substantially different† is very high.

* This is sometimes referred to as 'quality of evidence' or 'confidence in the estimate'.

† Substantially different = a large enough difference that it might affect a decision

See last page for more information.

**Adding family planning services to other services compared to usual services**

**People** People attending facilities providing primary health services
**Settings** Primary health services in Togo, Zambia and India
**Intervention** Adding family planning to other services
**Comparison** Usual services (without the addition of family planning)

| Outcomes | Absolute effect* (95% CI) | | Relative effect (95% CI) | Number of sites / participants | Certainty of the evidence (GRADE) |
|---|---|---|---|---|---|
| | **Without the addition of family planning services** | **With the addition of family planning services** | | | |
| Change in number of mothers accepting family planning services | **23 more per month** | **107 more per month** | **365% increase** | 16 clinics | ⊕⊕◯◯ Low |
| Couples initiating non barrier contraception | **329 per 1000** | **787 per 1000 (573 to 1000)** | **RR 2.39 (1.74 to 3.29)** | 251 couples | ⊕⊕⊕◯ Moderate |
| Incident pregnancies occurring during a one year follow-up period | **220 per 1000** | **195 per 1000 (116 to 325)** | **RR 0.89 (0.53 to 1.48)** | 251 couples | ⊕⊕⊕◯ Moderate |

*The assumed risk WITHOUT the intervention is based on the control group of each study. The corresponding risk WITH the intervention is based on the overall relative effect.
CI: Confidence interval. RR: Relative risk. GRADE: GRADE Working Group grades of evidence (see above and last page)

## 2) Adding Provider Initiated HIV Testing and Counseling at primary health facilities vs routine services

One cluster randomised trial and one controlled before-after study, both from South Africa, evaluated this comparison.

➔ **Adding provider initiated HIV testing and counseling to sexually transmitted infection services probably increases the number of people receiving HIV testing. The certainty of this evidence is moderate.**

➔ **Adding provider initiated HIV testing and counseling to TB services increases the number of people receiving HIV testing. The certainty of this evidence is high.**

**Adding on Provider Initiated HIV Testing and Counseling at primary health facilities compared to usual services**

**People** Facilities providing primary health services
**Settings** STI and TB clinics in South Africa
**Intervention** Integration of Provider Initiated Testing and Counseling (PITC)
**Comparison** Usual services

| Outcomes | Absolute effect* (95% CI)* | | Relative effect (95% CI) | Number of participants / sites (studies) | Certainty of the evidence (GRADE) |
|---|---|---|---|---|---|
| | **Without the addition of PITC** | **With the addition of PITC** | | | |
| Patients who received HIV testing in STI clinics | 475 per 1000 | 584 per 1000 (560 to 608) | RR 1.23 (1.18 to 1.28) | 9080 patients at 21 primary care facilities (1) | ⊕⊕⊕◯ Moderate |
| New adult TB patients who received HIV testing in TB clinics | 65 per 1000 | 202 per 1000 (132 to 309) | RR 3.12 (2.04 to 4.77) | 754 patients at 20 TB clinics (1) | ⊕⊕⊕⊕ High |

*The assumed risk WITHOUT the intervention is based on the control group of each study. The corresponding risk WITH the intervention is based on the overall relative effect.
CI: Confidence interval. RR: Relative risk. STI: sexually transmitted disease. TB: Tuberculosis. GRADE: GRADE Working Group grades of evidence (see above and last page)

## 3) Integration of services into routine primary care vs vertical delivery models for sexually transmitted infection services

One cluster randomised trial in Tanzania evaluated this comparison.

➔ **Integrating sexually transmitted infection services for female sexual partners of truck drivers into routine primary care may reduce women's utilisation of these services and their attendance following referral. The certainty of this evidence is low.**

**Integration of sexually transmitted infection services compared to vertical delivery models of sexually transmitted infection services**

**People** Women living around truck stops, including female sexual partners of truck drivers
**Settings** Truck stops and associated health facilities in Tanzania
**Intervention** Integration of sexually transmitted infection services into routine health services open during normal working hours
**Comparison** Vertical delivery models of sexually transmitted infection services, open after hours

| Outcomes | Impact | Relative effect (95% CI) | Number of sites (studies) | Certainty of the evidence (GRADE) |
|---|---|---|---|---|
| Utilisation of STI services by women | Integrating STI services into primary care may lead to lower utilisation | Not available | 7 truck stops (1) | ⨁⨁◯◯ Low |
| Women referred to and attended STI services | Integrating STI services into primary care may reduce referrals to and attendance of STI services | RR 0.54 (0.45 to 0.66) | 7 truck stops (1) | ⨁⨁◯◯ Low |

CI: Confidence interval RR: Relative risk GRADE: GRADE Working Group grades of evidence (see above and last page)
STI: Sexually transmitted infection

## 4) Integration of HIV prevention and control at community and facility level vs government vertical service

One cluster randomised trial in Zimbabwe evaluated this comparison.

➔ **Integrated community and facility provision of HIV prevention and control improves the proportion of STIs treated effectively in males but leads to little or no difference in the proportion treated effectively in females. The certainty of this evidence is high.**

➔ **Integrated community and facility provision of HIV prevention and control results in little or no difference in sexually transmitted disease incidence or HIV incidence in the population. The certainty of this evidence is high.**

**Integration of HIV prevention and control at community and facility level compared to usual government vertical service**

**People** People living in rural communities
**Settings** Primary health services in Zimbabwe
**Intervention** Integration of community (e.g. peer education and condom distribution) and facility (e.g. strengthened STI care) services for the prevention and control of HIV, implemented jointly by non-governmental organisations and government health services
**Comparison** Usual government vertical health service

| Outcomes | Absolute effect* (95% CI) | | Relative effect (95% CI) | Number of participants (studies) | Certainty of the evidence (GRADE) |
|---|---|---|---|---|---|
| | With usual services | With integrated services | | | |
| STI treated effectively – males | 559 per 1000 | 759 per 1000 (607 to 866) | POR 2.49 (1.22 to 5.10) | 11980 adults (1) | ⊕⊕⊕⊕ High |
| STI treated effectively – females | 686 per 1000 | 684 per 1000 (580 to 772) | POR 0.99 (0.63 to 1.55) | 11980 adults (1) | ⊕⊕⊕⊕ High |
| STI incidence – males | 42 per 1000 | 59 per 1000 (40 to 86) | POR 1.41 (0.94 to 2.12) | 11980 adults (1) | ⊕⊕⊕⊕ High |
| STI incidence – females | 149 per 1000 | 161 per 1000 (136 to 191) | POR 1.10 (0.90 to 1.35) | 11980 adults (1) | ⊕⊕⊕⊕ High |
| HIV incidence | 1.49 per 1000 person years at risk | 2.04 per 1000 person years at risk | IRR 1.27 (0.92 to 1.35) | 11980 adults (1) | ⊕⊕⊕⊕ High |

CI: Confidence interval; STI: sexually transmitted infection; POR: prevalence odds ratio; IRR: incidence risk ratio. GRADE: GRADE Working Group grades of evidence (see above and last page)
* The risk WITHOUT the intervention is based on the median control group risk across studies. The corresponding risk WITH the intervention (and the 95% confidence interval for the difference) is based on the overall relative effect (and its 95% confidence interval).

# Relevance of the review for low-income countries

| ➔ Findings | ▷ Interpretation* |
|---|---|
| APPLICABILITY | |
| ➔ **All studies were conducted in low- and middle- income countries.**<br>➔ **Many of the included studies focused on reproductive, maternal and child health.** | ▷ *Integration can be implemented across a wide range of primary care services. Evidence on effects across the full range of services and healthcare settings is not available.*<br>▷ *The delivery of health services through vertical programmes or through integrated services is not mutually exclusive, and these approaches may be complementary in some settings and for some health issues.*<br>▷ *The knowledge and skills of healthcare providers, the preferences of service users, the ways in which health services are governed and financed and the service delivery context must be taken into account before implementing integration policies in primary care.*<br>▷ *Vertical programmes in low-income countries may be funded by international donor aid. This may need to be considered when attempting to integrate primary care services.* |
| EQUITY | |
| ➔ **Integration of services may be implemented in order to reduce differences in access to and utilisation of health services between geographical and socio-economic groups. However, the review does not identify any information on this.** | ▷ *Integrated services that are targeted to specific underserved populations may improve equity. However, these interventions may have unintended and unwanted outcomes if they lead to:*<br>- *health workers being overloaded or deskilled*<br>- *a reduction in health workers' ability and capacity to deliver specific technical services, compared to vertical programs.*<br>- *improved services for those with access to clinics and not for those without access to the clinics.*<br>▷ *Where health systems are absent or very weak, vertical programmes may provide a mechanism for delivering basic technologies or services.* |
| ECONOMIC CONSIDERATIONS | |
| ➔ **The studies in this review did not provide data on resource use or cost-effectiveness.** | ▷ *The integration of primary healthcare services requires extensive training, provision of necessary drugs and supplies and access to referral centres.*<br>▷ *The cost-effectiveness and sustainability of integration policies are uncertain. Economic evaluations are needed and should be undertaken alongside implementation of these interventions.* |
| MONITORING & EVALUATION | |
| ➔ **The review found some evidence regarding the effects of the integration of health services in primary care, but this evidence was mixed and very limited for some types of integration.** | ▷ *The impacts of integrating services should be evaluated before undertaking large-scale changes. Both intended outcomes and potential adverse effects should be monitored, guided by a logic model that provides a hypothesis of the relevant causal pathways.*<br>▷ *'Integration' is a complex intervention and is understood in different ways in different settings. Evaluations therefore need to describe clearly the interventions being compared, including how services are integrated (or not) in practice, the extent to which this integration was implemented, and the support services that we needed.*<br>▷ *Evaluations should include long-term follow-up of the impacts of integrating services.* |

*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-income countries. For additional details about how these judgements were made see: www.supportsummaries.org/methods

# Additional information

## Related literature

Atun RA, Bennett S, Duran A. Policy Brief. When do vertical (stand-alone) programmes have a place in health systems? Copenhagen: World Health Organization Regional Office for Europe, 2008. http://www.euro.who.int/document/hsm/5_hsc08_ePB_8.pdf

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## Conflict of interest

None declared. For details, see: www.supportsummaries.org/coi

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This summary has been peer reviewed by: Paul Garner and Natalie Leon.

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## About certainty of the evidence (GRADE)

The "certainty of the evidence" is an assessment of how good an indication the research provides of the likely effect; i.e. the likelihood that the effect will be substantially different from what the research found. By "substantially different" we mean a large enough difference that it might affect a decision. These judgements are made using the GRADE system, and are provided for each outcome. The judgements are based on the study design (randomised trials versus observational studies), factors that reduce the certainty (risk of bias, inconsistency, indirectness, imprecision, and publication bias) and factors that increase the certainty (a large effect, a dose response relationship, and plausible confounding). For each outcome, the certainty of the evidence is rated as high, moderate, low or very low using the definitions on page 3.

**For more information about GRADE:** www.supportsummaries.org/grade

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**The Evidence-Informed Policy Network (EVIPNet)** is an initiative to promote the use of health research in policymaking in low- and middle-income countries. www.evipnet.org

**The Alliance for Health Policy and Systems Research (HPSR)** is an international collaboration that promotes the generation and use of health policy and systems research in low- and middle-income countries. www.who.int/alliance-hpsr

**Norad**, the Norwegian Agency for Development Cooperation, supports the Norwegian EPOC satellite and the production of SUPPORT Summaries. www.norad.no

**The Effective Health Care Research Consortium** is an international partnership that prepares Cochrane reviews relevant to low-income countries. www.evidence4health.org

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