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Strengthening Health Systems in Yemen: Review of Evidence and Implications for Effective Actions for the Poor

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1. Introduction

Decisions about how best to use resources are always political decisions, but can be more effective if they are also informed by research. International reports and donor policies emphasise how research can help make health strategies more effective and the need for evidence based policies (WHO, 2004; Green & Bennet, 2007, Moynihan et al., 2008, WB, 2005).

The aim is to review international and Yemeni experiences in order to find evidence of proven effective strategies which would make the best use of the resources available for improving health.

2. Health system strengthening (HSS)

A “successful strengthening strategy” is defined as changes which are implemented, which improve the quantity or quality of health services, especially for the poor, and which are sustained. This includes financing strategies to help poor people to access health services.

Concepts of “the health system” recognise that the lowest level “system” is not just a set of health services but also includes the patient or citizen, their family and community, which may do more than health services to protect and care for a person’s health.

3. Evidence basis for future strategy

3.1 Why does Yemen need to strengthen its health system and health services?

Health research and health sector reviews in Yemen report evidence of:

3.1.1 Health needs

- There are significant levels of unmet health needs, especially for poor people in rural districts where 71% of the population lives, and great variations in needs between areas (MoPHP, 2010).
- Maternal, infant and child mortality rates are amongst the highest in the world (366/100,000 and 69/1000, 102/1000 respectively), and there are high rates of many preventable diseases (MoPHP, 2010).
- There are significant levels of dissatisfaction among patients and providers with health services and systems, relating to access and quality (HESAS, 2003, Al Serouri, 2004). Poor health services have been proposed as one factor contributing to civil unrest, and secessionist movements (Sidhom, 2010).

3.1.2 Poor matching of resources to needs

- Health service coverage about 67% of the population but only 35% for the rural population (MoPHP, 2010)
- Mal-distribution of human resources, with distribution favouring urban areas, and 42% of physicians working in four governorates, and a shortage of employed female staff (MoPHP, 2010)
- Poor Health Information System (HIS) data, and poor planning of services in relation to needs (MoPHP, 2010)
- A large private sector, primarily in urban areas, with limited government regulation and supervision (MoPHP, 2010)

3.1.3 Inefficient use of resources

- Poorly equipped facilities (HESAS, 2003)
- Shortages of drug and supplies (HESAS, 2003)
- Limited budget for the operational costs, staffing, and incentives for health services of government facilities (HESAS, 2003)
- Deficiencies in health management skills and systems (HESAS, 2003)
- Most public health programs, including child health, infectious diseases, nutrition and other programs provided as vertical programmes, available in less than 40% of health facilities (MoPHP, 2000).

3.2 Which strengthening strategies are effective in low income countries?

WB 2005 classified HSS strategies as three types:

3.2.1 Provider based strategies

Performance improvement; Human resource management; Financial management; Information management; Pharmaceuticals and supplies management; Equipment management; Facilities/capital works management; Auxiliary support services; Marketing services and products; Reorganizing providers; Public sector provider reorganization

3.2.2 Government and financing strategies

Policy & strategy development; Information on the health of the public; Financing: Securing public resources for health, Allocating health resources, Pooling resources, Payment mechanisms.

3.2.3 Households and community empowerment strategies

Building individual/household capacity; Building community capacity; Transferring authority, responsibility, and resources

Evidence from research outside of Yemen shows four strategies are effective for strengthening health services in a number of low income settings:

- Removal of financial barriers to health care access
- Increasing the number of health workers
- Changing physician behaviour (e.g. more rational drug prescribing)
- Changes to drug procurement systems.

However the evidence is not strong because many specific interventions are grouped within these categories, and some of the specific interventions have had more success than others.

Case studies reported in a WB 2005 HSS study found that different strategies used to reduce financial barriers for access all had positive results. These were: the Ghana strategy which used a “National Health Insurance Scheme”; Uganda and Zambia abolished user fees; and Vietnam introduced user fees with exemptions; and used social health insurance for the poor.

The research shows different strategies have been used to increase the number of health workers, including using paid or unpaid community health workers (CHWs), all of which had positive results, the latter especially for the poor. Where numbers have been increased, this has clearly strengthened health services (WB, 2005).

Strategies that involve strengthening accountability and which link financing to measures of performance and accountability (e.g. through contracting), have been found to be effective over the short-term, and over a number of settings. Evidence from the WB 2005 case studies show positive results when the Afghan government contracted not-for-profit providers and also related finance to performance. Ghana’s decentralization of finance and performance-based contracts also produced positive results. However, the payment schemes and measurement had limitations, and there were also negative results, such as loss of income for large hospitals with high demand and utilisation by low- or no-income population. These cases show evidence that the payment and measurement needs careful design and piloting to reduce negative consequences.

As regards the payment of incentives to health workers to increase the quantity and quality of services, there is moderate evidence that strategies of this type are successful.

3.3 Is there evidence of strategies which have been effective in Yemen to strengthen health services?

There is evidence that some centrally-managed “vertical” disease programmes e.g. the National Malaria Control Programme have successfully reduced disease burden e.g. malaria had dropped in the Tihama region from 46 to 11 %, and in Socotra, an island in the Indian Ocean, the prevalence rate had fallen from 36 to 1% (NMCP, 2003). However, the National Health Strategy (2010-2025) noted that some vertical disease control programs does not have the capacity effectively to detect, control, prioritize, and plan the public health management of these diseases. Furthermore, the cost-effectiveness and long term sustainability of such vertical programs still questionable (MoPHP, 2010).

On the other side, there is evidence of a successful programme for strengthening primary care units to provide immunization on an outreach basis with financial incentives, increasing the coverage of Penta3 by 29%. More recently, there is some evidence that vertical programmes (Malaria, TB, IMCI, nutrition, and bilharzia) can be integrated into PHC and

district services using the same approach, and can improve preventative and curative services (MoPHP, 2009). The results of such integrated outreach activities showed remarkable improvements according to the following:

- Coverage of EPI: increase in Penta 3 coverage by 35 %, 34% in Measles and 72% for Tetanus Toxoid 2.
- Coverage of other services: IMCI, RH, & Nutrition services were provided for a new target population including under 5 children and child bearing age women.
- Costs: The cost per child during the EPI outreach was 1.3\$ whereas the cost for the integrated outreach was 1\$.

Many donors are currently building upon the service delivery model developed under the GAVI-funded Health Sector Strengthening project. The proposed future World Bank Yemen Health and Population Project (2010-2015) intends to draw on the experience of the EPI and GAVI programmes in order to develop strengthening strategies to reach the MDG goals 4 and 5. UNICEF will be supporting community-based services in the governorates of Sana'a and Ibb to complement the routine outreach services supported by GAVI project in these two governorates. JICA is supporting community-based services in six districts in Yemen in three governorates based on the experience that was implemented by GAVI funded HSS Project.

However the evidence suggests that some PHC facilities and districts are less able to integrate these vertical programmes, and require additional actions to strengthen management and systems so as to be able effectively to provide a wider range of services (MoPHP, 2010).

3.4 Are disease-specific programs an effective way to strengthen health services?

There are some studies of disease-specific programmes in other lower income countries (e.g. strategies to improve reproductive health services), as well as some unsystematic literature reviews of these strategies. Some of this research considers the scale-up of successful pilot programs (Øvretveit, 2008, Øvretveit, 2011).

However, the research does not provide a clear answer to this question. There is some weak evidence that disease-specific programmes do divert resources from other programmes and do distort overall health services away from local needs. There is evidence from Zambia where there is a chronic shortage of health workers that “vertical” programmes for providing HIV/AIDS anti-retroviral therapy (ART) diverted scarce personnel from providing other needed services (Øvretveit, 2008).

There is also some evidence that these programmes can strengthen health systems beyond their specific area of interest. But the evidence is inconclusive and appears to depend on how the strategy is implemented – careful implementation of certain types of HIV/AIDS programmes can also strengthen other services, but again the research is limited and cannot be generalised (Øvretveit, 2008).

One overview of research into health systems constraints for the MDGs (Travis, 2004) categorised the disadvantages of vertical delivery systems described in the literature as follows:

3.4.1 Duplications

Running parallel systems for delivering drugs to health facilities will increase transport costs, and increase the number of forms that health workers need to complete to secure their drug supply.

3.4.2 Distortions

Creating a separate cadre of better paid health workers for the specific tasks of a programme may deplete staff from other key functions and/or de-motivate staff who do not benefit from higher pay or better conditions.

3.4.3 Disruptions

Programmes often train health workers by taking them away from their jobs for several days or weeks, leaving their posts vacant. This training tends to be uncoordinated across programmes, and may result in the same worker receiving several training courses in a year, with a substantial loss of services being delivered.

3.4.4 Distractions

Similarly, the specific and uncoordinated reporting requirements of vertical programs/donors can lead to several forms being filled by a sole health worker for the same problem, distracting them from more productive uses of their time.

Although the Travis 2004 overview provided limited evidence, it concluded that:

“Disease or service-specific strategies to strengthen health systems on their own are unlikely to bring about the improvements in health systems needed to achieve the MDGs. ...Such an approach must be complemented by a substantial additional body of knowledge and action that takes the functioning of the health system as its core concern”.

3.5 Can actions to strengthen disease-specific programs that are effective in one area be successfully spread within a country?

There is some moderate evidence from research that such programmes can be successfully “scaled up”. This means that more studies have found successful scale up than those which have found less successful scale up. However, there is a publication bias towards reporting the “scale ups” that were successful, and not reporting the unsuccessful ones.

One example is the strengthening strategy used to scale up NGO-CHW projects across one set of districts in Zambia. The original model was refined, and then a pilot scale up programme was made, which was then itself developed to allow spread in other regions. The HIV/AIDS CHW model was extended to provide programmes including malaria control, and immunization (Øvretveit, 2008) .

There is evidence that success appears to depend on how the implementation is carried out, and on certain enabling factors in the environment, as well as on the type of disease specific programmes: more complex multiple-component programmes appear to be less successful in scale up, but this may be because the capacity was not there to ensure continual coordination in some cases. Research based guidance for scale-up is given in Øvretveit , 2006.

3.6 Are many strengthening strategies together more successful?

The evidence (WB, 2005) is that they can be, but often are not because of a lack of resources and management capacity at different levels to coordinate and implement the different strategies. There is some evidence that multiple compatible strategies, where different changes reinforce each other, are likely to have a more significant, long-term effect than single-action strategies alone (e.g. integrated delivery of health service, multiple component healthcare reforms). But the risks of failed implementation are higher because:

3.6.1 Consensus and support

It is more difficult to obtain consensus and support for each component of a multiple-action strategy than for a single approach.

3.6.2 Management and oversight

More complex multiple-action strategies demand greater management capacity if the actions are to be mutually-reinforcing. Persistent oversight is needed for effective consensus building, planning, coordination, review, and readjustment. Management capacity may not be able to provide these.

3.6.3 Timing

Because of limited resources and capacity, the specific actions for multiple-action strategies will need to be phased-in at different times so that these resources and capacity are not overwhelmed by the demands of many actions at one time.

3.6.4 Implementation of non-mutually reinforcing actions

There is a possibility that specific actions will not be implemented, or may be implemented in ways that undermine other components of the strategy. For example, incentives to provide specific services (e.g. special payments for immunization), can reduce incentives to provide other services for which there is greater need (Øvretveit, 2006).

Overall, the evidence shows that, the more complex the strengthening strategy (e.g. many changes, phased changes, with a large overall change), the more support is required (expert facilitators, external training and supervision). Multiple component and sophisticated strengthening strategies can be more effective only if properly implemented – it is costly to provide this support nationally and some level of ongoing support or supervision is often required (Øvretveit, 2006).

3.7 Is how the strategy implemented more important than the type of strategy?

One conclusion from this review of research is that that almost any strategy might be possible to implement, if certain conditions and implementation methods are present. There is positive evidence for this from successful implementation, as well as negative evidence from the failed implementations which did not have supportive conditions or were not well-managed.

A systematic review of 150 studies using high quality experimental designs (Øvretveit et al., 2008) noted that many of the strategies studied had significant amounts and types of resources to ensure full implementation: similar results could only be expected if the resources or conditions were repeated. One common element in the few studies with many positive outcomes was efforts to assess needs and constraints. In these studies 'constraint reduction plans' were found in 66% of the randomized interventions. However, many interventions that did not use this approach also had positive outcomes. Also, the research often did not describe to what extent these constraint reduction plans were implemented.

Overall there is evidence, that, of all the fully implemented strategies, some were effective in strengthening service delivery for poor people. What appears to be important is targeting poor people, ensuring regular measurement of impact, and oversight to ensure the poor benefit.

There is also research into strategies used for scale-up which have proven successful. There are useful frameworks for scale up of successful pilot strengthening approaches in Yemen including one by Cooley & Kohl 2005. Their tested framework gives a three-step process to carry out ten key tasks which their study suggests were needed for effective scaling up. Key choices to be made in deciding how to apply a strengthening intervention more widely (e.g. in scale-up) are: the sequencing of elements of the strengthening programme; and the pace of spread (e.g. rapid or phased); the areas to spread to and the sequence of areas.

A Community-based Health Planning and Services (CHPS) initiative in Ghana (Nyonator et al., 2006) gives some possible lessons for how to carry out a strengthening strategy in Yemen. The model aimed to reorient primary health care from clinics to communities, by relocated nurses to live and work in community-constructed clinics and using volunteers to mobilizing traditional social institutions to get community support. The scale up strategy used decentralized planning to adapt the operational details to local circumstances.

The study notes actions which helped to overcome constraints to scale-up by comparing slow and faster implementing districts. One was to use “peer exchange” to discuss the details of practical changes which would be needed and to use the original pilot as a demonstration model for visits. This is combined with training for upgrading clinical skills, new referral arrangements, quality assurance, and community-based health management.

The study notes that once the initiative gets started in one or two zones there is spread of the new approach within districts, but spread is slow across district boundaries because of staff exchanges. So within- and across- district involvement of leaders from neighbouring communities was necessary. It also notes a resource constraints problem to scale up where often fewer resources are available than were used in the pilot. The “faster” districts had found additional funds, usually not from government, for example “private practitioners” –paramedics who are community financed rather than salaried employees.

The action taken to address some of the problems of nurses working in areas they were not from, was a “community engaged” approach to decentralized training. Communities select nurse trainees, who are sent to a local training centre where fees are paid by the districts and communities to be served by the trainees. On graduation, nurses return home, rather than to a post in a distant location.

The study provides an analysis of issues and principles some of which may apply in other settings and for other strengthening-strategies. The first highlighted was the role of research: not just evidence from a district which replicated the pilot, both of which convinced policy-makers and others that the pilot would work elsewhere, but to identify problems and guide the scale-up. The second was the need for specific guidelines about parts of the programme that needed to be changed, the steps needed to get the operational change, and for monitoring whether change was taking place. The third observation was that the pilot was useful as a demonstration of the model and as a training centre. There was a need to resource the pilot founding implementation team to pass on their experience and motivation. A fourth item was the value of many ways of communicating the evidence and progress as well as sustaining the effort: newsletters documented community and worker experience with the programme and conferences, demonstration exchanges, and staff meetings. The report notes that “CHPS is thus a complex story. Its core strategy is based on a complex experiment, multiple replication efforts, and diverse sources of evidence. But, its core agenda is quite simple for stakeholders to understand and embrace”.

Fig. 1. Example of lessons from research from a health service strengthening strategy

3.8 How important is it to adapt the strategy to fit the situation, and to continue to adapt it?

There was some evidence from the review that adaptation – taking a strategy and adapting it to the country and local conditions - was associated with fuller strategy implementation. In addition, that continuous strategy adaptation in scale up led to fuller implementation and that adaptation was easier in small-scale interventions. In Ghana, a scale-up of a child and maternal health service strengthening pilot was made using an approach adapted for the situation using peer demonstration, diffusion, and teamwork (Phillips et al, 2006).

There are different examples of intervention approaches which decisions makers can use. A two-phased approach involves a pilot, then feedback, and then further modification of the intervention, followed by regional or national dissemination. A three-phased approach may prove to be even more effective. If time and resources allow, the initial pilot may be followed by additional pilots at the same time within different country contexts, allowing for more detailed guidance for decision-makers. There is evidence that implementation effectiveness is increased by providing continuous feedback to the strategy team and leaders about health service needs, constraints, implementation progress, and health service impact. This can be done by independent researchers.

Data from the WB, 2005 HSS case studies show that the planning of all the strategies in each country included some type of assessment of constraints and adaptation of ideas to the country situation. There was great variation after initial national planning in, continual adaptation (e.g. whether annual reviews and re-planning were carried out to adjust the strategy to changing circumstances), and also in adaptation by lower levels to the situation and needs of local areas.

There is evidence that strategies with not only initial, but also continual and local adaptation were more successful from the examples of decentralization in Ethiopia, Ghana Uganda, and Zambia (Øvretveit et al., 2008).

3.9 Is stakeholder involvement and consultation necessary to effective implementation?

Overall there is some limited evidence from the research that consulting or involving those who make the change, or who can stop it, is necessary for implementation. But there are also counter examples from authoritarian governance situations such as China where success was due to strong implementation structures without consultation (Kaufman, et al 2006). The research can help decision makers be more aware of the different approaches to consultation and involvement of different parties and levels of the health system, and of examples where this has been done. Research does not show if involvement and consultation is always necessary or which type is most effective in which situations.

The research reports adaptation by decision makers or implementers alone, after consultation. It also reports consultation and stakeholder involvement with little adaptation, and as pre-implementation preparation or as a form of education (Fajans, 2006)

The evidence suggests that some pre-implementation consultation can increase the speed and depth to which a strategy is implemented, but much depends on the country's history and culture. Many studies refer to lack of stakeholder consultation, or of lack of involvement and commitment as one explanation for less successful implementation. Where there has been successful implementation, widespread involvement in a process for agreeing the strategy is often reported as building commitment and as a key factor explaining successful implementation.

3.10 Are there strategies which are less dependent on the environment, which work in most countries?

There was no strong evidence from the review of research that some strategies were more “robust” than others, and less influenced by some of the conditions which appeared to affect implementation of all the strategies. A number of studies reported success where implementation had included constraints assessment and actions to reduce constraints (table 1 at end of this review). The implications are that, if decision makers take action to ensure that as many of these conditions as possible are met, this would increase the likelihood of implementation of the strategy (Travis, 2004).

3.11 Should we implement a strategy if we are uncertain if we have the right resources?

The research reviewed shows that one condition profoundly influencing all strengthening strategies are whether there are adequate resources for the change, for example as indicated by average per-capita income of the country, health care expenditure, and availability of health workers and capable managers (WB, 2005).

Findings from the WB, 2005 HSS case studies show that some strategies were not implemented because of lack of resources initially, or a reduction in available resources later, typically when donor or project finance ceased. There was evidence from the cases that availability of finance was a necessary but not sufficient condition for health service strengthening: some human resource strategies had financial resources, but a shortage of health workers prevented full implementation (e.g. in Ethiopia, Afghanistan).

4. Conclusions from the review of research into health service strengthening strategies

There is evidence of high levels of unmet health needs in Yemen, and of the potential for health services to prevent and alleviate suffering, especially of poor people. There is evidence of a number of deficiencies in the allocation of services, their performance and accessibility. This evidence suggests that changing the allocation of resources and increasing efficiency could do much to meet existing needs. However, the changes will not be easy to make, will take time, and will need capable management and incentives for change at all levels. Central and local government will need support to build the capacity, commitment and persistence to make the changes needed.

Research in Yemen has found vertical programmes have been effective, but possibly at the expense of generic primary health care and district services. Research found that PHC could provide EPI successfully on an outreach basis, and this “integration” model has recently been used for Malaria, TB, IMCI, nutrition, and bilharzias in a GAVI programme. Evidence shows that some PHC and districts can successfully provide prevention and care for these diseases and clients, but others need additional strengthening so as to be able to do so.

Research from other lower income countries shows the strength of service delivery (amount, accessibility for those most in need and quality) is most strongly influenced by the resources available for the service. This, in turn, depends on the amount of finance from government and private (individual and other), the number and skills of health workers, the facilities and supplies (especially drugs), and participation of the community in different ways including volunteer services.

Other specific factors have a greater or lesser influence on the strength of service delivery in different situations (e.g. pay and conditions of government workers can be critical for motivation and retention in most situations).

5. Practical implications for Yemen from the research

A future strengthening strategy will be more effective if it implements changes which have already proven successful for increasing the quantity and quality of health services in Yemen and elsewhere.

5.1 General principles for design and implementation of strengthening strategies

Use research and evidence from elsewhere, but combine it with local knowledge and adapt a change or strategy to the local situation:

1. Research suggests that the consequences of a strengthening strategy are difficult to predict, and that a strategy successful in one region could be unsuccessful in another. Adapting the strategy so that it can be implemented may require local research and/or community consultation.
2. Carry out a “barrier analysis” to assess constraints and hindrances to implementation.
3. Consultation can improve the design and planning of a strategy and can speed implementation, but much depends on the local situation.
4. Involve all levels: each levels of the health and local government system has a role in strengthening health services which needs to be specified, ideally through consultation, and then developed through training and other actions.
5. Pilot test any strategy first, and revise it using feedback from the pilot.
6. Scale up successful pilots using a tested method for scale up (e.g. the Cooley & Kohl, 2005 three-step approach describe above).
7. Include feedback to strategy implementers from continual monitoring of progress, of constraints and of new opportunities arising from the changing situation.
8. Flexibility and adaptation: have regular formal and informal review points where the strategy is modified for the changing situation.

5.2 Strengthening health services

Research suggests the following actions could effectively strengthen health services in Yemen:

1. Careful and phased implementation of the “GAVI vertical integration” model in PHC beyond the pilot districts. This can be informed from lessons from scale up strategies elsewhere, including strengthening governorate, district and PHC management which may not currently have the capacity to carry out the integration, adapting the model locally, and using information about implementation to make these adaptations.
2. Removal of financial barriers to health care access, using one or a mixture of the strategies reported to be effective, such as payment exemptions for the poor or social health insurance schemes.
3. Increase income for health services with effective systems to use and account for the finance, and by a combination of extra government allocations and income generating methods.
4. Increasing the number and skills of health workers, especially in rural areas, by rapidly expanding paramedic training, and possibly by more use of community health workers.
5. Improving pharmaceutical management
There is less strong evidence to suggest the following strengthening strategies would be effective, but enough to suggest they should be seriously considered for Yemen:
6. Appropriate licensing of practitioners and health service accreditation, and enforcement of penalties.

5.3 Strengthening management and systems

For these health service strengthening actions to be carried out, actions to strengthen the health system will be needed. These are actions which increase the capability of managers at all levels and how they work together, and improve the management systems such as for management information and human resource management.

For most strategies, managers at all levels need to be developed and given time to plan and implement strengthening interventions (rather than solely manage routine operations), with some managers dedicated full-time to implementing the strengthening intervention. Aspects of leadership associated with successful strengthening changes include: a clearly communicated mandate from top management that gives authority, resources, and accountability to leaders and teams throughout the organization, as well as respected “change champions,” and implementation teams.

The evidence suggests that some strategies which require stronger management capacity should not be pursued on more than a pilot basis until the capacity has been developed. Strategies which might be considered later, and which have proven to have some success with adequate management systems are:

1. Performance based contracting or other ways of linking financing to measures of performance and accountability
2. Payment of incentives to health workers to increase the quantity and quality of services.

5.4 Reduce constraints to health service strengthening

In planning and implementing a strategy, decision makers would be advised to assess and address the following factors which have been reported in research to enable/hinder implementation of most types of strategies:

Enabling/Hindering Factor	Description
Resources for the strengthening strategy	Funding for the strengthening strategy
	Number of personnel engaged in carrying out the strengthening intervention
	Competence of managerial and front-line personnel (e.g. professionalism, skills, expertise in change processes), particularly their ability to adapt the intervention to local circumstances (i.e. through an assessment of constraints, opportunities, resources)
Management and governance capacity	Ability/power of each management level to prompt the level below to take action
	Ability of each management level to hold others accountable (i.e. impose rewards, sanctions)
	Degree of corruption
	Degree of local community participation and assistance in the implementation process
Political stability and support	Frequency of changes in government, or leadership implementing the strategy
	Degree and consistency of support by powerful interest groups
	Degree of consensus among powerful interest groups
	Degree and consistency of popular support

Source: Øvretveit, 2006

Table 1. Enabling/Hindering Factor

5.5 Practical steps for developing a strategy

The following draws on the research reviewed to describe a series of steps which is likely to result in an effective strengthening strategy which is implementable:

1. Create a structure which includes key stakeholders to formulate a service-strengthening strategy for the country and each region
2. Combine actions to strengthen delivery of disease specific programmes with actions to strengthen health services and the health system overall.
3. Use the constraints-based list below to guide national and local information gathering on the nature, severity and possible solutions for national and local constraints to:
 - Finance for health services
 - Human resources and management and planning
 - Employee and provider motivation and payment systems
 - Quality and performance improvement programmes and methods
 - Necessary changes to organisation
 - Drug supply and better prescribing
 - Management development and management system development especially for management information and use
 - Good governance including community participation in health services
 - Cross-sector interventions which strengthen health services
4. Consider from this report and others which evidence about constraint-reduction actions is most applicable to your country, and the strength of the evidence.
5. Combine this information with the national information described above to formulate sub-strategies to reduce each of the constraints. Consider which actions would produce significant short term results and which are longer term actions.
6. Consider which actions in each sub-strategy are the same or similar and then prioritise these in the overall strengthening strategy.
7. Sequence the strategy in relation to priorities, funding availability and your assessment of the absorptive- and change-coping capacity of the system.
8. Create a structure for implementation involving stakeholders, and with systems to allocate the resources to each sub strategy, and to monitor and to regularly review the strategy.

6. Acknowledgment

This report was commissioned by the MoPHP, Primary Health Care Sector to help inform future strategy to strengthen health services and health systems in Yemen. The grant is from GAVI for Health System Strengthening (HSS).

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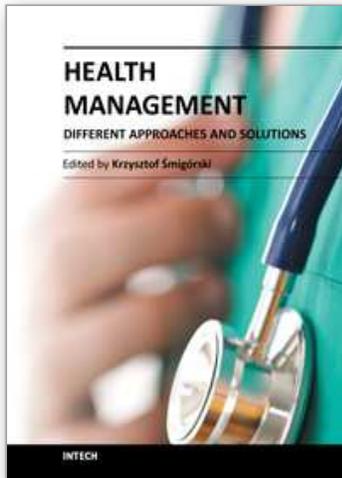
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Health Management - Different Approaches and Solutions

Edited by Dr. Krzysztof Smigorski

ISBN 978-953-307-296-8

Hard cover, 498 pages

Publisher InTech

Published online 14, December, 2011

Published in print edition December, 2011

The development in our understanding of health management ensures unprecedented possibilities in terms of explaining the causes of diseases and effective treatment. However, increased capabilities create new issues. Both, researchers and clinicians, as well as managers of healthcare units face new challenges: increasing validity and reliability of clinical trials, effectively distributing medical products, managing hospitals and clinics flexibly, and managing treatment processes efficiently. The aim of this book is to present issues relating to health management in a way that would be satisfying for academicians and practitioners. It is designed to be a forum for the experts in the thematic area to exchange viewpoints, and to present health management's state-of-art as a scientific and professional domain.

How to reference

In order to correctly reference this scholarly work, feel free to copy and paste the following:

Abdulwahed Al Serouri, John Øvretveit, Ali A. Al-Mudhwahi and Majed Yahia Al-Gonaid (2011). Strengthening Health Systems in Yemen: Review of Evidence and Implications for Effective Actions for the Poor, Health Management - Different Approaches and Solutions, Dr. Krzysztof Smigorski (Ed.), ISBN: 978-953-307-296-8, InTech, Available from: <http://www.intechopen.com/books/health-management-different-approaches-and-solutions/strengthening-health-systems-in-yemen-review-of-evidence-and-implications-for-effective-actions-for->

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