

making the most



of existing health workers

chapter four

in this chapter

67 What is a well-performing health workforce?

70 What determines how health workers perform?

71 What influences health workers' performance?

86 How are levers linked to the four dimensions of workforce performance?

89 Conclusion

A country's health workforce is made up of health workers who are at many different stages of their working lives; they work in

many different organizations and under changing conditions and pressures. Whatever the circumstances, an effective workforce strategy has to focus on three core challenges: improving recruitment, helping the existing workforce to perform better, and slowing the rate at which workers leave the health workforce. This chapter explores the second of these challenges: optimizing the performance of current workers.

Strategies to boost worker performance are critical for four reasons:

- They will be likely to show results sooner than strategies to increase numbers.
- The possibilities of increasing the supply of health workers will always be limited.
- A motivated and productive workforce will encourage recruitment and retention.
- Governments have an obligation to society to ensure that limited human and financial resources are used as fairly and as efficiently as possible.

This chapter outlines four dimensions of workforce performance: availability, competence, responsiveness and produc-

tivity, and reviews the levers available to improve these different dimensions. Many ways of improving performance exist, some aimed at individual health workers and some directed at the organizations in which they work.

WHAT IS A WELL-PERFORMING HEALTH WORKFORCE?

Health workforce performance is critical because it has an immediate impact on health service delivery and ultimately on population health. A well-performing workforce is one that works in ways that are responsive, fair and efficient to achieve the best health outcomes possible, given available resources and circumstances.

Table 4.1 Dimensions of health workforce performance

Dimension	Description
Availability	Availability in terms of space and time: encompasses distribution and attendance of existing workers
Competence	Encompasses the combination of technical knowledge, skills and behaviours
Responsiveness	People are treated decently, regardless of whether or not their health improves or who they are
Productivity	Producing the maximum effective health services and health outcomes possible given the existing stock of health workers; reducing waste of staff time or skills

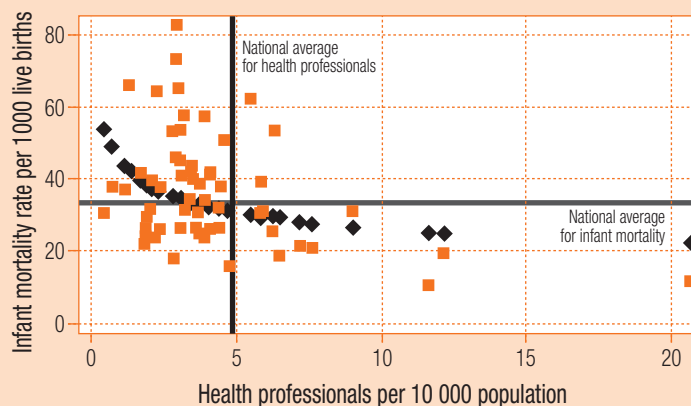
Evaluations of health workforce performance by the extent to which it contributes to the desired improvement in population health leave no doubt that performance can vary widely. Box 4.1 provides one illustration of how health workers use available financial resources to very different effect on infant mortality, even after controlling for education and poverty in the population. Examining performance this way reveals areas where a workforce is performing well and areas where improvements should be possible, but this method does not explain why performance varies or what can be done about it.

Box 4.1 Infant mortality and health worker density, Viet Nam

Infant mortality rates were examined in relation to the density of health service providers in 1999. Average results across the provinces are represented by the black points in the figure below. Many provinces, denoted by the red points, do better than expected for their health worker densities – they lie below the black line – while others do less well. More detailed analysis reveals that this is explained, in part, by differences in financial resource availability, measured

in terms of health expenditure per capita. An indicator was derived of the efficiency with which health workers in each province use the available financial resources to reduce mortality, controlling for education and poverty. Efficiency ranges from 40% to 99%, raising the question of why health workers in some provinces seem to perform better than in others (1, 2).

Infant mortality rate and per capita density of health professionals, by province, Viet Nam



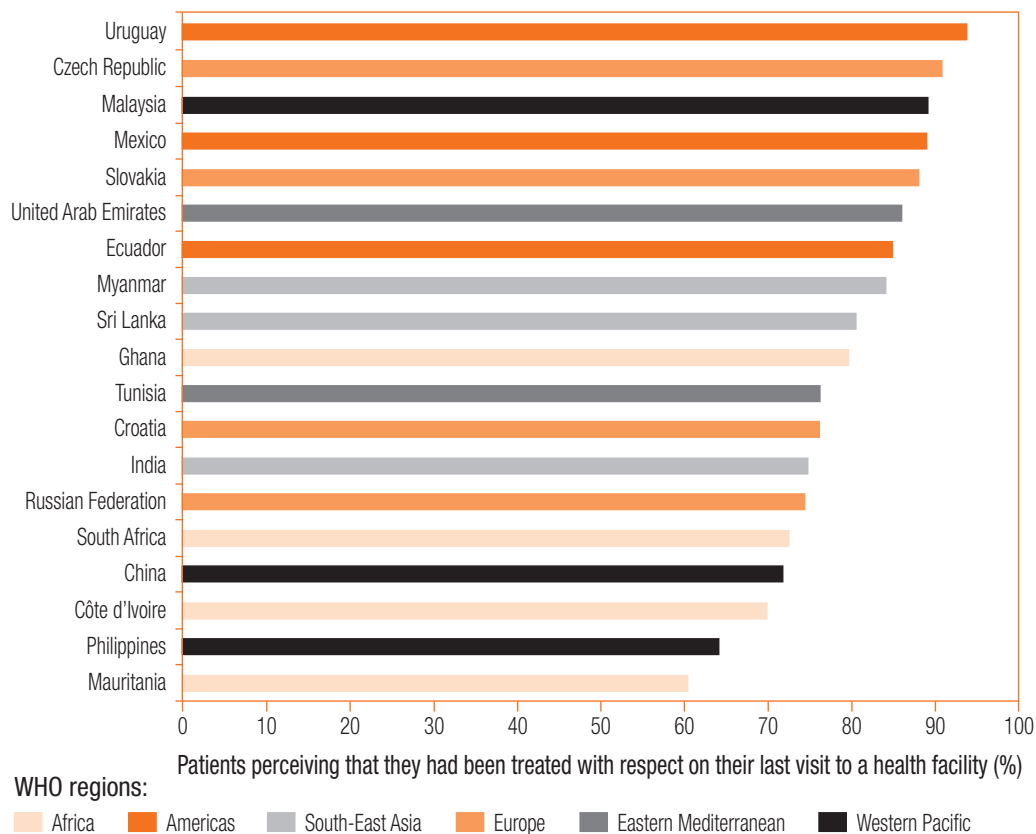
- ◆ Expected provincial infant mortality rate given available resources (from model).
- Observed provincial infant mortality rate.

Another approach is to look at four dimensions of workforce performance that are believed to contribute to the achievement of better service delivery and health (see Table 4.1). Looking at the problem this way can help in selecting areas for action.

This simple outline sets the scope for any health workforce strategy and provides a framework for assessing whether or not it is having its desired effects. This framework moves beyond the traditional focus on inputs (having the right number of staff, in the right place, at the right time, with the right skills, and the right support to work (3)) to consider workforce outputs and outcomes.

What is known about the various dimensions of health workforce performance shown in Table 4.1? Chapter 1 has already outlined what is known about workforce **availability**, across and within countries. This chapter describes efforts to capture some of the other dimensions more systematically. For all of them data are scarce, especially in lower income countries. However, if countries are to track whether workforce policies are having their desired effects, some metrics of performance are needed. Studies of **productivity** in the health sector have been conducted in both rich and poor countries (4). A recent study estimated the potential gains in productivity of existing staff in two African countries could be as much as 35% and 26%, respectively (5). Efforts, ranging from the simple to the sophisticated, are under way to assess the extent to which health workers are **competent** (6–9), and

Figure 4.1 Patients' perception of respectful treatment at health facilities in 19 countries



Source: (10).

exhibit aspects of *responsiveness* such as respect towards the people they see. Figure 4.1 illustrates results from a survey in 19 countries, which found that the proportion of patients who thought they were treated with respect when they visited health facilities varied from 60% to 90%.

For each dimension of health workforce performance, important differences between health workers may be seen, and policy responses should bear these in mind. Box 4.2 provides one example.

It is difficult to measure and monitor performance and all too easy to manipulate data (15). Many human resource and staffing indicators are routinely collected only in systems with relatively sophisticated information infrastructure. More work is needed to establish which existing indicators could best capture the four dimensions of workforce performance, but Table 4.2 illustrates some possibilities. These four dimensions are a consequence of factors such as staff turnover and motivation. Indicators of the determinants of performance, such as supervision visits and workplace safety, may also be worth measuring.

Many people view feedback on performance not just as a necessity for policy, but also as a powerful tool to influence the behaviour of health workers and organizations if linked to rewards and sanctions. The uses of performance monitoring are discussed later in this chapter.

WHAT DETERMINES HOW HEALTH WORKERS PERFORM?

To understand why health workers perform differently, it is useful to consider the factors known to influence their work. For many years it was assumed that poor health worker performance was primarily caused by a lack of knowledge and skills. In recent years this perception has changed, and three broad groups of factors are now recognized.

- *Characteristics of the population being served:* it is simpler to increase immunization coverage or adherence to treatment for tuberculosis or HIV infection where the population understands the benefits and has the motivation and resources to seek services.
- *Characteristics of health workers themselves,* including their own sociocultural background, knowledge, experience and motivation.

Box 4.2 Differences in performance of male and female health service providers

Male and female health workers sometimes approach their work and interact with patients in different ways. A recent study in Brazil found that women spent longer in consultation with each child under five years of age (an additional minute, on average) than their male counterparts, even adjusting for other determinants of time inputs such as patient loads. The difference was more pronounced for providers trained in the Integrated Management of Childhood Illness protocols, suggesting that the influence of training might also differ according to the sex of the practitioner (11).

In the United States, women were more likely to undergo screening with Pap smears and mammograms if they were seen by female physicians, and this was more evident with

internists and family doctors than with specialist obstetricians and gynaecologists (12). Female patients, especially those seeking gynaecological and obstetric advice, reported greater satisfaction with female than male physicians (13, 14).

Taken together, these findings suggest that certain aspects of the care rendered by women health workers can, in specific circumstances, be more responsive to the needs of patients than the care provided by male physicians. These differences could be important for the development of the health workforce, but need to be better understood.

- *Characteristics of the health system*, and the wider environment, that determine the conditions under which health workers work. These include the inputs available to them to do their jobs, how the health system is organized, how the workers are paid, supervised and managed, and factors such as their personal safety.

These elements are interconnected. For example, motivation (the level of effort and desire to perform well) is considered by many to be crucial to performance. Motivation is determined both by factors internal to health workers and by factors in their work and social environment (17).

WHAT INFLUENCES HEALTH WORKERS' PERFORMANCE?

Leverage can be applied to stimulate better performance from both individuals and the health workforce as a whole. The main levers available to support performance include a group that are *job related*; those related to the *support systems* that all workers need to do their jobs; and levers that shape and create an *enabling work environment*. It is rare to find a direct relationship between one specific lever and a desired change. Collectively, they make up a checklist of options for policy-makers to consider, from which various instruments have to be selected and combined to meet specific health workforce challenges.

Figure 4.2 summarizes some of the key levers that exist and the characteristics of the workforce that they can collectively influence. Some of these instruments have been found to be relatively easy to implement, others are more complex. Some offer the prospect of relatively early results, others are much longer term. Some are low cost, others are expensive. Some are not exactly policy levers but affect productivity – paying a heating bill, for example, so that a facility is warm enough for staff and patients to use. All of these levers need to be set within a vision for the workforce over the medium to long term. Improvements in workforce performance and productivity usually result from a bundle of linked interventions, rather than uncoordinated or single ones (18).

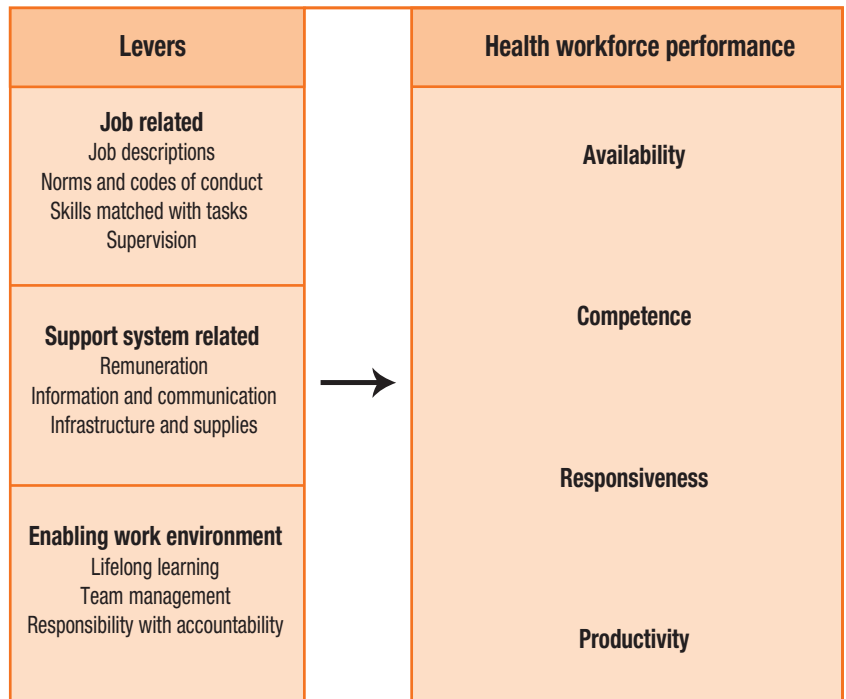
Selecting the right instruments to use and judging when and where to use them, require not just knowledge

Table 4.2 Human resource indicators to assess health workforce performance

Dimension	Possible indicators
Availability	Staff ratios Absence rates Waiting time
Competence	Individual: prescribing practices Institutional: readmission rates; live births; cross-infections
Responsiveness	Patient satisfaction; assessment of responsiveness
Productivity	Occupied beds; outpatient visits; interventions delivered per worker or facility

Source: (16).

Figure 4.2 Levers to influence the four dimensions of health workforce performance



of the instruments themselves, but also an understanding of other important issues that can influence how well the levers work, such as the structure, culture and institutional capacity of the organization concerned, and wider social values and expectations. Action to encourage better performance and productivity can be directed at the individual, team, organization or overall system level (19). Some of these instruments can be introduced within an existing health system by managers of local facilities or services. Others require decisions by higher level authorities or by other sectors – especially if they involve structural change. While it is pragmatic for managers to focus first on one or two things that they can directly influence and that can be changed more easily, there are times when this is inadequate for any substantial improvement in workforce performance and a more comprehensive set of managerial and organizational changes may need to be considered.

The next three sections of the chapter summarize current knowledge about the effectiveness of different levers. For each, four issues of concern to decision-makers are considered: the robustness of the knowledge base, what is known about ease of implementation, the cost, and the time frame for effects to take place. Hard evidence of what works is still limited, but this is no excuse for inaction, given the workforce crisis that is facing many countries. At the same time, this lack of evidence makes two things essential: careful monitoring of trends and effects to allow course corrections as needed, and a much greater effort to evaluate and share findings within and across countries.

Job-specific levers

One set of instruments that influences personnel performance is specific to individual jobs or occupations. These levers include clear job descriptions, professional norms and codes of conduct, the proper matching of skills to the tasks in hand, and supervision (20–22).

Strategy 4.1 Develop clear job descriptions

Job descriptions that clearly set out objectives, responsibilities, authority and lines of accountability are consistently associated with improved achievement of work goals, for all sorts of worker (23). Moreover, moves to develop clear job descriptions can produce quite rapid effects. A programme jointly undertaken by WHO and the Ministry of Health in Indonesia has demonstrated that establishment of clear job descriptions, along with better in-service training and clearer standards, can enhance job satisfaction and compliance with standards among nurses and midwives (see Box 4.3). Health workers in many countries still lack proper job descriptions, so this strategy has widespread potential.

Strategy 4.2 Support norms and codes of conduct

The performance of health workers, in terms of both competence and responsiveness, is also influenced by their sense of professional identity, vocation and work ethic. There are many instances of health workers continuing to provide care despite difficult and sometimes dangerous working conditions. Some ways of sustaining or, where necessary, creating values, standards and aspirations are outlined below.

The notion of “professionalism” and vocation in health has a long history. Almost every doctor and patient has heard of the Hippocratic Oath, which is the longest surviving ethical code of conduct. It is still sworn by many medical graduates. Health workers are expected to conduct themselves with integrity, selflessly to apply techni-

cal know-how and to put the interests of the patient above their own (30, 31). Professional codes of conduct are often instilled through unwritten channels and take time to develop, but can become a significant source of internal motivation.

One of the functions of professional associations is to foster this sense of valued professional identity and hence responsibility and higher morale (32). For more “modern” professions, such as management, professional associations are relatively new (for example, the European Health Management Association has existed for only 25 years) and still do not exist in many countries. Creating professional associations may be a desirable long-term strategy, but they take time to establish. The creation of associations for more informal providers such as drug-sellers has also been tried as a means of bringing their activities more into line with accepted good practice.

In very poor countries, coping strategies by health workers to deal with difficult living conditions may become so prevalent that maintenance of professional ethos is threatened. Box 4.3 explains how health workers in two countries perceive the problem.

Many employers are now introducing explicit written codes of conduct for all their employees, stating, for example, that they should arrive at work on time, treat patients with dignity and respect, and provide them with full information. The effectiveness of such codes has not been documented (and is usually only one aspect of a larger package of managerial interventions) but logic suggests that their effectiveness will depend on the extent to which they are communicated and enforced.

More formal instruments are also used to steer the behaviour of health workers in a desired direction. For example, a government might introduce a regulation that no private practice by public sector health workers is allowed during working hours in public facilities. To have the desired effect, such rules and regulations need to be well publicized, and action taken when they are broken. Licensing and accreditation are other tools to promote standards of care of existing workers and the institutions to which they belong. The effectiveness of formal regulations is often limited because the institutional capacity to enforce them is just not there. This problem is discussed further in Chapter 6.

Strategy 4.3 Match skills to tasks

In rich and poor countries alike and in all types of facilities, numerous examples exist of ways in which the skills of individual health workers or the skill mix within the workforce as a whole are being inefficiently used. Common reasons for this include the following:

- Tasks do not match an individual worker’s skills – for example, skilled nurses doing clerical tasks because there are no ward clerks. The opposite also occurs: for example, due to skill shortages, management tasks being carried out by scarce medical personnel, who have no specific expertise in these areas; or untrained personnel carrying out skilled tasks such as birth delivery and other interventions (33, 34).
- Certain tasks consume an excessive amount of time, such as hosting missions and reporting.
- Workers are not always at work at the times when the workload is highest, i.e. when their skills would be most productive.

“The performance of health workers is influenced by their sense of professional identity, vocation and work ethic”

Some examples of skill mismatches are given in Box 4.3.

Often countries with the scarcest human resources have the greatest demands made on their health workers' time by external agencies. This problem concerns senior policy-makers, managers and clinical staff. The Paris Declaration on aid effectiveness has a set of principles for harmonization and alignment with partner countries' systems and procedures that has been endorsed by ministers and development institutions (35). Many health agencies and partnerships are now examining how to put these principles into practice (36). External agencies have a golden opportunity to free up some time for health workers, for example by harmonizing review missions and training courses or by aligning overlapping reporting demands.

Shift patterns and time flexibility could provide another way to increase worker productivity. This strategy could potentially achieve a better match between staffing levels and workload at limited cost, but there are virtually no evaluations from developing countries (18).

Finally, skill delegation or task shifting is another way to increase overall workforce productivity that has received much attention. Most actual experience comes from substitution of physicians by nurses, and from English-speaking countries (37). Chapter 2 provides examples of instances where skill delegation is being adopted.

Box 4.3 Job-related challenges to improving health worker performance

Develop clear job descriptions: Indonesia

In 2000, a survey of 856 nurses and midwives in five provinces found that 47.4% nurses and midwives did not have written job descriptions, 39.8% were engaged in work other than nursing care or midwifery and 70.9% had not received in-service training for the past three years. A Clinical Performance Development Management System was developed: it created clear job descriptions that outlined responsibilities and accountability, provided in-service training consisting primarily of reflective case discussions, and put in place a performance monitoring system. Staff benefiting from the programme reported that the job descriptions, together with standards of operations and procedures, had given them greater confidence about their roles and responsibilities. The participating hospitals also reported that the programme helped to ensure quality and facilitate hospital accreditation (24).

Maintaining professional values: tensions and suggested solutions from Cape Verde and Mozambique

A study of how health workers perceive the difficulty of maintaining professional values found that they experience a conflict between their self-image of what it means to be an honest civil servant who wants to do a decent job, and the realities of life that make them betray that image. For example, misuse of access to pharmaceuticals has become a key element in the coping strategies that some health personnel employ to boost their income. The authors conclude that this ambiguity indicates that the opportunity to intervene still exists, and that this should be sooner rather than later before practices become too entrenched. Respondents' suggestions to change the situation included:

improved and tighter management of stock, improved working conditions, informing the population about such practices, and appeals to people's personal and professional values (25).

Match skills to tasks: examples of mismatches

A study in the United Republic of Tanzania estimated that 40–50% of a district medical officer's time was being spent on report writing and 20% on hosting missions (26). In Uganda, district managers estimated that they spend 70–80% of their time on planning, reporting and training workshops. This left little time for implementation of activities (27). A survey of hospitals in Washington, DC, United States, showed that for every hour of patient care in an emergency care department there was one hour of paperwork (28).

Exercise supportive supervision: Ghana

In quasi-government hospitals, the supervisors' role was the linchpin of performance enhancement: keener pressure and their perceived knowledge of technical processes kept service providers on their toes, with the supervisor themselves feeling more direct pressure to ensure good performance/outputs (for example, to retain their position, financial incentives and other benefits). In the public hospitals studied, supervisors seemed to have less authority and performance emphasis seemed to be placed on behaviours such as obedience, punctuality and respectfulness rather than on performance of technical tasks. Systems for re-orientation of supervisors and for formal performance appraisal of productivity of supervisors rather than directly on service providers may be useful (29).

In some cases, professional resistance and the need for changes in legislation can delay implementation.

Strategy 4.4 Exercise supportive supervision

Supervision, especially coupled with audit and feedback to staff, has been consistently found to improve the performance of many types of health workers, from providers to managers (21, 38). While the intent to supervise is almost universal, it often proves difficult to put into practice and becomes the first casualty in the list of priorities for busy and resource-constrained managers. Supervision often becomes more difficult but even more important in health systems that are decentralizing. Ministry central managers, for example, may be perceived as no longer having the authority to supervise districts, or their posts may have been transferred.

When it does take place, the *nature* of the supervision is important. If supervisory visits become sterile administrative events, or are seen as fault-finding and punitive, they have little positive effect and may have negative effects. In contrast, supervision that is supportive, educational and consistent and helps to solve specific problems, can improve performance, job satisfaction and motivation. Good supervision made a difference in staff motivation and performance between public hospitals and autonomous quasi-government hospitals in Ghana (see Box 4.3).

Strategies to improve supervision tend to neglect three groups, all of whom perform better with supervision. The first of these groups consists of supervisors themselves; the second consists of lay health care providers, be they families or community health workers with more formal roles, who often work alone; and last but not least are private providers, who in many low income countries receive virtually no supervision at all. The challenge is to find ways to oversee performance that will be accepted by independent, self-employed practitioners. Supervision is one element in various strategies being explored to engage private and informal providers in the delivery of commodities and services. In the example of social franchising projects, franchisees such as drug sellers obtain certain benefits, for example subsidized supplies, and in return accept – among other things – to be supervised by the franchiser (39).

Basic support systems

Every health worker needs some key supports to perform his or her job: remuneration, information, and infrastructure, including equipment and supplies. This section does not provide a comprehensive review of the systems that deliver these supports, but focuses on features that have particular relevance to enhancing health workforce performance.

Strategy 4.5 Ensure appropriate remuneration

Three aspects of remuneration influence the behaviour of health workers: the level and regularity of pay, the way people are paid, and other incentives.

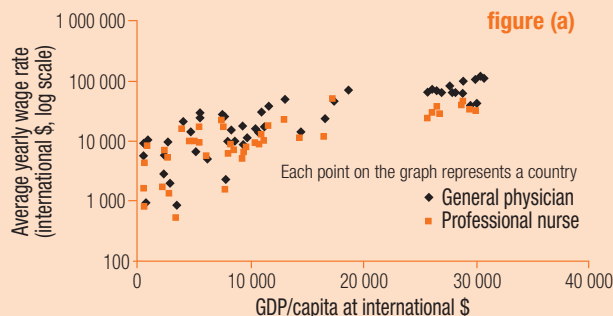
Health workers must be paid reasonably for the work they do. They need to receive a living wage; they also need to believe that the wage is commensurate with their responsibilities and that it is fair when compared with others in the same or equivalent jobs.

“Supervision that is supportive and helps to solve specific problems can improve performance, job satisfaction and motivation”

Box 4.4 Differences in salaries between countries, professions, sectors and sexes

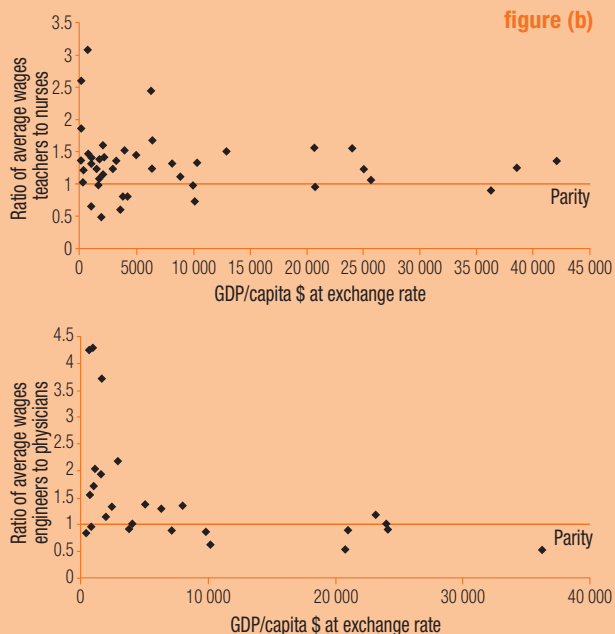
(a) Cross-country comparisons of annual salaries of physicians and nurses

Doctors and nurses in poor countries earn less than their counterparts in most high income countries, even after accounting for differences in the purchasing power of earnings, so substantial financial incentives exist for them to emigrate. In figure (a), annual salaries are plotted against GDP per capita in international dollars. Available data usually concern doctors and nurses only.



(b) Salary differentials between comparable professions

Differentials in the salaries of health professionals also vary within countries. Salaries can be compared between equivalent professions, public and private sectors, and men and women doing the same job. For countries with available data, the monthly salary of a teacher is typically 1–1.5 times the salary of a nurse (see figure (b)) though in Costa Rica, Estonia and the United States nurses reportedly earn more than teachers. Engineers are paid more than doctors, sometimes substantially more, in most low income countries, for example Bolivia, Côte d'Ivoire and Honduras. In general, this balance is different in countries with incomes per capita above US\$ 10 000 (as in Australia, Slovakia and the United States), so that here doctors are paid more on average.

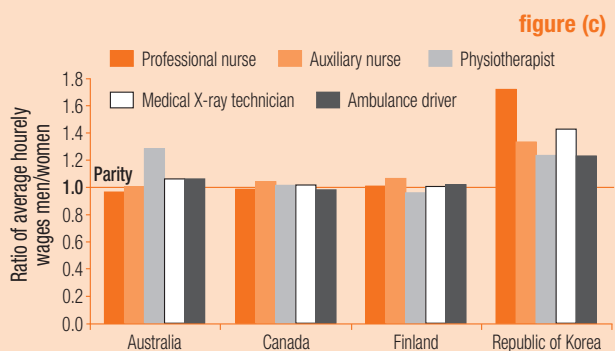


(c) Comparisons of salaries between the public and private sectors

Such comparisons are sparse. Certainly not all private sector workers are necessarily highly paid: for example, one study found that around 14% (Latvia) and 50% (Georgia) of private sector health workers were paid at or below the minimum wage.

(d) Ratio of wages (PPP US\$), men to women

Likewise, few data are available on differences in earnings between men and women. Figure (c) illustrates salary differentials by sex in four OECD countries: in three of them there seems to be parity across the five occupations studied. The most rigorous cross-country study available suggests that the small differences that exist can be explained by differences in the number of hours worked, type of speciality and seniority. This general finding could well hide considerable variation across countries.



Sources: (44–49). Data from most recent year available.

Underpayment and a sense of unfair differences stunt productivity and performance (40). Public sector health workers have developed many coping strategies to deal with salaries that are unrealistically low, or intermittent: dual or multiemployment, absences and ghost workers; informal payments; referring patients to the private sector; and migration to better labour markets (25, 41–43).

Raising salaries in the public sector can be difficult and costly. In some cases ministries of finance set public expenditure ceilings; salary levels may be set for all civil servants by public service commissions, who consider it unfair or unwise to raise salaries in one sector alone, or simply lack the ability to do so. Furthermore, for some particularly skilled and scarce health workers, the public sector may simply be unable to match salaries offered by the private sector or that are found overseas. Not all private sector workers are highly paid, however; in some countries, a significant proportion of workers in the private sector are paid at or below the minimum wage (44). Various comparisons of salaries are described in Box 4.4.

So what can be done? Despite the difficulties, a number of low income countries have dramatically increased the pay of public health workers in recent years. In the United Republic of Tanzania, for example, the Selective Accelerated Salary Enhancement scheme provided an opportunity for ministries to raise levels of remuneration for high priority groups (15). In Uganda, salaries were increased in 2004 for all health workers following a job evaluation exercise across the whole public service, which used a standard set of criteria (such as length of training, cost of errors, and working hours) to rank jobs and set their associated salary scales. As a consequence, the salaries of the lowest level nurse almost doubled and became equivalent to that of a new university graduate (42). Given the cost of salaries, there has recently been increasing acceptance by external agencies that salary support will be needed in very low income countries for the medium term (see Box 2.2).

Some countries have made efforts to remove health workers from the civil service pay structure, to allow for more freedom in the setting of pay and conditions of service. Zambia tried this approach but it was resisted by professional groups and eventually lost momentum. In Ghana, tax-collectors and bank employees have been successfully de-linked from the civil service, but health workers have not (15).

Unpaid salaries present a problem in many countries, from eastern Europe to Africa (50), and may provoke absenteeism. Salaries sometimes remain unpaid because human resources management and payroll systems are not working properly. There is no hard evidence on the effects of investing in functioning administrative systems. However, bolstering this essential ingredient for workforce management may be easier to act on than other more politically charged workforce reforms, need not be costly, and could provide relatively quick and significant results. A second cause of unpaid salaries is lack of funds. In Chad, donor funds have been successfully used to guarantee timely payment for health workers who were previously experiencing delays of 4–7 months (50).

The way people are paid makes a major difference to what they deliver. Individual health workers, and the facilities in which they work, can be paid in many different ways. For each, pay may be time-based (salaries or fixed budgets), service-based (fee for service) or population-based (per capita payments or block contracts) (51). Both facility-based and individual payment mechanisms can

“Unpaid salaries present a problem in many countries, from eastern Europe to Africa”

influence how individuals perform. Experience shows that salaries and fixed budgets lead to providers reducing the number of patients seen and services provided, whereas fee-for-service payments encourage incentives for providers to see more cases; offer more services, and deliver more expensive services. Each payment mechanism also has different administrative implications, from simple to more complex (52). Optimal payment systems induce providers to give high-quality, effective treatment while promoting a rational allocation of resources (40).

Middle and upper income countries, including Australia, Hungary, the United Kingdom, and the United States, have been moving away from input-based budgets and salaries towards performance-related pay based on outputs and outcomes (53–55). Mixed provider payment systems have become more common to balance the different incentives each mechanism creates. Robinson's study of physician organizations in the United States found that approximately a quarter of physicians were paid on a purely retrospective basis (fee-for-service), another quarter on a purely prospective basis (capitation, non-productivity-based salary) and about half on a mix of the two (48). Some evidence suggests that performance-related pay can lead to improvements in the quality of care provided (56, 57).

The idea of introducing performance-related pay in lower income countries has gained popularity recently, for the same reasons that this approach is used in richer countries. However, experience remains very limited. In most lower income countries the majority of public health workers still receive salaries together with allowances unrelated to performance, whereas in the private sector the fee-for-service system is more prevalent. The limited introduction of this mechanism may stem in part from the fact that payment methods with stronger incentives for quality, consumer satisfaction, equity or efficiency tend to have higher administrative costs and require greater administrative capacity (52).

The use of *other sources of income*, such as allowances, to increase job attractiveness – whether in general or only in underserved areas – exists in virtually all countries. Types of supplementary pay and allowances valued by health workers include: contract-signing bonuses; reimbursement of job-related expenses such as uniforms and petrol; education, accommodation, transport or child care subsidies;

Box 4.5 Incentives to enhance health workers' performance

Thailand. In the 1990s, payment reforms to improve the availability of health workers in rural areas included: supplements to doctors in eight priority specialties and services who worked in rural areas; non-private practice compensation for doctors, dentists and pharmacists; monthly salary supplements to doctors, pharmacists, dentists and nurses in district hospitals and health centres; and overtime and night shift payments. These supplements were combined with other non-financial incentives. Over time, the availability of health workers in rural areas has improved (64).

Mali. In 1986, the Ministry of Health introduced a strategy, which continues today, to encourage newly graduated doctors to serve in rural areas. Doctors are contracted to work in underserved areas to deliver the minimum health package stipulated in the National Health Policy, either as

part of a public health centre which has no doctor, or as a private practitioner. The two sectors have different payment mechanisms but similar non-financial benefits: public sector doctors receive a salary plus a share of facility revenue; private doctors are paid on a fee-for-service basis but the fee level is based on local ability to pay. All participants receive some initial training, plus accommodation, equipment and transport if needed. In addition, all are expected to join the Medical Association and be part of a peer learning network. By 2004, 80 doctors (from Mali's estimated total medical stock of 529) had joined this scheme and were working in rural areas, where some had been for over five years. An assessment in 2001 found that service coverage in rural facilities with a doctor was higher than in those without (65).

health insurance; access to loans (e.g. subsidized mortgages); per diem payments while on training courses; allowances for working in remote areas or out of hours (overtime and night shifts); and specific service output incentives (e.g. for immunization) (58).

Doctors and nurses are often the main beneficiaries of income supplements. In the United States, tuition reimbursement or contract-signing bonuses are commonly used to attract nurses. In Jamaica, health insurance, paid vacation and transport are often offered to nurses (59); while benefits in Botswana include housing, car loans and medical aid (60).

How well these measures work depends on how they are designed and implemented and what other incentives are in place. Objectives and target groups need to be defined, and in some cases incentives must be negotiated with unions; they must also be viewed as fair. Over time they may come to be seen as entitlements rather than incentives, and their effects may change (61). Well-intentioned incentives can have unintended, perverse effects (58, 62). In Ghana, for example, the additional duty hour allowance introduced for doctors and nurses was resented by nurses, because of the perceived or real disparities in the gains, and is thought to have contributed to the increased migration of nurses (63).

Packages of incentives are often required to balance the different effects of individual financial (and non-financial) incentives. In Thailand, for example, efforts to improve the availability of doctors in rural areas have involved several types of additional payment, as well as educational, infrastructure and social strategies (32) (see Box 4.5 for two examples). Studies of “magnet institutions” – those which are successful in recruiting, retaining and motivating nursing staff – in the United Kingdom and the United States, found that critical factors include good human resources management and quality of care (66). These are discussed further later in the chapter. All incentives require regular monitoring and adjustment to changing “push and pull” factors: Thailand has employed different tools at different times to improve and maintain the availability of health workers in rural areas.

No discussion of remuneration would be complete without acknowledging that in many countries, in all continents, informal payments provide a major source of income for health workers and thus exert major influences on behaviour towards their clients (42, 67). There is no easy way to address the problem of informal payments but there are encouraging examples. In Cameroon, the government introduced a scheme that is now in place in all larger health facilities. It included: having a single point of payment for patients at the facility; clearly displaying the fees and the rules about payment to patients, and telling them where to report any transgressions; using the fees to give bonuses to health workers, but excluding them from the bonus scheme if they break the rules, and publishing names of those receiving bonuses and those removed from the scheme. A key factor in the success of this scheme has been a strong facility manager who enforces the rules fairly (43).

The above points concerning remuneration of health workers can be summed up as follows:

- Secure the minimum: a living wage that arrives on time!
- When it comes to worker performance, pay matters. External agencies could help to improve worker performance in low income countries by providing salary support for the medium term.

“Doctors and nurses are often the main beneficiaries of income supplements”

- A mix of payment systems and incentives should be used where possible. If institutional capacity is limited, caution should be exercised in adopting approaches with complex administrative requirements.
- Salary increases alone are not enough to change performance. These must be combined with other strategies to create significant change.
- Any incentives or remuneration policies must always be monitored and adapted over time to ensure that they produce the desired outcomes.

Strategy 4.6 Ensure adequate information and communication

A well-known adage states that you manage what you measure. Evidence shows that having information does help health workers to do their jobs better, as long as certain provisos are met: the information must be relevant to the job and available when needed, and workers must have a degree of confidence in the information's quality and understand what it is "saying" (21, 68). Health workers at different levels need different sorts of information from many sources: medical records, facility activity reports, financial accounts, health workforce inventories and payrolls, population-based survey data and scientific literature, to name just a few. A well-functioning national information system is a key ingredient to improving workforce performance.

Any specific efforts to improve **overall workforce** productivity need to be based on reliable data about workforce level, distribution and skill mix, coupled with information on the factors thought to be constraining better health worker performance and intelligence on potential policy options.

In some instances, **individual provider** productivity has been improved with communication technologies that help health workers to deliver services. There is a growing amount of evidence to suggest that these technologies can lead to productivity gains in the health workforce by improving the way workers provide clinical and public health services. Examples are given in Box 4.6.

Many organizational, legal, infrastructural, social and financial barriers to the widespread use of modern information and communication technology remain, especially

Box 4.6 Using modern communication technology to improve data, services and productivity

In well-off countries, health workers increasingly use modern communication technology to provide care, and studies have demonstrated increases in their productivity as a result. The use of telephones to remind high-risk individuals about influenza immunization (69) and mammography among managed health care plan members resulted in a significant increase in uptake of these preventive interventions, without any other apparent changes in the workforce (70). Computer-generated telephone reminders have also been effective in improving medication adherence and blood pressure control in hypertension patients (71).

There is evidence that computer-based patient records can improve patient care, outcomes and costs. Computerized reminder systems to alert health care staff to repeat tests have reduced the number of patients subjected to unnecessary repeat testing, while automatic systems communicating critical laboratory results reduced the time for

getting appropriate treatment when compared with the existing paging systems (72–74). The need for chronic care of HIV/AIDS patients has triggered an exploration of models for resource-poor settings, which are being piloted in a number of low income countries.

Handheld computers are powerful data collection tools, providing rapid access to information needed to prevent or respond to disease outbreaks. They can furnish data at the point of need, even in the absence of Internet or telephone connectivity. For example, a Red Cross survey team gathering data for measles immunization in Ghana using such devices processed 10 times more questionnaires than usual, and returned results to the Ministry of Health with unprecedented ease and speed. For more information, see <http://www.satellite.org/ictinhealth.php>.

in low income settings (75). In some cases, these technologies may be viewed as magic bullets to solve problems that need quite different solutions. Nevertheless, it will be important to keep a critical but open mind to their potential: the explosion in the use of mobile telephones in low income countries shows how quickly a new technology can be adopted in countries where traditional communication infrastructure is weak or unaffordable. Simple communication methods such as newsletters and helplines also have a role to play in improving access to information.

Strategy 4.7 Improve infrastructure and supplies

No matter how motivated and skilled health workers are, they cannot do their jobs properly in facilities that lack clean water, adequate lighting, heating, vehicles, drugs, working equipment and other supplies (76–78). Two examples illustrate the consequences. In Niger, nurses at health centres were reported to be reluctant to refer patients to district hospitals because only three of the 33 hospitals provided surgical care, most of them could not give blood transfusions or oxygen, and laboratory and X-ray facilities were rudimentary (79). In Kyrgyzstan, health professionals in primary care providing diabetes care said that their job was hampered by a lack of testing strips, machines to measure blood sugar, weak laboratories and irregular supplies of insulin (77). Drugs being out of stock is a familiar problem to many health workers (see Table 4.3).

Hard evidence for the performance benefits of improving basic infrastructure and supplies is very thin (81) but it seems highly likely that such improvements – once in place – could create significant, almost immediate gains. For example, paying a utility bill so that the electricity or heating is turned on again may make a quicker difference to productivity than any more specific performance management tool. Costs are likely to be variable: some would be unique outlays and some recurring. A simple and obvious, but sometimes overlooked, way to determine the actions that will create the largest and most immediate improvements is to ask the health workers themselves.

The physical work environment also needs to be safe, and health workers themselves need to be provided with health care when sick. Aspects of safety are discussed in Chapter 5.

Functioning support systems require consideration of the management and support workers discussed in Chapter 1, such as store managers, accounts clerks, information officers, equipment technicians, hospital administrators and personnel and

“When looking for ways to improve performance, we have found nothing works so well as talking to health workers themselves. Their ideas are just amazing. They will tell you what to do”

Director of human resources in Africa

Table 4.3 Pharmaceutical situations in public health facilities in Africa and South-East Asia

Indicator	Africa ^a	South-East Asia ^a
Average number of days during which key medicines were out of stock in the preceding year	25	19
Percentage of facilities meeting basic conservation conditions required to maintain medicine quality	75%	75%
Percentage of dispensed medicines adequately labelled	71%	87%

^aMedian, seven countries in each region.

Source: (80).

procurement managers. These workers are often neglected in workforce discussions, but are critical to scaling up service delivery.

An enabling work environment

Three general types of levers can be used to promote an enabling work environment. Most involve the managerial culture and organizational arrangements within which health care providers work. They are grouped as follows: lifelong learning, team management and team working, and responsibility with accountability

Strategy 4.8 Promote lifelong learning

Health workers require up-to-date knowledge to perform well, as has been mentioned in Chapter 3. Rapid increases in knowledge and changing health systems make this need even more essential today. This is a field full of experimentation, but some clear and straightforward messages have emerged.

Individual needs vary widely. Basic workers with only weeks of pre-service training have different learning needs from doctors or nurses with a decade or more of education and experience. Nurses in rural Switzerland clearly deal with very different everyday challenges than those in rural Malawi. Nevertheless, some common principles underlie any strong approach to professional development. Table 4.4 summarizes some individual and workplace-wide approaches.

Formal one-off, off-site training courses have a poor track record for changing the actual practice of health workers. In-service training is most likely to change worker behaviour when it is interactive, based on real-life problems and coupled with continuing, intermittent support.

To illustrate this fact, although the use of oral rehydration salts for childhood diarrhoea greatly increased in the 1980s and 1990s, after more than 2000 training courses on case management and supervision from 1988 to 1993 in over 120 countries, the median percentage of children correctly rehydrated by health workers (from 22 surveys) was only 20% (21). Simple, low-cost approaches that follow the principles of interactive, realistic training with adequate continuing support can be very effective (38). These lessons have been translated into the more encompassing, long-term concept of continuous professional development or lifelong learning. Con-

Box 4.7 What sort of training works best?

If performance change is the goal, exclusively didactic approaches, conferences and activities without any practice have little or no role to play (83, 84). Evidence suggests that there is more probability of knowledge and skills transfer into practice when the training course is interactive with as much hands-on real-life experience as possible. Interactive courses improve prescribing or dispensing behaviour (85–88), improve specific clinical skills (89–90) and positively effect health care utilization while promoting favourable patient responses (91). Active learning opportunities, sequenced learning, after-training support, reminders and multifaceted activities are effective (92, 93). Distance edu-

cation is shown to increase knowledge (94), knowledge-seeking behaviour (95), self-confidence (96) and positive attitudes in three studies, though no effect on behaviour change was observed. When a videoconference-type training session was compared with in-class face-to-face training, there was no difference in knowledge accumulation (97). The most convincing evidence for distance education is a study which shows that a 10-month distance education course, supported with 1–2 contacts by tutors, caused a significant increase in correct assessment of diarrhoea cases (98).

Table 4.4 Approaches to professional development and performance

Training	Individual	Team or organization-based
Intermittent	Training courses	Retreats
Continuous	Continuous professional development	Wide array of approaches with similar principles but many different labels, e.g. total quality management, tools and techniques
Distance learning	Web-based training and access to literature	Teleconferencing, collaborating workspaces, other web-based groupware

tinuous professional development can be simply defined as a “systematic, ongoing, cyclical process of self-directed learning” for individuals. Such an approach goes beyond training to include, for example, career paths, feedback from others, mentoring and secondment (82). Distance education in its various forms also deserves further exploration, given the geographical distribution of the many health professionals in need of continuous professional development. Box 4.7 presents some of the options for educational opportunities.

Experience clearly shows that simply disseminating guidelines is ineffective. If guidelines are passively distributed, few people read them, even if they are followed by reminder visits (99–104). When guidelines are distributed during a training course, however, and supported by peer groups to discuss the content and to provide audit and feedback to participants or associated with subsequent supervisory visits, they are significantly more likely to be implemented (105–107).

In recent years, attention has shifted to multifaceted packages of iterative, on-the-job support, with an emphasis on ways to encourage translation of new knowledge

Box 4.8 Quality assurance, supervision and monitoring in Uganda

Since 1994 Uganda’s Ministry of Health has engaged in vigorous quality assurance, supervision and monitoring of districts and sub-districts through the following approaches:

- creation of a Quality Assurance Department;
- development and dissemination of standards and guidelines;
- initial workshops to assist administrators, political leaders and clinical staff with identifying and solving common service-related problems;
- support visits by multidisciplinary teams;
- quarterly supervisory visits with routine monitoring (of finance and planning, for example) and one special focus area such as malaria or child health;
- supervision that is supportive, non-punitive, and exercised in an atmosphere of trust;
- verbal feedback and summary reports with key issues highlighted and action plans agreed on.

The programme includes routine monitoring of indicators at national and district levels, and benchmarking of progress towards the achievement of the national strategic plan. Pub-

lic service providers and nongovernmental organizations are monitored, but not the private sector.

To provide incentives for improvement, Uganda’s Ministry of Health has put in place an award system called the Yellow Star Programme. District health facilities complying fully with the 35 standards considered the best indicators for overall management now receive a plaque in the form of a five-pointed yellow star, along with official recognition and publicity. Forty-seven districts now participate.

Uganda’s efforts have resulted in better coordination between health services and local administrators and political leaders. The 2003/4 health sector review found that some districts are performing much better than others, and that unexpectedly, poor and rural districts are not necessarily poor performers. In interviews conducted across Uganda, the view was widely expressed that good performance stems at least in part from good management, especially in a supportive political environment (112).

into changed practices. Such approaches can be judged in many ways, including the quality of services and productivity. Recently, a wide array of programmes has emerged with different labels, degrees of complexity, tools and techniques, but mostly following a similar set of principles. Some focus on individuals and others on organization-wide or team-based approaches – where the team may be a work unit of mixed staff or a group of professionals, such as managers, who share the same responsibilities in different places.

Teamwork and processes such as joint development of guidelines and peer review can be moderately successful in improving health worker performance. The observed benefits of teamwork include improved staff well-being (108, 109) and better quality of care (110). Evidence of the effectiveness of organization-wide approaches to achieve sustained improvements in services is limited. For example, in the United Kingdom and the United States, total quality management approaches have shown mixed results (111). Many forms of quality improvement projects have taken place in low income countries with successes reported (see Box 4.8) – but rigorous evaluations are few (21). Ultimately, of course, the most suitable approach depends on the specific needs and objectives of the workforce.

Strategy 4.9 Establish effective team management

Along with the shift in approaches to professional development has come a rising recognition that important gaps exist in the scope of the current response. Over the years most attention has focused on knowledge and skills for clinical services, rather than on more generic skills needed to make health systems work, such as management, accounting, procurement and logistics. Some “softer” managerial skills such as team building and negotiation have also received little attention. As a result, many low income countries receiving large amounts of additional funds to scale up services rapidly are facing some basic skill deficits in such areas as simple accounting, drug stock and store management, and basic personnel management. Health system reorganizations may also create a need for new skills. This has been the case in Kyrgyzstan (see Box 4.9), while health reforms in Chile and the United Kingdom increased the need for skilled managers (113, 114).

People respond positively to a host of non-financial incentives that can be collectively captured under the rubric of good management or leadership, terms which are often used interchangeably (116). Whether called management or leadership, these skills benefit health workers at every level of a health system. Limited but positive evidence suggests that the factors listed below may improve individual or organizational

Box 4.9 Changing tasks and therefore skill needs

In Kyrgyzstan, funds used to be allocated to facilities based on bed and staff numbers. Reforms introduced in 1997 have changed the system from this passive budgeting approach to one relying on active or strategic purchasing of personal health care services. A new agency, the Mandatory Health Insurance Fund (MHIF), pays inpatient facilities on a per case basis and primary care practices by capitation. The hospital payment reforms have involved completely new processes of information management, financial management, and quality control to ensure that contracted

providers are paid and that the services provided are appropriate and of good quality. A critical new function performed by the MHIF is utilization review which involves checking claims to protect against fraud while contributing to quality improvement. This has led to the need for a new set of skills: in computer programming, data processing, analysis of clinical data, and the ability to discuss and negotiate with providers on the basis of those analyses (113).

performance (56, 117–123). Health workers are more motivated to perform well when their organization and managers:

- provide a clear sense of vision and mission;
- make people feel recognized and valued whatever their job;
- listen to staff and increase their participation in decisions – they often have solutions;
- encourage teamwork, mentoring and coaching;
- encourage innovation and appropriate independence;
- create a culture of benchmarking and comparison;
- provide career structures and opportunities for promotion that are transparent and fair;
- give feedback on, and reward, good performance – even with token benefits;
- use available sanctions for poor performance in ways that are fair and consistent.

Good managers reward their staff. Some examples of non-financial rewards that may be used are: tea during night duty, holidays and days off, flexible working hours, access to and support for training and education, sabbaticals, study leave, and planned career breaks. Some examples of management and leadership are mentioned in Box 4.10.

The introduction of performance appraisal systems, such as Zambia's Performance Improvement Review system and Malawi's Performance Contract scheme, are becoming more common. How effective is performance audit and feedback (126)? There are many examples of successful projects, but large-scale evidence that such schemes improve service quality, productivity or health outcomes is still scarce (15). A major review of experience with audit and feedback in high income countries concluded that these tools can be effective in improving professional practice but their effect is small to moderate (127). Assessment of facility performance is also becoming more common, but experience is still scarce in low income settings.

“These evaluations are a source of motivation for us; if we get a good grade we make even greater efforts to keep our rank or to go even further.”

Public sector manager, Benin

Box 4.10 The importance of management and leadership

South Africa. Nurses working in maternal health services were asked about the most important characteristics of the workplace and presented with 16 theoretical workplace profiles. The most significant finding was that good management (e.g. clearly defined responsibilities, supportive attitude when mistakes are made, rewarding ability and not length of service) outranked salary as a preference, unless the remuneration was dramatically higher. These results reinforce other research demonstrating the effect of good management on employment choices and job satisfaction among health workers (124).

Leadership for Change programme. The International Council of Nurses (ICN) has set up a programme to develop nurses as effective leaders and managers in a constantly changing health environment. The Leadership for Change methodology and key strategic goals are designed to assist

them at a country or organizational level to participate effectively in health policy development and decision-making, become effective leaders and managers in nursing and health services, prepare future nurse managers and leaders for key positions, and influence changes in nursing curricula so that future nurses are prepared appropriately.

Nurses in more than 50 low and middle income countries have gained the knowledge, skills and strategies they need to take leadership roles in nursing and health systems, build partnerships, and improve health care through participation in this programme. Evaluations indicate that graduates are involved in a range of nursing leadership roles, with an increase in nurse leaders' influence, ability to build sustainable partnerships, and ability to develop new models of nursing to improve quality of patient care (125).

As for implementation, introduction of the changes mentioned here is not necessarily costly, but neither is it necessarily straightforward. For example, a study on performance management of district health managers in nine Latin American countries found that teamwork was difficult to introduce into a health system that promotes hierarchical structure and favours an authoritative management style (128).

Strategy 4.10 Combine responsibility with accountability

Giving local managers at least some freedom in the allocation of funds can make a big difference to staff and facility performance, as these managers can then quickly deal with local problems unknown to higher level managers (129). Mechanisms to hold health workers accountable for their actions are another way to improve productivity and performance (130).

Services can be organized in many different ways, but managers cannot manage them properly if they are not given at least some control over money and staff.

Three consistent findings have been identified across different health systems.

- Decentralization is under way in many countries. However, though local managers are often being given more responsibility for service delivery, they are not always being given the greater authority over money and staff required to enable them to fulfil these new responsibilities.
- There are often few functioning mechanisms to assure accountability in the use of money, recruitment of staff or quality of services provided.
- Confused lines of reporting are common, especially during periods of reorganization. This not only reduces accountability and thereby blunts its use as a lever for improving staff performance, but can reduce staff motivation.

The general public also has a role to play in holding health workers accountable for their actions (130). Publicizing what patients should expect from their providers is cheap and easy to do and has been done with good results regarding patients' rights and user fee schedules in both low and high income countries (131). In Uganda, for example, health district performance is ranked and the results are published in the press. Formal mechanisms for handling allegations of provider misconduct can also be effective but have proved difficult to use successfully in practice in low income settings (132).

HOW ARE LEVERS LINKED TO THE FOUR DIMENSIONS OF HEALTH WORKFORCE PERFORMANCE?

The framework at the start of this chapter listed four desired dimensions of health workforce performance: availability, competence, responsiveness and productivity. Rigorous evidence is limited, but Table 4.5 provides an overview of which levers appear to have the greatest effect on each of these dimensions. The results will naturally be influenced by local context.

Availability

The levers thought to be most effective at increasing the availability of existing staff are those related to salaries and payment mechanisms, together with the materials to "do the job" and a degree of independence allowed to individual health workers to manage their work – whether in the management and deployment of staff for managers, or in clinical decisions for health care providers. Job descriptions and codes of conduct may also help, by providing clarity and the sense of professionalism which often appears to sustain health workers in difficult conditions.

Table 4.5 An aid to thinking through potential effects of levers on health workforce performance

Levers	Dimensions of health workforce performance			
	Availability	Competence	Responsiveness	Productivity
1 Job descriptions	+	+	+	+
2 Norms and codes of conduct	++	+	++	+ / ++
3 Match skills to tasks	+	+	+	+++
4 Supportive supervision	+	+++	++	++
5(a) Salary levels	+++	+	+	++
5(b) Payment mechanisms	++ / --	+ / -	+ / -	+++ / ---
6 Information and communication	0	++	+	++
7 Infrastructure and supplies	++	0	+	++
8 Lifelong learning	+	+++	+	+
9 Teamwork and management	+	+	++	+++
10 Responsibility with accountability	++	+	++	+++

Key:
 + = positive effect; - = negative effect.
 + = some effect; ++ = significant effect; +++ = substantial effect.
 Payment mechanisms: the effects will depend on the mechanism used.

Competence

The levers that seem to have the greatest influence on health workforce competence (here encompassing technical knowledge, skills and behaviours) are supervision coupled with audit and feedback and lifelong learning. It is important to note, however, that it is the way in which these levers are applied that is crucial: sterile, fault-finding visits have no effect, whereas supportive supervision (together with audit and feedback) consistently has moderate to large benefits. An institutional approach that fosters the culture and practice of lifelong learning is more effective in changing practice than stand-alone, off-site training courses.

Responsiveness

Responsiveness refers to the goal that people should be treated decently regardless of whether or not their health improves, and irrespective of who they are. As with the other dimensions of performance, no single lever alone is sufficient but the following appear to have the most significant effect: norms and codes of conduct; supervision; and basic amenities, such as privacy during consultations. Team-based interventions that make health workers feel valued and permitted to innovate can also boost responsiveness.

Productivity

Many levers have the potential to improve productivity but three stand out. Strategies to redress skill mismatches could reap huge productivity gains. Adjusting the way that health workers are paid, improved teamwork, and responsibility with accountability also offer potentially large benefits.

Table 4.6 Health workforce performance: provisional assessment of implementation and effects of levers

Levers	Implementation and effects				
	Evidence base	Ease of implementation	Relative cost	Potential effect	Timing of impact ¹
	1 = theory 2 = anecdote, example 3 = some formal studies 4 = strong evidence	1 = easy 2 = moderate 3 = difficult	1 = low 2 = medium 3 = high	1 = small 2 = moderate 3 = large	1 = near term 2 = medium term 3 = long term
Job-specific levers					
Job descriptions	2	1	1	2	1
Norms and codes of conduct	2	2	1	2	2,3
Matching skills to tasks	1	1,2,3*	1,2	3	1
Supportive supervision	3	2	1,2	2,3	1
Basic support systems					
Remuneration (salary levels)	2	2,3	3	2	1
Remuneration (payment mechanisms)	3	2,3*	2	3	2
Information and communication	2	2	2	2	1,2,3*
Infrastructure and supplies	2	2	2,3*	3	1
Enabling work environment					
Lifelong learning	3	1	1	2	1
Team management	3	1,2,3*	1	2	1
Responsibility with accountability	3	1,2,3*	2	3	1

¹Once implemented.

*Depends on cause of problem, specific interventions introduced.

CONCLUSION

This chapter has described the levers that can influence workforce performance. Table 4.6 summarizes what is known about implementation of the measures proposed here. An inevitable tension exists between the perspectives and goals of individuals and the organizations to which they belong. Organizations have to perform well and deploy their staff to the greatest advantage, while also providing places for individuals to thrive. This tension must be continually monitored and managed. Moreover, managing any change is a subtle and often difficult process, for several reasons. Changes may be needed at several levels. Legal and regulatory frameworks may need to be changed, which can be complex and slow. Resources are often needed to support change. Probably most importantly, local stakeholders must be brought “on board” as they can facilitate or equally effectively block a reform that has been carefully negotiated at central level (78). However difficult, without changes to support improved performance of existing health workers, any recruitment and retention strategies will have limited effect. Retention is discussed in the next chapter.

REFERENCES

1. Prasad A, Tandon A, Sousa A, Ebener S, Evans DB. Measuring the efficiency of human resources for health in attaining health outcomes across provinces in Viet Nam (background paper for *The World health report 2006*, available at <http://www.who.int/hrh/documents/en/>).
2. Viet Nam census 1999. In: *Human development report 2001*. New York, NY, United Nations Development Programme, 2001.
3. Hall TL, Mejia A. *Health manpower planning: principles, methods, issues*. Geneva, World Health Organization, 1978.
4. Pantoja A. *What is productivity and how can we measure it?* Geneva, World Health Organization, 2003 (working paper).
5. Kurowski C, Wyss K, Abdulla S, Yémadji N, Mills A. *Human resources for health: requirements and availability in the context of scaling-up priority interventions in low-income countries. Case studies from Tanzania and Chad*. London, London School of Hygiene and Tropical Medicine, 2003 (working paper 01/04).
6. Figueroa-Munoz J, Palmer K, Dal Poz MR, Blanc L, Bergström K, Raviglione M. The health workforce crisis in TB control: a report from high-burden countries. *Human Resources for Health*, 2005, 3:2 (<http://www.human-resources-health.com/content/3/1/2>, accessed 17 February 2006).
7. Gupta N, Diallo K, Zurn P, Dal Poz MR. Assessing human resources for health: what can be learned from labour force surveys? *Human Resources for Health*, 2003, 1:5.
8. Violato C, Lockyer J, Fidler H. Multisource feedback: a method of assessing surgical practice. *BMJ*, 2003, 326:546–548.
9. Groveman HD, Ganiats TG, Klauber MR, Holden MG. Computer-assisted assessment of family physicians' knowledge about cancer screening guidelines [Health Care Delivery]. *The Western Journal of Medicine*, 1985, 143:541–544.
10. Early release data from the World Health Survey (<http://www.who.int/healthinfo/survey/whscurrent/en/index.html>) 2002.
11. Adam T, Amorim DG, Edwards SJ, Amaral JA, Evans DB. Capacity constraints to the adoption of new interventions: consultation time and the Integrated Management of Childhood Illness in Brazil. *Health Policy and Planning*, 2005, 20 (Suppl. 1):i49–i57.
12. Lurie N, Slater J, McGovern P, Ekstrum J, Quam L, Margolis K. Preventive services for women: does the sex of the physician matter? *New England Journal of Medicine*, 1993, 329:478–482.
13. Comstock LM, Hooper EM, Goodwin JM, Goodwin JS. Physician behaviors that correlate with patient satisfaction. *Journal of Medical Education*, 1982, 57:105–112.
14. Lieberman PB, Sledge WH, Matthews DA. Effect of patient gender on evaluation of intern performance. *Archives of Internal Medicine*, 1989, 149:1825–1829.

15. *Health workforce challenges: lessons from country experiences*. Abuja, High-Level Forum on the Health Millennium Development Goals, 2004 (<http://www.hlfhealthmdgs.org/Documents/HealthWorkforceChallenges-Final.pdf>, accessed 17 February 2006).
16. Hornby P, Forte P. *Human resource indicators to monitor health service performance*. Keele, Keele University, Centre for Health Planning and Management, 2002.
17. Bennett S, Franco LM. *Public sector health worker motivation and health sector reform: a conceptual framework*. Bethesda, MD, Abt Associates Inc. for Partnerships for Health Reform Project, 1999 (Major Applied Research 5, Technical Paper 1).
18. Buchan J. *Increasing the productivity of an existing 'stock' of health workers*: Unpublished review for United Kingdom Department for International Development, 2005.
19. Ferlie EB, Shortell SM. Improving the quality of health care. *The Milbank Quarterly*, 2001, 79:281–315.
20. Dieleman M, Cuong PV, Anh LV, Martineau T. Identifying factors for job motivation of rural health workers in North Viet Nam. *Human Resources for Health*, 2003,1:10.
21. Rowe AK, de Savigny D, Lanata CF, Victora CG. How can we achieve and maintain high-quality performance of health workers in low-resource settings? *Lancet*, 2005, 366:1026–1035.
22. Mathauer I, Imhoff I. Staff motivation in Africa: The role of non-financial incentives and quality management tools. Eschborn, Germany Agency for Technical Cooperation (GTZ), 2005 (draft).
23. Franco LM, Bennett S, Kanfer, R. Health sector reform and public sector health worker motivation: A conceptual framework, 2002, *Social Science and Medicine*, 54,1255–1266.
24. Dolea C, Zurn P. Mission to evaluate the project of Clinical Professional Development and Management System (CPDMS) for nurses and midwives in hospitals and health centers in Indonesia. World Health Organization, Geneva, 2004.
25. Ferrinho P, Omar MC, De Jesus Fernández M, Blaise P, Bugalho AM, Van Lerberghe W. Piffling for survival: how health workers use access to drugs as a coping strategy. *Human Resources for Health*, 2004, 2:4.
26. *Global health partnerships: assessing country consequences*. Bill & Melinda Gates Foundation/McKinsey & Company, 2005.
27. Omaswa F, World Health Organization, personal communication.
28. Briley T, Hutson T. *Who will care for you? Washington hospitals face a personnel crisis*. Seattle, WA, Washington State Hospital Association, 2002.
29. Dovlo D, Sagoe K, Ntow S, Wellington E. Ghana case study: staff performance management. In: *Reforming health systems*. 1998 (research report, <http://www.liv.ac.uk/Istm/research/documents/ghana.pdf>, accessed 17 February 2006).
30. Blumenthal D. Doctors in a wired world: can professionalism survive connectivity? *The Milbank Quarterly*, 2002, 80:525–546.
31. Miettinen OS. Ideas and ideals in medicine: fruits of reason or props of power? *Journal of Evaluation in Clinical Practice*, 1999, 5:107–116.
32. Wibulpolprasert S, Pengpaibon P. Integrated strategies to tackle inequitable distribution of doctors in Thailand: four decades of experience. *Human Resources for Health*, 2003, 1:12.
33. Peduzzi M, Anselmi ML. Os pressupostos, o desenho e os resultados da pesquisa de Avaliação do impacto do PROFÁE na qualidade dos serviços de saúde [The assumptions, design and results of the impact evaluation of PROFÁE on the quality of the health services]. In: Lima de Castro J, ed. *PROFÁE – Educação profissional em saúde e cidadania [PROFÁE - Health professional education and citizenship]*. Brasília, Ministry of Health, 2002:149–163.
34. Jaffré, Y, Olivier de Sardan, J-P. *Une médecine inhospitalière: les difficiles relations entre soignants et soignés dans cinq capitales d'Afrique de l'Ouest [Inhospitable medicine: difficult relations between carers and cared for in five West African capital cities]*. Paris, Karthala, 2003.
35. *Paris declaration on aid effectiveness: ownership, harmonisation, alignment, results and mutual accountability*. Paris, High Level Forum, 2005:1–13.
36. *Best practice principles for global health partnership activities at country level*. Paris, High Level Forum, 2005 (Working group on global health partnerships: Report:1–28).

37. Buchan J, Hinton L. *Skill mix and new roles in health: what does the evidence base tell us?* Geneva, World Health Organization, 2005 (background paper for *The world health report 2006*; available at <http://www.who.int/hrh/documents/en>).
38. Egger D, Travis P, Dovlo D, Hawken L. *Strengthening management in low-income countries*. Geneva, World Health Organization, 2005 (WHO/EIP/health systems/2005.1).
39. *Private sector participation in health*. London, Institute for Health Sector Development, 2004.
40. Langenbrunner JC, Orosz E, Kutzin J, Wiley MM. Purchasing and paying providers. In: Figueras J, Robinson R, Jakubowski E, eds. *Purchasing to improve health systems performance*. Brussels, European Observatory on Health Systems and Policies, 2005: 236–264.
41. Macq J, Van Lerberghe W. Managing health services in developing countries: moonlighting to serve the public? In: Ferrinho P, Van Lerberghe W. *Providing health care under adverse conditions: health personnel performance and individual coping strategies*. Antwerp, ITG Press, 2000 (Studies in Health Services Organisation and Policy, 16:177–186).
42. McPake B, Asiimwe D, Mwesigye F, Ofumbi M, Ortenblad L, Streefland P, Turinde A. Informal economic activities of public health workers in Uganda: implications for quality and accessibility of care. *Social Science and Medicine*, 1999, 49: 849–865.
43. Ambegaokar M, Ongolo-Zogo P, Aly T, Betsi E, Fouda J, Mubudu L, McPake B. *Incentives and penalties: results of research into the drafting of district contracts*. MSP-DROS/PASS-UE/LSHTM-HPU, Yaoundé, 2005.
44. Afford CW. *Failing health services*. Geneva, International Labour Organization/Population Services International, 2001.
45. Dräger S, Dal Poz MR, Evans D. *Health workers wages: an overview from selected countries*. Geneva, World Health Organization, 2006 (background paper for *The world health report 2006*; available at: <http://www.who.int/hrh/documents/en/>).
46. ILO occupational wages around the world (oww) database, 1999–2002. Geneva, International Labour Organization, 2005 (<http://www.nber.org/oww/>).
47. OECD Health Data National Correspondents. *Remuneration of doctors and nurses: progress and next steps on data collection*. Paris, Organisation for Economic Co-operation and Development, 2005.
48. Robinson JC, Shortell SM, Rui Li, Casalino LP, Rundall T. The alignment and blending of payment incentives within physician organizations. *Health Services Research*, 2004, 39:1589–1606.
49. Zhang L, Harvard University, personal communication.
50. Zachariah R, Lange L, D'Altilia J. Financing advances on salaries of health workers in Chad: an example of a feasible strategy to sustain the Bamako Initiative. *Health Policy and Planning*, 2001, 16:332–333.
51. Ensor T, Langenbrunner J. Financing health care. In: Healy J, McKee M, eds. *Health care in Central Asia*. Buckingham, Open University Press, 2002.
52. Wouters, A. *Alternative provider payment methods: incentives for improving health care delivery. Primer for policymakers*. Bethesda, MD. PHR, Abt Associates, Inc. 1998.
53. Marsden D. The role of performance-related pay in renegotiating the “effort bargain”: the case of the British public service. *Industrial and Labor Relations Review*, 2004, 57:350–370.
54. Isaac J. Performance-related pay: the importance of fairness. *Journal of Industrial Relations*, 2001, 43:111–123.
55. Gosden T, Forland F, Kristiansen IS, Sutton M, Leese B, Giuffrida A et al. Impact of payment method on behaviour of primary care physicians: a systematic review. *Journal of Health Services Research and Policy*, 2001, 6:44–55.
56. Beaulieu, D, Horrigan DR. Putting smart money to work for quality improvement. *Health Services Research*, 2005, 40:1318–1334.
57. Rosenthal M, Frank R, Li Z, Epstein AM. Early experience with pay-for-performance. *Journal of the American Medical Association*, 2005, 294:1788–1793.
58. Arrowsmith J, French S, Gilman M, Richardson R. Performance-related pay in health care. Review Article. *Journal of Health Services and Research Policy*, 2001, 6:114–119.
59. Zurn P, Dal Poz MR, Stilwell B, Adams O. Imbalance in the health workforce. *Human Resources for Health*, 2004, 2:13.

60. *Workshop on attracting and retaining health workers in east, central and southern Africa*. Johannesburg, Commonwealth Secretariat and South Africa Department of Health, 2003.
61. Rosenthal MB, Fernandopulle R, Song HR, Landon B. Paying for quality: providers' incentives for quality improvement. *Health Affairs*, 2004, 23:127–141.
62. Dudley RA. Pay for performance research: what clinicians and policy makers need to know. *JAMA*, 2005, 294:1821–1823.
63. Buchan J, Dovlo D. *International recruitment of health workers to the UK: a report for DFID*. 2004 (http://www.dfidhealthrc.org/Shared/publications/reports/int_rec/int-rec-main.pdf).
64. Nityarumphong S, Srivanichankorn S, Pongsupap Y. Strategies to respond to manpower needs in rural Thailand. In: Ferrinho P, Van Lerberghe W, eds. *Providing health care under adverse conditions: health personnel performance and individual coping strategies*. Antwerp, ITG Press, 2000 (Studies in Health Services Organisation and Policy, 16:55–72).
65. Desplats D, Koné Y, Razakarison C. Pour une médecine générale communautaire en première ligne [For front-line community-based general practitioners]. *Médecine Tropicale*, 2004, 64:539–544.
66. Buchan J, Ball J, Rafferty AM. *A lasting attraction? The "magnet" accreditation of Rochdale Infirmary*. Report commissioned by the Department of Health, 2003.
67. Gaal P, McKee M. Fee for service or donation? Hungarian perspectives on informal payment for health care. *Social Science and Medicine*, 2005, 60:1445–1457.
68. De Savigny D, Kasale H, Mbuya C, Reid G. *Fixing health systems*. Ottawa: International Development Research centre, 2004.
69. Brimberry R. Vaccination of high-risk patients for influenza: a comparison of telephone and mail reminder methods. *Journal of Family Practice*, 1988, 26:397–400.
70. Davis NA, Nash E, Bailey C, Lewis MJ, Rimer BK, Koplan JP. Evaluation of three methods for improved mammography rates in a managed care plan. *American Journal of Preventive Medicine*, 1997, 13:298–302.
71. Friedman RH, Kazis LE, Jette A, Smith MB, Stollerman J, Torgerson J et al. A telecommunications system for monitoring and counseling patients with hypertension: impact on medication adherence and blood pressure control. *American Journal of Hypertension*, 1996, 4:285–292.
72. *Transforming health care through information technology*. Report of the US President's Information Technology and Advisory Committee, 2001.
73. Bates DW, Kuperman GJ, Rittenberg E, Teich JM, Fiskio J, Ma'luf N et al. A randomized trial of a computer-based intervention to reduce utilization of redundant laboratory tests. *American Journal of Medicine*, 1999, 106:144–150.
74. Kuperman GJ, Teich JM, Tanasijevic MJ, Ma'Luf N, Rittenberg E, Jha A et al. Improving response to critical laboratory results with automation: Results of a randomized controlled trial. *Journal of the American Medical Informatics Association*, 1999, 6:512–522.
75. Tanriverdi H, Iacono CS. Diffusion of telemedicine: a knowledge barrier perspective. *Telemedicine Journal*, 1999, 5:223–244.
76. Stekelenburg J, Kyanamina SS, Wolfers I. Poor performance of community health workers in Kalabo District, Zambia. *Health Policy*, 2003, 65:109–118.
77. Hopkinson B, Balabanova D, McKee M, Kutzin J. The human perspective on health-care reform: coping with diabetes in Kyrgyzstan *International Journal of Health Planning and Management*, 2004, 19:43–61
78. Rese A, Balabanova D, Danishevski K, McKee M, Sheaff R. Implementing general practice in Russia: getting beyond the first steps. *BMJ* 2005; 331; 204–207.
79. Bossyns P, Van Lerberghe W. The weakest link: competence and prestige as constraints to referral by isolated nurses in rural Niger. *Human Resources for Health*, 2004, 2:1 (<http://www.human-resources-health.com/content/2/1/1>).
80. *Survey of public health facilities using WHO Operational Package for Monitoring and Assessing Country Pharmaceutical Situations, 2001–2003*. Carried out by ministries of health, universities and nongovernmental organizations with the support of WHO Department of Technical Cooperation for Essential Drugs and Traditional Medicine.

81. Kelly P. Local problems, local solutions: improving tuberculosis control at district level in Malawi. *Bulletin of the World Health Organization*, 2001, 79:111–117.
82. *Developing through partnership – Continuous professional development portfolio for healthcare managers*. London, Institute of Healthcare Management, 2004.
83. Davis DA, Thomson MA, Oxman AD, Haynes RB. Changing physician performance. A systematic review of the effect of continuing medical education strategies. *JAMA*, 1995, 274:700–705.
84. Davis D, O'Brien MA, Freemantle N, Wolf FM, Mazmanian P, Taylor-Vaisey A. Impact of formal continuing medical education: do conferences, workshops, rounds, and other traditional continuing education activities change physician behavior or health care outcomes? *JAMA*, 1999, 282:867–874.
85. Hadiyono JE, Suryawati S, Danu SS, Sunartono, Santoso B. Interactional group discussion: results of a controlled trial using a behavioral intervention to reduce the use of injections in public health facilities. *Social Science and Medicine*, 1996, 42:1177–1183.
86. Ratanajamit C, Chongsuvivatwong V, Geater AF. A randomized controlled educational intervention on emergency contraception among drugstore personnel in southern Thailand. *Journal of American Medical Womens Associations*, 2002, 57:196–199, 207.
87. Herbert CP, Wright JM, Maclure M, Wakefield J, Dormuth C, Brett-MacLean P et al. Better Prescribing Project: a randomized controlled trial of the impact of case-based educational modules and personal prescribing feedback on prescribing for hypertension in primary care. *Family Practice*, 2004, 21:575–581.
88. Garcia P, Hughes J, Carcamo C, Holmes KK. Training pharmacy workers in recognition, management, and prevention of STDs: district-randomized controlled trial. *Bulletin of the World Health Organization*, 2003, 81:806–814.
89. Gormley GJ, Steele WK, Stevenson M, McKane R, Ryans I, Cairns AP et al. A randomised study of two training programmes for general practitioners in the techniques of shoulder injection. *Annals of Rheumatic Diseases*, 2003, 62:1006–1009.
90. Roberts I, Allsop P, Dickinson M, Curry P, Eastwick-Field P, Eyre G. Airway management training using the laryngeal mask airway: a comparison of two different training programmes. *Resuscitation*, 1997, 33:211–214.
91. Clark NM, Gong M, Schork MA, Evans D, Roloff D, Hurwitz M et al. Impact of education for physicians on patient outcomes. *Pediatrics*, 1998, 101:831–836.
92. Kaner EF, Lock CA, McAvoy BR, Heather N, Gilvarry E. A RCT of three training and support strategies to encourage implementation of screening and brief alcohol intervention by general practitioners. *British Journal of General Practitioners*, 1999, 49:699–703.
93. Figueiras A, Sastre I, Tato F, Rodriguez C, Lado E, Caamano F et al. One-to-one versus group sessions to improve prescription in primary care: a pragmatic randomized controlled trial. *Medical Care*, 2001, 39:158–167.
94. Stewart M, Marshall JN, Ostbye T, Feightner JW, Brown JB, Harris S et al. Effectiveness of case-based on-line learning of evidence-based practice guidelines. *Family Medicine*, 2005, 37:131–138.
95. Abdolrasulnia M, Collins BC, Casebeer L, Wall T, Spettell C, Ray MN et al. Using email reminders to engage physicians in an Internet-based CME intervention. *BMC Medical Education*, 2004, 4:17.
96. Harris JM Jr, Kutob RM, Surprenant ZJ, Maiuro RD, Delate TA. Can Internet-based education improve physician confidence in dealing with domestic violence? *Family Medicine*, 2002, 34:287–292.
97. Van Boxell P, Anderson K, Regnard C. The effectiveness of palliative care education delivered by videoconferencing compared with face-to-face delivery. *Palliative Medicine*, 2003, 17:344–358.
98. Flores R, Robles J, Burkhalter BR. Distance education with tutoring improves diarrheal case management in Guatemala. *International Journal of Quality in Health Care*, 2002, 14(Suppl. 1):47–56.
99. Hunskaar S, Hannestad YS, Backe B, Matheson I. Direct mailing of consensus recommendations did not alter GPs' knowledge and prescription of oestrogen in the menopause. *Scandinavian Journal of Primary Health Care*, 1996, 14:203–208.

100. Butzlaff M, Vollmar HC, Floer B, Koneczny N, Isfort J, Lange S. Learning with computerized guidelines in general practice?: A randomized controlled trial. *Family Practice*, 2004, 21:183–188.
101. Watson MC, Bond CM, Grimshaw JM, Mollison J, Ludbrook A, Walker AE. Educational strategies to promote evidence-based community pharmacy practice: a cluster randomized controlled trial (RCT). *Family Practice*, 2002, 19:529–536.
102. Kim CS, Kristopaitis RJ, Stone E, Pelter M, Sandhu M, Weingarten SR. Physician education and report cards: do they make the grade? Results from a randomized controlled trial. *American Journal of Medicine*, 1999, 107:556–560.
103. Hall L, Eccles M, Barton R, Steen N, Campbell M. Is untargeted outreach visiting in primary care effective? A pragmatic randomized controlled trial. *Journal of Public Health Medicine*, 2001, 23:109–113.
104. Watson M, Gunnell D, Peters T, Brookes S, Sharp D. Guidelines and educational outreach visits from community pharmacists to improve prescribing in general practice: a randomised controlled trial. *Health Services Research and Policy*, 2001, 6:207–213.
105. Veninga CC, Lagerlov P, Wahlstrom R, Muskova M, Denig P, Berkhof J et al. Evaluating an educational intervention to improve the treatment of asthma in four European countries. Drug Education Project Group. *American Journal of Respiratory and Critical Care Medicine*, 1999, 160:1254–1262.
106. Onion CW, Bartzokas CA. Changing attitudes to infection management in primary care: a controlled trial of active versus passive guideline implementation strategies. *Family Practice*, 1998, 15:99–104.
107. Trap B, Todd CH, Moore H, Laing R. The impact of supervision on stock management and adherence to treatment guidelines: a randomized controlled trial. *Health Policy and Planning*, 2001, 16:273–280.
108. Howie JG, Hopton JL, Heaney DJ, Porter AM. Attitudes to medical care, the organization of work and stress among general practitioners. *British Journal of General Practice*, 1992, 42:181–195.
109. Borrill CS, Carletta J, Carter AJ, Dawson JF, Garrod S, Rees A, et al. *The effectiveness of healthcare teams in the National Health Service*. Final report submitted to the Department of Health, 2000.
110. Kekki P. *Teamwork in primary health care*. Geneva, World Health Organization, 1990.
111. Ham C, Kipping R, McLeod H. Redesigning work processes in health care: lessons from the National Health Service. *The Milbank Quarterly*, 2003, 81:415–439.
112. Egger D, Ollier L. *Strengthening Management in Uganda: What can be learned?* Country case study report. Geneva, World Health Organization, 2005 (WHO/SPO/OMH).
113. Jakab M, Kutzin J, Chakraborty S, O'Dougherty S, Temirov A, Manjjeva E. *Evaluating the Manas Health Sector Reform (1996–2005): Focus on Health Financing*. Policy research paper 31, MANAS Health Policy Analysis Project. Bishkek, Kyrgyzstan, 2005.
114. Buchan J. Health sector reform and the regulation and management of health professionals: a case study from Chile 2000. *Human Resources Development Journal*, 2000, 4:64–72 (<http://www.who.int/hrh/hrdj/en>).
115. Buchan J. What difference does (“good”) HRM make? *Human Resources for Health*, 2004, 2:6 (<http://www.human-resources-health.com>).

116. Zaleznik A. Managers and leaders. Are they different? *Harvard Business Review*, 1977, 82:74–81.
117. Stordeur S, D'hoore W, Vandenberghe C. Leadership, organizational stress and emotional exhaustion among nursing hospital staff. *Journal of Advanced Nursing*, 2001, 35:533–542.
118. Larrabee JH, Janney MA, Ostrow CL, Withrow ML, Hobbs GR Jr, Burani CB. Predicting registered nurse job satisfaction and intent to leave. *Journal of Nursing Administration*, 2003, 33:271–283.
119. Hasselhorn H-M, Tackenberg P, Müller BH. Working conditions and intent to leave the profession among nursing staff in Europe. *NEXT – nurses early exit study, 2003*. Stockholm, National Institute for Working Life, 2004.
120. Moynihan DP, Pandey SK. Testing how management matters in an era of government by performance management. *Journal of Public Administration Research and Theory*, 2005, 15:421–439.
121. Boyne GA, Walker RM. Introducing the “determinants of performance in public organizations symposium”. *Journal of Public Administration Research and Theory*, 2005, 15:483–488.
122. Boyle DK, Bott MJ, Hansen HE, Woods CQ, Taunton RL. Managers' leadership and critical care nurses' intent to stay. *American Journal of Critical Care*, 1999, 8:361–371.
123. Mathauer I, Imhoff I. *The impact of non-financial incentives and quality management tools on staff motivation. A case study from Benin and Kenya*. Eschborn, German Technical Cooperation (GTZ), 2004.
124. Blaauw D, Penn-Kekana L. Socio-Economic Inequalities and Maternal Health in South Africa. Presentation to the 22nd Conference on Priorities in Perinatal Care in Southern Africa. 2003.
125. Oulton J, International Council of Nurses, personal communication.
126. Shaw C. Managing the performance of health professionals. In: Dubois C-A, McKee M, Nolte E, eds. *Human resources for health in Europe*. Brussels, European Observatory on Health Systems and Policies, 2005: 98-115.
127. Jamtvedt G, Young JM, Kristoffersen DT, Thomson O'Brien MA, Oxman AD. *Audit and feedback: effects on professional practice and health care outcomes*. The Cochrane Database of Systematic Reviews 2003. Issue 3. Art. No.: CD000259. DOI:10.1002/14651858.CD000259.
128. Diaz-Monsalve SJ. Measuring the job performance of district health managers in Latin America. *Annals of Tropical Medicine and Parasitology*, 2003, 97:299–311.
129. De Savigny D, Kasale H, Mbuya C, Reid G. Fixing health systems. Ottawa: International Development Research centre, 2004.
130. George A. *Accountability in health services. Transforming relationships and contexts*. Cambridge, MA, Harvard Center for Population and Development Studies, 2002 (Working Paper Series, Vol 13, No. 1).
131. Averill R. Public dissemination of provider performance comparisons in the United States. *Hospital Quarterly*, 1998, 1:39–41.
132. Bhat R. Regulating the private health care sector: the case of the Indian Consumer Protection Act. *Health Policy and Planning*, 1996, 11:265–279.