



UHC: markets, profit, and the public good 2

Performance of private sector health care: implications for universal health coverage

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This is the second in a [Series](#) of four papers about UHC and private health care

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Although the private sector is an important health-care provider in many low-income and middle-income countries, its role in progress towards universal health coverage varies. Studies of the performance of the private sector have focused on three main dimensions: quality, equity of access, and efficiency. The characteristics of patients, the structures of both the public and private sectors, and the regulation of the sector influence the types of health services delivered, and outcomes. Combined with characteristics of private providers—including their size, objectives, and technical competence—the interaction of these factors affects how the sector performs in different contexts. Changing the performance of the private sector will require interventions that target the sector as a whole, rather than individual providers alone. In particular, the performance of the private sector seems to be intrinsically linked to the structure and performance of the public sector, which suggests that deriving population benefit from the private health-care sector requires a regulatory response focused on the health-care sector as a whole.

Introduction

Although the private sector is an important source of health-care provision in many low-income and middle-income countries, its role varies widely across countries.¹ The heterogeneity and complexity of the sector make any judgment about performance complex and nuanced.² Despite these difficulties, several studies^{3,4} have attempted to assess private sector performance, usually through comparisons with the public sector. Most focus on specific types of private providers and discuss factors that affect providers' performance, but making overall conclusions about such factors is challenging. Most such studies include a small sample or narrow range of providers, but individual performance ranges widely and depends substantially on the context in which providers are operating. Furthermore, a narrow focus on individual performance rather than on the overall effect of a particular provider on health care misses what might be the most important implications of a changing public–private mix of health-care providers. Private providers might provide excellent quality individually,

but if they absorb a disproportionate share of the health workforce and are inaccessible to most of the population, their overall contribution might still be assessed as negative; alternatively, they might train high quality health staff who are later employed in more accessible public provision systems. It is these relations between private sector behaviour and population health outcomes that shape the implications for universal health coverage.

This principle suggests that whether the private sector or the public sector performs best is a sterile question. An assessment of the contribution of any one provider depends on its effect on the system as a whole, including whether it fills gaps left by other providers or creates new ones. Such a contribution depends on a host of economic and social factors. A dearth of research at this level indicates the complexities inherent in exploring these relations.

We reviewed the evidence of important individual factors, which are well researched but might be misleading because they are presented in isolation, and consider the implications for universal health coverage.

Search strategy and selection criteria

We searched PubMed, Evidence-Based Medicine Reviews, and Google Scholar for the terms “private sector” OR “private provider” OR “private practitioner” AND role OR performance AND quality OR efficiency OR equity AND “developing country” OR “low and middle income country”. We also searched the reference lists of identified articles for additional relevant literature. We reviewed the titles and abstracts of peer-reviewed articles and grey literature. We included qualitative and quantitative studies that reported performance outcomes or included an assessment of factors that determine performance. We included 51 reports that focused on the performance of private health-care providers.

Key messages

- The crucial policy question about the private sector is not its performance in isolation, or relative to the public sector, but the extent to which it supports or detracts from progress towards universal health coverage.
- There is a dearth of evidence about factors affecting the overall performance of health systems, showing the complexity and heterogeneity of the private health-care sector and the difficulty in exploring the relations between factors, and their effect on overall performance.
- Deriving population benefit from the private health-care sector will require interventions that target the sector as a whole, rather than individual providers alone.

We aim to develop a conceptual framework theorising the links between individual performance characteristics and system-level effects that determine progress towards universal health coverage. By identifying factors that affect private sector performance as a whole, we aim to stimulate debate about how overall private sector performance affects system-level outcomes, and the types of interventions that can be implemented to support universal health coverage.

Performance of the private health-care sector: quality, equity, and efficiency

We used three general outcome measures to assess the performance of the private health-care sector: quality, equity, and efficiency. We selected these terms because they are widely used and encompass many other terms, such as responsiveness and access. Despite the heterogeneity of the private sector, many studies were not clear about the type of private provider when reporting on performance, instead grouping all providers together. As a result, some performance assessments apply to only one or two types of provider, even though results are presented as applying to the sector as a whole.

Quality has two main components: service quality, including responsiveness of staff and often measured by patient satisfaction; and technical quality, incorporating the competence of providers and their adherence to clinical guidelines.⁴ Many comparative studies suggest that service quality is better in the private sector than in the public sector. For example, Bhatia and Cleland⁵ compared health care for female outpatients in south-central India and reported that “private practitioners are providing a better service, defined in relation to consultation time, privacy, and likelihood of receiving information about diagnosis and prognosis, than their public sector counterparts”. Likewise, results of a systematic review³ comparing the performance of private and public health-care systems in low-income and middle-income countries showed that clients thought service delivery by private providers was better as a result of shorter waiting times, better hospitality, increased time spent with doctors, cleanliness of facilities, longer and flexible opening times, and better availability of staff.

By contrast, technical quality across a range of private providers seems to be inferior to the public sector, although many studies note that public sector services are also of a low standard. Basu and colleagues³ showed that diagnostic accuracy, adherence to medical management standards or prescription guidelines, knowledge of correct diagnosis and treatment, and the incidence of unnecessary procedures, such as caesarean sections, were worse in the private sector than in the public sector in Nigeria, Uganda, South Africa, Vietnam, Laos, Peru, and Mexico. Likewise, studies^{16,7} in Zimbabwe and Uganda have shown that many private providers have little diagnostic capacity and erratic prescribing practices for HIV/AIDS; and in Nigeria

and Vietnam poor adherence to prescription guidelines by private providers has been associated with a rise in drug-resistant malaria.^{8,9}

Many studies rely on users to report the provider used, and private providers are often lumped into one category, masking any differences between types and context of provision. Few studies disaggregate contexts and patient groups served; when they do, different results can be found. In particular, studies done in sub-Saharan Africa¹⁰ use evidence from Demographic Health Surveys, which largely captures use of small unregulated private providers in places where the public sector is weak. In settings with a strong public sector, and a complementary and better-regulated private sector, different findings emerge. A study in Sri Lanka,¹¹ where the private sector complements a strong public sector, showed that the quality of private primary practitioners’ clinical management of conditions was close to that of Australian doctors. Results of another study in Sri Lanka showed evidence of much the same quality in public and private hospitals.¹²

Studies that explore quality in one or two types of provider fail to account for their contribution to the overall performance of the health system. However, when broader structural factors—such as the nature of the public sector and effective regulatory practices—are considered, an understanding of how private sector performance affects the whole system begins to emerge.

We define equity as the fair availability of, and access to, quality health care commensurate with need and without regressive financial implications.³ Private providers financed by individual out-of-pocket payments tend to exclude poorer patients and so might be considered inequitable. From the perspective of the entire health-care system, the more fundamental question is how they contribute to opportunities for the whole population to access health care, which has an effect on fairness of the overall health system and progress towards universal health coverage.

Most studies have focused on the direct effect of private providers on equitable access. Most private services in low-income and middle-income countries are funded directly by patients (out-of-pocket). This feature tends to mean that private services from providers with qualified medical staff are more likely to serve affluent populations.³ For example, comparative analysis of Demographic Health Surveys, done in 27 countries between 1990 and 2004, clearly show that wealthy households disproportionately use private providers for child health services.¹⁰ Data from Demographic Health Surveys also suggest that the absolute levels of private sector use vary by region but a gradient in use by socioeconomic status is apparent across all regions (sub-Saharan Africa, north Africa and eastern Europe, central Asia, south and southeast Asia, Latin America, and the Caribbean), with wealthy people more likely than poor people to use private providers.

Where the public sector provision of essential services has gaps, poor people use some types of private providers

disproportionately. In such instances, services are often of low quality and delivered by unqualified providers, but are accessible. According to Bloom and colleagues,¹³ the informal sector provides most health care for poor people in many low-income and middle-income countries. Prata and coworkers¹⁴ reported that in 19 of 22 low-income and middle-income countries, both wealthy and poor citizens received more care from the private sector than from the public sector, when private providers include informal providers such as private drug shops. The convenience, accessibility, and affordability of these small private providers compared with public sector alternatives make them attractive to patients.¹⁵ However, a lack of effective regulation exposes poor patients to inadequately qualified practitioners providing low-quality care in many settings.¹⁶

Efficiency is the extent to which resources are used effectively or are wasted.¹⁷ Examples of inefficiencies are overprescribing, wastage of stock, and use of branded rather than generic medicines. From the perspective of universal health coverage, we are interested in the extent to which the presence of private providers affects overall efficiency, and thus the extent to which a particular level of health expenditure can cover a population with a range of services. Several studies^{3,5,18,19} focusing on the treatment of specific conditions suggest that private treatment results in high service costs, and thus potential inefficiency. The use of potentially unnecessary and expensive procedures, such as caesarean sections, is one source of expense.¹⁸ Much of the evidence, particularly from sample surveys, focuses on small, and often unqualified, private providers operating within a weak public health system and regulatory framework. In these circumstances, it is unsurprising that services seem to be inefficient. For example, average prescription drug costs in the private sector were higher than in the public sector for the same diagnosis in countries such as India, Tanzania, and Bangladesh, where public services are poorly resourced and regulation is weak.^{3,5,19} In these circumstances, consumers have no clear benchmarks of quality and are largely at the mercy of private prescribing. Delays in diagnosis caused by a lack of linkage between sectors further contribute to higher prices for service users. In their systematic review, Basu and colleagues³ found evidence that an absence of referral linkage between sectors and within sectors means that diagnostic investigations must often be repeated after referral because information is not passed between providers, resulting in high costs and low efficiency.

Provider characteristics affecting performance

Three groups of individual features seem to be important in driving the performance of individual providers: organisational objectives, competence of staff, and size of organisation.

The organisational objectives of private providers vary. Providers are typically divided into for-profit and not-for-profit, with the former focusing largely on shareholder

dividends or partner shares, aiming to maximise financial gain, and the latter having a mandate to protect the health of a specific population.^{20,21} The evidence comparing for-profit and not-for-profit private providers leads to mixed conclusions. Two studies^{22,23} suggest that decentralised decision making combined with organisational objectives common to not-for-profit providers, enable them to deliver superior services compared with for-profit providers, even though the qualifications of practitioners are often lower than in for-profit private organisations. Results of a systematic review⁴ that explored the quality of private and public ambulatory health care in low-income and middle-income countries suggest little difference between for-profit and not-for-profit private providers overall. However, not-for-profit providers were better than for-profit providers in relation to structural quality (building equipment, material, drug availability) and quality of delivery (responsiveness, but not patient satisfaction). In relation to technical quality, both for-profit and not-for-profit providers performed worse than public sector providers with respect to competence, whereas clinical practice was superior with for-profit private providers. The link between the organisational objectives of for-profit and not-for-profit private providers and quality, efficiency, and equity outcomes, and how this affects performance of a health system as a whole, needs to be established.

In their systematic review, Berendes and colleagues⁴ defined competence as professional knowledge and skills, assessed by case scenarios or vignettes, provider interviews, or a formal test, and related to overall technical quality. They showed that staff in the private sector had slightly lower competence than those in the public sector, although the types of facilities compared were not always clear from the studies. A series of studies in India, Indonesia, Paraguay, and Tanzania focused on the clinical quality of individual practitioners in the public and private sectors by measuring competence.²⁴ These studies, which matched similar facilities, suggest that the competence of qualified doctors (defined as what doctors know and assessed by vignettes, direct observation, and exit surveys) in the private sector was as good as or exceeded that of their colleagues in the public sector. This finding is perhaps unsurprising since participants are often the same doctors with dual roles (a practice that has an effect on system-level outcomes).^{25,26}

The studies²⁴ suggest that at the mid-range of competence, private doctors ask more questions and do more examinations than do similar public sector providers, which—depending on the complexity of the health issue—can lead to different efficiency, equity, and quality. In particular, the higher effort expended by private providers could improve outcomes for patients who have ambiguous symptoms for whom diagnosis is complex. In India, for example, although public doctors might have insufficient time to understand complex symptoms and

interpret multiple tests, the extra effort made by private providers can lead to better outcomes.²⁵ By contrast, when illness is simple to diagnose or self-limiting, the additional effort by private providers might manifest in excessive treatment and prescribing. For these illnesses, the public sector is a more cost-effective provider. A similar conclusion is reached by the authors of an Indonesian study,²⁶ in which public providers offered the most effective preventive services, including antenatal care, whereas private doctors provided higher quality curative services, as measured by observations of clinical management. Conversely, private facilities that depend heavily on nurses and midwives tended to score poorly for clinical management, possibly because staff had to extend their remit beyond their qualifications.²⁴

The size of organisations can affect provider performance. Large facilities can share expensive items across many patients, provide larger numbers of similar cases to improve staff expertise, and ensure that a wide range of skills is available at all times. Large providers also enable health professionals to hone skills for the provision of increasingly rarely needed services, and can therefore be a prerequisite for quality care for such services.²⁷ A much quoted review²⁸ of evidence from high-income countries suggests that the optimum size for an acute district hospital is around 200–400 beds and an analysis²⁹ of country hospitals in China suggested a range of 200 to 600 beds. This rather crude generalisation is conditioned strongly by the way services are provided—a high day-case load might enable greater output from smaller inpatient capacity and a wider range of services to be offered. It might also depend on the proximity to other facilities, since a smaller facility might be efficient if it can rely on rapid referral to larger facilities in the case of complications. A study of the costs of surgery in India³⁰ showed the lowest costs in departments with high caseloads, regardless of whether ownership was public, charitable, or private. Data for numbers of hospital beds are patchy and difficult to compare with the changing definitions of the term hospital, but consistently show low hospital bed numbers in private hospitals; for example, Kutty³¹ reported an average of 26 beds in private hospitals in Kerala in 1986, and 34 beds in 1995; and a study³² of hospitals in Guangdong province in China showed that private for-profit hospitals had an average of 66 beds compared with 256 in the public sector.

Health system factors affecting private sector performance

Several health system factors affect the functioning of the private sector as a whole: the structure and performance of the public health-care sector, the structure of the private sector, the characteristics of patient demand for health care, and regulation of the private health-care sector. Individual factors are then linked to these system factors. We limit our discussion to factors that can be

regarded as directly part of the health system rather than broader societal influences such as economic, social, or cultural factors, or overall level of development.

The close links between public and private health-care sectors mean that they are likely to affect each other's performance and structure. Poor performance and lack of availability of the public sector, for example, create gaps in service provision that the private sector fills, often providing essential primary services to the population. This gap can be the result of low public health expenditure, or low efficiency of public expenditure, leading to lack of capacity to provide services. In Bangladesh, a shortage of qualified health-care professionals in rural areas is a key reason why much of the population seeks assistance from unqualified allopathic providers.³³ In Tanzania, the percentage of people using the private sector increases when public sector health-care providers run out of drugs.³⁴ Private sector expansion, which has enabled small, cheap, and poor quality facilities to grow in several sub-Saharan countries, is linked to high public sector user charges, as well as deregulation of private provision.² Conversely, Sri Lanka and Thailand show how higher, well-targeted public spending can create a more accessible and better quality public sector, restricting opportunities for private sector involvement mainly to higher quality services for richer people.²

Public sector policies can also shape the space left for private sector provision. For example, in urban Mozambique, the presence of both reasonable drug availability in public hospitals and parastatal pharmacies for outpatients that reliably stock affordable essential medicines, directs private involvement in the market to upper-income segments, signalling high quality with branded drugs, superior packaging, and significantly higher prices.³⁵

The extent to which dual practice occurs within the public and private health-care sectors will affect the performance of each sector. Dual practice is common in many low-income and middle-income countries.³⁶ Although most health-care practitioners are trained in the public sector, many practitioners either leave the public sector completely or supplement their income in the private sector.³⁷ Studies³⁷ of medical careers indicate that doctors, and to a lesser extent nurses, move between the public and private sectors, affecting the performance of both sectors. Dual practice can increase referral to the private sector, leading to increased patient costs, increased absenteeism in the public sector, and lower quality of care in the public sector, and increased capacity to retain health workers in the health system as a whole, but such potential effects are themselves contingent on other features of the health system such as regulation and the extent of market opportunities.^{38–40}

Patient characteristics also shape the performance of the private sector. Paucity of information available to patients about health-care providers, poor education, low economic capacity, and household and community

preferences can hamper the use of quality health services.⁴¹ Reducing these barriers enables patients to make better choices about their health care, and access higher quality health services in both the public sector and the private sector. Although education itself is important in determining overall health, higher levels of education also increase the desire for, and use of, quality health services, inducing patients to move away from unqualified private providers towards qualified public or private services.⁴² There is evidence from Bangladesh⁴³ that patients with some education are more likely than those with no education to switch from an unqualified provider to a qualified allopathic provider. Similarly, patients who describe themselves as impoverished are more likely to seek care from unqualified private providers compared with those who do not describe themselves as impoverished.

Although evidence is lacking, better economic conditions seem likely to spur an improvement in the quality of both public and private medical services. Increased purchasing power, concentrated in urban areas, for example, might enable hospitals to reach a size that enables them to improve services through a more qualified and stable workforce and improved facilities. In some parts of India, private hospitals are becoming larger; industry projections suggest a rapid growth in the size and specialisation of private hospitals over the next 5 years.^{44,45} Large hospitals, resulting from an increase in patient demand, could reduce unit costs, but also improve quality.

The purpose of regulation is to control provider behaviour and ensure that private providers offer services that are not only acceptable to the public, but also meet overall goals of the health-care sector.^{21,46} Lack of regulation can lead to the growth and greater use of small scale, poor-quality facilities, as seen in Ghana, Malawi, Tanzania,

and Zambia;² or a high-quality private sector that becomes inaccessible to lower socioeconomic groups because of the high cost of care, such as in South Africa and Argentina.² Certification—a type of voluntary self-regulation that individual providers can obtain after meeting a set of standards—is one form of regulation that can help to ensure high levels of qualified and competent staff within private health facilities.^{20,21} Likewise, accreditation, which is another form of self-regulation, might help to affect the overall quality of private health facilities.²⁸ A review⁴⁷ of the private sector in India showed a reduction in surgical infections after adoption of international accreditation standards. Private hospital accreditation in Thailand seems to have improved overall patient satisfaction and health outcomes, including inpatient mortality.^{48,49}

Despite these examples, evidence of effective regulation is rare and could be related to the context in which the sector works. In Thailand, a competitive network of private hospitals much used by medical tourists, works alongside a strong well-funded public sector. Accreditation in India is largely restricted to large private hospitals that offer services to wealthy residents and patients from abroad, and there is little regulation of the smaller hospitals and clinics that dominate the sector. Governments in most low-income countries lack capacity to provide effective regulation, and there are few external influences (such as medical tourism) to induce change. The third paper in this series⁵⁰ discusses regulation as a type of intervention in more detail.

Implications for universal health coverage

The objective of universal health coverage suggests that rather than focus only on the productivity or quality of individual or a specific group of private providers, it is important to understand not only what factors influence the overall performance of a health system, but also how these factors interact (figure). Understanding these interactions can then help the development of policy and interventions that focus on different parts of the private (and public) sector, with the aim of improving overall sector performance and population health.

Progress towards universal health coverage requires health systems that maximise health outcomes, and equitably and progressively distributes good quality, financially and geographically accessible services that are delivered efficiently, with low levels of out-of-pocket expenditure.

Despite the lack of evidence about system-level factors that affect performance, studies of individual private provider performance offer suggestions about system-level influences and effects. For example, the structures of the public and private sectors, the characteristics of patients, and the regulation of the sector all affect the types of health services delivered and their outcomes. The contribution of the private sector better supports good outcomes in areas where users are wealthy and well informed, particularly in cities, where patients can

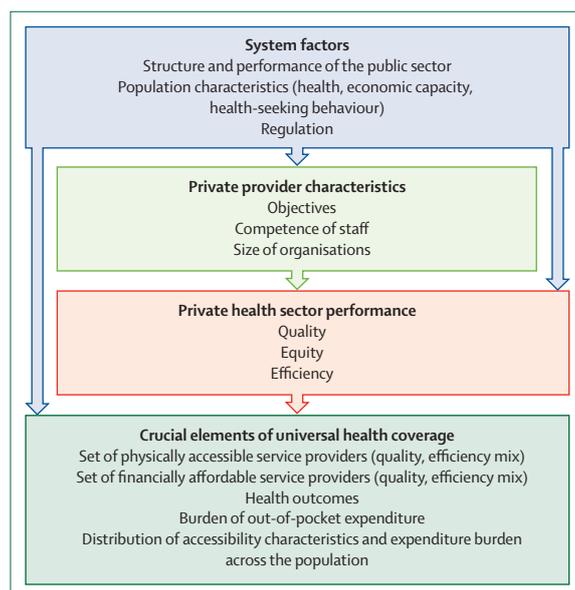


Figure: Factors affecting the performance of the private health-care sector

demand higher quality services and choose to use only those services that they deem high quality. As a result, services are more likely to be delivered by qualified private providers who spend more time with each patient, with improved quality, equity, and efficiency, particularly for more complex diseases.

Ensuring that services are safe and effective requires standards that are enforced and monitored. Most experience of government bureaucratic regulation in low-income countries is rather negative, and other regulatory instruments might be more effective.⁵⁰ Regulation will also have an effect on, and be affected by, the structure of the sectors with regulation of qualified and unqualified providers implemented in different ways. A minimum regulatory response requires government to ensure that essential services are accessible both geographically and financially within the health-care sector as a whole, while protecting individuals from poor quality services. This requirement suggests that changing private sector performance will need a regulatory response that not only targets private providers, but also the health-care sector as a whole. For example, affecting the quality, efficiency, and equity of access in the public sector is likely to lead to changes in the private sector.

The achievement of good system-level effects is clearly frustrated by some characteristics of private provision. For example, inefficient provision of unnecessary interventions reduces quality, efficiency, and probably (by absorbing limited skilled professionals and occupying market space) the accessibility of any quality-efficient provider, and increases out-of-pocket expenditure. Dual practice has several effects, including increased private sector referral and costs, but considered from the perspective of the whole system, it might also retain health staff in the system, increasing the availability of qualified personnel to users of the public sector.

The lack of research and the difficulties of researching system-level effects explains why many arguments remain hypothetical. Counterfactual scenarios—what the system would look like without private provision, without dual practice, or with a different regulatory environment—cannot be studied empirically. Such significant variation in health systems cannot be manipulated by policy experiments. Paper 4 in this series will return to this question by comparing countries in which such characteristics vary.⁵¹

Changing the performance of the private sector will need interventions that target the sector as a whole, not individual providers. Evidence focused on individual performance can mislead. Despite the difficulties, future research should address more critically how system factors encourage the creation of a specific mix of public and private services and how regulation and other policy instruments can be used to ensure a mix of services that promotes quality, equity, and efficiency in the whole system to support universal health coverage.

Contributors

RM and TE reviewed and summarised the published work, wrote the first draft, and reviewed all drafts. HW provided evidence in support of arguments, wrote some sections of the paper, and reviewed drafts.

Declaration of interests

We declare no competing interests.

References

- Bennett S, Hanson K, Kadama P, Montagu D. Working with the non-state sector to achieve public health goals. Geneva: World Health Organization, 2005.
- Mackintosh M, Selveraj S, Channon A, Zhao H, Cavagnero E, Karan A. What is the private sector: understanding private provision in low and middle income countries' mixed health care systems. *Lancet* 2016; published online June 26. [http://dx.doi.org/10.1016/S0140-6736\(16\)00342-1](http://dx.doi.org/10.1016/S0140-6736(16)00342-1).
- Basu S, Andrews J, Kishore S, Panjabi R, Stuckler D. Comparative performance of private and public healthcare systems in low- and middle-income countries: a systematic review. *PLoS Med* 2012; **9**: e1001244.
- Berendes S, Heywood P, Oliver S, Garner P. Quality of private and public ambulatory health care in low and middle income countries: systematic review of comparative studies. *PLoS Med* 2011; **8**: e1000433.
- Bhatia J, Cleland J. Health care of female outpatients in south-central India: comparing public and private sector provision. *Health Policy Plan* 2004; **19**: 402–06.
- Brugha R. Antiretroviral Treatment in developing countries: the peril of neglecting private providers. *BMJ* 2003; **326**: 1382–84.
- Nyazema N, Khosa S, Landman I, Sibanda E, Gael K. Antiretroviral (ARV) drug utilization in Harare. *Cent Afr J Med* 2000; **46**: 89–93.
- Gbotosho GO, Happi CT, Ganiyu A, Ogundahunsi OA, Sowunmi A, Oduola AM. Potential contribution of prescription practices to the emergence and spread of chloroquine resistance in south-west Nigeria: caution in the use of artemisinin combination therapy. *Malar J* 2009; **8**: 313.
- Gupta S, Gunter JT, Novak RJ, Regens JL. Patterns of *Plasmodium vivax* and *Plasmodium falciparum* malaria underscore importance of data collection from private health care facilities in India. *Malar J* 2009; **8**: 227.
- Gwatkin DR, Rutstein S, Johnson K, Suliman E, Wagstaff A, Amouzou A. Socio-economic differences in health, nutrition, and population within developing countries—an overview. Produced by the World Bank in collaboration with the Government of the Netherlands and the Swedish International Development Cooperation Agency, 2007.
- Rannan-Eliya RP, Jayawardhane P. Private primary care practitioners in Sri Lanka. In: Yazbeck AP, ed. *Health Policy Research in South Asia*. Washington: The World Bank, 2003.
- Liyanage IK, Jayanthan J, Wijemanne N, et al. Study of quality of care in public and private sectors 2013. http://www.ihp.lk/publications/pres_doc/pres20130706.pdf (accessed Feb 11, 2016).
- Bloom G, Standing H, Lucas H, Bhuiya A, Oladepo O, Peters DH. Making health markets work better for poor people: the case of informal providers. *Health Policy Plan* 2011; **26** (suppl 1): i45–52.
- Prata N, Montagu D, Jefferys E. Private sector, human resources and health franchising in Africa. *Bull World Health Organ* 2005; **83**: 274–79.
- Sudhinaraset M, Ingram M, Lofthouse HK, Montagu D. What is the role of informal healthcare providers in developing countries? A systematic review. *PLoS One* 2013; **8**: e54978.
- Mills A, Brugha R, Hanson K, McPake B. What can be done about the private health sector in low-income countries? *Bull World Health Organ* 2002; **80**: 325–30.
- Hsu J. The relative efficiency of public and private service delivery. Geneva: World Health Organization, 2010.
- Brugha R, Pritze-Aliassime S. Promoting safe motherhood through the private sector in low- and middle-income countries. *Bull World Health Organ* 2003; **81**: 616–23.
- World Bank. Comparative advantage of public and private health care providers in Bangladesh. Dhaka: World Bank, 2005.
- Harding A. Introduction to private hospitals in health services. In: Harding A, Preker AS, eds. *Private Participation in Health Services*. Washington: The World Bank, 2003.

- 21 Morgan R, Ensor T. The regulation of private hospitals Asia. *Int J Health Plann Manage* 2014; published online May 13. DOI:10.1002/hpm.2257.
- 22 Leonard KL. When both states and markets fail: asymmetric information and the role of NGOs in African health care. *Int Rev Law Econ* 2002; 22: 61–80.
- 23 Leonard KL, Masatu MC, Vialou A. Getting doctors to do their best: the roles of ability and motivation in health care quality. *J Hum Resour* 2007; 42: 682–700.
- 24 Das J, Hammer J, Leonard K. The quality of medical advice in low-income countries. *J Econ Perspect* 2008; 22: 93–114.
- 25 Das J, Hammer J. Money for nothing: the dire straits of medical practice in Delhi, India. *J Dev Econ* 2007; 83: 1–36.
- 26 Barber SL, Gertler PJ, Harimurti P. Differences in access to high-quality outpatient care in Indonesia. *Health Aff (Millwood)* 2007; 26: w352–66.
- 27 Halm EA, Lee C, Chassin MR. Is volume related to outcome in health care? A systematic review and methodologic critique of the literature. *Ann Intern Med* 2002; 137: 511–20.
- 28 Posnett J. Are bigger hospitals better? In: McKee M, Healy J, eds. *Hospitals in a Changing Europe*. Buckingham: European Observatory on Health Care Systems Series, Open University Press, 2002.
- 29 Cheng Z, Tao H, Cai M, et al. Technical efficiency and productivity of Chinese county hospitals: an exploratory study in Henan province, China. *BMJ Open* 2015; 5: e007267.
- 30 Chatterjee S, Laximinarayan R. Costs of surgical procedures in Indian hospitals. *BMJ Open* 2013; 3: e002844.
- 31 Kutty VR. Historical analysis of the development of health care facilities in Kerala State, India. *Health Policy Plan* 2000; 15: 103–09.
- 32 Eggleston K, Lu M, Li C, et al. Comparing public and private hospitals in China: evidence from Guangdong. *BMC Health Serv Res* 2010; 10: 76.
- 33 Ahmed S, Hossain M. Knowledge and practice of unqualified and semi-qualified allopathic providers in rural Bangladesh: implications for the HRH problem. *Health Policy* 2007; 82: 332–43.
- 34 Mikkelsen-Lopez I, Tediosi F, Abdallah G, et al. Beyond antimalarial stock-outs: implications of health provider compliance on out-of-pocket expenditure during care-seeking for fever in South East Tanzania. *BMC Health Serv Res* 2013; 13: 444.
- 35 Russo G, McPake B. Medicine prices in urban Mozambique: a public health and economic study of pharmaceutical markets and price determinants in low-income settings. *Health Policy Plan* 2010; 25: 70–84.
- 36 Macq J, Ferrinho P, De Brouwere V, van Lerberghe W. Managing health services in developing countries: between ethics of the civil servant and the need for moonlighting. *Human Resources Health Development Journal* 2001; 5: 17–24.
- 37 Ensor T, Serneels P, Lievens T. Public and private practice of health workers. In: Soucat A, Scheffler R, Ghebreyesus TA, eds. *The labor market for health workers in Africa: a new look at the crisis*. Washington, DC: World Bank, 2013.
- 38 Eggleston K, Bir A. Physician dual practice. *Health Policy* 2006; 78: 157–66.
- 39 Socha KZ, Bech M. Physician dual practice: a review of literature. *Health Policy* 2011; 102: 1–7.
- 40 McPake B, Russo G, Hipgrave D, Hort K, Campbell J. Implications of dual practice for universal health coverage. *Bull World Health Organ* 2016; 94: 142–46.
- 41 Ensor T, Cooper S. Overcoming barriers to health service access: influencing the demand side. *Health Policy Plan* 2004; 19: 69–79.
- 42 Borah BJ. A mixed logit model of health care provider choice: analysis of NSS data for rural India. *Health Econ* 2006; 15: 915–32.
- 43 Ahmed SM, Tomson G, Petzold M, Kabir ZN. Socioeconomic status overrides age and gender in determining health-seeking behaviour in rural Bangladesh. *Bull World Health Organ* 2005; 83: 109–17.
- 44 Dilip TR. Utilization of inpatient care from private hospitals: trends emerging from Kerala, India. *Health Policy Plan* 2010; 25: 437–46.
- 45 Northbridge Capital. *Hospital Sector*. Mumbai: Northbridge Capital, 2010.
- 46 Akhtar A. *Health care regulation in low- and middle-income countries: a review of the literature*. Melbourne: The Nossal Institute for Global Health, 2011.
- 47 Rao RH. The private health sector in India: a framework for improving the quality of care. *ASCI J Manag* 2012; 41: 14–39.
- 48 Ensor T, Palmer P. *The oversight and regulation of non-state health care providers: a rapid review in selected middle and high income countries*. Oxford: Oxford Policy Management, 2009.
- 49 Sriratanaban J, Wanavanichkul Y. Hospitalwide quality improvement in Thailand. *Jt Comm J Qual Patient Saf* 2004; 30: 246–56.
- 50 Montagu D, Goodman C. Prohibit, constrain, encourage, or purchase: how should we engage with the private health-care sector? *Lancet* 2016; published online June 26. [http://dx.doi.org/10.1016/S0140-6736\(16\)30242-2](http://dx.doi.org/10.1016/S0140-6736(16)30242-2).
- 51 McPake B, Hanson K. Managing the public–private mix to achieve universal health coverage. *Lancet* 2016; published online June 26. [http://dx.doi.org/10.1016/S0140-6736\(16\)00344-5](http://dx.doi.org/10.1016/S0140-6736(16)00344-5).