

40 years after Alma-Ata, is building new hospitals in low-income and lower-middle-income countries beneficial?

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To cite: Chabrol F, Albert L, Ridde V. 40 years after Alma-Ata, is building new hospitals in low-income and lower-middle-income countries beneficial? *BMJ Glob Health* 2019;**3**:e001293. doi:10.1136/bmjgh-2018-001293

Handling editor Seye Abimbola

Received 8 November 2018

Revised 22 February 2019

Accepted 25 February 2019

ABSTRACT

Public hospitals in low-income and lower-middle-income countries face acute material and financial constraints, and there is a trend towards building new hospitals to contend with growing population health needs. Three cases of new hospital construction are used to explore issues in relation to their funding, maintenance and sustainability. While hospitals are recognised as a key component of healthcare systems, their role, organisation, funding and other aspects have been largely neglected in health policies and debates since the Alma Ata Declaration. Building new hospitals is politically more attractive for both national decision-makers and donors because they symbolise progress, better services and nation-building. To avoid the ‘white elephant’ syndrome, the deepening of within-country socioeconomic and geographical inequalities (especially urban–rural), and the exacerbation of hospital-centrism, there is an urgent need to investigate in greater depth how these hospitals are integrated into health systems and to discuss their long-term economic, social and environmental sustainability.

INTRODUCTION

The celebration of the 40th anniversary of the Alma Ata Declaration and the call for primary healthcare¹ is an opportune time to reconsider the role of public hospitals and specialised care in relation to the primary healthcare system. This topic did not generate many debates in the Global conference on Primary Health Care in Astana in October 2018, yet public hospitals in low-income and middle-income countries (LMICs) continue to face acute material and financial constraints. Meanwhile, recent years have seen an intensification of hospital construction projects, such as in sub-Saharan Africa and Haiti. The majority of these projects are built as part of bilateral cooperation, often as gifts from Western partners (eg, Canada, France) and emerging powers (eg, China, India, Turkey) or built through public–private partnerships (PPPs). Building hospitals is a fashionable cooperation tool and a high-visibility political action for national governments.

Summary box

- ▶ 40 years after Alma-Ata, hospitals in low-income and lower-middle-income countries continue to play a central role in relation to lower levels of the health-care system.
- ▶ Building new hospitals is an attractive project for international and bilateral funders and for national governments.
- ▶ Significant challenges are identified that affect these new hospitals’ ability to function smoothly and efficiently.
- ▶ There is a crucial need for further research on hospitals’ integration within healthcare systems to foster transformative, resilient and sustainable hospitals.

A new hospital is desirable, in that it manifests the promise of emergency care and specialised tertiary treatments in the context of a growing burden of non-communicable diseases in LMICs. It is intended to bridge the ‘infrastructure gap’ to safely provide emergency and surgical care.^{2,3} In this paper, we call attention to several risks inherent in building new hospitals in the absence of broader health system reform and sustainability plans. We begin with a review of current and longstanding challenges facing hospital health services delivery in LMICs. We then consider three newly built hospitals, as examples, and draw from these cases to identify key issues for future policy and research. Finally, we consider hospitals’ role and how their integration into robust healthcare systems can foster their transformative potential,⁴ and we emphasise the need for strong infrastructure to ensure health system resilience.⁵

EXISTING TERTIARY HOSPITALS FACE HUGE CONSTRAINTS

In numerous countries, public hospitals struggle to fulfil their missions adequately. They suffer from insufficient domestic funding and incomplete integration in a network of dispensaries and clinics dedicated to primary healthcare provision. These lower levels of care



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provision are too dysfunctional to provide timely and robust responses to patients' most basic needs. Patients usually bypass them, consulting directly in hospitals through self-referral, including for complaints that would be more appropriately managed in local hospital clinics.⁶ Most hospitals continue to charge user fees. It is unclear what share of this cost recovery system is directed to the overall functioning of hospitals. However, in most cases these expensive fees lead to catastrophic health expenditures for patients and their families.⁷ In too many countries, patients are detained until they can pay their bills.^{8,9} Moreover, the safety of hospital care is not guaranteed, due to high rates of unsafe injections,¹⁰ and ensuring the overall quality of care remains a huge challenge.¹¹

Overcrowding, lack of emergency and surgical services and astronomical user fees have all led to serious dysfunctions, poor quality of care and very negative reputations for public hospitals,^{12,13} decried by citizens, who sometimes fear visiting them. The loss of motivation among health workers, physical deterioration of buildings and lack of material equipment and medicines contribute to the public's distrust of hospital care. The role of hospitals in health systems has received little attention in health policy debates and was largely absent from the recent Alma Ata celebrations, with only one session on hospital reforms in Astana¹⁴ and a short report on the 'transformative role of hospitals' published after the conference.⁴ In a time of consensual call for universal health coverage (UHC) and 'high quality health systems',¹¹ we thus ask whether building new hospitals is inherently good for creating resilient—and sustainable—health systems.

IS BUILDING NEW HOSPITALS AN APPROPRIATE RESPONSE?

The WHO Global Health Observatory provides no significant evidence regarding an increase in the number of hospitals and the density of hospital beds in sub-Saharan Africa and Haiti (it only provides data for 2010 and 2013). Nonetheless, in the course of our fieldwork, we have observed the trend of building new hospitals as part of bilateral cooperation. We examine below three typical cases of new hospital construction and identify some of the questions they raise in relation to funding, maintenance and sustainability.

Lesotho: the public–private partnership hospital

During the 2000s, PPPs were promoted as a new model in various areas of global health.^{15,16} This new alliance between for-profit and not-for-profit organisations was endorsed by the World Bank and the International Finance Corporation (IFC), its private arm, as a relevant health delivery model. In Lesotho, the IFC provided US\$ 120 million to build the new Queen Mamohato Memorial Hospital in Maseru, the capital city, in 2009. The hospital, which opened in 2011, operates under an 18 year contract of a PPP (called Tsepong) between the government of Lesotho and a consortium led by the South African private hospital operator Netcare. From its start, the new hospital generated

controversy for its inability to guarantee access for all citizens (due to high fees) and for exacerbating an inequitable focus on tertiary care. This new hospital absorbed nearly half of the Ministry of Health's budget in 2013/2014.^{17,18} Like Lesotho, several countries have run the risk of incurring serious debt even when they were not themselves financing the building works, while others have had to transfer the management of these hospitals to the private sector.¹⁹ Often, crucial measures needed to support these investments—maintenance, human resources, training, management—are ignored. Constructing and opening new hospitals could deepen within-country socioeconomic and geographical inequalities (especially urban–rural) and exacerbate hospital-centrism.

Haiti: 'white elephant' syndrome?

Haiti is an interesting case of a health system highly dependent on external funding, where there has been strong longstanding support for community health workers²⁰ and, at the same time, recent construction of high-tech hospitals. Following the devastating hurricane in January 2010, several new hospitals were built and/or operated by international partners (eg, Canada, France, Brazil, Cuba) and NGOs, such as Partners in Health. These hospitals are dependent on international aid and medical missions from abroad.

The Hôpital Universitaire de Mirebalais, built 50 km outside Port-au-Prince for US\$ 25 million by Partners in Health, opened in 2013. The government struggles to contribute its portion of the operating costs of this 900-employee hospital, while the progressive withdrawal of Partners in Health—and other international donors—threatens the quality of care. (Ministère de la Santé Publique et de la Population, unpublished data, 2018) The same concern applies to another hospital built with Canadian cooperation funds and inaugurated in 2014, Hôpital La Providence des Gonaïves, since dubbed a 'white elephant' because of its difficult geographical accessibility, high medical fees, corruption scandals and lack of human resources, among other things. It has also experienced dramatic water supply problems. At the same time, the French Development Agency (Agence française de développement–AFD) helped renovate the Hôpital de l'Université d'État d'Haïti (HUEH) in Port-au-Prince, which was plagued by major dysfunctions when it reopened in August 2018 and also experienced water management issues. However, the AFD was not engaged in supporting the hospital after the renovation.

The State of Haiti is currently unable to support these hospitals' functioning without international aid. In fact, in recent years the State has devoted only 3.9% of its annual budget to the health sector.²¹ This case demonstrates the country's deep dependence on external donor funding, exacerbated by these new hospitals that increase total spending. In a recent report on health spending in Haiti, the World Bank acknowledged that 'the ongoing externally financed wave of hospital construction was not accompanied by plans to sustain hospitals' operational

costs and maintain service delivery' and that the Ministry of Health 'does not have enough financing to meet the increasing operational costs, thereby affecting its capacity to ensure staff recruitment, training, and the provision of medical equipment and commodities'.²² The report called for a 'moratorium on new hospital construction until the existing infrastructure can be mapped and a hospital licensing program has been developed' and also emphasised the need to prioritise 'wise spending' on hospitals, consistent with a reprioritisation of primary healthcare and preventive health services. Specialised university hospitals are pivotal to any health system, but they require a strong sustainability plan—in terms of financial, material and human resources—to ensure their long-term functionality.

Chinese-built hospitals in sub-Saharan Africa

Among the most visible projects in recent years are Chinese-built hospitals being constructed and progressively starting to operate in Africa. China has long been present in Africa's health sector and has become its pre-eminent infrastructure builder. The Chinese government is offering the building of district, regional or tertiary hospitals to its African partners. In 2006, president Hu Jintao announced China's wish to build 30 hospitals there, and during the Africa-China Cooperation summit in 2015, president Xi Jinping confirmed that 100 more hospitals would be built in the near future. Presented as a 'win-win' scenario for African development, these Chinese-built hospitals operate under various modalities. In most cases, Chinese medical missions are involved for several years in medical care and training. Equipment and training are part of the package. It is not clear, however, how these hospitals fit within the local and national healthcare systems. In Niger, for instance, a large and highly specialised hospital was entirely funded and built by China in 2016 at a cost of 68 million euros, but many uncertainties remain about how it will be staffed, equipped, funded and maintained over the long term. Our preliminary field study in June 2018 showed that health actors there have many concerns about how this new hospital will be able to function smoothly and in close complementarity with other hospitals and in a context of national health policies such as free healthcare for children and indigents. Nigerien health authorities have raised concerns about financial accessibility for the treatment of complicated and highly specialised care, which they endeavour to provide to all of their population. In other countries, such as Angola,²³ Chinese-built hospital infrastructures have shown early signs of deterioration.

FURTHER RESEARCH IS NEEDED ON HOSPITALS WITHIN HEALTHCARE SYSTEMS

In many countries, as in Haiti, hospitals have been built or reconstructed without any reform or even prior reflection on the feasibility and sustainability of their functioning and financing.²⁴ More research is needed to better understand how hospital reform can be integrated into broader health

system reform,²⁵ especially in the context of global prioritisation of quality and equity in access to UHC.

Alma Ata: hospitals to complement, not replace, primary healthcare

Along with comparative studies of reform attempts,²⁶ a critical and retrospective analysis of previous debates and reform attempts would be enlightening.²⁷ What organisational models were promoted? Why were they generally not successful?

In 1978, the WHO conference in Alma Ata promoted primary healthcare as the best way to achieve health for all in 2000. That conference positioned community health workers as the backbone of health systems and emphasised the need for community participation, adequate financing and national and international support for the strategy.²⁸ Less was said on the role of hospitals, but the Alma Ata report insisted that their primary function was to support—not replace—primary healthcare. Indeed, Halfdan Mahler, then Director-General of WHO, was reported to have said, 'A health system based on primary care cannot be realised without support from a network of hospitals'.⁴ The concept of 'appropriate technology' was invoked to justify the concentration of resources in urban hospitals for the provision of secondary and tertiary care.²⁹

To compensate for the inconsistent implementation and disappointing results of primary healthcare strategies in the 1980s, international agencies tried to promote the district hospital level as a key component in an efficient referral system,³⁰ less costly and more advantageous for the population than big national or regional urban hospitals, and more in line with the PHC strategy.³¹ In the 1990s, the international community acknowledged that big public hospitals in LMICs were too costly and inefficient and defended the necessity of granting more autonomy to hospitals and even privatising them to ensure their efficiency.^{32 33} It was believed—a belief still dominant—that financial and administrative autonomy of public hospitals would produce better health outcomes.³⁴ This inspired a wave of national hospital reforms and the transformation of public hospitals into public autonomous hospitals.^{26 35} Most of the intended results (in terms of quality, satisfaction, equity and so on) did not materialise.³⁶

This makes the wave of reforms in recent years based on New Public Management (NPM),¹⁶ a business-oriented approach to public services, all the more surprising. Equally disconcerting are the occasional attempts at performance-based financing in hospitals—an approach generally implemented at the PHC level—without any strong evidence of its effectiveness.³⁴ The interest in PPPs (whether for building infrastructures or for private management of hospitals) remains intense. Even though PPPs offer some potential (availability of financial resources, advanced technologies), they also present serious limitations (costs, risks, corruption). Tertiary or 'reference' hospitals are seen as profitable investments

offering good market opportunities. Promotion of the private sector and the ‘business of health’ in Africa³⁷ has not resolved issues of accessibility and equity. On the contrary, these investments often go to high-end urban hospitals, benefitting wealthier citizens, and as such, they do not expand the population’s access to healthcare.³⁸

How can hospitals be transformative? Infrastructure for resilient, high quality health systems

Published after the 2018 conference in Astana, the WHO report titled *The Transformative Role of Hospitals in the Future of Primary Health Care*⁴ called for ending the dichotomy between hospitals and the rest of the health system and dissolving the walls, to create a ‘networked and people-centred hospital’ with a view towards achieving UHC. Hospitals, whether new or renovated, can play a transformative role if they are closely integrated within strengthened healthcare systems in a way that is consistent with national priorities and that acknowledges the role of infrastructures.

Hospital projects need to be understood in the context of larger and more intense socioeconomic and demographic changes within dynamic, mobile, urban societies and fast-growing economies. There is an urgent need to address the growing burden of non-communicable and chronic diseases, the long-neglected cancer epidemic and mental health—in short, a need for curative and preventive medicine.

Hospitals’ transformative role and the development of patient-centred hospitals will be a ‘trickle-down’ effect of infrastructure development, because healthcare staff need, first of all, to be supported by a functioning infrastructure in which equipment is smoothly maintained, and where water, power and waste are securely managed.³⁹ Local governments and international donors need to dedicate resources to the maintenance of ‘resilient hospitals’, beyond disaster preparedness, to nurture day-to-day resilience and ensure the safety and quality of care.^{40 41}

How can international cooperation support local and national dynamics in ways other than building hospitals that are not sustainable? The different typologies of hospital cooperation actors and programmes, some of which have been mentioned in this paper, need to be systematically analysed. Other partnerships are of interest, especially those giving preference to training, such as the hospital partnerships or ‘jumelages hospitaliers’ (hospital twinning) initiated by French hospitals for AIDS research and treatment.⁴² India, Brazil and Cuba also have their own—more or less outmoded—cooperation tools that may or may not help transform hospitals from inside, either by supporting capacity-building and medical training, or by local drug production, as in the case of Brazil.⁴³ Medical training remains a crucial issue, and large urban university hospitals should not be the unique sites for clinical training: clinics and district hospitals should also be given larger roles in this area.

Many research organisations and international agencies can play a role in collecting and monitoring data on access to hospital care, bed occupancy, quality of care and—of course—patients’ satisfaction, of which we know very little. Useful tools are being developed, such as the service readiness index, constructed with data from the Service Provision Assessment.⁴⁴ In addition to creating a resilience index,^{40 41} there should be a call for establishing a citizens’ observatory of healthcare equity and quality in hospitals that would help to create patient-centred and transformative hospitals, with a view to transitioning towards UHC.

CONCLUSION

There is a crucial need for safe, equitable, effective and good-quality hospital care in LMICs, for specialised and emergency care (maternity, paediatrics, surgery) as well as for good accessibility of these services,^{2 3} in combination with a strong primary healthcare network. Governments might find it difficult to refuse offers from bilateral partners, especially when these new hospitals symbolise progress, better services and nation-building. However, every hospital infrastructure must be funded, maintained and equipped over the long run and, as such, runs the risk of becoming a ‘white elephant’—a building project, scheme or facility that the owner cannot dispose of because the cost, particularly of maintenance, is out of proportion to its usefulness, as has been pointed out both by experts and by the population.⁴⁵ It is urgent, indeed, to investigate in greater depth how these hospitals are integrated into health systems. The current and long-term costs of these new facilities appear to have been underestimated. What resources are required for their maintenance, beyond human and material resources, training and so on, to guarantee safe and affordable services? Who will pay to maintain the equipment, ensure constant provision of water and electricity and manage waste? Lessons can be drawn from the past decades that could foster reflection on the structure and the regulation of hospital supply. It is also urgent to consider hospitals’ environmental impact (water consumption, power) and—in the spirit of the Sustainable Development Goals—to think together about the path towards UHC and other development goals, such as infrastructure development, equitable and safe access to water, good hygiene and attention to the environmental impacts of existing and new infrastructures.

Acknowledgements We wish to thank Ludovic Queuille for insightful input and Donna Riley for her editing support. The comments from three anonymous reviewers were very helpful in improving our arguments.

Contributors VR had the initial idea for this paper with FC. FC coordinated the writing of the article, VR and LA wrote the section on Haiti. All authors contributed to the development of ideas and the writing of the manuscript, commented on drafts and approved the final version.

Funding Fanny Chabrol has received funding by Agence Nationale de la Recherche (<http://dx.doi.org/10.13039/501100001665>) and grant number: ANR-17-CE36-0006-01.

Competing interests None declared.

Patient consent for publication Not required.

Provenance and peer review Not commissioned; externally peer reviewed.

Data sharing statement No additional data are available.

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REFERENCES

- Topp SM, Abimbola S. Call for papers—the Alma Ata Declaration at 40: reflections on primary healthcare in a new era. *BMJ Glob Health* 2018;3:e000791.
- Hsia RY, Mbembati NA, Macfarlane S, et al. Access to emergency and surgical care in sub-Saharan Africa: the infrastructure gap. *Health Policy Plan* 2012;27:234–44.
- Ouma PO, Maina J, Thurairana PN, et al. Access to emergency hospital care provided by the public sector in sub-Saharan Africa in 2015: a geocoded inventory and spatial analysis. *Lancet Glob Health* 2018;6:e342–50.
- World Health Organization. Technical series on primary health care. The transformative role of hospitals in the future of primary health care, 2018. Available: https://www.who.int/docs/default-source/primary-health-care-conference/hospitals.pdf?sfvrsn=5d7e8137_2
- Kruk ME, Myers M, Varpilah ST, et al. What is a resilient health system? Lessons from Ebola. *The Lancet* 2015;385:1910–2.
- Bossyns P, Van Lerberghe W. The weakest link: competence and prestige as constraints to referral by isolated nurses in rural Niger. *Hum Resour Health* 2004;2.
- Chabrol F. Viral hepatitis and a hospital infrastructure in ruins in Cameroon. *Med Anthropol* 2018;37:645–58.
- Otremba M, Berland G, Amon JJ. Hospitals as debtor prisons. *Lancet Glob Health* 2015;3:e253–4.
- Yates R, Brookes T, Whitaker E. *Hospital detentions for non-payment of fees: a denial of rights and dignity*. London: The Royal Institute of International Affairs, Chatham House, 2017.
- Pépin J, Abou Chakra CN, Pépin E, et al. Evolution of the global burden of viral infections from unsafe medical injections, 2000–2010. *PLoS ONE* 2014;9:e99677.
- Kruk ME, Gage AD, Arsenault C, et al. High-quality health systems in the sustainable development goals era: time for a revolution. *Lancet Glob Health* 2018;6:e1196–252.
- 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*. Paris: Karthala, 2003.
- Jaffré Y, Guindo A. On ne s'occupe pas assez d'eux: Anthropologie d'un dispositif de soins pédiatriques en Afrique de l'Ouest (note de recherche). *Anthropol Sociétés* 2013;37:157–77.
- WHO. Global conference on Primary health care program [Internet], 2018. Available: https://www.who.int/docs/default-source/primary-health-care-conference/global-conference-programme.pdf?Status=Temp&sfvrsn=461e160e_6
- Reich M. *Public-private partnerships for public health*. Cambridge, Mass: Harvard Center for Population and Development Studies, 2002.
- Mills A, Bennett S, Russell S. *The challenge of health sector reform: what must governments do?* New York, NY: Palgrave, 2001.
- Marriott A. A Dangerous Diversion: Will the IFC's flagship health PPP bankrupt Lesotho's Ministry of Health? 2014. Available: <https://www.oxfam.org/sites/www.oxfam.org/files/bn-dangerous-diversion-lesotho-health-ppp-070414-en.pdf>
- Webster PC. Lesotho's controversial public-private partnership project. *Lancet* 2015;386:1929–31. 20.
- Boseley S. Half of Lesotho health budget goes to private Consortium for one hospital. *the guardian*, 2014. Available: <http://www.theguardian.com/world/2014/apr/07/lesotho-health-budget-private-consortium-hospital>
- Farmer P, Kleinman A, Kim J, et al, eds. *Reimagining global health: an introduction*. Berkeley, CA: University of California Press, 2013.
- Queuille L. *Evolution des dépenses de santé en Haïti: convaincre les décideurs de la nation de l'importance du financement public de la santé et du prépaiement pour progresser vers la santé universelle !* Note d'information stratégique - Septembre 2017. Port-au-Prince: PAHO, 2017: 4.
- CAVAGNERO EDV, CROS MJ, DUNWORTH AJ, et al. Better spending, better care : a look at Haiti's health financing [Internet]. The World Bank; 2017:1–104. Report No: 116682. Available: <http://documents.worldbank.org/curated/en/790331522095815549/Better-spending-better-care-a-look-at-Haitis-health-financing>
- Mthemba P. *China and India's development cooperation in Africa: the rise of Southern powers*. Cham, Switzerland: Springer International Publishing, 2018.
- Pluye P, Potvin L, Denis J-L, et al. Program sustainability begins with the first events. *Eval Program Plann* 2005;28:123–37.
- Gauld R, Asgari-Jirhandeh N, Patcharanarumol W, et al. Reshaping public hospitals: an agenda for reform in Asia and the Pacific. *BMJ Glob Health* 2018.
- Hanson K, Atuyambe L, Kamwanga J, et al. Towards improving hospital performance in Uganda and Zambia: reflections and opportunities for autonomy. *Health Policy* 2002;61:73–94.
- Dugbaley K. National health policies: sub-Saharan African case studies (1980–1990). *Soc Sci Med* 1999;49:223–40.
- World Health Organization. Primary health care : report of the International Conference on Primary Health Care, Alma-Ata, USSR, 1978. Available: <http://apps.who.int/iris/handle/10665/39228>
- Cueto M. The origins of primary health care and selective primary health care. *Am J Public Health* 2004;94:1864–74.
- Van Lerberghe W, Laforêt Y. The role of the hospital in the district: delivering or supporting primary health care? Geneva: World Health Organization, 1990. Available: <http://apps.who.int/iris/handle/10665/5974433>
- World Health Organization. *Hospitals and health for all: report of a WHO Expert Committee on the Role of Hospitals at the First Referral Level*. Geneva: World Health Organization, 1987.
- World Bank. World development report: investing in health. Washington, dc: world bank, 1993. Report NO: 12183. Available: <http://documents.worldbank.org/curated/en/468831468340807129/World-development-report-1993-investing-in-health>
- Roodenbeke E. Purchasing inpatient and outpatient care through hospitals. Washington, dc: world bank, 2004. Available: <http://documents.worldbank.org/curated/en/469201468780335010/pdf/315960HNP0Chap1nOutPatientCareFinal.pdf>
- Paul E, Albert L, Bisala BN, et al. Performance-based financing in low-income and middle-income countries: isn't it time for a rethink? *BMJ Glob Health* 2018;3:e000664.
- McPake BI. Public autonomous hospitals in sub-Saharan Africa: trends and issues. *Health Policy* 1996;35:155–77.
- Lemière C, Turbat V, Puret J. *A tale of excessive autonomy: an evaluation of the hospital reform in Senegal. HNP discussion paper*. Washington, DC: World Bank, 2012.
- Bank W. *The business of health in Africa: partnering with the private sector to improve people's lives (English)*. International Finance Corporation. Washington, DC: World Bank, 2008.
- Marriott A, Hamer J. Investing for the Few: The IFC's Health in Africa initiative. Oxfam briefing note, 2016. Available: https://d1tn3vj7xz9fdh.cloudfront.net/s3fs-public/file_attachments/bn-investing-for-few-ifc-health-in-africa-100914-en.pdf
- Pailliard-Turenne C. *Evaluation de la résilience des systèmes de santé au sud : état des lieux des connaissances scientifiques et tacites*. Bordeaux: ISPED - Université de Bordeaux, 2018.
- Zhong S, Clark M, Hou X-Y, et al. Development of key indicators of hospital resilience: a modified Delphi study. *J Health Serv Res Policy* 2015;20:74–82.
- Barasa E, Mbau R, Gilson L. What is resilience and how can it be Nurtured? A systematic review of empirical literature on organizational resilience. *Int J Health Policy Manag* 2018;7:491–503.
- Raguin G, French ESTHER network. The ESTHER Hospital partnership Initiative: a powerful levy for building capacities to combat the HIV pandemic in low-resource countries. *Global Health* 2016;12.
- Russo G, Cabral L, Ferrinho P. Brazil-Africa technical cooperation in health: what's its relevance to the post-Busan debate on 'aid effectiveness'? *Global Health* 2013;9.
- Leslie HH, Spiegelman D, Zhou X, et al. Service readiness of health facilities in Bangladesh, Haiti, Kenya, Malawi, Namibia, Nepal, Rwanda, Senegal, Uganda and the United Republic of Tanzania. *Bull. World Health Organ*. 2017;95:738–48.
- Pettifor JM. The new Nelson Mandela Children's Hospital – a white elephant or an essential development for paediatric care in Johannesburg? *S Afr J CH* 2017;11.