

# Proposals to Improve the Efficiency of the Brazilian Public Health Care System: A Policy Note

## A. Key messages

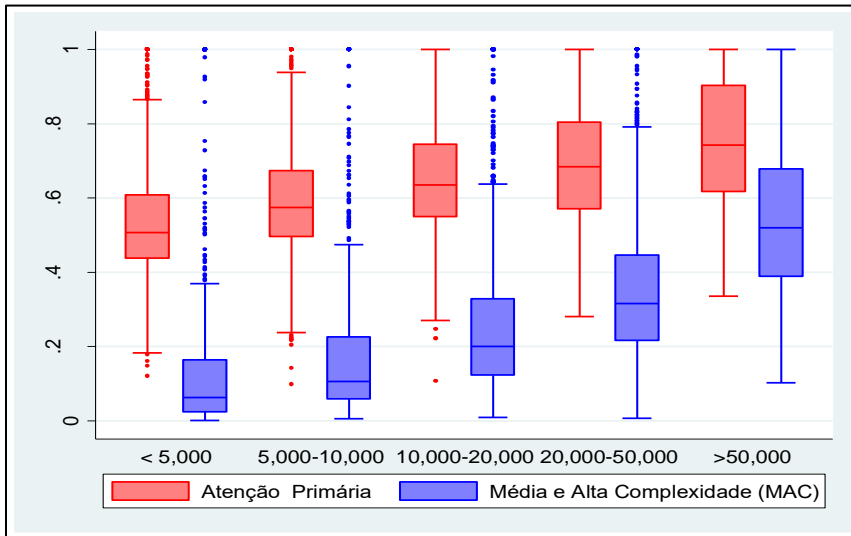
**1. Over the last decades, Brazil implemented profound changes in the organization and financing of its public health system.** The creation of the Unified Health System (*Sistema Unico de Saude* – SUS) in 1988, establishing universal health coverage (UHC), has been associated with the expansion of the health service delivery system with remarkable improvements in access, financial protection, and health outcomes. However, despite the efforts to establish a public universal health system, Brazil still struggles to achieve a good balance between maintaining an appropriate level of (public) spending and obtaining more value for the resources invested in its health sector.

**2. The SUS faces challenges that require deepening the health care reform.** The new reforms should change the existing incentives structure by introducing competition among providers, cost-sharing mechanisms, and reducing fragmentation of healthcare provision. These reforms will need to prepare the system to address remaining (low quality, limited effectiveness, and inefficiencies) and future (aging population and growing burden of chronic diseases) challenges. It will require a reconfiguration of the service delivery model around integrated healthcare networks, changes in providers' organizational models and payment mechanisms to reward quality and outcomes, and better coordination with private sector providers and insurers.

## B. Key Sectoral Challenges

**3. Results of the Brazil Expenditure review (BER) demonstrate a clear scope for the SUS to achieve better results given the current level of public spending.** Using a production frontier technique, the BER estimated the level of efficiency of primary health care (PHC) level at 63%, and secondary and tertiary care (*Media e Alta Complexidade*, MAC) levels at 29%. Given these results, it was estimated that PHC expenditures could be reduced by approximately 23% (annual savings of R\$9.3 billion across all levels of government) and MAC expenditures by about 34% (annual savings of R\$12.7 billion) while maintaining the same level of outputs and health outcomes. Overall, the BER report shows that municipalities are consistently more efficient in the provision of PHC than MAC services, and this pattern is observed across regions and municipality size. Across regions, for both PHC and MAC levels, North and Northeast are the most efficient regions. However, these regions have lower per capita expenditures which mask their actual efficiency level. Municipality size influences efficiency in both models, however, the effect is slightly stronger in the MAC model (municipalities with less than 5,000 inhabitants perform four times worse than municipalities with more than 100,000 inhabitants).

**Figure 1: Efficiency is Highly Correlated with Municipality size, Brazil – 2013**

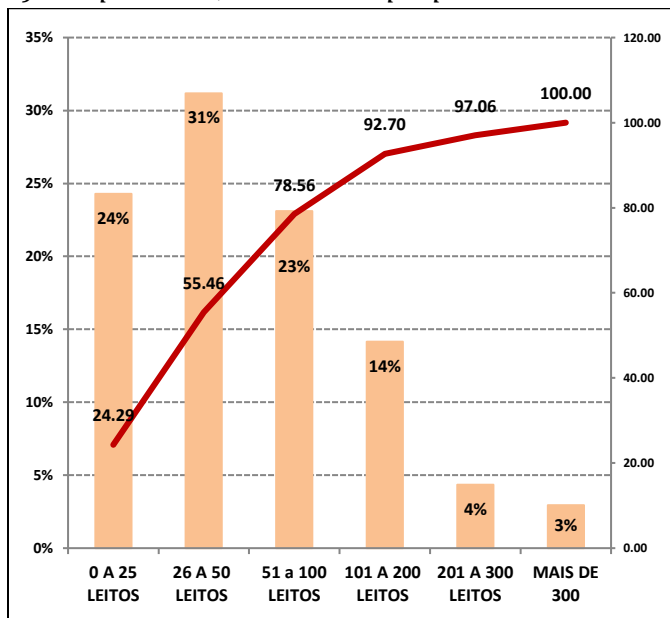


Source: World Bank, 2017.

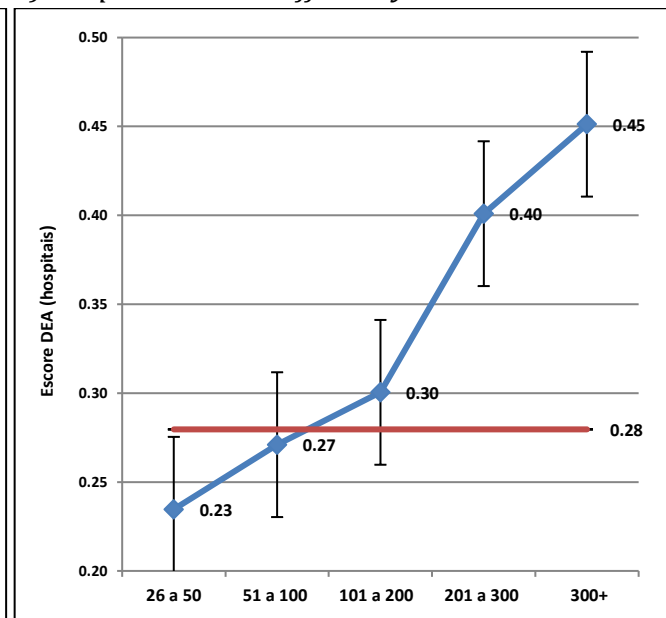
**4. The BER analysis shows that there is significant scope to improve efficiency in health spending, particularly at hospital level.** First, there are too many small-size hospitals (which are not cost-efficient), reflecting a need to balance the objective to increase proximity of hospital services to citizens with cost-effectiveness. Second, bed occupancy rates are very low as well, an average of 45% for all SUS hospitals and only 37% for acute care beds (much lower than the average for OECD, 71%, and much below the desirable occupancy rate, between 75% and 85%).

**Figure 2: Brazilian Hospitals are Typically Small and Inefficient, Brazil – 2018**

a) Hospital size, cumulative proportion



b) Hospital size and efficiency



Source: World Bank, forthcoming.

**5. Brazil faces challenges related to the availability, distribution, and performance of its health workforce which directly impacts on the SUS.** The available health workforce, particularly physicians, is smaller than in countries with similar level of development and well below the average among the OECD countries. The geographic and sector distribution is marked by inequalities, as many physicians work in urban areas in the private sector or specialized care. Although national regulation authorizes nurses to conduct consultations and prescribe certain drugs and exams in primary care units, there is professional and institutional resistance against these practices (World Bank, 2013). Souza et al. (2006) estimated the efficiency in the use of labor inputs (doctors and nurses) to achieve coverage of antenatal care across a sample of Brazilian municipalities. The authors showed that most of the municipalities could increase their level of prenatal coverage by using existing resources better, for example, by adopting a production process more intensive in nurse professionals than in physicians.

**6. The BER results corroborate previous evidence demonstrating inefficiencies in the Brazilian public health system.** While resource constraints, given the relatively low levels of government spending on health, do play a role in limiting the consolidation of the SUS, the system operates at relatively a high level of inefficiencies.<sup>1</sup> Addressing these inefficiencies mean that the SUS could achieve better health outcomes even without more resources, which is particularly important in the context of the fiscal crisis.

**7. Figure 1 provides an illustration of the key efficiency challenges faced by the Brazilian public health system.** These challenges include: (i) the SUS institutional arrangements that is decentralized to the municipal level, which results in fragmentation and large diseconomies of scale; (ii) the service delivery organization that mostly provides curative care for acute conditions with limited coordination across providers and levels of care. Hospital care and diagnostic services are unevenly distributed and often too small to operate efficiently and to ensure quality;<sup>2</sup> (iii) Ineffective providers' payment mechanisms, that are not based on actual costs of delivering services, unrelated to diagnoses and not adjusted for case severity. The Authorization for Hospitalization (*Autorização de Internação Hospitalar*, AIH), mechanism used to pay private hospital under contract with SUS, consists of a predefined fee schedule linked to outputs (procedures). AIH only modestly contributes to cost control because the fees are seriously distorted. Public hospitals are mostly paid through line-item budgets based on historical spending patterns, with no rewards for quality or cost-containment. At PHC, providers are paid mostly through salaries;<sup>3</sup> (iv) Inadequate supply and sub-optimal use of key health systems inputs. For example, there is a PHC physicians with population density

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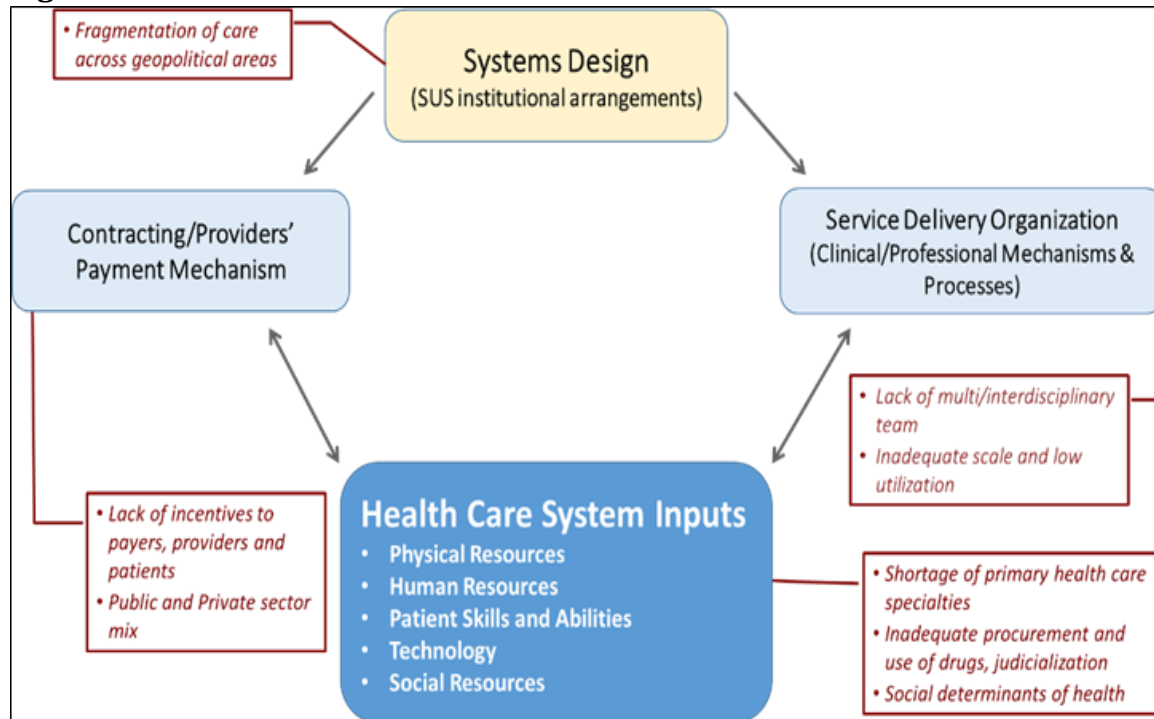
<sup>1</sup> Public health expenditures in Brazil represents 42% of the total health expenditures, which is significantly lower than the average among OECD countries (73.2%), Brazil's middle-income peers (59%) and only above the average for the BRICS countries (46%)

<sup>2</sup> if all myocardial revascularization surgeries were performed in high-volume hospitals, about 1,000 deaths would have been avoided in the SUS between 2014-16 (World Bank, forthcoming).

<sup>3</sup> In 2010 the federal government introduced the Program for Improving Primary Care Access and Quality (PMAQ) but with limited impact are limited so far.

below 1 PHC physician per 1,000 habitants. Technology is often incorporated in ad-hoc manner, without any assessment cost-effectiveness assessment.

**Figure 3: Determinants of SUS Inefficiencies**



SOURCE: World Bank, 2017.

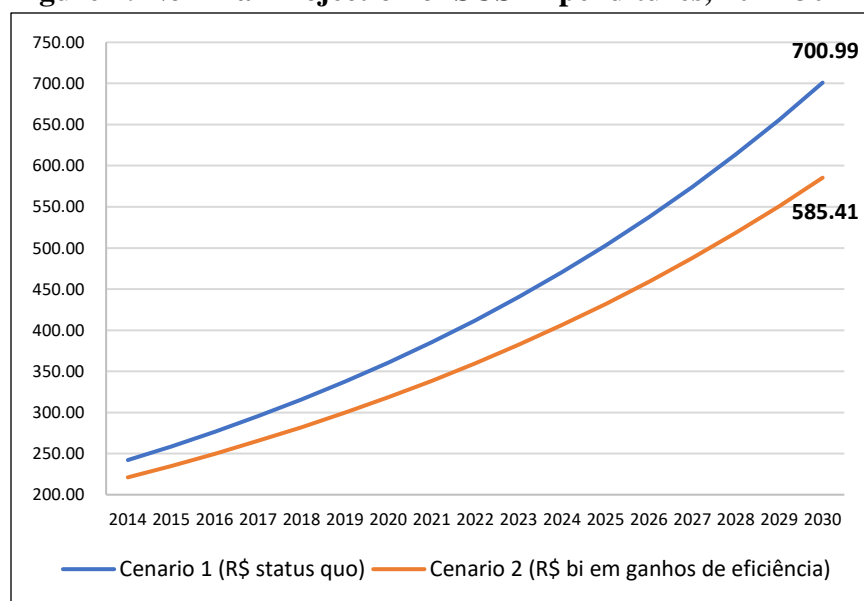
**8. Fragmentation is a key bottleneck in the SUS service delivery network.** Despite the rise of chronic diseases, which require integrated and continuous treatment arrangements across provider settings, focusing on the management and control of risk factors, the SUS service delivery system is organized mostly to provide acute care through stand-alone facilities.<sup>4</sup> Currently there is no coordination across levels of care, and the fragmentation of the SUS network results in service duplication, overbuilt capacity, and the loss of economies of scale and higher operating costs. For example, in Araraquara, a municipality in the state of Sao Paulo, approximately 50% of the exams performed at PHC level are repeated in other levels of care (which costs 5% of the municipality health yearly health budget). Integrated delivery systems link various healthcare providers, via common ownership or contract, financially and clinically, to provide a coordinated, vertical continuum of services to a population or community and is accountable (both financially and clinically) for the clinical outcomes and health status of the community served.<sup>5</sup>

<sup>4</sup> In 2015, chronic diseases accounted for 42.1% of deaths in Brazil and a cost with hospitalizations to the health system in the order of R \$ 4.3 billion (DATAUS, 2017).

<sup>5</sup> Enthoven, 2009.

**9. Continuing the current trends of nominal growth of public health spending, the SUS expenditures will reach R \$ 700 billion by 2030.** This growth is estimated without considering the population's aging, the incorporation of technologies, and possible increase in the government budget. Between 1980 and 2015, federal health spending grew faster than GDP (average annual geometric growth of 3.7% and 3.4% respectively) (Medici, 2017). Population aging is expected to increase total health spending by 4% of GDP by 2050 (Gragnolati et al., 2011). Efficiency gains could mitigate these impacts and provide the necessary fiscal space for the consolidation of SUS by enabling investments in key areas such as expansion of PHC, improvements in the quality of care and access to specialized services, to name just a few immediate challenges. Talking into account a baseline of 2014, efficiency gains could result in (nominal) gains of up to R\$115 billion 2030 (or approximately R\$989 billion in the period).

**Figure 4: Nominal Projection of SUS Expenditures, 2014-30**

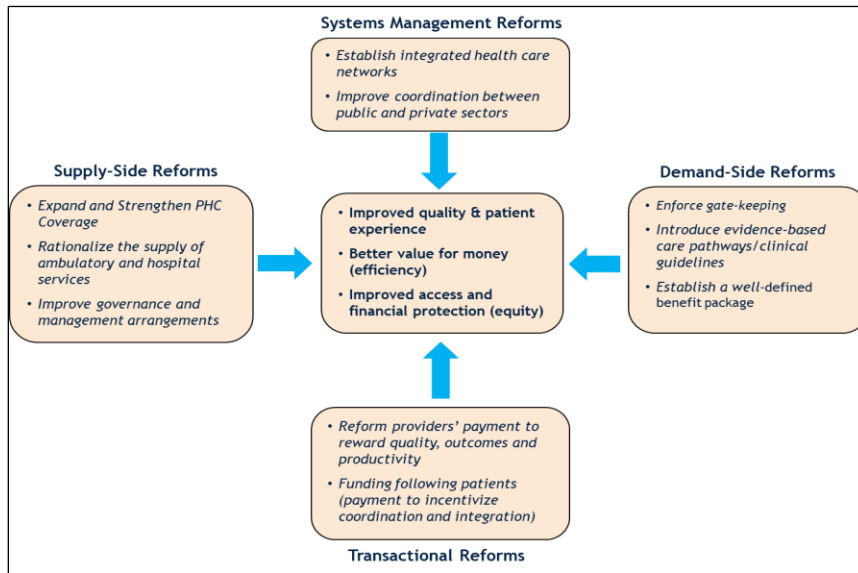


Source: Araujo and Lobo, 2018.

### C. Policy Recommendations

**10. The main pillar of the reform proposal consists of the reorganization of the SUS service delivery and financing around integrated healthcare networks (IHCN).** These networks would be composed by autonomous (or semi-autonomous) health care providers (PHC teams or groups, and networks of ambulatory, hospital, and diagnostic services), financed by the three levels of government, and paid through capitation with incentives associated to improved outcomes (instead of volume of services).

**Figure 5: A Framework for SUS Reform**



## i) Systems reforms

- **Recommendation 1: Establish Integrated Health Care Networks.**

**11. The international experience demonstrates that the formation of integrated networks is the best way to guarantee coordination of care across care settings and over time.** Coordination of care involves the development of structures and mechanisms (processes) to improve communication, continuity of care, and information sharing among the different components, facilities and sectors of a health delivery system. Among OECD countries, care coordination is a key policy response to improve efficiency of health care service delivery through reduced hospitalization (and re-hospitalization), improved quality of care and fewer medical errors, and more appropriate prescription and use of medication.<sup>6</sup>

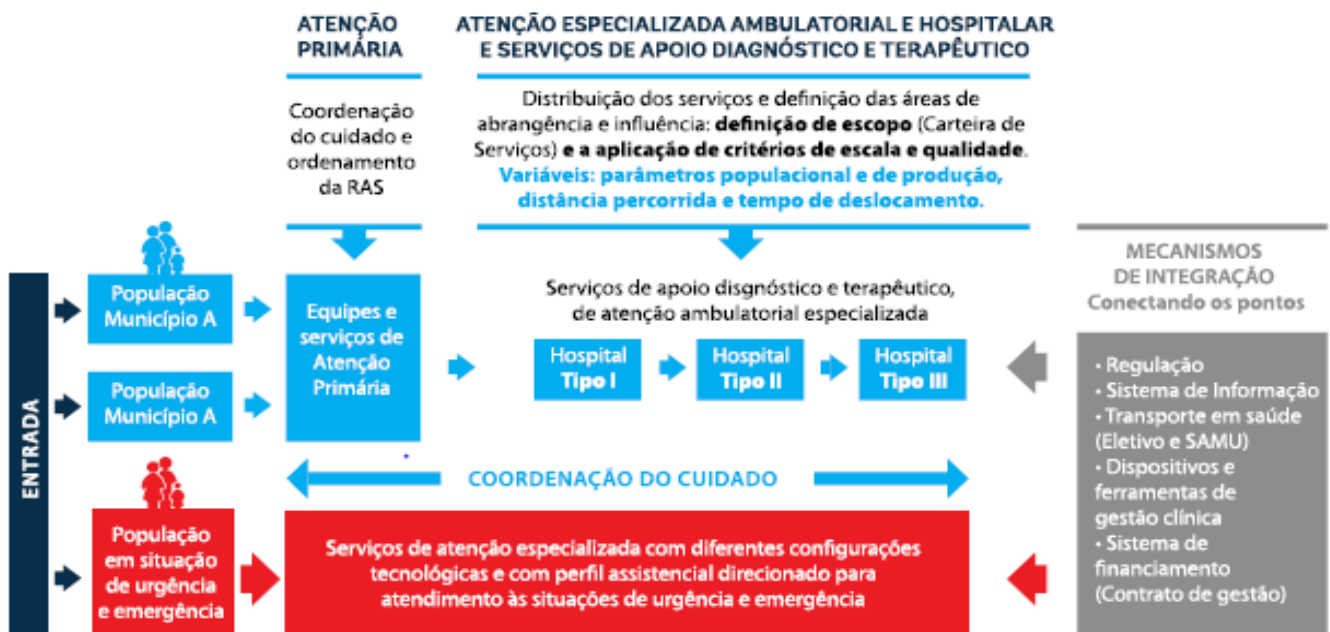
**12. The debate about the organization and operationalization of HCNs has been frequent in the process of building and expanding the SUS.** The ministerial order No. 4,279/2010 defined the policy framework for the implementation of HCNs within the SUS. However, the normative was limited to the conceptual aspects and technical foundations for the organization of HNCs, and did not establish clear funding mechanisms and criteria to guide the allocation of resources. These limitations resulted that policymakers opted to gradually implement HCNs through thematic networks (*redes tematicas*), focusing on specific services and vertically structured (such as maternal and child care network and emergency care network). The implementation of the thematic networks did not solve the structural barriers to the

<sup>6</sup> OECD, 2007.

organization of HCNs within the SUS, particularly those related to planning functions, coordination of care around PHC, and development of financing model to incentivize the formation of HCNs.

**13. The implementation of IHCNs will require a redesign of the service delivery, management and financing models of the SUS.** It includes the enforcing of primary care as the entry point into the delivery system (with strong gatekeeping and coordination roles), changing the financing flows and inter-governmental transfers, reforming the legal framework for management of providers and health personnel, and reforming payment systems to incentivize quality and coordination of care. Figure 5 describes the organization of the proposed ICNH model, the new IHNC arrangement will require: (i) availability and sharing of patient-related information; (ii) use of clinical guidelines for disease management (implementation of clinical pathways and protocols)<sup>7</sup>; (iii) application of standardized referral and counter-referral rules; and (iv) defined roles and competencies of providers with a concern for achieving scale efficiencies.

**Figure 5: Proposed Organization of IHCNs**



Source: World Bank, forthcoming.

<sup>7</sup> These serve the purpose of ensuring potentially unnecessary tests and services (overprovision) are avoided and encourage best practices (improve quality).

- **Recommendation 2: Improve coordination with private insurance system.**

**14. Taxes expenditures play a significant role in public health spending in Brazil, it has been estimated at R\$32 billion or 32.3% of the federal health spending in 2015.<sup>8</sup>** The SUS needs to coordinate better with private insurance system to: a) minimize competition for scarce supply of health professionals (through more specific regulation of dual employment among physicians and nurses); b) enforce reimbursement of treatment of the privately insured within the SUS; c) define a common approach to incorporate new technologies, drugs and treatments.

## ii) Supply-side reforms

- **Recommendation 3: Expand and Strengthen PHC coverage.**

**15. A key pillar of the IHNC configuration is the rationalization of service provision through PHC.** The BER findings show a positive relationship between PHC efficiency and MAC efficiency, and this relationship is stronger as more efficient is PHC. That shows that PHC has great potential to improve the system's performance in the current institutional and service delivery arrangements, and the potential that a stronger and integrated PHC will have in the sustainability of SUS. Currently, the Family health strategy (*Estrategia de Saude da Familia*, ESF) covers approximately 65% of the Brazilian population; efficiency analysis shows that the higher the coverage the more efficient PHC will be (from 0.57 among municipalities with up to 20% of coverage, to 0.65 among municipalities with more than 80% of coverage). Expanding PHC to 100% would result in efficiency gains of at least 0.03% of GDP.<sup>9</sup> Based on the current per capita spending on PHC, such an expansion would require an investment of approximately R\$13 billion.

**16. Shortages of primary care physicians, and the challenges to attract qualified personnel to poorer and remote areas are the main challenges to expand PHC services.** Increasing PHC workers' relative earnings also affects the medium and long-term supply of PHC workers. Countries such as England and Turkey have increased PHC workforce remuneration relative to hospital specialists by removing or reversing the differential between hospital specialists' and PHC doctors' pay. Another strategy is to expand scope of practice of nurses and other auxiliary cadres to expand coverage, improve efficiency and, in some cases, improve quality of care. In England, the National Health System (NHS) Plan of 2000 introduced "new working practices", a major step towards advanced level nursing practices. Debate on expanding the functions of nurses went on for more than a decade, and in April 2012, a new law came into effect allowing over 20,000 nurses who have undertaken a specialist degree level course and hold a separate registered qualification to prescribe from the same list of medicines as doctors within their specialty and competence. In Brazil, although national regulation authorizes nurses to conduct consultations and prescribe certain drugs and exams in primary care units, there is professional and

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<sup>8</sup> Ocké-Reis and Fernandes, 2018.

<sup>9</sup> World Bank, 2017.



institutional resistance against these practices.<sup>10</sup> Souza et al. (2006) estimated the efficiency in the use of labor inputs (doctors and nurses) to achieve coverage of antenatal care across a sample of Brazilian municipalities. The authors estimated that most of the municipalities could increase their level of antenatal coverage by using existing resources better, for example, by adopting production process more intensive in nurse professionals than in physicians.<sup>11</sup>

- **Recommendation 4: Rationalize the supply of ambulatory and hospital services.**

**17. As pointed above, the SUS network of ambulatory and hospital services is highly inefficient.** Services operate with high idle capacity (e.g., low hospital bed occupation rates), there are diseconomies of scale due to small volume of services (most of hospital are small and/or have limited scale) and competition among providers (*Unidades de Pronto Atendimento*, UPAS, versus PHC and hospital care). A significant share of the SUS expenditures are for hospitalizations for conditions that could be easily treated at PHC or ambulatory settings.<sup>12</sup> There is scope for reduce the numbers of ambulatory and hospitals to maximize economies of scale, health care needs (based on the epidemiological profile) and establishing functional referral and counter-referral systems. The BER report estimates in R\$12,7 billion the potential efficiency gains of improving MAC efficiency.<sup>5</sup> At least 24% of the Brazilian hospitals (small hospitals, up to 25 beds) could be converted in PHC units or even closed. Using geo-referencing techniques, it would be possible to define catchments areas for each hospital and rationalize the hospital network based on volume, access, and outcomes parameters.

- **Recommendation 5: Improve governance and management arrangements to increase providers' autonomy, flexibility and efficiency.**

**18.** Healthcare management in Brazil faces persistent challenges related to the rigidities imposed by strict public administration rules. The legal framework limits the providers' and policymakers' ability to introduce innovations in the service delivery system. On the providers' side, there is strong evidence that hospitals operating under autonomous management arrangements, such as Social Organizations, have better performance than hospitals under direct public management.<sup>13</sup> At PHC, there is evidence that contracting out strategy, also through Social Organization, increases the number of PHC appointments by approximately one appointment per user of the SUS per year and reduces hospitalization for preventable diseases.<sup>14</sup>

**19. Lack of autonomy also limits providers' capacity to manage health workforce efficiently.** In a study conducted by the World Bank (2007), only 41% of the hospitals in the sample hired people directly;

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<sup>10</sup> World Bank, 2013.

<sup>11</sup> Souza et al., 2006

<sup>12</sup> In 2015 avoidable cardiovascular admissions costed R\$1,2 billion to the SUS (World Bank, 2017).

<sup>13</sup> La Forgia G & Couttolenc B. 2008.

<sup>14</sup> Greve and Coelho, 2017.

25% had autonomy to fire personnel; 54% could internally reallocate workforce without having to request it through central resource management units; and 41% could define and/or approve training programs. In the case of outpatient care units, autonomy was even lower. Overall, there are few incentives for monitoring performance: only 27% of hospitals reported using some type of formal evaluation.<sup>15</sup> To increase autonomy within public health administration, it will require a strategy and implementation plan to convert direct administration facilities to alternative organizational arrangements granting greater autonomy (and accountability for results) to facility management, particularly flexible human resource management.

### iii) Demand-side reforms

- **Recommendation 6: Enforce PHC gate-keeper role by introducing incentives to providers and patients.**

**20. The implementation of IHNCs will necessarily have to rationalize access to health care services within SUS, more specifically the ease of access to emergency rooms and specialty care services, and weak referral and counter-referral systems.** The family health strategy (FHS) aimed at introducing family physicians in a gatekeeper role, but actual links between family health teams and specialists and hospital facilities are limited or inexistent. Countries such as Germany, United Kingdom, France and Denmark, have implemented gate-keeping arrangements to PHC physicians – patients are required, or face incentives, to register with a general practitioner (GP) and/or they need a GP’s referral to access specialist care. Incentives to patients vary from reductions in co-payment to access specialist or ambulatory care, or additional co-payment for specialists visits or ambulatory care that are not referred by GPs.<sup>16</sup> Changing the service delivery model to ensure that PHC is the patient’s first point of contact with the service delivery requires improving PHC status to attract more health workers to practice at PHC settings.

- **Recommendation 7: Introduce evidence-based care pathways/clinical guidelines.**

**21. Clinical pathways or guidelines are defined as “systematically developed statements to assist practitioner and patient decisions about appropriate health care for specific clinical circumstances” (IOM, 1992).** Clinical pathways describe the entire care path for patients with specific conditions, including support functions such as laboratory, radiology, and pharmacy, it works as checklist that providers must follow to provide the most appropriate care.<sup>17</sup> The use of clinical pathways means inadequate use of services (over and under-provision) are minimized.

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<sup>15</sup> World Bank, 2013.

<sup>16</sup> Groenewegen et al., 2013.

<sup>17</sup> World Bank, 2006.

- **Recommendation 8: Establish a well-defined benefits package to be covered by SUS.**

**22. Although the legal framework that established universal health coverage (UHC) and created the SUS states that everyone should have access to an open-package of benefits free-of-charge, in practice implicit rationing mechanisms are in place and affect the poor disproportionately.** Services are rationed through long waiting lists, limited access to specialist's services and insufficient hospital beds; this means that the available benefit package is limited. This has resulted in the judicialization of health care – the Judiciary, when consulted, has conceded people the right to access drugs and procedures that are not available otherwise. The judicialization costs millions to SUS annually and exacerbates the inequities in the access to care (those with access to legal system to demand services are more likely to be richer and better informed). The Ministry of Health has made attempts to strengthen the process of incorporating new technology into the system, but these processes are yet to be institutionalized. Defining clear parameters to decide what is covered and not covered requires an assessment of safety, efficacy, effectiveness, and cost-effectiveness so that all drugs and procedures meet quality standards and offer the best value for money.<sup>18</sup>

#### **iv) Transactional reforms**

- **Recommendation 9: Reform providers' payment to reward quality, outcomes and productivity.**

**23. Within the SUS, payment mechanisms are largely used as a policy instrument to influence priority actions and, to a much less extent, to stimulate performance.** Among OECD countries, there is a wide range of providers' payment mechanisms in use. Prospective case rates, such as diagnostic related groups (DRGs), are the most common payment scheme in acute hospital care, often combined with budget envelopes. At PHC, capitation and mixed payment schemes are the most prominent forms of providers' payment, while for ambulatory care specialists are often paid on a fee-for-service basis.<sup>19</sup>

**24. Providers payment schemes need to be aligned with SUS policy objectives, to influence providers' behavior to improve quality and contain costs.** For example, the AIH system could gradually be converted to a DRG-like system. At PHC, governance and organizational reforms should set the stage for the implementation of mixed payment mechanisms, combining capitation with performance bonuses to reward coordination of care and improved health outcomes. The critical role PHC will play within IHCNs requires that funding flows are directed, or at least guided, to PHC teams to coordinate care across providers and diagnostic services.

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<sup>18</sup> World Bank, 2013.

<sup>19</sup> OECD, 2007.

- **Recommendation 10: Funding following patients.**

25. The SUS “manages” the demand for health services through implicit rationing mechanisms, such as waiting times and limited supply of hospital beds. These mechanisms tend to hit the poor harder, given they have less ability to demand services privately. Structuring the SUS service delivery system around IHCNs will require changes in the financing flows of the system in two ways: first, shifting resources from hospital and ambulatory care towards PHC. Based on the efficiency analysis, approximately R\$13 billion a year could be reallocated and keep MAC services (and outcomes) at current levels; second, current PHC transfers from federal level to states and municipalities --*Piso da Atencao Basica* (PAB)-- could be adapted to include a pay-for-performance component. The new PHC transfers would continue to include the PAB-fixed, based on per capita allocation, and the PAB-variable would be converted into a pay-for-performance scheme based on a set of pre-agreed indicators between federal level, municipalities and health care providers (PHC units, ambulatory facilities and hospitals).

**Figure 6: SUS Financing and Patient Flows**

