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Distribution of public health care spending: a comparative analysis of Sub-Saharan Africa, Asia, Latin America and high income countries.

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ABSTRACT

Background

In many countries, the quest to ensure that the poor have access to quality health care and benefit from services and other related interventions remains a priority. Globally, it has been shown that the poor hardly benefit from health interventions even when they are provided for free. Government spending on health care has the potential to increase access for the poorest populations, in addition to promoting income cross-subsidisation, particularly in settings where it is administratively difficult to implement cash transfer in a large scale. Despite this recognition, the extent to which health spending benefits the poor remains unexplored in many countries. Although health system financing debates have shifted from targeting to universality, it remains important to ensure that deliberate efforts are directed towards ensuring that the poor benefit from universal health systems, particularly because they often have high need for care as compared to the rich. This study reviews literature on the distribution of government health spending in Africa, Asia, Latin America and the Caribbean and high income countries. It also demonstrates the extent to which patterns reflect health financing systems in the different regions.

Methods

The data used in this paper are from an extensive electronic search of both published articles and grey literature from relevant databases. Literature was searched from data bases such as PubMed, MEDLINE, EBSCOHOST and Web of Science as well as from websites of international institutions such as the World Bank, the International Monetary Fund (IMF), Organisation of Economic Cooperation and Development (OECD), the World Health

Organisation (WHO), the Latin America and Caribbean Countries (LAC), and the Pan-American Health Organisation (PAHO). Articles and reports relating to benefit incidence analysis on government spending and benefits distribution were selected and reviewed.

Results

Both rich and poor countries recorded some levels of inequalities but differences existed where inequalities were concentrated. The distribution of primary health care services was mainly pro-poor in all the four regions, although a few African countries showed a pro-rich distribution in these services. In high income countries, the largest inequalities existed on utilisation of specialists, while in Africa and Asia, hospital level services were mainly pro-rich. Interestingly, the distribution of outpatient services at the hospital level was more pro-rich than inpatient services in most African and Asian countries. The pattern in the distribution of health care benefits in most cases reflected the country's financing arrangements.

Conclusions

These findings call for increased efforts towards convincing governments to allocate 50% of their resources to district hospitals and primary health care services that are likely to benefit the poor. Some progress towards pro-poor distribution has been recorded in the last decade, particularly for primary health care services in Africa. Significant efforts towards restructuring health financing arrangements and re-orientating health systems towards preventive and promotive care are urgently needed if universal coverage is to be achieved and sustained in LMICs.

BACKGROUND

Ensuring that that the poor benefit from health care services and other related interventions remains a priority in many countries worldwide. It is widely accepted that health is a basic human right and that governments should strive to guarantee their populations enjoy the best possible health status through sustained health system financing mechanisms. Public spending on health care is often viewed as a mechanism for income redistribution that reduces inequities between the rich and the poor. This is particularly the case in developing countries where infrastructure to support and implement cash transfers is less developed [1]. If well

targeted, public spending can improve health status of the poor, accelerate achievement of Millennium Development Goals (MDGs) [2], minimise inequalities and poverty [3], and enhance long term income generating potential [4]. For these reasons, it is generally accepted that government health expenditure should disproportionately benefit the poor [3, 5] in order to improve their health outcomes. Whilst current health system financing debates have shifted from targeting to universality [6], it remains important to ensure that the poor and most disadvantaged benefit from universal health systems [7]. Distributing health resources and benefits according to need for care is also an important principle for achieving universal coverage [8, 9].

Worldwide, health systems differ in terms of how financing functions (revenue generation, pooling and purchasing) are organised. These differences often translate to variations in levels of per capita health spending, out-of-pocket (OOP) payments, catastrophic spending and access to health care services [6, 10, 11]. Health outcomes have also been shown to reflect these differences, with High Income Countries (HIC), which are largely funded through prepayment mechanisms (tax funding and/or health insurance) reporting better health outcomes than Low and Middle Income Countries (LMIC) that rely heavily on OOPs payments. While it is widely accepted that prepayment mechanisms are the best form of funding health systems in both rich and poor regions, it still remains unclear the extent to which government public health care expenditure in different regions benefit the most needy populations and the measures required to ensure they benefit from universal coverage arrangements.

Since the 1990s, different studies have documented the distribution of public health care spending across socio-economic groups. The World Bank, for example, conducted a range of studies more than two decades ago using Benefit Incidence Analysis (BIA) to understand the distribution of health spending in African countries [12]. Briefly, BIA is a technique that assesses the distribution of government subsidies across individuals ranked by their living standards [13]. If conducted regularly, BIA can assist in monitoring health service utilization and evaluating government effectiveness in 'targeting' public resources [14, 15] to promote equity and efficiency.

Findings from the World Bank studies showed that public health funds hardly reached the poor [16-18] and highlighted

the need to redirect health funds towards services that served the poor more. Primary health care facilities were shown to favour the poor more than the rich [19], and arguments to allocate resources in their favour were put forward. These studies were however criticised on the they have been criticized for using unreliable data sources and applying crude estimation techniques, with limited attention to methods consistency [20]. Other studies have shown that most countries spend between 60 to 80% of their government health budget on hospital–based acute care, which benefit the rich, leaving a small proportion for basic primary health services [21]. Evidence from these studies have been used to argue for better targeting of public health care spending in a manner that reaches the poorest population [5].

In the last decade, various studies have been conducted to improve the BIA methodology, particularly in terms of data quality, comparability and consistency across countries [7, 20, 22-24]. The aim of this paper is to review recent evidence on the distribution of public health spending and to demonstrate the extent to which governments have succeeded in reaching the poor, who have been subjects of many health related interventions in the last two decades. The paper differs from previous reviews, particularly that conducted by Castro Leal et al [25] in that it compares evidence across four regions namely; Sub-Saharan Africa, Asia, Latin America and Caribbean (LAC) and Organisation for Economic Cooperation and Development Countries (OECD). It presents a comparative analysis of health financing indicators for the four regions and highlights the health system characteristics that contribute towards better targeting for the poor. The paper makes an important contribution in highlighting the gaps at a time when global health financing debates are focusing more towards universalism [26] and less on targeting health resources. Providing universal coverage is a useful policy development that implies accessibility to key promotive, preventive, curative and rehabilitative health interventions on the basis of need and not ability to pay [6]. Nonetheless it has been shown that even when services are provided for free, the poor benefit least because they perceive it to be a normal feature of life [16], or as a way of avoiding taking time off income generating activities due to illness [27]. Therefore, it remains imperative to keep track of the poor even in the context of universal coverage.

METHODS

The data used in this paper are from an extensive electronic search of both published articles and grey literature from relevant databases. Literature was searched from data bases such as PubMed, MEDLINE, EBSCOHOST and Web of Science as well as from websites of international institutions such as the World Bank, the International Monetary Fund (IMF), Organisation of Economic Cooperation and Development (OECD), the World Health Organisation (WHO), the Latin America and Caribbean Countries (LAC), and the Pan-American Health Organisation (PAHO) [28, 29] . Google Scholar was used to locate a target article (O'Donnell, O., et al, 2007) from which search terms were identified. The following key words were used for the search: *incidence + public spending + health; distribution public* OR *government spending + health; socioeconomic inequalities + health; public + health spending+ developing countries.*

Titles and abstract of initial hits were screened for relevance. Screening for relevant literature was both practical and methodological. Practical screening involved consideration for both grey and peer-reviewed work between the years 2000 and 2012 and those that were in English language only. Priority was given to multi-country reports/journals. Methodological screening involved checks for validity and reliability of information/data and appropriateness of analytic methods. This was endured through use of peer-reviewed journals and other literature from reputable organisations such as the World Bank and the World Health Organization.

A number of articles were checked for duplication and only duplicates with abstracts were considered in the review. Content analysis was the approach used to analyse the selected articles. The articles were independently analysed by two of the authors and verified by the third author. PRISMA checklist [30] was followed in preparing the manuscript.

Data are presented on the proportion of health benefits received by the poorest and richest quintiles, except for high income countries where the same were not available, in which case the concentration indices of health care utilisation are used as a proxy for distribution of public sector benefits. The concentration index is a summary measure that quantifies the degree of socioeconomic inequality [31]. Its value ranges from –1 to 1, with a value of 0 indicating perfect equity. The index takes a negative value when the variable of interest is concentrated among the

poorest groups and a positive value when it is concentrated among the richest group [31, 32]. Where data were available, results are presented for different levels of care including primary care, hospital outpatient, hospital inpatient and total benefits (i.e. a combination of all benefits in the public health sector). In order to put the findings in context, key statistics on health spending across the four regions are first presented, followed by data on the distribution of health benefits.

FINDINGS

A total of 15 studies, covering 43 countries were included in the review. The bulk of studies were conducted in Sub-Saharan Africa (SSA) and Asia, while LAC region had the lowest number of studies. The majority of studies had detailed information on the distribution of health care benefits at different levels of the public health care system. Data from LAC countries were not disaggregated by level of care, while those from high income countries were disaggregated by type of physician. Data are presented for only the poorest and richest quintiles for simplicity purposes and because some of the studies reviewed did not present data on the middle quintiles. Results from the high income countries study were adjusted for need, while data from three African countries illustrated the extent to which the distribution reflected need for care.

Overview of heath expenditure in the countries under review

Table 1 presents a summary of health expenditure patterns in the countries whose data on benefit incidence analysis were available. The results show that the majority of African countries rely on private funding to support the health system. For example, only Madagascar, Malawi, Tanzania and Ghana reported government expenditure greater than 50% of total health expenditure in 2008 [33]. Except for Ghana, where significant government spending on health was reported following the introduction of the health insurance levy collected through a 2.5% increase in value added tax, levels of government funding in Malawi, Tanzania and Madagascar countries should be interpreted with caution because the statistics often include a large share of donor funds channelled through budget support [34]. Côte d'Ivoire and Guinea reported the lowest proportion of government health expenditure in both 2000 and 2008. Donor funds were highest in Madagascar, Malawi and Tanzania and lowest in South Africa and Nigeria. Apart from South Africa, which reported per capita government expenditure that is within the WHO recommended levels of

spending (US$ 223 and 334 in 2000 and 2008 respectively), per capita government spending in other countries was very low, amounting to US$ 43 in Malawi, the closest to South Africa. The share of out-of-pocket expenditure as a percentage of private expenditure on health was over 50% in all countries except South Africa (29.7%) and Malawi (30.1%).

Table 1: Total expenditure on health and out-of-pocket payments in countries included in the review

Country	Total expenditure on health as % of gross domestic product		General government expenditure on health as % total expenditure on health		General government expenditure on health as % total government expenditure		Private expenditure on health as % of total expenditure on health		External resources for health as % of total expenditure on health		Per capita government expenditure on health (PPP US$)		Out-of-pocket expenditure as % of private expenditure on health	
	2000	2008	2000	2008	2000	2008	2000	2008	2000	2008	2000	2008	2000	2008
Sub-Saharan African countries														
Cote' d'Voire	5.0	5.4	26.3	16.9	7.2	4.6	75.0	83.1	5.4	5.9	20.0	15.0	98.1	91.0
Ghana	7.2	7.8	41.4	50.0	10.8	8.5	58.6	50.0	9.5	14.0	27.0	57.0	79.6	78.8
Guinea	5.3	5.5	12.4	13.6	4.0	4.3	87.6	86.4	9.0	10.1	5.0	8.0	99.5	99.4
Kenya	4.2	4.2	45.3	36.3	9.1	5.8	54.7	63.7	8.8	26.8	21.0	24.0	80.1	77.2
Madagascar	3.7	4.4	66.5	70.2	15.5	14.6	33.5	29.8	20.1	16.1	20.0	33.0	52.8	67.6
Malawi	6.0	9.1	46.3	60.6	9.0	12.1	53.7	39.4	27.1	88.9	17.0	30.0	41.3	30.1
Tanzania	3.8	4.5	43.4	72.3	9.1	18.0	56.6	27.7	27.8	59.5	12.0	41.0	83.5	65.1
Nigeria	4.6	5.2	33.5	36.7	4.2	6.4	66.5	63.3	16.2	4.6	20	41.0	92.7	95.4
South Africa	8.5	8.2	40.5	39.7	10.9	10.4	59.5	60.3	0.3	1.2	223	334	25.0	29.7
Average	**5.5**	**6.0**	**43.7**	**49.8**	**8.2**	**9.6**	**56.3**	**50.2**	**6.6**	**9.5**	**38.0**	**71.0**	**57.3**	**60.9**
Asian Countries														
Bangladesh	2.8	3.3	39.0	31.4	7.6	7.4	61.0	68.6	6.9	5.8	9	14	95.1	96.5
China	4.6	4.3	38.3	47.3	11.1	10.3	61.7	52.7	0.1	0.2	41	126	95.6	82.6
Maldives	8.7	13.7	46.8	61.2	11.1	13.8	53.2	38.8	2.2	1.2	113	470	73.8	72.0
India	4.6	4.2	27.5	32.4	3.9	4.4	72.5	67.6	0.5	1.6	19	40	92.2	74.4
Indonesia	2.0	2.3	36.6	54.4	4.5	6.2	63.4	45.6	0	1.7	17	49	72.9	70.3
Malaysia	3.2	4.3	52.4	44.1	6.2	6.9	47.6	55.9	0.6	0	159	274	75.4	73.2
Nepal	5.1	6.0	24.9	37.7	7.7	11.3	75.1	62.3	15.2	11.0	11	25	91.2	72.4
Sri Lanka	3.7	4.1	48.3	43.7	6.9	7.9	51.7	56.3	0.3	1.8	49	82	83.3	86.7
Thailand	3.4	4.1	56.1	74.3	9.9	14.2	43.9	25.7	0	0.3	92	244	76.9	68.1
Vietnam	5.4	7.2	30.1	38.5	6.6	9.3	69.9	61.5	2.5	1.7	23	77	91.7	90.2
Philippines	3.4	3.7	47.6	34.7	7.0	6.1	52.4	65.3	3.5	1.5	37	45	77.2	82.5
Singapore	2.8	3.3	44.9	34.1	6.2	7.8	55.1	65.9	0	0	421	625	95.7	94.3
South-East Asia Average	**3.9**	**3.8**	**32.1**	**41.3**	**4.7**	**5.6**	**67.9**	**58.7**	**0.8**	**1.8**	**21**	**46**	**89.4**	**75.1**
Latin America and Caribbean Countries														
Brazil	7.2	8.4	40.3	44.0	4.1	6.0	59.7	56.0	0.5	0	199	385	63.8	57.1
Peru	4.7	4.5	58.7	59.4	14.9	15.6	41.3	40.6	1.1	0.8	132	226	81.3	75.4
Colombia	6.8	5.9	80.9	83.9	16.4	18.93	19.1	16.1	0.3	0.1	309	434	59.0	48.7
Argentina	7.7	7.4	64.9	71.3	14.7	13.7	52.1	41.7	0.0	0.1	444	757	63.3	59.2
Jamaica	5.5	4.8	52.6	50.4	6.6	5.7	47.4	49.6	1.8	1.5	165	184	65.0	71.0
Chile	6.6	7.5	52.1	44.0	14.1	15.6	47.9	56.0	0.1	0	319	479	48.7	65.2
Guatemala	5.5	6.5	39.8	35.7	16.7	15.9	60.2	64.3	3.4	1.8	78	110	89.7	89.3
Ecuador	4.2	5.7	31.2	39.5	6.4	6.9	68.8	54.0	4.1	1.0	62	184	85.3	87.3
LAC Average	**11.4**	**12.6**	**45.3**	**49.4**	**14.5**	**16.1**	**54.9**	**50.7**	**0.1**	**0.1**	**894**	**1484**	**32.6**	**32.0**

Similar to African countries, the twelve Asian countries presented in this review rely largely on private expenditure on health (Table 1). The results indicate that the largest share of government spending on health as a percentage of total expenditure on health in 2008 was reported in Thailand (74.3%), Maldives (61.2%) and Indonesia (54.4%). The lowest proportion of government spending was reported in Bangladesh (31.4%) and India (32.4%). Unlike African countries, there is very limited donor funding in Asia. For example, only Nepal and Bangladesh reported external funding above 5% of total expenditure on health in 2008. Per capita government expenditures on health are also significantly higher than those reported in Africa countries. While substantial public funds are allocated to funding the health sector in most of the countries, a greater share of the funds caters for in-patient services. For instance, Hong Kong, India and Vietnam spent over 80% of public health funding on in-patient care. Other countries like Bangladesh, Indonesia and Malaysia contribute less than 50% of public funds for health services [33, 35].

In LAC region, governments spend a relatively larger proportion of their total government budget on health care compared to Africa and Asia (Table 1). For example, only in Guatemala, Brazil and Ecuador is government expenditure on health as a proportion of total health expenditure below 50%. The share of government expenditure on health as a proportion of total governments' budget in 2008 was above 15% in Peru, Colombia, Argentina, Chile and Guatemala. Nearly all countries spent over 5% of their GDP on health care. However, OOPs payments are a major source of health funding in this region, accounting for over 50% of total health expenditure in four of the countries reviewed. The levels of OOPs payments as a proportion of private expenditures on health suggest that health insurance coverage is relatively low in most of these countries, except Colombia, where a significant private health insurance market exists [36].

Health systems in high income countries (HIC) differ significantly in terms of their financing arrangements, but a common feature among them is that they have achieved close to universal coverage in a range of packages for health, if not for the entire services. Progress towards universal coverage has been made mainly through a range of public insurance arrangements, which make it possible for citizens to access health care at almost no cost at the point of use [6, 37]. Table 2 shows key

health financing indicators for 12 HIC whose data on benefit incidence analysis were available. The results indicate that health systems in these countries mainly rely on public funding. In 2008, for example, public

Table 2: Comparison of total expenditure on health and out-of-pocket payments in OECD countries

Country	Total expenditure on health as % of gross domestic product		Public expenditure on health as % total expenditure on health		Government expenditure on health as % total government expenditure		Private expenditure on health as % of total expenditure on health		Per capita government expenditure on health (PPP US$)		Out-of-pocket expenditure as % of total expenditure on health	
	2000	2008	2000	2008	2000	2008	2000	2008	2000	2008	2000	2008
Australia	8.0	8.7	66.8	68.0	15.3	17.1	33.2	29.1	2266	3445	19.8	18.2
Austria	9.9	10.4	76.8	77.2	14.7	15.8	23.2	20.9	2862	4128	15.3	-
Canada	8.8	10.3	70.4	70.5	15.1	17.2	29.6	30.5	2519	4024	15.9	14.6
France	10.1	11.1	79.4	77.7	15.5	16.0	20.6	21.4	2553	3809	7.1	7.4
Germany	10.3	10.7	79.8	76.6	18.2	18.0	20.2	22.0	2669	3963	11.1	13.3
United Kingdom	7.0	8.8	79.2	82.4	14.3	15.1	20.7	17.4	1828	3281	13.5	11.2
Sweden	8.2	9.2	84.9	81.5	12.6	13.8	15.1	16.8	2286	3644	-	16.4
United States	13.7	16.4	43.0	46.0	17.1	18.7	56.9	52.2	4793	7720	14.9	12.7
Switzerland	10.2	10.7	55.4	59.5	16.0	19.9	44.6	40.9	3221	4930	33.0	30.5
Italy	8.1	9.0	72.5	77.5	12.7	13.6	27.5	23.7	2064	3059	24.5	19.7
Spain	7.2	9.0	71.6	72.6	13.2	15.2	28.4	26.9	1537	2971	23.6	20.6
Denmark	8.7	10.3	83.9	84.7	12.6	15.3	17.6	15.3	2508	4052	-	-
Finland	7.2	8.4	71.3	74.4	10.6	12.6	28.9	24.5	1853	3158	22.3	19.1
Norway	8.4	8.6	82.5	84.3	15.2	16.7	17.0	15.6	3043	5230	16.7	14.9

Source: Authors' compiled table using OECD Health Data (2011) and WHO World Health Statistics (2011).

expenditure on health accounted for over 50% of total health expenditure in all countries, except the United States of America (USA). Eleven out of thirteen countries reported public expenditure on health greater than 70% of total health expenditure. Per capita government expenditure on health is quite high in all countries, with the highest rate of US$7720 reported in the USA, and the lowest in Spain (US$ 2971). Only three out of the 14 countries spent less than 15% of total government expenditure on health. Out-of-pocket payments are relatively low in most countries, except Switzerland and Spain (30.5% and 20.6% respectively), reflecting the heavy reliance on prepayment funding mechanisms in these countries.

Distribution of health care benefits

Table 3 shows the distribution of health care benefits for countries in Africa, Asia and Latin America. Data were available for more than one time period in four African countries (Kenya, South Africa, Ghana and Tanzania) and two Asian Countries (Bangladesh and India), which enabled comparison of changes in the distribution over time.

Table 3: Percentage of total public healthcare subsidy to poorest and richest 20% of individuals in SSA, Asia and LAC

	Primary health care		Hospital outpatient		Hospital inpatient		Total (All facilities)	
	Poorest 20%	Richest 20%	Poorest 20%	Richest 20%	Poorest 20%	Richest 20%	Poorest 20%	Richest 20%
Sub-Saharan Africa countries								
Cote' d'Voire (1995)	14.0	22.0	8.0	39.0			11.0	32.0
Ghana (1992) (2011)	10.0 17.0	31.0 22.0	13.0 14.5[a] 11.0[b] 14.6[d]	35.0 25.0[a] 27.2[b] 25.0[d]	11.0 17.5[a] 10.0[b] 15.0[d]	32.0 14.8[a] 19.1[b] 17.1[d]	12.0	33.0
Guinea (1994)	10.0	36.0	1.0	55.0			4.0	48.0
Kenya (1992) (2003) (2007)	22.0 25.2 26.7	14.0 11.6 11.3	13.0 16.8 14.8[a] 4.7[b] 2.5[c] 12.8[d]	26.0 23.0 26.0[a] 23.4[b] 63.5[c] 27.3[d]	- 11.2 20.8[a] 10.9[b] 2.3[c] 19.4[d]	- 17.5 15.2[a] 10.0[b] 24.3[c] 15.7[d]	14.0 15.8 19.4	24.0 19.8 17.8
Madagascar 1993)	10.0	29.0	14.0	30.0	12.0	30.0		
Tanzania (1992 -3) (2010)	18.0 19.9	21.0 10.0	11.0 13.0[a] 2.5[b] 14.0[d]	37.0 42.5[a] 14.0[b] 16.0[d]	20.0 8.0[a] 4.5[b]	36.0 12.1[a] 24.0[b]	17.0 8.1	29.0 17.0
Malawi (2004-5)	18.2	15.0	14.0	24.9	16.4	21.1		
Nigeria (2011)							46.6	79.8
South Africa (1994) (2009)	18.0 24.0	10.0 13.5	15.0 32.5[a] 16.6[b] 2.0[c] 20.0[d]	17.0 14.0[a] 20.0[b] 46.1[c] 20.2[d]	- 21.0[a] 12.0[b] 2.5[c] 16.0[d]	- 20.0[a] 14.0[b] 42.1[c] 22.0[d]	16.0 18.0	17.0 21.0
Asian countries								
Bangladesh (2007) (2005)	23.0	28.7	11.2	23.8	14.6	44.4	16.3 16.0	34.5 26.0
Gansu (China)	-	-	-	-	7.3	35.6	8.2	30.2
Heilongjiang (China)	-	-	-	-	6.6	35.9	10.5	31.4
Hong Kong SAR	38.3	12.2	38.8	10.8	38.9	6.1	38.8	7.0
India (2007) (2001)	26.2 21.0	11.3 18.0	18.6 3.0	19.3 40.0	10.7 6.0	36.3 35.0	12.5 10.1[a]	33.0 33.1[a]
Indonesia	19.8	18.2	6.3	46.1	3.3	52.0	13.4	31.3
Malaysia	32.3	8.5	18.9	46.1	21.2	16.3	23.1	14.5
Nepal	6.0	38.2	-	-	-	-	5.1	45.6
Sri Lanka	-	-	21.4	16.9	21.0	17.9	21.2	17.6
Thailand	31.2	5.2	17.7	14.7	21.3	19.9	20.1	17.0
Vietnam	23.3	4.3	10.2	34.4	11.5	24.7	14.9	17.5
Latin America and Caribbean Countries								
Brazil							31.5	8.3
Chile							30.9	7.2
Argentina							31.0	7.0
Colombia							17.5	19.7
Ecuador							12.5	30.5
Guatemala							12.8	31.3
Jamaica							25.3	15.2
Peru							20.1	17.5

[a] district hospitals; [b] Regional hospitals; [c] teaching hospitals; [d] all hospital facilities combined

Source: Chuma *et al*., 2012; Akazili *et al*., 2011; Ataguba *et al* 2009; Mangham 2006; O'Donell *et al*., 2005; Suárez-Berenguela RM., 2002; Mahal *et al*., 2001; Castro-Leal *et al*., 2000

The results indicate that in Africa, primary health care services are pro-rich in Côte d'Ivoire, Guinea, Madagascar, Ghana and Malawi [16, 38]. The poorest

quintile in these countries received less than 20% share of public sector benefits arising from utilisation of health care facilities. Some improvements have been made in Ghana, where in 1992, only 10% share of primary health care benefits were received by the poor, but in 2008, this proportion increased to 17.0%. The share received by the richest quintile decreased from 31% in 1992 to 22% in 2008. In Kenya, distribution of primary health care benefits has remained pro-poor in the four years where data were available, and has recorded an increasing pattern [39]. For example, in 1992, the poorest quintile received 22.0% share of primary health care benefits; this proportion increased to 25.2% in 2003 and 26.7% in 2007. South Africa also recorded a significant improvement in the proportion of primary health care benefits received by the poorest population, increasing from 18.0% (pro-rich) in 1994 to 24.0% in 2009 (pro-poor). In Tanzania, recent data suggest that the poor are benefiting from primary health care services (19.9%), but that the middle groups are benefiting the largest. The richest quintile in Tanzania received 10% share of primary health care benefits.

Hospital outpatient benefits show a reverse pattern. In countries where recent data were available (Ghana, Kenya, Tanzania, Malawi, South Africa), the results reveal that hospital level benefits are generally pro-rich, although the magnitude of inequalities differed across countries. In Ghana, outpatient benefit services were clearly pro-rich but inpatient care mainly benefited the middle class, with the poorest and richest quintiles receiving 15.0% and 17.0% respectively. The distribution of inpatient benefits in Ghana revealed an interesting pattern. Neither the rich nor the poor benefited from them; they mainly reached the middle income groups. For example, the poor received 17.5% share of benefits from district hospitals, while the rich received 14.8%. Total inpatient benefits received by the poorest quintile amounted to 15%, while those received by the rich was 17.1%. This difference was larger for district hospitals, where the poorest quintile received 17.5% share of inpatient benefits and the richest quintile received 14.8% [40]. In Kenya, outpatient services were clearly pro-rich, but inpatient benefits tended to favour the poor for district hospitals (poorest quintile received 20.8% compared to 15.2% received by the rich) and the middle classes for the provincial/regional hospitals (poorest quintile received 10.9%; richest quintile received 10.0%) [41]. In South Africa the distribution of outpatient and inpatient services for district level hospitals was

strongly pro-poor, with the poorest quintile receiving 32.5% of outpatient benefits and 21% share of inpatient benefits. Total benefits for outpatient services in South Africa were relatively equal (poorest received 20.0%; richest 20.2%) [22]. In Malawi, both outpatient and inpatient services favoured the rich, although wider gaps were observed in outpatient compared to inpatient services. In all countries, teaching and referral hospitals rarely reached the poor. In Kenya, for example, the poorest quintile received 2.5% share of outpatient benefits, compared to 63.5% received by the richest quintile [41]. In South Africa, the richest quintile received 42.1% share of inpatient benefits for teaching and referral hospitals compared to 2.5% share received by the poorest quintile. Regarding total health system benefits (i.e. benefits including all levels of care), in the African countries under reviews, the distribution is generally pro-rich.

O'Donnell et al (2007) provide a detailed analysis on the incidence of public health care spending in eight Asian countries [20]. The results indicated that public subsidy was generally pro-poor in Hong Kong, Malaysia, Sri Lanka (38.8%, 23.1%, and 21.2% of total subsidy received by the poorest quintile respectively). Primary health care benefits were pro-poor in all countries except Nepal and Indonesia, while hospital outpatient benefits were only pro-poor in Hong Kong and Sri Lanka (poorest quintile received 38.8% and 21.4% share of benefits respectively). In Indonesia, the poorest quintile received only 6.3% share of hospital outpatient benefits compared 46.1% received by the richest quintile. Other poor performing countries were Bangladesh and Vietnam, where the poorest quintile received 11.2% and 10.2% share of hospital outpatient benefits respectively. The distribution of inpatient benefits was generally pro-poor in Hong Kong, Malaysia, Sri Lanka and Thailand. Indonesia, Vietnam and the two Chinese provinces recorded the least share of inpatient benefits received by the poorest populations. In India where data were available for more than one time period, the results indicated an overall improvement in reaching the poor with public health services. For example, in 2001, the poorest quintile received 3% share of hospital outpatient benefits compared to 18.6% share received in 2007. A similar increase was recorded in the distribution of inpatient benefits [42]. Inequalities in India are wider in rural compared to urban areas. The rural poorest quintile received less than 10% share of curative health benefits compared to 58% received by the richest quintile,

while in urban settings, the richest quintile received about 35% share of curative benefits. Only in one state of India (Kerala), was public spending on curative health services pro-poor, four other states showed a distribution that did not differ significantly from equality [42]. Elsewhere, in Bangladesh benefits arising from maternal and child health services were reported to be pro-poor (poorest quintile received 20% and 23% share of benefits respectively), while curative care, family planning and control of communicable diseases favoured the rich (11% and 18% share of benefits respectively) [43].

The distribution of public spending on health in LAC shows that a health services are pro-poor in Brazil, Chile, Argentina and Jamaica and Peru. In Brazil for example, the poorest quintile received 31.5% of health care benefits, while the richest quintile received only 8.3% of the benefits. A similar pattern was reported in Argentina and Chile, where the poorest quintile received about 31% of all health benefits, compared to 7% received by the richest quintile. Colombia, Ecuador, Guatemala and Mexico showed a pro-rich pattern. The poorest quintile in Ecuador and Guatemala received 12.5% and 12.8% share of health benefits respectively, while in Peru, health benefits are concentrated within the middle quintiles [44].

The concentration indices of health benefits in HIC countries are presented on Table 4. The results indicate that utilization of all physicians is generally pro-poor, except for Canada, Finland, USA and Italy, where a pro-rich pattern was reported (CI=0.004; 0.005; 0.026 and 0.023 respectively). A similar pattern was observed for utilization of general practitioners (GPs). In contrast, utilization of specialists showed a pro-rich pattern in most countries, except the United Kingdom and Denmark (CI= -0038 and 0.034 respectively). Finland and Italy reported the largest pro-rich bias as indicated by the concentration indices of 0.105 and 0.071 respectively. Utilization of dental care was pro-rich in all 14 countries. The concentration indices for dental visits suggest that of all the five levels of care reviewed, these services were the least utilized by the poorest population. In contrast, hospital inpatient care was pro-poor in all countries except France, Finland and Italy that showed a pro-rich pattern in all other categories of services.

Table 4: Concentration indices for health care utilisation in high income countries

	All physicians	General Practitioner (GP)	Specialists	Hospital inpatient care	Dental care
Australia	-0.014	-	-	-0.113	0.087
Austria	-0.002	-0.014	0.023	-0.055	0.064
Canada	0.004	0.001	0.013	-0.150	0.119
Denmark	-0.026	-0.031	-0.030	-0.081	0.121
France	0.005	0.003	0.034	-0.037	0.066
Finland	0.026	0.013	0.105	-0.053	0.127
Germany	-0.005	-0.018	0.019	-0.064	-
United Kingdom	-0.019	-0.023	-0.038	-0.093	0.080
Sweden	-0.003	-	-	-0.045	0.054
United States	0.023	-	-	-0.167	0.167
Switzerland	-0.005	-0.005	0.034	-0.093	0.059
Italy	0.008	0.003	0.071	-0.024	0.121
Spain	-0.008	-0.027	0.022	-0.076	0.152
Norway	-0.003	-0.009	0.019	-	-

DISCUSSION

Very few studies have been conducted in the recent past to assess the distribution of health care benefits. The majority of recent work has been conducted in Asia as part of the EQUITAP project, but very little has been done in Africa and LAC regions.

The studies reviewed in this paper show that the distribution of primary health care benefits is generally pro-poor in all regions, although differences in the magnitude of the distribution exist between regions and countries. In Africa, primary health care services were largely pro-poor in Kenya, South Africa and Tanzania. In countries where data were available for more than one time period, the results show progress towards reaching the poor. This was particularly the case in South Africa where the share of benefits received by the poorest population increased by six percentage points between 1994 and 2008 (implying that health resources were being reallocated to the lower levels of care in an effort to promote equity). This is particular promising and shows that South African government is making progress towards addressing inequities associated with the apartheid period. While some improvements were recorded in Ghana [45], primary health care services remained pro-rich. This raises concerns in Ghana about the extent to which the National Health Insurance (NHI) Scheme, initiated in 2003 offers financial risk protection and promote access among the poorest population [46, 47]. While information on the factors influencing observed distribution was not available, it is important that efforts are directed towards ensuring that the poor use health care services when they need them and

that they benefit from the NHI according to their health care need.

Asian countries show a much stronger pro-poor distribution of primary health care service benefits compared to those in Africa, although Nepal presents a very pro-rich distribution. Primary health care services in Hong Kong, Malaysia and Thailand are very pro-poor, with the poorest quintile receiving over 30% share of the benefits. These differences reflect to some extent, the financing arrangements in these countries. Malaysia, Thailand and Hong Kong have very high levels of government per capita spending on health and public spending accounts for over 55% of total health expenditure. These are relatively high levels of spending, compared to those reported in African countries.

The fact that primary health care services reach the poorest population is not new. Primary health care services have been identified as extremely important for universal coverage and WHO continues to urge countries to re-orient their health care services from curative to preventive by allocating more resources to lower levels of care [19]. However, in developing countries health resources are concentrated at hospital level, which are mainly located in urban areas [16, 48, 49], and as confirmed by studies reviewed in this paper, hardly benefit the poor. In South Africa for example, health spending on curative services was estimated to be 89% while Ghana spent about 70%. Kenya and Madagascar on the other hand, spent over 50% of their health budgets on curative services [25]. These findings call for increased efforts towards convincing governments to allocate 50% of their resources to district hospitals and primary health care services that are likely to benefit the poor. Not does spending on primary health care enable the poor to access health care, but it has also been shown to be cost-effective, particularly when some of the funds allocated to primary health facilities go towards preventive and promotive care. Increasing funding for lower levels of care is urgently needed if universal coverage is to be achieved and sustained.

The distribution of hospital level benefits in Africa shows a mixed pattern. In some countries like Ghana, both outpatient and inpatient services benefit the middle income groups, suggesting that the rich in Ghana rely on private hospitals for outpatient and inpatient care, while the poor might not use health services due to affordability and other barriers. In Kenya, wider disparities between the rich and the poor were recorded for outpatient

compared to inpatient services [39]. Asian countries record a pro-rich pattern, with very high disparities in Malaysia and Indonesia, where the richest population received close to half of outpatient benefits, while in LAC, five out of eight countries reviewed showed a pro-poor distribution of health system benefits. Clearly, these findings reflect differences in financing arrangement, with LAC countries and some of Asian countries relying largely on tax funding and mandatory insurance to support their health systems [33]. Inpatient services were pro-poor in all high income countries. Various factors can explain the observed findings. First utilisation of health care services is influenced by many factors including income, perceived quality of care, distance, charging levels and other social cultural factors related to perceived causes of disease and gender [16, 48, 50]. Out-of-pocket payments have been shown to affect use of health care services, thus impacting on the ability to benefit from public health funding. Reorganising health financing in ways that access to health care on the basis of need is promoted will be useful in reversing the pro-rich distributions in the countries under review.

In African countries where data were available for different levels of care, results indicated that district hospitals (the lowest levels of hospitals) were pro-poor, while specialist, teaching and referral hospitals were beyond the reach of the poor, with very low levels of use among the poorest quintile of less than 5% in all countries. A similar pattern was observed in HIC countries where the distribution of benefits arising from specialist visits was only pro-poor in Denmark and United Kingdom. Clearly, these findings call for additional efforts to remove barriers related to access of specialists and teaching hospitals. One obvious reason why the poor in Africa do not use them is that in most countries, these are found in the capital cities, the poor have to travel for long distances, and in countries where user fees still exist, charges in teaching hospitals are relatively high. It remains unclear why access to specialist in HIC is pro-rich despite having achieved universal coverage, however, it could be partly due to the fact that specialist care is not part of the benefit package covered under the universal health system in some countries.

Limitations

The BIA methodology has various limitations that apply to the studies reviewed and which should be considered when interpreting findings presented in this review. First, BIA does not capture

quality differences across services received. It is possible that the poor receive low quality services compared to the rich. Second, BIA cannot give projections of benefits over time and thus it has to be conducted for different years in order to get a dynamic picture of the incidence over time. Third, BIA fails to assess the extent to which distribution reflects need for care. In the context of changing disease patterns towards non-communicable diseases, it is possible that the rich do have high need for care than was the case in the past few decades. Nonetheless the results presented in this review have important implications for policy for the countries presented in this review and others in similar regions.

CONCLUSIONS

Very few studies have up to date data on the distribution of health care benefits. This makes it difficult to make any conclusions in terms of whether progress towards reaching the poor is being made in different settings. However, results presented in this paper reveal that the distribution of health care benefits is very closely related to a country's financing arrangements. Both rich and poor countries recorded some magnitude of inequality but differences existed on where inequalities were concentrated. In high income countries, inequalities existed on specialists' services, while in Africa, inequalities were recorded at all levels of care including primary health services. Some progress towards pro-poor distribution has been recorded in the last decade, particularly for primary health care services in Africa. Significant efforts towards restructuring health financing arrangements and re-orientating health systems towards preventive and promotive care are urgently needed if universal coverage is to be achieved and sustained in LMICs. This study also calls for more studies on BIA particularly in LMIC, where the poor are often left out from interventions. Only then can it be possible to monitor the extent to which government spending is reaching those in most need for care. Finally, although health financing policy debates have shifted from targeting to universality, it remains important to keep an eye on the poor and vulnerable to ensure that they benefit from universal health systems.

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