Introduction

The southern State (Province) of Kerala remains well on top in terms of health indicators when compared with the other Indian States (Government of India 2002a). This achievement, often quoted as the ‘Kerala Model of Development’, was made possible by low cost health care and its universal accessibility and availability even to the poorer sections of society. This achievement, in turn, is largely attributed to the universal availability and efficient functioning of the government health-care delivery system, as competition from government facilities has served as an important factor in determining treatment costs even in private hospitals (Krishnan 1994; Uplekar and George 1994; Government of India 1997; Kunhikannan and Aravindan 2000; Government of India 2002b).

Of late, it is estimated that only 30–40% of even the low-income group seek medical help from government health-care units, including the primary health centres (PHCs) (Kunhikannan and Aravindan 2000). Only about 15% of rural inpatients and 10% of urban inpatients receive free treatment in Kerala (Krishnan 1994). As a result, the poor spend 40% of their income on health care, in contrast to the rich who spend a mere 2.4% (Kunhikannan and Aravindan 2000).

The overwhelming reason for the low utilization of government health care is lack of proper facilities, which in turn limits the utilization of the resources available such as the staff (Nair 1998; Varartharajan et al. 2002). Availability of physical infrastructure is crucial for the staff to perform better. In many government health-care institutions, including the PHCs, the staff present are underemployed due to lack of support facilities. This could arguably be due to the diminishing non-salary component in government health expenditure (Kutty 2000).

The Seventy-third Constitutional Amendment Act of India, 1992 provided an opportunity for Kerala to reverse this trend.

Context: Kerala’s government health-care system functions relatively well compared with other Indian States, but utilization levels are decreasing due to lack of essential facilities. The opportunity cost of seeking medical care from the government sector is high, even for the poor, with 60–70% of the poor seeking care from the private sector and spending disproportionately on health care (about 40% of income compared with 2.4% by the rich). In 1996, the Kerala government brought primary health centres (PHCs) under the control of local governments (panchayats).

Objective: To provide an approach to assess PHC performance under decentralized government.

Methods: The study was conducted in three stages. The first stage included all 990 village panchayats in Kerala. The second stage covered 10 panchayats (their respective 10 PHCs and 65 sub-centres) occupying the top five and bottom five ranks in terms of resource allocation to health. Two panchayats (their respective PHCs and sub-centres), one each from the top five and the bottom five, were chosen for the third stage. Published and unpublished government data, panchayat development reports, panchayat and PHC records, facility checklist, and key informant and client exit interviews were used for data collection.

Findings: Panchayats in Kerala allocated a lower proportion of resources to health than that allocated by the state government prior to decentralization; while panchayat resources grew at an annual rate of 30.7%, health resources grew at 7.9%. PHCs were funded to the extent of 0.7–2.7% of the total cost. An additional 2% in PHC resources was associated with improved patient load (63.5%), cost-effectiveness (50.8%), medicine supply (49.4%), information (32.8%) and patient satisfaction (12.7%). An annual increase of US$940 in PHC resources would help to extend primary care facilities to 3000 (15.5%) more users.

Conclusion: Decentralization brought no significant change to the health sector. Active panchayat support to PHCs existed in only a few places, but wherever it was present, the result was positive. Kerala should find an alternative strategy to channel panchayats towards health before health loses its battle for resources.

Key words: primary health care, decentralization, health care resources, local government, India
by bringing government health-care units under the control of local governments called Panchayati Raj Institutions (or simply panchayats). Through an initiative called the People's Campaign for Decentralized Planning, Kerala devolved 35–40% of the Ninth Five Year Plan (1997–2002) outlay to programmes drawn up by panchayats (Kutty 2000). Panchayats, under the People's Campaign, are in a position to identify felt needs of the people, analyze development problems, assess the strength of local resources, make feasible development schemes, prioritize these schemes and integrate them into a local plan document (Isaac and Harilal 1997; Isaac and Franke 2000). Although the transfer of finances, functions and functionaries from the state government to panchayats has varied from state to state, panchayats in Kerala are perceived to be strong in terms of organization and resources (Government of Kerala 1997).

Kerala, like many other Indian States, follows a three-tier (village, block and district) panchayati raj (local self-governance) system. PHCs were brought under the control of grama (village) panchayats based on the principle that whatever can be done efficiently at the lower level should be done only at that level, not advanced to a higher level. Various PHC activities should thus be implemented under the overall supervision and control of village panchayats. This has opened up the possibility of controlling infectious and life-style diseases through community involvement. The community can now demand and/or generate resources required for health care, besides having a role in restructuring the existing organization and delivery of health care.

Nevertheless, this belief rests on the premise that panchayats’ influence will steer PHCs towards improved performance. While this may be true (though untested), the real impact will depend on the enthusiasm and support extended by panchayats, which though homogenous entities otherwise, are heterogeneous in terms of their potential to generate, attract and/or divert resources to health; the broader the resource base, the stronger will be their influence over and benefits to PHCs. The present paper seeks to provide an approach to analyze, from both provider and client perspectives, how decentralization works, if indeed it does, to strengthen PHCs. Analysis here pertains only to a section of the public sector (i.e. PHCs) and does not include the private sector or other tiers of the public sector.

The primary health centre is chosen as the unit of analysis for several reasons. First, the people of Kerala have an overwhelming predilection for modern medicine (Kunhikannan and Aravindan 2000). Unlike states like Tamilnadu, where PHCs offer both sidha and modern medicine, PHCs in Kerala provide only modern medicine. Second, panchayats tend to focus more on the public sector, to which PHCs belong, while completely ignoring the private sector (Elamon 1998; UNFPA 1999). Third, reviewing public sector performance is all the more relevant now because of a fear that the 1991 country-wide economic reforms have had a negative impact on the social sector in terms of both reduced allocations and increased poverty (Mahapatra and Berman 1995; Ramaswamy and Renforth 1996; Purohit 2001). Fourth, PHCs belong to the earliest group of institutions brought under panchayats’ control in Kerala. Hence, panchayats’ influence on the health care system can best be studied at this level.

**Objectives**

Although a number of nations have adopted decentralization reforms, there exists little information on their impact on health sector performance (Bossert 1997). Kerala’s decentralization may be termed ‘second-degree decentralization’ as it transferred three (administrative, managerial and fiscal) out of four functions (the fourth being risk) of the centre to the periphery. While panchayats are required to administer, manage and finance the PHCs, the latter are expected to offer an efficient, need-based service to the rural community. Although it is now 6 years since the PHCs were transferred to the panchayats in 1997, the impact of this transfer on PHC performance is not yet known. The objective of this study is to provide an approach to assess the performance of PHCs under decentralized government in Kerala. The impact is analyzed by comparing the performance of PHCs under two contrasting (good and not-so-good) scenarios of panchayat support.

**Concept and methods**

**Decentralized planning in Kerala**

Decentralization is all about moving administrative, managerial, fiscal and risk functions from the centre to the periphery. Kerala opted for a ‘big bang’ approach to decentralization by transferring (administrative) functions, (managerial) authority and (fiscal) resources at one go in 1996. Transfer of fiscal function meant a transfer of 35–40% of the State’s Five Year Plan funds to the panchayats through untied grants, which are ‘pure (investible) money’. Given that about 33% of State resources are Plan1 funds in Kerala, the panchayats’ claim amounts to about 13% of State resources. In addition, village panchayats are also endowed with power to mobilize resources through local taxes (Government of Kerala 2001).

Funds thus received by the panchayats are reallocated through a process of participatory local-level planning involving various phases (Figure 1) (Isaac and Harilal 1997; Isaac and Franke 2000; Kutty 2000; Government of Kerala 2001). Phase I identifies people’s felt needs and gaps in local development through discussions at gramasabhas (village assemblies), comprising 1500 to 2000 voters and endowed with substantial powers and functions by Kerala Panchayati Raj Act 1994. In Phase II, about 200 people’s representatives (about one-quarter of which are women), officials (15% of delegates) and experts arrive at solutions for various problems identified at gramasabhas, through a panchayat level development seminar and printed ‘development report’. In Phase III, with the help of trained taskforces of 10–12 officials and activists, solutions are converted into scheme (development activity drawn up from above and implemented uniformly in all localities as per norms and guidelines set by State Planning Board) or project
(formulated from below in specific conditions to be implemented in a certain time frame) proposals.

Phase IV involves the actual formulation of the panchayat plan, while Phase V integrates local plans at the block and district levels and analyzes the relative seriousness of development problems in each sector. Phase VI is the formulation of the State Plan integrating the district plans drawn up from below. State government releases funds to panchayats after block level Expert Committees have appraised and the District Planning Committees (DPC) have approved their plans. In order to ensure the overall thrust of the State plan, certain guidelines and broad bands of maximum and minimum percentage share of investments in the local plans are indicated for the productive (40–50%), service (30–40%) and infrastructure sectors (10–30%). They are applicable only to grant-in-aid2 resources from the government, not to the investment outlay financed from other sources.

PHCs under decentralization

Kerala has 990 grama (village) panchayats, 152 block (intermediate) panchayats, 14 zilla (district) panchayats, 53 municipalities and 5 city corporations (Government of Kerala 2001). Decentralization has been most effective in village panchayats whose own sources of income formed 44% (against the Indian average of 10%) of their total income in 1993–94. Each village panchayat covered an average population of 25 199 (range 4588–70 816) in 1991 and exercises control over major government institutions including the PHCs.

Apart from panchayats, which are big in Kerala when compared with the other Indian States, organization of government health-care delivery in Kerala does not differ much from the rest of India. Yet Kerala’s high-density population helps the institutional structure of the government in serving the population more easily. The PHC, staffed by a medical doctor, nurse, pharmacist, field supervisor, nursing assistant, clerk, five junior public health nurses, three junior health inspectors, three attendants, a peon and a sweeper, is the core institution in the rural health care infrastructure. A District Hospital and Community Health Centre (CHC) usually serve as its referral units. Kerala has 944 PHCs each catering to an average population of 25 591 and a radial distance of 3.4 km (FRHS 1999; Government of Kerala 2001). Each PHC has five or six sub-centres below it, each serving an average 4742 people.

PHCs were brought under the (managerial and part disciplinary) control of (village) panchayats in 1997. Panchayats can appoint temporary staff (against existing vacancy), assign any work related to their area of specialty to the PHC staff, review staff performance, give required directions and impose minor penalties or suspension if warranted. State government retains the authority to create new posts.

Impact of decentralization on PHCs

Evaluating the impact of decentralization on the performance of PHCs is a challenging task, especially when it is difficult to isolate it from the effect of other system changes (Bossert 1997). Moreover, both the magnitude of panchayat support and its impact on PHCs tend to vary depending upon the priorities of these two institutions. In this study, we have used intermediary changes in a PHC, such as access, quality of infrastructure and machinery, cost-effectiveness, services offered and quality of care, to measure the impact of

Figure 1. Process of People’s Campaign for Decentralized Planning in Kerala
decentralization. A cross-sectional analysis of two contrasting scenarios of high and low resource (monetary and material) support from panchayats was employed to demonstrate impact, because the panchayats’ control over PHCs is essentially derived from the amount of resources they allocate to them. The choice of panchayats, and subsequently PHCs, was based on the ranking of panchayats according to resource allocation to health per se, while actual PHC receipts were taken into account in order to assess the impact of panchayat support.

**Study design and data collection methods**

The study had three stages. The first stage included all 990 panchayats. The State Planning Board provided data on untied grants received by panchayats and their allocations to health during 1997–98 and 1998–99, the first 2 years of decentralized planning. Untied grants constituted 73.1% of all panchayat income in 1997–98 and 85.1% in 1998–99 (82.3% in 2000–01) (Government of Kerala 2001). Additional state level data were obtained from government economic reviews and other secondary sources. All 990 panchayats were ranked according to their grant-in-aid allocation to health.

The 10 panchayats occupying the top five and bottom five positions in the ranking, their respective 10 PHCs and 65 sub-centres were chosen for the second stage. They represented 7 out of the 14 districts in Kerala and covered a population of 0.4 million (or 1.4% of Kerala’s population). Panchayat development reports, other published and unpublished materials and a structured and pre-tested facility checklist were used to collect data during this stage. A Research Assistant was specifically recruited and trained for the purpose of data collection. The facility checklist covered availability, functioning and financial source of 41 routine items within the PHCs and sub-centres, including equipment, drugs, supplies, staff, access and quality of infrastructure. The checklist was filled by using PHC and sub-centre records, by actual observation of facilities and by questioning health-care delivery staff. Items such as buildings, toilet, drinking water, electricity, communication, washbasin, waiting area, patient privacy, display of community statistics and distribution of health education materials were observed and graded for their quality.

The third and final stage had two panchayats, one from each ranking group, two PHCs (PHC-A from the ‘good’ panchayat and PHC-B representing the ‘not-so-good’ panchayat) and nine sub-centres, together serving a population of 56 140; all the sub-centres coming under the chosen PHCs were included. Data collection at this stage included perusal of records, and key informant and client exit interviews. Structured and pre-tested schedules (separate for panchayats, PHCs and sub-centres) were used for interviews. Key informant interviews elicited information on budget, cost, financial sources, PHC and panchayat characteristics, panchayat–PHC linkages, and steps to improve PHC performance. Client exit interview, on the other hand, focused on illness, services received, access frequency, staff behaviour, diagnosis and measures to improve efficiency. Every fifth client utilizing the PHC facility was chosen for client interviews.

**Scores and measures**

Scores were given to assess the quality of each PHC’s infrastructure and client access. Infrastructure included six items: building structure, toilet, clean running water, electricity, communication and washbasin. Access included eight items: size of the building, patient load, home visits by the PHC staff, facility hours, patient records, waiting area, patient privacy, distribution/display of health education materials and display of community statistics. Each item was assessed on the basis of 3–5 attributes. The attributes were arranged in ascending order of quality – the higher the numerical value of the attribute, the higher the quality. The score for a particular item was obtained by simply adding the numerical values of the respective attributes. For instance, water supply received a score of ‘1’ if there was no supply or daily supply problems, whereas it received ‘2’ if supply faced weekly problems, ‘3’ if it faced seasonal problems and ‘4’ if supply was fully reliable. All the scores were then converted into percentages keeping 22 as maximum (100%) for infrastructure and 29 for access. Each item was weighted according to the level of gradation (varying between 3 and 5). Items like building structure, toilet, communication, facility hours, patient privacy and distribution/display of health education materials had three grades, whereas availability of electricity had five grades; all the rest received four grades.

All major cost components (salary, investment, maintenance, patient care, building, furniture and equipment) were included in the cost estimation after converting non-recurrent items into annualized figures. Equipment, instruments and furniture items were first listed and expert opinion was sought to find out the value and expected life of each item in order to arrive at the annualized figures. Similarly, the value of medicines and supplies was estimated after quantifying the use (supply minus stock) in physical terms and converting it into value terms, taking expert opinion into account. Number of patient contacts served by the PHCs was used as the effectiveness measure in the cost-effectiveness analysis.

**Statistical analysis**

Collected data were cleaned, entered and analyzed in Excel Version 7. Non-parametric tests were used for comparing the PHCs and a p-value of less than 0.05 was used to denote statistical significance.

**Results**

**First stage**

The share of health in grant-in-aid resources in the state declined from 2.54% in 1997–98 to 2.06% 1998–99 (to 1.81% in 1999–2000). In other words, the annual growth of panchayat resources to health was slower (7.9%) than that of panchayat resources per se (30.7%). The average panchayat allocation to health stood at Rs.89 437 (US$1860) in 1998–99; the first ranked panchayat allocated Rs.2 181 900
(US$45 450) while the bottom-most allocated no resources. Resource allocation was skewed in such a way that the top 10% commanded control over 45% of health resources, with the bottom 50% controlling 4% (Figure 2). Over one-third of the 990 panchayats in 1997–98 and 19% in 1998–99 (9.3% in both years) failed to earmark a single penny for health.

Second stage

Top five and bottom five panchayats

Table 1 reveals that the top five panchayats had significantly greater (p < 0.05) geographic area (221.47 km²), population size (53 897) and annual income (Rs.20.5 million or US$0.43

---

![Allocation (Rs. in Lakhs)](https://example.com/fig2.png)

**Figure 2.** Resource allocation for health by panchayats in Kerala 1997–98 and 1998–99

**Table 1.** Characteristics of the panchayats

<table>
<thead>
<tr>
<th>Panchayat rank</th>
<th>Area in km²</th>
<th>Population Size</th>
<th>Population Density</th>
<th>Panchayat income 2000–01 (Rs.)</th>
<th>Allocation to health 1997–99 (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Total</td>
<td>Per capita</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Total</td>
<td>Per capita</td>
</tr>
<tr>
<td>1</td>
<td>556.87</td>
<td>78 343</td>
<td>141</td>
<td>28 944 752</td>
<td>369.46</td>
</tr>
<tr>
<td>2</td>
<td>217.94</td>
<td>30 144</td>
<td>138</td>
<td>30 437 550</td>
<td>1 009.74</td>
</tr>
<tr>
<td>3</td>
<td>82.67</td>
<td>47 987</td>
<td>580</td>
<td>10 916 000</td>
<td>227.48</td>
</tr>
<tr>
<td>4</td>
<td>199.69</td>
<td>56 207</td>
<td>282</td>
<td>11 597 000</td>
<td>206.33</td>
</tr>
<tr>
<td>5</td>
<td>50.18</td>
<td>56 803</td>
<td>1 132</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>986</td>
<td>29.70</td>
<td>50 417</td>
<td>1 698</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>987</td>
<td>53.97</td>
<td>17 884</td>
<td>331</td>
<td>4 700 000</td>
<td>262.81</td>
</tr>
<tr>
<td>988</td>
<td>26.65</td>
<td>29 161</td>
<td>1 094</td>
<td>4 656 000</td>
<td>159.67</td>
</tr>
<tr>
<td>989</td>
<td>33.04</td>
<td>25 996</td>
<td>787</td>
<td>8 477 846</td>
<td>326.12</td>
</tr>
<tr>
<td>990</td>
<td>17.75</td>
<td>19 912</td>
<td>1 122</td>
<td>5 570 745</td>
<td>279.77</td>
</tr>
</tbody>
</table>


*b* Newly demarcated panchayat.
million) compared with the bottom five (32.22 km², 28,674 population and Rs.5.9 million or US$0.12 million). Difference in per capita income, however, was not statistically significant (p > 0.05). As indicated in Table 2, all 10 PHCs under the top five and bottom five panchayats had reasonably good infrastructure (score 64.2%) and client access (score 76.9%). PHCs under the top five panchayats had better scores but the difference was not significant (p > 0.05). A similar result was obtained for manpower and physical facilities (Table 3).

Panchayat intervention and its impact

Panchayat support to both sets of PHCs was not found to be significant. All that the 10 panchayats could manage to provide were buildings to four sub-centres, one compound wall and 32 furniture items in a 2-year period. Nevertheless, panchayat intervention made a qualitative difference to the functioning of sub-centres and all the sub-centres under these panchayats are now fully functional.

Table 2. Characteristics of the PHCs

<table>
<thead>
<tr>
<th>PHC</th>
<th>Building area (ft²)</th>
<th>Land area (ft²)</th>
<th>No. of rooms</th>
<th>Accessa</th>
<th>Qualitya</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1500</td>
<td>224 725</td>
<td>10</td>
<td>19 (65.5)</td>
<td>17 (77.3)</td>
</tr>
<tr>
<td>2</td>
<td>900</td>
<td>40 050</td>
<td>5</td>
<td>17 (58.6)</td>
<td>15 (68.2)</td>
</tr>
<tr>
<td>3</td>
<td>500</td>
<td>17 800</td>
<td>4</td>
<td>21 (72.4)</td>
<td>16 (72.7)</td>
</tr>
<tr>
<td>4</td>
<td>1800</td>
<td>66 750</td>
<td>15</td>
<td>21 (72.4)</td>
<td>20 (90.9)</td>
</tr>
<tr>
<td>5</td>
<td>1500</td>
<td>44 500</td>
<td>22</td>
<td>19 (58.6)</td>
<td>18 (81.8)</td>
</tr>
<tr>
<td>986</td>
<td>900</td>
<td>22 250</td>
<td>7</td>
<td>19 (58.6)</td>
<td>18 (81.5)</td>
</tr>
<tr>
<td>987</td>
<td>500</td>
<td>44 500</td>
<td>5</td>
<td>21 (72.4)</td>
<td>16 (72.7)</td>
</tr>
<tr>
<td>988</td>
<td>900</td>
<td>66 750</td>
<td>4</td>
<td>15 (51.7)</td>
<td>15 (72.7)</td>
</tr>
<tr>
<td>989</td>
<td>1000</td>
<td>55 625</td>
<td>6</td>
<td>16 (55.2)</td>
<td>13 (59.1)</td>
</tr>
<tr>
<td>990</td>
<td>1500</td>
<td>95 675</td>
<td>35</td>
<td>18 (62.1)</td>
<td>19 (86.4)</td>
</tr>
</tbody>
</table>

a Figures in parentheses are the percentages to the maximum possible scores.

Table 3. Availability of facilities in PHCs (average number)

<table>
<thead>
<tr>
<th>Facility</th>
<th>Top five</th>
<th>Bottom five</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Beds</td>
<td>12.2</td>
<td>8.0</td>
</tr>
<tr>
<td>(2) Sub-centres</td>
<td>10.0</td>
<td>4.6</td>
</tr>
<tr>
<td>(3) Routine services</td>
<td>13.0</td>
<td>9.4</td>
</tr>
<tr>
<td>(4) Operation theatres</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td>(5) Labour rooms</td>
<td>0.6</td>
<td>0.4</td>
</tr>
<tr>
<td>(6) Laboratory</td>
<td>0.6</td>
<td>0.2</td>
</tr>
<tr>
<td>(7) Equipment</td>
<td>15.0</td>
<td>12.2</td>
</tr>
<tr>
<td>(8) Other physical facilities</td>
<td>55.4</td>
<td>32.4</td>
</tr>
<tr>
<td>(9) Stock of drugs</td>
<td>27710</td>
<td>32 755</td>
</tr>
<tr>
<td>(10) Value of supplies (Rs.)</td>
<td>24 892</td>
<td>29 759</td>
</tr>
<tr>
<td>(11) Doctors</td>
<td>1.2</td>
<td>1.4</td>
</tr>
<tr>
<td>(12) Nurses</td>
<td>4.8</td>
<td>5.2</td>
</tr>
<tr>
<td>(13) Technical staff</td>
<td>1.6</td>
<td>1.2</td>
</tr>
<tr>
<td>(14) Field staff</td>
<td>8.6</td>
<td>6.0</td>
</tr>
<tr>
<td>(15) Other staff</td>
<td>7.2</td>
<td>7.2</td>
</tr>
<tr>
<td>(16) Total staff</td>
<td>23.4</td>
<td>21.0</td>
</tr>
</tbody>
</table>

Table 4. Cost-effectiveness of the PHCs

<table>
<thead>
<tr>
<th>Item</th>
<th>PHC-A</th>
<th>PHC-B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salary cost (Rs.)</td>
<td>760 716 (62.7)</td>
<td>1 020 000 (78.6)</td>
</tr>
<tr>
<td>Patient care cost (Rs.)</td>
<td>357 775 (29.5)</td>
<td>217 000 (16.7)</td>
</tr>
<tr>
<td>Maintenance cost (Rs.)</td>
<td>26 000 (2.1)</td>
<td>10 000 (0.8)</td>
</tr>
<tr>
<td>Investment cost (Rs.)</td>
<td>28 564 (2.4)</td>
<td>46 200 (3.0)</td>
</tr>
<tr>
<td>Building cost (Rs.)</td>
<td>22 617 (1.9)</td>
<td>25 130 (1.9)</td>
</tr>
<tr>
<td>Furniture and equipment cost (Rs.)</td>
<td>17 428 (1.4)</td>
<td>128 721 (1.0)</td>
</tr>
<tr>
<td>Other cost (Rs.)</td>
<td>–</td>
<td>9 000 (0.7)</td>
</tr>
<tr>
<td>Total cost per annum</td>
<td>1 213 100 (100)</td>
<td>1 298 622 (100)</td>
</tr>
<tr>
<td>Share of panchayat in total cost (%)</td>
<td>2.7</td>
<td>0.7</td>
</tr>
<tr>
<td>Annual outpatient contacts (n)</td>
<td>17 162</td>
<td>9 047</td>
</tr>
<tr>
<td>Provider cost per client (Rs.)</td>
<td>70.69</td>
<td>143.54</td>
</tr>
</tbody>
</table>

a Percentages in parentheses.

Third stage

The third stage covered 36 key informants (20 PHC and 16 panchayat) and 104 (out of 520) clients (46 male, 58 female) in all age groups (0–5 years: 15.4%; 6–15 years: 20.2%; 16–65 years: 55.7%; 65+ years: 8.7%). Clients sought services for treatment of cough (10.5%), cold (3.2%), fever (17.7%), pain (22.6%), other illnesses (34.7%) and immunization (11.3%). Client characteristics and services sought by them were not different for the two PHCs (p > 0.5).

Panchayat intervention and its impact

Panchayat support during the year 2000–01 was Rs.32 754 (US$682) for PHC-A (well-supported) and Rs.9090 (US$189) for PHC-B (less-well-supported); this constituted a mere 0.11% of panchayat income in both cases. In population per capita terms, it amounts to only Rs.1.09 in PHC-A and Rs.0.35 in PHC-B. However, it made a significant impact (over 60% increase) on the PHCs’ expenditure on maintenance and investment. The impact was more pronounced in PHC-A as it spent more on these items than PHC-B (Table 4). The panchayat's contribution to total costs was 2.7% for PHC-A and 0.7% for PHC-B, and to non-salary costs was 7.2% for PHC-A and 3.3% for PHC-B.
writing prescriptions) was perceived to be good. About 60% of clients belonging to both PHCs (difference not significant) reported that they were cured in one visit. 56.6% of PHC-A clients and 31.4% of PHC-B clients travelled beyond 2 km to seek care (17% in PHC-A travelled more than 5 km).

**Cost-effectiveness**

Annualized total cost in 2000–01 was Rs.1,213,100/- (US$25,273) in PHC-A and Rs.1,298,622/- (US$27,055) in PHC-B (Table 4). The proportion spent on salaries was 62.7% in PHC-A and 78.6% in PHC-B, while that on patient care was 29.5% and 16.7%, respectively. The ratio of salaries to patient care was 2.13 in PHC-A and 4.7 in PHC-B. Maintenance share was 2.1% in PHC-A and 0.8% in PHC-B; PHC-A spent eight times more on investment too. Despite PHC-A's total cost being lower by 7% than PHC-B's, it spent 62.4% more on non-salary items.

Although panchayat support to PHCs was not significant in terms of its share in income, it made a difference to cost efficiency as the provider cost of serving a client in PHC-B (Rs.143.54 or US$3) was double that of PHC-A (Rs.70.69 or US$1.5) in 2000–01.

**Role of panchayats in strengthening PHCs**

Panchayat-PHC linkage was the main focus of the key informant interviews. Response rate (percentage of questions answered by informants) was high (68.9%); 69.6% in PHC-A and 68.3% in PHC-B. According to informants, the strength of a PHC is indicated, in order, by:

- Uninterrupted supply of medicines and water,
- Presence of doctor for longer time and extended outpatient hours,
- Provision of adequate facilities,
- Good doctor-client relationship,
- Good doctor-staff relationship and participatory PHC management,
- High quality care,
- Intense field activities.

The informants were of the opinion that the efficiency of a PHC has to be judged by the level of supply of medicines and that prescriptions to buy medicines from outside should be viewed as indicative of inefficiency. Using this criterion, it can then be said that PHC-A was relatively efficient because only 30.2% of its clients bought medicines from private outlets (51% in PHC-B).

How can panchayats strengthen PHCs? All the panchayat and PHC informants felt that panchayat intervention would strengthen PHCs and listed five possible roles for panchayats in strengthening PHCs:

- Providing medicines,
- Facilitating the implementation of national health programmes,
- Constructing buildings,
- Conducting routine maintenance work,
- Improving (clinical and non-clinical) facilities.

Panchayat support was found to be ‘adequate’ in PHC-A and ‘inadequate’ in PHC-B. Informants termed the panchayat-PHC relationship as ‘cordial’ in both places; however, further enquiries revealed that the relationship was not that cordial in PHC-B and whatever interactions existed were for personal benefit. While the panchayat president said that the panchayat never received proposals (to fund a PHC-level project on disease control or infrastructure) from the PHC medical officer, the latter reported that the panchayat never sanctioned any project proposed by the medical officer. On the other hand, good relationships existed between these two institutions in the case of PHC-A for the overall benefit of the PHC. Nevertheless, the interactions in both the PHCs so far remain at the individual level and need to be institutionalized (i.e. coordinated at the institutional level) through joint seminars so that the PHC performance could be appraised jointly.

**Discussion**

Health care is one service that has local public good characteristics and is often considered suitable for decentralized financing. One of the potential gains of political decentralization for health care is the possible improvement in service delivery and access (Collins and Green 1994; Capuno 1999;
Raghuram 2000). Improved efficiency in service provision under decentralization has been reported elsewhere (World Bank 1993), but there is also a danger that poorly designed decentralization might cripple the local health care delivery system (Collins and Green 1994; Zakus 1998). Country experiences regarding decentralization vary widely, with the share of local governments in total government expenditure varying between 3.9% in Kenya and 37.6% in the Russian Federation (Ter-Minassian 1997). International experience has also shown that major taxes are assigned to the central government, whereas substantial expenditure responsibilities are devolved to regional and local governments, thus resulting in sizable vertical imbalances. Local governments in the UK, for instance, share 22.7% of the expenditure burden with a revenue share of 3.6%. Similarly, weak institutions can throw out the theoretical benefits of decentralization.

The results of this study must be interpreted with caution. First, analysis here pertains to one point in time and to a limited number of PHCs and panchayats. Moreover, decentralization is still at its nascent stage. As a result, the paper provides only few hints on the possible impact of decentralization. Secondly, resources are not automatically translated into quality of care. It requires efforts that cannot be measured in monetary terms to transform resources into service quality. This paper does not capture this. Thirdly, information was not collected from those who are not accessing PHCs. As the results indicated, PHC clients visited the PHCs continuously and consistently, indicating exclusion of others who never used this service for various reasons. Our results can be considered biased to this extent.

Is health a luxury commodity?

Panchayat spending of 0.11% is particularly low in a State like Kerala that spends about 7% of its budget on health. Considering that panchayats control about 13% of State resources, low panchayat allocation means low resource availability to health. Poor allocation to health will adversely affect Kerala’s health status because it has higher chronic disease morbidity (1.5 times the national average), which usually demands relatively more resources (Sharief 1999).

Interviews with key informants indicate that PHCs are not actively involved in the resource allocation process. The absence of active bargaining for funds from PHCs and lack of technical skill to convert health needs into strategies or interventions, together with active lobbying for funds by other sectors (health is only one among 29 subjects transferred to panchayats) and sub-sectors (Indian systems of medicine), have contributed to the lower allocation to health in general and to PHCs in particular. One way to arrest the trend of declining resources to health is to enhance the level of PHC participation in the decentralization process. Otherwise, PHCs’ loss will automatically transform into other sectors’ gain.

Another area that requires attention is the unequal distribution of health resources across panchayats. As the top 10% controls half of the resources at stake, the resource flow to health is largely determined by the resource worth of panchayats. This kind of allocation can create a vicious circle of ill health and poverty amongst the panchayat populations.

Nature of panchayat intervention and its impact

Panchayats’ role vis-à-vis PHCs so far has been restricted to some minor investments towards infrastructure development, purchase of furniture, organization of immunization and health camps and maintenance to some extent. While panchayats’ contribution to maintenance and investment was found to be significant, resource flow towards direct patient care was minimal. Steps to strengthen PHCs (uninterrupted supply of medicines and water, extended doctor stay, high quality care and good doctor-client and doctor-staff relationship) were also found to be absent in the studied panchayats.

Impact on PHC performance

Despite panchayats’ resource support being negligible, it made a significant difference to PHC functioning, leading to doubling of patient load and 50% reduction in provider cost per client. This has been demonstrated by the differences in outcome between two otherwise similar PHCs, one well supported and the other not. Simple decomposition (disaggregation) analysis (Klein 1975) suggests that a 13–14% increase in resources for maintenance expenditure would double client load and halve the cost per client. If the ‘not-so-good’ panchayat decides to match the ‘good’ panchayat in resource support, it is likely to increase client load of the respective PHC by 18.2% and reduce it’s per client cost by 10.3%. More than the amount of money saved, what is important here will be the timely availability and recurrent nature of resources.

Even in instances where a link could be perceived between panchayat intervention and PHC functioning and client benefits, the help extended by panchayats to PHCs so far has been inadequate. This holds good for the well-supported PHC too. Panchayats have to accelerate their support to the PHCs, especially in creating better infrastructure, clinical and other facilities, thus enhancing the quality of care. For instance, an annual monetary support of Rs.45 000/- (about US$940) could extend the primary care facility to about 3000 (15.5%) more patients in the poorly supported PHC.

Impact on client care

From the clients’ point of view, the PHC receiving better panchayat support catered to a greater client load and attracted clients from distant places for treatment of common diseases. If the panchayat failed to allocate resources to this PHC, it would have meant denial of access to nearly 50% (about 4000) of clients. Other access and quality indicators were also better in this PHC. Over 90% of its clients repeatedly utilized this facility and received drugs, injections and information materials whenever they visited. Since the PHC provided the required medicines to its clients, the necessity to buy medicines from private drug stores was kept to a minimum. This has ultimately benefited the poor, as the majority of patients lacked adequate purchasing power. The overwhelming use of PHC-A for treatment of common
diseases signalled the existence of better quality of care here. In particular, about 6% of those who sought immunization and antenatal care from elsewhere switched to this PHC for the treatment of common illnesses. It is significant to note that its clients had to travel longer distances to access the PHC. In contrast, 30% of those seeking antenatal care from the less-well-supported PHC used other centres for treatment of common illnesses.

Lessons learnt

The advantage of Kerala’s decentralization is the dynamism that it has brought into the resource allocation mechanism. Financial devolution to panchayats is such that each village panchayat in Kerala, on average, commanded control over Rs.9.8 million (US$0.2 million) in 2001–02 (Government of Kerala 2002). This is big money to village panchayats, which have never had so many resources at their disposal. Not only did the panchayats have this large sum of money, they also had the opportunity to re-allocate it through a visible, vibrant and bottom-up approach. Moreover, the resources were ‘investible’ and hence, directly benefited the target groups.

Nevertheless, the health sector, particularly the allopathic sector, has failed to attract panchayat resources, partly because of the State Planning Board directives and partly because of the health sector’s lukewarm response to the entire decentralization process. In the absence of active lobbying and technical expertise to convert health care needs into fundable projects, the panchayats were helpless and allocated insufficient funds to health. Even those PHCs that cooperated better with the panchayats lacked innovative ideas to attract resources towards them. At the same time, the PHC medical officers who had innovative ideas did not possess the skill or training to transform them into projects. Consequently, they ended up suggesting cost-ineffective ways of spending money such as Hepatitis-B vaccination. The State Planning Board’s directive (till recently) to panchayats not to spend resources on purchase of medicines and creation and maintenance of facilities compounded the problem further.

Decentralization also seems to create inequity of a different kind between the panchayats. Certain panchayats are more resourceful and are able to allocate more resources to health, while others are unable to allocate enough to the health sector. Some form of cross-subsidization between panchayats could help to reduce the gap between the have and have-not panchayats. There are also implementation difficulties such as untimely release of resources from the State to the panchayats owing to the State fiscal crisis. As a consequence of this, panchayats lost credibility in the eyes of those who undertake development works for them, and hence, many projects that were originally planned were abandoned during the implementation stage.

Overall, decentralization has not brought about any significant change (quantitative or qualitative) to the health sector. Active panchayat support to PHCs existed in only a few places, but wherever it was present, the result was found to be good. The government is now trying to remove certain bottlenecks that existed before through new measures, for example 10% of panchayat plan resources are allowed to be spent on maintenance of health care facilities, for which the PHC medical officer is required to prepare a written document on the PHC needs for the year ahead. There are also efforts to bring panchayats and PHCs closer, to improve the relationship between them; at present, after 6 years of experience, even the most optimistic estimate places the relationship at 6.0 in a 10-point scale, while the critics put it below 4.0.

Similarly, there are efforts to mobilize the local out-of-pocket health resources and put them to use in an organized manner through self-help groups. These efforts have yet to bear fruit because government does not want to include above-poverty groups in this activity. If the above-poverty section is not involved, then the survival of the self-help groups becomes questionable in light of the fact that the above-poverty section is the dominant source of finance for these groups.

Some of the problems in Kerala arose because of the ‘big bang’ approach taken. Under this approach, the decentralization process was a revolution rather than an evolution. An evolutionary approach may be a preferred option, and states/countries wanting to follow Kerala’s example should devise an appropriate mechanism to link the panchayats and health sector, and to train panchayat leaders and medical officers on project preparation before the devolution package is worked out. Other requirements for the success of the devolution package à la Kerala include:

- High rural literacy,
- Reasonably big local governments,
- Smooth mobilization of masses,
- Devolution package that includes non-salary recurrent expenditure of the health care centres.

Policy implications

Kerala should find an alternative strategy to channel panchayats towards health before health is defeated completely in its battle for resources. At present, decentralization does not figure in the agenda of the health care system. Unless it does, it will be difficult for the panchayats to unilaterally find resources for health. The PHC is a crucial organization in the resource allocation process under panchayati raj in Kerala. It disseminates technical expertise and knowledge on the health care needs of the population. Given this, PHCs should take an active initiative to attract resources not only to PHCs, but also to other spheres of health. Hidden behind the resources received by one PHC are the non-monetary efforts of individuals representing the two institutions – panchayat and PHC.

Similarly, panchayats are required to rethink their strategies vis-à-vis PHCs. They should view the government health care sector as an opportunity to serve the people by improving its functioning and not merely as a power centre to wield authority over PHC staff. They should widen the scope for intervention beyond the creation of routine facilities and maintenance. Patient care is an important activity that was
left out of *panchayat* responsibilities/control earlier, partly due to government guidelines and partly due to ignorance or ego clashes. The organization of monthly seminars is an option open to *panchayats* to review PHC performance and to take stock of the facilities.

While the PHC may be a crucial institution in the rural health sector, it is not possible for it to address the entire health care needs of the population, as indicated by our findings. A group of people not accessing PHCs for whatever reasons may remain untreated, may directly access higher-level government health care facilities (as there is no proper referral system in place), or may approach the non-government sector. Even those accessing PHCs may still use the non-government sector, as indicated by our finding that 30–50% of patients were referred to the non-government sector for purchase of drugs and supplies and performance of laboratory tests. While *panchayats* are concerned about the government health care sector (both modern and indigenous), the non-government sector is left outside their purview. Since this sector has a significant stake even in the rural health sector, and its actions influence the health status of the people, it is appropriate for *panchayats* to view the health system at a broader level rather than focus only on government care.

It is also essential to evolve an institutional mechanism to formalize the community support in a comprehensive manner. At present, the institutional mechanism is limited to the transfer of Plan outlay to local bodies. Ideally, it should cover resources generated by the community as well, in order to obtain more equitable distribution of community resources. One of the drawbacks of the community-based resource base is that it is spatially variable and unsustainable. It is possible for Government to make it uniform and sustainable by evolving appropriate strategies, and to make the system transparent and accountable, one of the key objectives of decentralization.

Endnotes

1 Government (both centre and state) resources in India are allocated under two major headings – Plan and non-Plan. Resources allocated to Plan funds are spent on long-term investments such as creation of new facilities and positions. Non-Plan funds, on the other hand, meet the routine recurrent expenditures such as staff salaries, maintenance of facilities, etc.

2 Grant-in-aid resources are the untied, non-interest bearing and non-repayable government resources.

3 A self-help group is a group of about 25 villagers joining together to transact small-scale financial business.

References


Varatharajan D, Sadanandaran R, Thankappan KR, Mohanan Nair V.
2002. Idle capacity in resource strapped government hospitals in Kerala: Size, distribution and determining factors. Thiruvananthapuram: Achutha Menon Centre for Health Science Studies, Sree Chitra Tirunal Institute for Medical Sciences and Technology.


Biographies

Dr D Varatharajan, MSc, Ph.D., is Associate Professor at Achutha Menon Centre for Health Science Studies, Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram. He obtained his MSc (Mathematical Economics) from Madurai Kamaraj University, his PhD (Economics) from the Indian Institute of Technology, Kanpur and post-doctoral training from Harvard School of Public Health. He is the recipient of the Nick Prescott (Asia-Pacific Health Economics Network) Prize, 2000. He is the course coordinator for the MPH programme in the Institute and also the state coordinator for training senior health officers from Gujarat. He has several publications in health economics and policy, and has guided various research projects.

Dr KR Thankappan, MD, MPH, is Additional Professor and currently the head of Achutha Menon Centre for Health Science Studies, Sree Chitra Tirunal Institute for Medical Sciences and Technology. He obtained his MD in Social and Preventive Medicine from the Medical College, Thiruvananthapuram and his MPH from the Harvard School of Public Health. He has several publications and is the guide to various research projects in the Institute.

Dr Sabeen Jayapalan, MD, DNB, M.Phil., is a Research Officer (Oral Rehydration Therapy) in the Kerala Government Health Services, Thiruvananthapuram. She obtained her medical graduation, MD and M.Phil., from Thiruvananthapuram Medical College.

Correspondence: Dr D Varatharajan, Associate Professor, Achutha Menon Centre for Health Science Studies, Sree Chitra Tirunal Institute for Medical Sciences and Technology (SCTIMST), Thiruvananthapuram 695 011, Kerala, India. Fax: 91–471–446433; e-mail: dvrajan@sctimst.ac.in and dvrajan2001@yahoo.com