Shifting the Demand for Emergency Care in Cuba’s Health System

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Abstract

Cuba developed a programme of quality improvement of its health services, which included an extra muros emergency care system in which policlinics and general practitioner networks play an important role. Using routine health information from the decentralised first line emergency units (FLES) and from the hospital emergency service (HES) for the period 1995-2000, we evaluated the effects of the emergency care subsystem reform on the utilisation rates of first line and hospital services in Baracoa and Cerro, a rural and a metropolitan municipality respectively.

In the self-contained health system of Baracoa, the reform of the emergency subsystem resulted in a first phase of increased utilisation of the FLES, followed by a second phase of gradual decrease, during which there was an increased utilisation of general practitioners. In contrast, the overall results of the reform in Cerro were unclear. Proximity of a hospital seems to be the most important element in the patient’s decision on which entry point to the Cerro health system to use. A potential adverse effect of the reform is an increased emergency services utilisation in situations where GP care remains below patients’ expectations. Given the current world-wide trends in health care reform, the organisational alternatives developed in the Cuban health system might remain specific to the local contextual setting.
**Key words**

Cuba

Health-service-organisation

Health-sector-reform

Emergency-care

Decentralisation

First-line-health-services
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Introduction

In many countries the historical function of hospital emergency departments was to care for patients who did not have the financial means to consult private physicians (Blackwell & Cantab, 1962). Once social security systems and financially accessible first line health services were developed, the function of emergency departments shifted towards ensuring adequate response to accidents and legitimate medical emergencies. However, many patients continue to visit emergency departments for problems that could have been solved at the level of a family doctor or health care centre. Extensive literature documents the inappropriate use or even the abuse of emergency services (Davidson, Hildrey & Floyer, 1983; Davies, 1986; Foster, Dale & Jessopp, 2001; Fouroughi & Chadwick, 1989; Murphy, 1998; Myers, 1982).

Proposals to improve emergency systems traditionally focused on either effectiveness (improve the quality of human resources, physical structure and technical capacity) or efficiency (decrease workload by separating ‘real’ emergencies from ‘inappropriate’ demand) (Olesen & Jolleys, 1994). It is well recognised that direct involvement of emergency medical specialists is one of the most critical determinants of effectiveness (Bickell, 1994; Falk, 1993). Likewise, infrastructure, medical supplies and transport facilities are essential.

Unfortunately, even after introducing a broad array of initiatives to canalise non-emergent patients to a corresponding level of care, inappropriate use of emergency services continues to be a problem (Hull, Jones, Moser & Fisher, 1998; Rund, Nemer, Robertson, Moeschberger & Garraway, 1992). Cuba’s national health system is also confronted with this problem.

At the beginning of the 90’s, radical changes in the terms of trade with the former Soviet Union and the tightening of the USA embargo drastically reduced the national income.
(PAHO, 1998) Health care spending dropped and scarce resources were concentrated
(Kirkpatrick, 1996). This resulted in patients, who could have been appropriately attended by
family physicians, overcrowding hospital emergency units, perusing scarce resources and
receiving sub-optimal care (Bolibar, Balanzo, Armada, Fernandez, Foz, Sanz et al., 1996).

Despite the economic crisis, the authorities did not turn to privatisation of health care services
nor cost recovery schemes. The Cuban health care system continued to offer free preventive,
curative and rehabilitation services at the different levels of care (Delgado, 1998; Feinsilver,
1993). It developed plans for rationing health care and increasing efficiency, while ratifying
the principles of state responsibility, equity and universal coverage.
The Ministry of Health set up a programme of quality improvement, strengthened family and
preventive medicine, and introduced decentralisation, inter-sectorial action and community
participation. Emphasis was put on maternal and child health, chronic non-communicable
diseases, communicable diseases, and care of the elderly (PAHO, 1998; Rojas & López, 1997;
Van der Stuyft, De Vos & Hilderbrand, 1997; Veeken, 1995).
Measures implemented to strengthen family medicine included improving drug availability
and follow up of patients. A programme of home hospitalisation was reinforced, and an extra
muros emergency care system was set up, in which first line policlinics and general
practitioner networks played a central role (MINSAP, 1996; PAHO, 2002).
In the framework of an inter-institutional collaboration between Belgian and Cuban research
institutes, the authors have been studying Cuba’s first line health care reform since the mid-
nineties. They researched the effects of this reform of the emergency care system on the
utilisation rates of first line and hospital level services. (MINSAP, 1996).

Material and methods
The emergency system reform

Cuban municipalities are divided into health areas, in which a policlinic organises the first line health care for about 30,000 inhabitants (MINSAP, 1996; PAHO, 1998). It covers the whole population with a family doctor (general practitioner – GP) Program (one family doctor and one nurse per 700-800 inhabitants), and ensures the necessary diagnostic support and specialist backstopping.

Until 1996, only hospital emergency services (HES), covering about 150,000 inhabitants, offered an acceptable quality of emergency care. From then onwards, adequately equipped and supplied first line emergency services (FLES), with well trained personnel, were gradually set up. Each municipality had an associated principal emergency policlinic (central first line emergency service), combined with a variable number of emergency centres (smaller and more peripheral care centers) (Chang, Alemán, García & Miranda, 2000; MINSAP, 2002).

Selected study sites

Baracoa and Cerro, a rural and a metropolitan municipality respectively, were selected to evaluate the effects of the reform. Baracoa is situated on the northern coast of the Guantánamo province of Cuba. This municipality has a population of 85,000 inhabitants. It is composed of an urban, peri-urban and rural, mostly mountainous zone, of which some parts have difficult accessibility. In Baracoa, roughly 190 physicians are working in three health areas. The municipal hospital is located near the principal emergency policlinic. Baracoa is geographically isolated from the rest of the province and from the provincial reference hospital situated in Guantánamo, the provincial capital. An ambulance takes two and a half hours to cover the distance of 170 km between the two towns.
Cerro is one of the central municipalities of Havana, Cuba’s capital. The municipality is densely populated with a total of about 122,000 inhabitants. It is divided into four health areas, covered by an estimated 185 general practitioners. Cerro is characterised by a complex and open metropolitan health services network comprising of two hospitals, and three others situated just across the municipal boundaries. Hence the majority of its inhabitants live within walking distance from a hospital. The principal emergency policlinic is in Maceo, the health area most distant from the aforementioned hospitals.

**Data collection**

For the period 1995-2000 we established the number of patient contacts with first line services (general practitioners), decentralised FLES and HES. The research team extracted the raw data from the routine health information system, acknowledged by UNDP to be of good quality (UNDP, 2002). Utilisation rates were calculated with yearly-adjusted population figures provided by the Ministry of Health (MINSAP, 1995-2000).

In 1998 the definition of ‘real emergencies’ was standardised and a training programme was developed for all doctors working in emergency services. At the FLES, ‘real emergencies’ include all health problems that are either immediately or potentially life-threatening or acute (MINSAP, 2002). From July 1999 onwards, information on the emergency status of patients was collected on a specially designed form by the physicians who attended the patients. The research team ensured adequate supervision of the data collection process, through revising a sample of the forms with the health staff during the monthly site visits and by systematic checks for inconsistencies after data entry. The complex geographical distribution of HES and FLES in Cerro, described above, made us collect patient-origin specific utilisation figures for the HES from Cerro and neighbouring municipalities. The research team performed a
secondary analysis of routine hospital data, differentiating between inhabitants of Cerro and other users of the hospitals in this municipality to calculate correct utilisation rates. For three other hospitals in neighbouring municipalities that attract patients from Cerro, we also collected specific HES utilisation data and calculated patient origin specific utilisation rates. Since this detailed information was not available through the routine health information system, the collection of these data was limited to 1999.

3. Results

During the 5 years after the decentralisation of emergency services (January 1996 in both municipalities), the utilisation of the HES in Baracoa gradually decreased 30% from 0,88 contacts per person and per year (cpy) to 0,62 cpy (Figure 1). The utilisation rate of the FLES increased 70% from 0,31 cpy to 0,53 cpy between 1995 and 1997, and then again decreased to 0,39 cpy during the following years. The total emergency utilisation rate, after a temporary rise, decreased 18% from 1.23 cpy in 1996 to 1.01 cpy in 2000. Over the same time span, the utilisation rate of family doctors or gradually rised 39% from 3,6 cpy to 5 cpy.

The ratio of emergency services / family doctors fell from 0,33 in 1995 to 0,20 in 2000. Over the same period, the total number of patient contacts (family doctors, HES and FLES) raised from 4.83 cpy in 1995 to 6 cpy in 2000.

The emergency status of the patients was analysed for a 2 year period (July 1999 to June 2001). The decreased utilisation rates of FLES over that period was mainly due to a 27% reduction of non-emergencies (from 4944 to 3597 contacts per trimester), while the number of cases defined as “real emergencies” remained stable around 3750 contacts per trimester. The proportion of contacts evaluated by the medical staff as “real emergencies” hence increased from 42% in the third trimester of 1999 to more than 50% in the second trimester of 2001.
While the total utilisation rate for the different health care entry points was similar in all three areas of Baracoa (between 5.1 and 5.7 cpy), there was a difference in the specific utilisation rates (Table 1). In Tamayo, the area where the hospital is situated, we calculated a hospital emergency care utilisation rate of 0.66 cpy, while that figure was 0.45 cpy in the nearby Turey area and 0.23 cpy in the mountainous area of Jamal. This is compensated in Turey by a higher use of FLES, while in the mountainous Jamal area with more difficult access to emergency services, the family doctor utilisation rate was higher.

In the metropolitan Cerro municipality, the HES utilisation rates only slightly decreased by 8% (from 1.4 cpy to 1.3 cpy) after the introduction of the decentralised emergency system in 1996. The FLES utilisation rates increased more than 55%, from 0.6 cpy to 1.0 cpy, and the family doctor utilisation increased with about 10% from 4.2 to 4.6 cpy. The total utilisation rate varied between 6.2 and 7 cpy (Figure 2).

To fully understand the health services utilisation patterns in Cerro, we differentiated between inhabitants of Cerro and other users of the hospital emergency services. While the uncorrected emergency services utilisation rate of both hospitals in Cerro is 1.26 cpy in 1999, the area specific utilisation rates of the ‘General Hospital Salvador Allende’ and the ‘Paediatric Hospital of Cerro’ is 0.83 cpy (Table 2). Over the same year, the inhabitants of Cerro had 0.58 cpy in two general hospitals and one paediatric hospital, located near Cerro. A geographical analysis of the patient flow showed a quite diverse utilisation pattern by area (Figure 3). The total utilisation rates of the different entry points into the health care system varied from 5.3 cpy in Abel to 8.3 cpy in Maceo. While the family doctor contacts per person and per year varied from 2.4 in Abel to 6.0 in Maceo, the emergency services (ES) utilisation rates varied only slightly between 2.3 cpy in Maceo or Girón and 2.9 cpy in Abel. On the other hand, the FLES / HES-ratio showed a clear variation, from 0.3 in Cerro to 2.3 in Maceo. The
emergency services / family doctor-ratio was between 0.4 and 0.6, except in Abel where the low family doctor utilisation rate pushed the ratio to 1.2.

4. Discussion

The political priority given to health in Cuba, in the form of good quality services free of charge at the point of delivery, explains the high utilisation rates found at all levels of the system. Due to its specific socio-political context, Cuba is thus not confronted with the essential problem that most developing countries are facing: ensuring accessible health services of acceptable quality for all (Segall & Gryseels, 2003). Today, the country’s priority is to consolidate these accomplishments in a difficult international economic and political environment. To that objective, structural reorientation of patient demand to the adequate level of care is central to improving the efficiency of the system.

With regard to adequate use of emergency services, the definitions of ‘minor problems’ and of the category of ‘inappropriate user’ in emergency care continue to be controversial (Smith, Lattimer & George, 2001). While a body of literature on the subject claims that the majority of these patients would be better off by consulting a competent general practitioner instead of emergency services, explicit objective criteria for ‘inappropriate’ use are frequently lacking (Walsh, 1995). Besides, the patients’ perception should be included to define what constitutes an ‘inappropriate’ visit to the emergency department (Hewstone & Antaki 1988; Shaih, 1993). The ‘health belief model’ takes into account that patients perform a personal cost-benefit analysis when deciding to utilise a particular service (Jones, Jones & Katz, 1991; Rosenstock, 1974). When financial considerations are of marginal importance, as is the case in Cuba, the decision to visit a family doctor might depend on the perception of the problem or disease experienced (Irwin & Jessop, 1993; Knaus, Draper, Wagner & Zimmerman, 1993), the
personality of the patient and his confidence in the physician, and the perceived technical ability of the physician, his accessibility and the existing material conditions in which he works (Singh, 1988; Wood & Cliff, 1986). The patient’s decision is also largely influenced by his personal expectations and preferences. From this point of view, “inappropriate use” is the result of a rational process that requires adequate evaluation by family doctors and hospital emergency departments (Andersen & Gaudry, 1984; Dale, Green, Reid & Glucksman, 1995; Lang, Davido, Diakite, Agay, Viel & Flicoteaux, 1996; Mallon, Cullen, Keenan, Kiberd & Matthews, 1997; Murphy, 1998; Siddiqui & Ogbeide, 2002). Restructuring to promote patients’ use of adequate entry points to the health system should therefore be based on the integration of hospital and first line health care, optimal care quality and accessibility, better communication, and health promotion (Anonymous, 1979; Hadfield, Yates & Berry, 1994; Swerissen, 2002).

The evolution of the utilisation rates between 1995 and 2000 can not be explained by economic change, evolutions in disease patterns, epidemics or natural disaster. In the closed and self-contained health system of Baracoa, the reform of the emergency subsystem initially resulted in increased utilisation of the decentralised emergency units. This was followed by a gradual decrease of this FLES utilisation rate, with a concomitant increased utilisation of the general practitioners. Measures taken to reinforce the first level of care, and in particular the decentralisation of emergency services, seem to have resulted in a ‘two-step’ channelling of demand for non-urgent health care towards family doctors. Our findings suggest that the decentralisation of the emergency services is, at least in a closed setting, a useful strategy to diminish the pressure on the HES and to improve the use of the first line services as entry point.
The overall results of the reform in Cerro, a complex metropolitan health system, are, in contrast, unclear. The total emergency utilisation rate (HES + FLES) remains high, and on top of this the decentralised emergency service in the Maceo area seems to function as a ‘small hospital’. Furthermore, the family doctor utilisation rates differ sharply from one area to the other. The proximity of a hospital appears to be the most important element in the patient’s decision on which entry point to the health system to use.

Only a contextual analysis, taking into account the specific features of the Cuban social and health system, can lead to a full understanding of the local impact of the Cuban emergency care system reform, and create opportunities to further adapt the system to the patients’ problems and needs. In Baracoa a well functioning family doctor programme has been in place for more than 15 years in both the urban and rural parts of the municipality. The family doctors mostly live in the community they serve. This may be essential to ensure a gradual shift of the patient flow from emergency services to family doctors. Also, a systematic and well-organised GP-involvement in the emergency network may ensure a growing confidence of the FLES-patients towards ‘their’ family doctor and his technical skills. Together with a sufficient technical and an adequate drug provision, this may enhance the attractiveness and utilisation of this level of care. In the metropolitan setting of Cerro, however, the family doctor programme has been implemented more recently. It has also suffered from the lack of stability of family doctors. Furthermore, because of lack of adequate facilities, most family doctors practise in the premises of polyclinics, not necessarily located in the neighbourhoods they serve. This can compromise the quality of the relationship with the population. More importantly, the introduction of a decentralised emergency service can result in an adverse effect of increased ‘emergency’-contacts in situations where the first line care remains below the patients’ expectations.
The Cuban experience with decentralising emergency services in direct collaboration with the first line health services, could be useful for other countries seeking a strategy to alleviate the pressure on overcrowded hospital emergency services and to reinforce the first line health services. However, given current world-wide trends in health sector reform, the organisational alternatives developed in the Cuban health sector may be specific to the local context. First, the Cuban authorities had no recourse to financial barriers to deter patients from non-appropriate health care seeking behaviour at the level of the emergency services. Furthermore, the existence of a unified public health system, without parallel insurance and/or private service delivery, facilitates government stewardship in planning and restructuring (Murphy, Leonard, Plunkett, Bury, Lynam, Smith et al, 1997; Rojas & López, 1997).

Finally, while in many countries health care and social services are affected by the introduction of cost recovery schemes and privatisation (Estrada, Barilari, Sepulveda & Soto, 1998; Iriart, Merhy & Waitzkin, 2001; Stocker, Waitzkin & Iriart, 1999), Cuban health services remain public and free at the point of delivery. Cuba also continues to rely on the state as ‘organiser’ and not just as ‘regulator’ of comprehensive and integrated health care. In a world where scarce economic resources are increasingly constraining the development of social policies, the results of Cuba’s alternative health system reform should contribute to the international debate on health sector policies.
Acknowledgements

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References


Table 1: Utilisation rates, per health area, of family doctors and Emergency services at First line (FLES) and Hospital (HES) level (Baracoa, 2000)

<table>
<thead>
<tr>
<th>Area</th>
<th>Population</th>
<th>HES</th>
<th>FLES</th>
<th>family doctor</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tamayo</td>
<td>36 121</td>
<td>0.66</td>
<td>0.32</td>
<td>4.71</td>
<td>5.69</td>
</tr>
<tr>
<td>Turey</td>
<td>30 295</td>
<td>0.45</td>
<td>0.43</td>
<td>4.21</td>
<td>5.09</td>
</tr>
<tr>
<td>Jamal</td>
<td>18 861</td>
<td>0.23</td>
<td>0.35</td>
<td>5.02</td>
<td>5.60</td>
</tr>
<tr>
<td>Total</td>
<td>85 277</td>
<td>0.62</td>
<td>0.39</td>
<td>4.6</td>
<td>5.61</td>
</tr>
</tbody>
</table>
Figure 2: Utilisation rates of Family doctors and Emergency services at First line and Hospital level (Cerro 1995-2000)

Table 2: Area specific Utilisation rates of family doctors and Emergency services at First line (FLES) and Hospital (HES) level (Cerro 1999)

<table>
<thead>
<tr>
<th>Area</th>
<th>Municipality of CERRO</th>
<th>Maceo</th>
<th>Cerro</th>
<th>Girón</th>
<th>Abel</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL Utilisation Rate</td>
<td>7.0</td>
<td>8.3</td>
<td>6.7</td>
<td>7.8</td>
<td>5.3</td>
</tr>
<tr>
<td>Family Doctors U.R.</td>
<td>4.6</td>
<td>6.0</td>
<td>4.2</td>
<td>5.5</td>
<td>2.4</td>
</tr>
<tr>
<td>Emergency Services U.R.</td>
<td>2.4</td>
<td>2.3</td>
<td>2.5</td>
<td>2.3</td>
<td>2.9</td>
</tr>
<tr>
<td>First Line ES</td>
<td>1.0</td>
<td>1.6</td>
<td>0.6</td>
<td>0.9</td>
<td>1.4</td>
</tr>
<tr>
<td>Hospital ES</td>
<td>1.4</td>
<td>0.7</td>
<td>1.9</td>
<td>1.4</td>
<td>1.5</td>
</tr>
<tr>
<td>HES Cerro</td>
<td>0.8</td>
<td>0.3</td>
<td>1.9</td>
<td>0.5</td>
<td>0.2</td>
</tr>
<tr>
<td>Hosp. Salv. Allende</td>
<td>0.45</td>
<td>0.10</td>
<td>1.02</td>
<td>0.32</td>
<td>0.13</td>
</tr>
<tr>
<td>Paed. Hosp. Cerro</td>
<td>0.38</td>
<td>0.16</td>
<td>0.92</td>
<td>0.14</td>
<td>0.07</td>
</tr>
<tr>
<td></td>
<td>0.6</td>
<td>0.4</td>
<td>0.0</td>
<td>0.9</td>
<td>1.3</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td>HES outside Cerro</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hosp. 10th of Oct</td>
<td>0.34</td>
<td>0.00</td>
<td>0.00</td>
<td>0.57</td>
<td>0.98</td>
</tr>
<tr>
<td>Hosp. J. Alb.</td>
<td>0.09</td>
<td>0.43</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Paed. Hosp. Ct.Hab.</td>
<td>0.15</td>
<td>0.00</td>
<td>0.00</td>
<td>0.34</td>
<td>0.33</td>
</tr>
<tr>
<td>Ratio Em.Serv./Fam.Dr.</td>
<td>0.5</td>
<td>0.4</td>
<td>0.6</td>
<td>0.4</td>
<td>1.2</td>
</tr>
<tr>
<td>Ratio FLES/HES</td>
<td>0.7</td>
<td>2.3</td>
<td>0.3</td>
<td>0.6</td>
<td>0.9</td>
</tr>
</tbody>
</table>
Figure 3: Geographical representation of the utilisation rates of the different hospital emergency services in Cerro, 1999.

HPCH = Paediatric Hospital of Centrohabana
HSA = Salvador Allende Hospital
H10O = Hospital of the 10th of October
HPdC = Paediatric Hospital of Cerro
HJA = Joaquin Albarrán Hospital