



# Another Look at Emergency Room Overcrowding: Accessibility of the Health Services and Quality of Care

P. LOMBRIL, \*†‡ C. VITOUX-BROT, §  
A. BOURRILLON, §¶ M. BRODIN\*† and  
G. DE POUVOURVILLE‡

\* Public Health Service, Robert Debré Hospital, Paris, France;

† Public Health Department, Bichat Medical School, Paris,

France; ‡ Groupe Image, National School of Public Health,

Saint-Maurice, France; § Emergency Room Department,

Robert Debré Hospital, Paris, France; ¶ Department of

Pediatrics, Lariboisière-Saint-Louis Medical School, Paris, France

**Purpose:** To describe both the social characteristics and the health needs of the medical users of a pediatric hospital Emergency Room with special emphasis on frequent use.

**Study selection:** Observational study on health services utilization and health care needs of young children consulting at a teaching hospital's Emergency Room.

**Data sources:** Mother interview and medical record review.

**Results of data synthesis:** Children from underprivileged strata are more often high Emergency Room users. Their preventive needs are satisfied but adequate follow-up of their medical problems is more often lacking.

**Conclusion:** To understand why some achievable benefits are not achieved it is necessary to evaluate the varying performance of health services according to the social origin of the users. © 1997 Elsevier Science Ltd.

**Key words:** Quality of care, hospital, emergency room, accessibility of care, health inequalities.

## INTRODUCTION

Most quality assurance activities in France today continue to be carried out on a case by case basis searching for adverse occurrences and verifying doctors' compliance with local procedural rules. A conceptual refinement is in progress with the implementation of quality management techniques adapted from industry. We think that a further step is mandatory: to look at the properties of the "raw material", i.e. in our case, the characteristics of the sick people we care for. In fact,

people consulting at our institutions are not a homogeneous mass with which we can deal uniformly. On the contrary, recognizing the differential needs of our "clients" according to their social origin is essential in order to be able to deliver quality care to each of them. The example of the emergency room (ER) is particularly apt.

Health professionals staffing emergency departments of public hospitals, at least in the Western world, complain of deteriorating working conditions due to overcrowding [1,2]. This phenomenon is concentrated in metropolitan areas [3-5]. A global increase in occasional use by the general population may explain some part of this ever heavier ER activity [6,7], but repeated visits by some of the patients deserve particular attention [8,9]. These latter people, whether they are labelled; "chronic patients" [10], "heavy users" [11,12] or "repeaters" [8], are often considered to make undue use of ER facilities [13,14] by consulting ordinarily for non-emergency problems [15-18]. However, these patients often perceive a need for immediate care [17,19] and their social origin casts doubts about their ability to use alternative services [5,20]. Furthermore, Scandinavian observations have pointed out that adult "repeaters" share a considerable risk of mortality in the near future [8,11].

If frequent ER use has been described mainly in adults, this phenomenon is also common in children [21,22]. The majority of the visits are for minor problems [23-25]. Some of the reasons are probably age specific, particularly for newborns and infants [26] who represent the vast majority of patients [27]. However, with the possible exception of Canada [28], in children, as in adults, socially disadvantaged strata of the population are overrepresented among high ER users [21-27]; the same strata are affected by delayed access to health care [29] and health inequalities [30-32].

Instead of thinking in terms of "inappropriate use" [13], it may be more promising to look at the needs of these "undesirable" users and to examine without prejudice the role that a hospital ER may play in satisfying them [8,33,34]. In fact, it is hardly surprising

that most of the studies of access do not address at the same time the health needs of the patients and how to satisfy them.

The aim of this study was to describe both the social characteristics and the health needs of the medical users of a pediatric hospital ER, with special emphasis on frequent use. We chose to investigate children aged 2–36 months because we were primarily interested in looking at provision of preventive care, particularly important at this age. Our hypotheses were the following:

- frequent ER use is made preferentially by children from underprivileged strata of the population served by the hospital.

- frequent users are more dependent on the hospital for their care.

- the ER is not the best place to deliver preventive care but, in France, community well-child clinics could effectively provide such care for a significant proportion of the patients.

## METHODS

### *Setting*

Robert Debré Hospital is a 500-bed pediatric teaching hospital active in the north-east of Paris since May 1988. The ER activity ranks highest in France with 50 000 annual visits in 1992 (medicine: 70%, surgery: 30%). At the time of the study the staff consisted of three senior consultants and four residents during the day (8 a.m. to 7 p.m.), one senior and two interns at night. A daily record review (DRR) is conducted as a quality assurance activity by a senior consultant [35].

### *Patients*

One research assistant recruited consecutively 320 children, aged 2–36 months, consulting for a medical problem between the 26th of February and the 20th of May 1992. She worked 8 hours a day, 5 days a week, mainly during day time but also at night and during weekends. Each patient of the age under consideration presenting for the first time during the period of the study was interviewed before the visit. During this period, about 2000 children of the age considered visited the ER, 400 of them during the working hours of the research assistant. Eighty children were missed because they presented an emergency problem necessitating immediate medical attention, or—the majority—because the large number of children presenting at the same time made it impossible to interview all of them. For the purpose of the study we define “iterative users” as children who have already visited the ER for a surgical or a medical reason in the 3 months preceding the index visit. This information stems from the hospital information system (HIS, “patient care system” of IBM).

### *Variables and sources of the data*

To study the utilization of this pediatric medical ER we referred to the conceptual model of **accessibility of health services** developed by Andersen and Newman [36]. These authors identify three individual components of medical care utilization: predisposing component, enabling component and illness level (or need [37]).

- The **predisposing component** refers to the “propensity” of some individuals “to use services more than other individuals, where propensity toward use can be predicted by individual characteristics which exist prior to the onset of specific episodes of illness”. In this study we used age and gender as demographic variables and we were able to explore the following “social structural” variables:

- **one-parent family**: this factor is associated with health inequalities [31] and high use of ER care by children [3,26]. In this study the variable denotes that the mother is assuming parental duties alone.

- **child's rank order** is also a factor affecting pediatric care, first born children using more services than the others, the French curve abating after the third child [38].

- **place of birth of the father**: this was considered a proxy for the cultural background pertaining to the child's family. We contrasted the children whose fathers were born in Europe with others, since health beliefs and ways of using health services differ greatly between this continent and others (in this study, mainly Africa). Survey data have shown a great differential in use between foreigners and French people in our country [39].

- **professional activity of the father**: this factor is a strong predictor of health services utilization [40–43]. We initially coded the data according to the main categories retained for population survey by the French Institute of Statistics (INSEE): farmers, craftsmen and shopkeepers, executives, employees and workers. For multivariate analysis, in the absence of farmers in our sample, we compared, as others have done [44], “executives” (grouped with craftsmen and shopkeepers) with “workers” (grouped with employees). Students and unemployed people were grouped with “workers” on the basis of their socioeconomic power. This information is lacking for one-parent families.

- **maternal employment**: this factor is a marker of social stratification but also constrains the ability of a mother to use services during working hours and was found to be associated with mothers seeking more care for symptoms that are minor and can be managed with family-initiated care [45].

- the **enabling component** is related to conditions “which permit a family to act on a value or satisfy a need regarding health services” and “make health service resources available to the individual”. At least the two first social structural variables we explored are linked to a component of the predisposing conditions, i.e. attitudes or beliefs about medical care and disease. We considered:

— **health insurance of the child:** in France [46], as in the US [5], this factor is a strong predictor of the intensity and the forms of health services utilization. In France, all authorized residents are entitled to the sickness fund (so called “assurance maladie” guaranteed by the “sécurité sociale”, i.e. social security system). For most children, this fund reimburses almost all expensive care (i.e. inpatient care) but leaves about 40% of others liable for the charge for ancillary services (i.e. ambulatory care, drugs, paraclinic examinations and consultations—except for free-of-charge obligatory well-child visits) [47]. Children afflicted by a chronic disease may receive full coverage from this fund. Poor people, if recognised as such, may receive full coverage of their medical expenses by the territorial authority of their place of residence (so called “aide médicale”). Some families may pay for complementary coverage to insurance companies or mutual funds. For the purpose of the multivariate analysis we contrasted children benefitting from the sickness fund only (or no coverage at all) with others with complementary coverage by whatever mechanism.

The information concerning predisposing and enabling factors was obtained at the time of the visit by interview of the parents or exceptionally (3%) of another person accompanying the child: both parents were present in 34% of the cases, the mother only in 55% and the father only in 8%.

The **illness level (need)** “represents the most immediate cause of health service use”. We explored evaluated, but not perceived, illness. Apart from the reason for the visit and the diagnosis made, we considered for this study the presence or absence of a chronic disease (necessitating medical care for at least three months). This information was obtained by looking at the consultation sheet and by examining the portable record (“carnet de santé”) of the child (each child born in France is provided with such a health record at birth). The portable record was accessible at the time of the visit for 290 children (90%).

To evaluate **realized access**, we relied on both a qualitative declarative and a quantitative approach:

— **Regular source of care:** at variance with the model of Andersen and Newman we considered like others [18] having a regular source of care as an “outcome” of access. Like St-Peter *et al.*, we asked the parents what source of care they used habitually for routine care and for sick care of their child [48]. We considered three main sources: hospital ambulatory care, private practitioners (general practitioners or paediatricians) and other sources (mainly community well-child clinics, French services of PMI, i.e. “Protection Maternelle et Infantile”). Hospitals essentially deliver sick care and charge the patient for the part of the bill not covered by the sickness fund; private practitioners deliver routine and sick care and, in most instances, patients have to pay the full bill before later being partially reimbursed by the sick fund; well-child clinics deliver (theoretically) only preventive care but free of charge.

To quantify health services utilization, we counted the visits made to differing sources of care during the previous six months by looking at the child’s portable record. For instance, we were able to discover which children visited well-child clinics during this period. The data concerning the frequency of previous ER use were checked with the number of visits registered in the HIS. Finally, among information gathered to characterize the index visit, we asked the parents if this visit was self-initiated or not (“walk-in”).

As the lack of a regular source for routine care has been found to be associated to ER use [9, 13, 21, 49], we took into account the type of the regular source of care in the analysis of the amount of ER use.

To ascertain **quality of care** we used two indicators:

— **Immunization status** (children 6 months old or more): vaccinations are mandatory in France, against diphtheria, tetanus and poliomyelitis and vaccination against pertussis, although optional, is usually done at the same time (DTPP). At the time of the study, the official schedule was to administer three initial injections at 1–2-month intervals beginning at the age of 3 months (now 2) with a booster 15–18 months after the initial injection. We considered coverage as complete if a child had received the injections due at its age, even if the official schedule was not fully respected. We considered that the schedule was respected if the initial injection was made between 2 and 6 months, the three initial injections given at an interval of 1–2 months and the booster given at the age of 15–24 months.

— **need for follow-up** (all children): to assess overall quality of care, we provided two senior paediatricians with the visit sheet and a summary of the health care contacts during the previous 6 months and asked them to evaluate, independently of each other, the need to check the way the child was cared for according to their own implicit criteria. When their opinion was discordant, a consensus was reached by discussion.

### Statistical analysis

We compared the characteristics of the children using various reported sources of care. For routine care, we compared those using a private practitioner with those seen at the ER or in a well-child clinic because we thought that in the French system only a private practitioner could deliver comprehensive care, i.e. curative and preventive care, while the ER delivers essentially acute care and the well-child clinic preventive care. For sick care we compared those using the ER with those using another source, to understand better the reasons for using this facility. We analysed thereafter the use of the ER during 6 months preceding the index visit. Finally, we searched for the factors associated with good quality care.

We first performed bivariate analysis and proportions were compared by chi square. We report only statistically

significant differences ( $p < 0.05$ ) or marked trends ( $p = < 0.10$ ). Multivariate analysis was done by a stepwise ascending logistic regression model using the LR procedure of BMDP [50]. Apart from age and gender, universal variables always included in the models, we introduced those independent variables associated with at least at  $p = 0.10$  in the bivariate analysis with the dependent variable. We report associations at a minimum 0.05 level of statistical significance. Odds ratios are the exponential of the regression coefficients obtained at the final step of the procedure.

## RESULTS

### *Study population (Table 1).*

The mean age of the children was 13 months and half were less than one year old; 58% were boys. The child was the first of the family in 48% of the cases and 14% of the children lived in a one-parent family. Two thirds of the fathers were born outside Europe (mainly in the Maghreb, 17% and black Africa, 28%). Fifty per cent of the fathers living with their family were workers or employees. Sixty per cent of the mothers were unemployed. Four per cent of the children had no known health insurance and 44% benefited from sickness fund (partial) coverage only. A chronic disease was identified in 31% of the children.

**TABLE 1.** Sociodemographic characteristics of the sample

Place of birth of the father ( $n = 320$ )	
Europe	38%
France, West Indies included	33%
Europe, France excluded	5%
Outside Europe	62%
Maghreb	17%
Black Africa	28%
Asia	8%
Caribbean	4%
Other	5%
Professional activity of the father ( $n = 273^*$ )	
"Executives"	38%
Craftsmen and shopkeepers	16%
Executives	22%
"Workers"	62%
Employees	10%
Workers	38%
Students and unemployed people	14%
Maternal employment ( $n = 319$ )	40%
Single-parent family ( $n = 320$ )	14%
Child's health insurance ( $n = 320$ )	
None	4%
Partial Sickness Fund coverage	44%
Full Sickness Fund coverage	3%
Aide médicale†	15%
Other complementary coverage‡	34%
Chronic disease ( $n = 290$ )	31%

\* Data are lacking if the father was not living with the family

† Aide médicale is a complete health expenses coverage paid by territorial authorities for poor people

‡ Coverage by a mutual fund or a private insurance

### *Reported source for routine and sick care*

Eighty-nine percent of the parents or accompanying persons reported a source for **routine care**. This source was primarily a private practitioner if the child's father was born in Europe and/or was "executive" and/or if the child benefited from complementary health insurance cover. A well-child clinic was more often the source of routine care for children receiving partial cover from the sickness fund and/or with a father born outside Europe and/or employed as a "worker" (Table 2). These three factors were significantly associated with the source of routine care in a logistic model contrasting the reported use of a private practitioner versus a well-child clinic or the hospital (Table 3).

The families reported essentially the hospital or a private practitioner as the source for **sick care**. A private practitioner was cited more frequently if the child's father was born in Europe and/or was "executive" and/or if the child received complementary health insurance cover. The hospital was cited for children receiving partial cover from the sickness fund and/or with a father born outside Europe and/or employed as a "worker" (Table 4). In a logistic model contrasting hospital versus private practitioner or well-child clinic use, the place of birth of the father was the only factor associated with the type of source for sick care (OR: 2 [1.2–3.4];  $p < 0.001$ ).

### *Use of the ER*

Fifty-four percent of the children were occasional users: they had not visited the ER during the previous 6 months. The remaining 46% of users ( $n = 148$ ) made 333 visits during this period: 47% visited only once and 32% visited three times or more. Thus, a minority of patients, representing 15% of the whole group, having visited at least 3 times in the previous 6 months, accounted for the majority (60%) of the visits. Almost all (43 out of 48) were iterative users in the 3 previous months as defined earlier. Iterative ER use was far more common among children for whom the hospital was reported as the source for sick care but a trend was only observed for routine care (Table 5). A trend for more frequent iterative use was also observed for children of single-parent families (51% vs 37%;  $p = 0.07$ ) and children attending the ER at the initiative of their parents (50% vs 37%;  $p = 0.08$ ).

The reported source for sick care was the sole factor associated with the frequency of using the ER: compared to the hospital, both a private practitioner and a well-child clinic reported as source for sick care appeared to "protect" against an iterative ER use in the 3 months preceding the index visit (Table 6).

### *Quality of care*

*Immunization status (children at least 6 months old).* Ninety percent of the children were fully covered for their

**TABLE 2.** Reported source of routine care according to some sociodemographic characteristics of the family ( $n = 281^*$ )

Reported source of routine care (%):	Hospital	Private practitioner	Well-child clinic
Place of birth of the father ( $p < 0.001$ )			
Europe ( $n = 113$ )	7	66	27
Other ( $n = 168$ )	11	31	58
Professional activity of the father ( $p < 0.001$ )			
"Executive" ( $n = 128$ )	6	59	35
"Worker" ( $n = 153$ )	12	34	54
Child's health insurance ( $p < 0.01$ )			
Full coverage ( $n = 153$ )	9	54	37
None/partial ( $n = 128$ )	10	35	55

\* 35 children lacked a source of routine care and four cases had missing data

**TABLE 3.** Factors associated with the use of a private practitioner as a source for routine care (logistic regression,  $n = 281$ )

	$\beta$ coefficient (standard error)	$p$ value	Odds ratio (95% confidence interval)
Father born outside Europe	-1.08 (0.28)	<0.001	0.34 (0.2-0.6)
Father employed as a "worker"	-0.8 (0.28)	<0.01	0.45 (0.3-0.8)
Child with full health insurance coverage	0.59 (0.27)	<0.05	1.81 (1-3.1)

**TABLE 4.** Reported source for sick care ( $n = 317^*$ )

Reported source for sick care (%):	Hospital	Private practitioner	Well-child clinic
Place of birth of the father ( $p < 0.001$ )			
Europe ( $n = 120$ )	31	58	11
Other ( $n = 197$ )	50	30	20
Professional activity of the father ( $p < 0.001$ )			
"Executive" ( $n = 171$ )	31	58	11
"Worker" ( $n = 146$ )	48	31	21
Child's health insurance ( $p < 0.01$ )			
Full coverage ( $n = 166$ )	38	49	13
None/partial ( $n = 151$ )	48	31	21

\* Three cases with missing data

**TABLE 5.** Frequency (%) of an Iterative Emergency Room use during the 3 months preceding the index visit according to the type of the reported source of care

Reported source for	Hospital	Private practitioner	Well child clinic
Routine care ( $n = 280$ )	58% ( $n = 27$ )	36% ( $n = 128$ )	37% ( $n = 127$ ) $p = 0.10$
Sick care ( $n = 317$ )	56% ( $n = 136$ )	31% ( $n = 128$ )	13% ( $n = 53$ ) $p < 0.001$

**TABLE 6.** Factors associated with an iterative Emergency Room use (\*) during the 3 months preceding the index visit. Logistic regression ( $n = 280^{\dagger}$ )

	$\beta$ coefficient (standard error)	<i>p</i> value	Odds ratio (95% confidence interval)
Reported source for sick care <sup>‡</sup> :		<0.001	
— private practitioner	−0.76 (0.35)		0.47 (0.24–0.93)
— well-child clinic	−1.89 (0.15)		0.15 (0.05–0.47)
Single-parent family	0.66(0.38)	0.09	1.93 (0.91–4.10)
Self-initiated visit	0.50 (0.30)	0.09	1.66 (0.93–2.97)
Age <sup>§</sup>		0.13	
— 6–11 months	0.82 (0.38)		2.27 (1.07–4.81)
— 12–23 months	0.19 (0.37)		1.21 (0.59–2.50)
— = > 24 months	0.12 (0.45)		1.13 (0.46–2.75)
Male gender	0.34 (0.28)	0.23	1.41 (0.82–2.43)
Reported source for routine care <sup>‡</sup> :		0.82	
— private practitioner	0.26 (0.53)		0.77 (0.27–2.21)
— well-child clinic	0.30 (0.48)		0.74 (0.29–1.90)

\* Iterative use children already having visited at the Emergency Room during the previous 3 months

<sup>†</sup> 35 children missed a source of routine care and five cases had missing data<sup>‡</sup> Basal level for hospital as reported source<sup>§</sup> 2–5 months as base level

age and the recommended schedule was followed for 75%.

Factors associated with full coverage were age, absence of a chronic disease and the source of routine care. The prevalence of full coverage increased with age: 84% before 12 months, 95% between 12 and 23 months and 96% after ( $p < 0.05$ ). The children free of chronic disease were more often fully immunized (93.5% vs 85%;  $p = 0.06$ ) as were those who had consulted a well-child clinic during the preceding 6 months (95% vs 86.5%;  $p < 0.05$ ). Greater age and having visited a well-child clinic during the preceding 6 months remained significantly associated with full coverage in the logistic model (Table 7).

Factors associated with conformance with the immunization schedule were: the child being an iterative ER user (80% vs 68%;  $p < 0.05$ ) and the absence of chronic

disease (75% vs 65%;  $p = 0.08$ ). Iterative use was the unique factor significantly associated with schedule conformance in the logistic model (OR: 1.96 [1–3.8];  $p < 0.05$ ).

*Need for follow-up (all children).* The senior paediatricians considered that 9% of the children needed follow-up.

By bivariate analysis, a need for follow-up was more often the case if the child was a boy (13% vs 5%;  $p = 0.02$ ), aged 2 years or more (22% vs 8%;  $p < 0.01$ ) or affected by a chronic disease (18% vs 6%;  $p < 0.01$ ). A trend existed for children of single-parent families (16% vs 8%;  $p = 0.10$ ). Need for follow-up was also judged more frequent if the child did not visit a well-child clinic during the previous 6 months (13% vs 6%;  $p < 0.05$ ) or was an iterative user of the ER (13% vs 7%;  $p < 0.05$ ).

**TABLE 7.** Factors associated with a full DTPP immunization coverage. Logistic regression, children  $\geq 6$  months old ( $n = 219^{\dagger}$ )

	$\beta$ coefficient (standard error)	<i>p</i> value	Odds ratio (95% confidence interval)
Having visited at a well-child clinic during the previous 6 months	1.45	<0.01	4.26 (1.4–12.8)
Age <sup>†</sup> :		<0.05	
— 12–23 months	1.66 (0.6)		5.25 (1.6–17.3)
— 24 months or more	1.91 (0.8)		6.75 (1.3–35)

\* Some children did not have their portable health record at the time of the visit

<sup>†</sup> Base level: age of 6–11 months

TABLE 8. Factors associated with the need for a check up. Logistic regression, all children ( $n = 312^*$ )

	$\beta$ coefficient (standard error)	$p$ value	Odds ratio (95% confidence interval)
Age		0.02	
— 6–11 months	1 (0.7)		2.7 (0.64–11.3)
— 12–23 months	0.64 (0.7)		1.9 (0.5–7.6)
— $\geq 24$ months	0.76 (0.7)		5.8 (1.5–23)
Male gender	1 (0.5)	0.03	2.7 (1.03–7.1)
Having visited a well child clinic during the previous 6 months	–0.94 (0.44)	0.04	0.4 (0.16–0.93)
Iterative ER use during the previous 3 months	0.86 (0.42)	0.04	2.4 (1.04–5.3)

\* Eight cases with missing data

Four factors remained in the logistic model at the level of statistical significance: age, gender, iterative ER use and not having visited a well-child clinic in the previous six months (Table 8).

## DISCUSSION

In this hospital, iterative ER use was more common among children whose parents reported the hospital as the place to go for sick care. This was particularly the case if the father was born outside Europe or was employed as a worker or an employee, and also if the child lacked complementary health expenses coverage. Iterative use was associated with better immunization coverage but also with a more frequent need for follow-up. The cross-sectional nature of the data makes it impossible to draw definite conclusions about the causal direction of the relationships studied. However, the measure of access was made independently of that of the outcomes and the observation of a sustained pattern of ER use may permit consideration of a temporal precedence that minimizes this concern. Above all our goal was not to “explain” some modalities of using health services but to identify, if they existed, some characteristics associated with the way patients use the ER and/or some unsatisfied health needs.

Immunization status is a good tracer of preventive care [51]. In the US where specific facilities for preventive care of children do not always exist, lack of adequate immunization has been attributed to uncoordinated care, with indiscriminate functioning of the health system worsening health inequalities [52]. Among our patients, essential preventive needs seem to be covered, although not necessarily in a timely manner. This may be due to the extensive coverage by the well-child clinic system. Our indicator of global needs is more arguable. It is probable that a retrospective evaluation based on a single encounter sheet leads to an underestimate of the real need for follow-up. However, a documentation bias has to be ruled out regarding the greater prevalence of health needs among iterative users: ideally, more visits may allow more opportunities to document some health care deficiencies. In fact, if documented, such needs would have been detected, at least partially, by the DRR and, on the contrary, they were missed by this

procedure. Furthermore, discussion with the staff suggests that these problems were not correctly addressed in our ER at the time of the study. Based on these considerations we are confident of our data and it may reasonably be stated that the greater need for follow-up of iterative users is real and not artificial. It is thus interesting to examine in further detail the characteristics of frequent ER use.

### Frequent ER use

Frequent ER use is a complex phenomenon [11], usually linked with frequent visits for minor problems in adults [15–17], as in children [22, 24, 25]. Our results are in keeping with previous work exhibiting a strong association between heavy ER use and underprivileged socioeconomic status in various countries [20, 30, 42, 53, 54]. While relying on employment status to operationalize the concept of socioeconomic status, it is impossible to take into account the real life difficulties encountered by people in underprivileged strata of our societies regarding housing, learning or achieving all life sustaining activities [55, 56]. For instance, stressful life events appear to be more frequent in poor mothers of young children and this has been found to be predictive of poor health status of mothers and their children 6 weeks and 1 year after delivery [57].

Another limitation of our study in comparison with English literature available is that we did not consider race but geographic origin. One explanation is that processing this information is strictly restricted by law in our country (by a so-called law on informatics and liberty issued in 1978 in France). A more conceptual explanation is that the term is rather imprecise and used with poor rigor in health services research, alternatively meaning ethnic origin, culture, nationality or any combination of these attributes [58]. Contrasting with US observations [59], nationality is habitually found in our country to be related to access to primary care independently of socioeconomic level [39, 60]. This is in keeping with various local observations in Paris and other big French cities [27, 61–63]. The nature of the relationship is probably very subtle and we think that geographic origin may be considered as a cumulative index encompassing at least

varying beliefs about health and Western medicine, different habits concerning access to care in the home country and social discrimination regarding many components of everyday life in France [64].

Our measure of health insurance is less debatable. Obviously, in France, as in other Western countries, people lacking national sickness fund coverage have a very distinct pattern of access compared to other people [39]. At our institution, two contrasted patterns of health services use emerge from our observations. A first group of children do have a private physician as a regular source of care and occasionally use the ER for sick care. There is a priori no fear of poor quality care for them. These children stem from more affluent social strata, as exemplified by better health insurance and the fact that their parents are more often of French origin. A second group of children use a well-child clinic more often for routine care and rely heavily on the ER for sick care. There is a priori a concern about the continuity of their care in cases of illness, especially for chronic conditions. They originate more often from underprivileged strata and their families are often of foreign origin. Finally a small proportion of the patients, most pertaining to the second group, contribute a great part of ER activity as elsewhere [8,9].

*Confronted with overcrowding, many professionals question the appropriateness of ER use, especially in the case of frequent use.* The role of non-emergency patients in causing the congestion of emergency services is not universally accepted (at least in Canada [3]). But at first glance many of the visits for minor reasons may appear inappropriate. They are high in cost [65] and the patients could have been seen at a lower level facility [66]. For this reason, many experiments have been conducted aimed at redirecting these patients to some primary care facility. This may be done at the time of the visit, sorting the people concerned using triage algorithms. The safety of this procedure has been challenged [14], particularly in paediatrics; only a thorough examination permits the conclusion that the reason for the visit was minor. At our institution, such a triage is done only to detect cases in need of priority care. A more appealing method consists of preventing inappropriate use by a great deal of educational [67] and social work; some US institutions are developing a "case management" approach for frequent ER users [9]. Some success has resulted in Europe [68] as well as in the US [2] but in most instances, it seems that augmenting access to primary facilities does not automatically diminish ER use [8,69].

Redirecting patients is possible only after restoring their financial ability to use alternative sources. This is a problem even in France, a country with a universal sick fund, since ambulatory care is poorly reimbursed. In the United States, the number of visits by Medicaid recipients is increasing and many of these people are seeking care for relatively minor health problems [5]. Although such visits are often considered inappropriate,

most people have few alternatives for outpatient care and proposals to discourage the use of emergency departments for such care may further compromise the health of this underserved population. In fact, if asked, as much as a third of the patients would agree to trade their ER visit for an appointment with a physician within 3 days [2]. This alternative would be viable only if the availability and coordination of primary care services were enhanced for low-income populations [48,70,71]. Also, better attention should be paid to satisfying the expectations of all families [72].

Even the provision of better financial access to alternative sources of care would not suppress so-called medically inappropriate ER use [73]. For instance, some studies have found that as many as half of the patients saw another physician shortly before consulting at the ER [9,27,74]. For some patients, non-urgent use of the ER is linked to need factors arising from socioeconomic stress, psychiatric comorbidities and a lack of social support [19]. In London, patients attending hospital accident and emergency departments were similar to general practitioners' visitors in terms of socio-economic indicators but they had problems which were not typical of the GP workload and were in different circumstances [75]. It looks as if alternative sources of care do not offer the same real or perceived accessibility and/or do not offer the same guarantees as the hospital for the reasons creating the demand [76]. This is probably also the case for the vast majority of occasional users [7]. It seems to us that there will be a continuing demand for hospital-provided primary care in urban areas for a long time yet.

*In this context, it is necessary to redefine what we consider good quality care at the ER level.* Most ER departments are organized to secure good quality care on a visit basis [66]. This is the case in our hospital, with senior consultants providing close supervision and performing a daily record review [35]. But the usual functioning is complaint- rather than person-oriented [77] and does not guarantee comprehensive care for those in need of it. This may hamper the provision of preventive care. In the same way, ER departments are unable to assure continuity of information with an updated medical record accessible immediately anytime on site. Together with "their large staffs working in shifts, hectic working conditions and ... an almost complete lack of continuity of physicians" [11], this may considerably alter the capacity to deliver continuous care. However, some iterative patients with chronic or recurrent conditions, like asthma have an unrecognized need for continuous care [78]. This points to the necessity of finding ways to lower the many non-financial barriers perceived by some parents to the use of health services [79], and also of finding ways to deliver not only complaint- but at least illness-oriented continuous care to those children in need of it [80].

One useful definition of continuity of care was proposed 20 years ago by Shortell [81]: "continuity of



medical care can be defined as the extent to which medical care services are received as a coordinated and uninterrupted succession of events consistent with the medical care needs of patients". Since then, many contributions have emerged in the literature with considerable conceptual instability. Fletcher and co-workers considered continuity together with coordination as a component of what they called integration [82]. More recently, Starfield considered continuity as one of four structural elements of the health services system characterizing "the means by which separate parts of an episode (either the follow-up of an acute illness or the ongoing care of a chronic one) are joined", and she used the term "longitudinality" to qualify a desirable output of the system, i.e. "the presence and use of a regular source of care over time" [83]. This semantic dispute illustrates the considerable difficulties regarding the efforts necessary to operationalize these concepts in everyday functioning. The first task is to assess the globality of the needs of a child, both preventive and curative, and the scope of this evaluation is very dependent on our concept of our mission. Then, a care plan has to be elaborated according to these needs. Finally, the (combination of) actors best able to deliver this care has to be identified. Our hypothesis is that to achieve continuity of care, the longitudinal component is probably less important than coordination, and we agree with Shortell that longitudinality could be dangerous if patients continue with an unsuitable source of care. This may be the case with patients having long-term needs who are chronic ER users without any other caregiver or with a caregiver unable to deliver comprehensive care (like the French system of well-child clinics for children in need of curative care for chronic conditions).

*Some concluding remarks.* Unless the different needs of patients are taken into account, health services will continue to lose opportunities to account for achievable benefits not achieved and thus prolong or even worsen health inequalities. Seemingly, restricting medical evaluation to verification of the conformance of physician practices to curative technical standards would support an indiscriminate functioning of the health services where "affirmative action" is mandatory for sick people from underprivileged strata of our societies.

To know what is necessary for a child demands a global evaluation of its needs in relation to the trajectory it has followed in the past. To evaluate the quality of care delivered in an ER, one needs to evaluate not only the quality of care given on a visit basis for acute illnesses but also to look at the capacity of the ER to work with other institutions to deliver in partnership global quality care to those children in need of it.

**Acknowledgements:** The authors would like to thank Ségolène Barreau for collecting the data, Françoise Galabru and Yann Bourgueil for discussing the project and Delphine Delfontaines for data processing.

## REFERENCES

1. American College of Emergency Physicians. Measures to deal with emergency department overcrowding. *Annals of Emergency Medicine* 1990; 19: 944-945.
2. Grumbach, K., Keane, D. and Bindman, A., Primary care and public emergency department overcrowding. *Am J Public Health* 1993; 83: 372-378.
3. Béland, F., Philibert, L., Thouez, J. P. and Maheux, B., Socio-spatial perspectives on the utilization of emergency hospital services in two urban territories in Québec. *Soc Sci Med* 1990; 30: 53-66.
4. Andrulis, D. P., Kellerman, A., Hintz, E. A., Hackman, B. B. and Weslowski, V. B., Emergency departments and crowding in United States teaching hospitals. *Annals of Emergency Medicine* 1991; 20: 980-986.
5. The Medicaid Access Study Group. Access of Medicaid recipients to outpatient care. *N Engl J Med* 1994; 330: 1426-1430.
6. Steg, A., *French commission on restructuring the ED. Report on enhancing the medical staff of the ED* (in French). Paris, September 1993.
7. Cunningham, P., Clancy, C., Cohen, J. W. and Wilets, M., The use of hospital emergency departments for nonurgent problems: a national perspective. *Med Care Res Rev* 1995; 52: 453-474.
8. Hansagi, H., Edhag, O. and Allebek, P., High consumers of health care in emergency units: how to improve their quality of care. *Qual Assur Health Care* 1991; 3: 51-62.
9. Baker, D. W., Stevens, C. D. and Brook, R. H., Regular source of ambulatory care and medical care utilization by patients presenting to a public hospital emergency department. *JAMA* 1994; 271: 1909-1912.
10. Purdie, F. R. J., Honigman, B. and Rosen, P., The chronic emergency department patient. *Ann Emerg Med* 1981; 10: 298-301.
11. Andrén, K. G. and Rosenqvist, U., Heavy users of an emergency department. A two year follow-up study. *Soc Sci Med* 1987; 25: 825-831.
12. Malone, R. E., Heavy users of emergency services: social construction of a policy problem. *Soc Sci Med* 1995; 40: 469-477.
13. Bueshing, D. O., Jablonsky, A. and Vesta, E., Inappropriate emergency department visits. *Ann Emerg Med* 1985; 14: 672-676.
14. Lowe, R. A., Bindman, A. B. and Ulrich, S. K., Refusing care to emergency department patients: evaluation of published triage guidelines. *Ann Emerg Med* 1994; 23: 286-293.
15. Guterman, J. J., Franaszek, J. B., Murdy, D. and Gifford, M., The 1980 patient urgency study: further analysis of the data. *Ann Emerg Med* 1985; 14: 1191-1198.
16. Shesser, R., Kirsch, T., Smith, J. and Hirsch, R., An analysis of emergency department use by patients with minor illness. *Ann Emerg Med* 1991; 20: 743-748.
17. Baker, D. W., Stevens, C. D. and Brook, R. H., Determinants of emergency department use by

- ambulatory patients at an urban public hospital. *Ann Emerg Med* 1995; **25**: 311–316.
18. Lambrew, J. M., DeFriesse, G. H., Carey, T. S., Ricketts, T. C. and Biddle, A. K., The effects of having a regular doctor on access to primary care. *Med Care* 1996; **34**: 138–151.
  19. Padgett, D. K. and Brodsky, B., Psychosocial factors influencing non-urgent use of the emergency room: a review of the literature and recommendations for research and improved service delivery. *Soc Sci Med* 1992; **35**: 1189–1197.
  20. Pane, G. A., Farner, M. C. and Salness, K. A., Health care problems of medically indigent emergency department walk-in patients. *Ann Emerg Med* 1991; **20**: 730–733.
  21. Kasper, J. D., The importance of type of usual source of care for children's physician access and expenditures. *Med care* 1987; **25**: 386–398.
  22. Smith, R. D. and McNamara, J. J., Why not your pediatrician's office? A study of weekday pediatric emergency department use for minor illness care in a community hospital. *Ped Emerg Care* 1988; **4**: 107–111.
  23. Weitzman, M., Moomaw, M. S. and Messenger, K. P., An after-hours pediatric walk-in clinic for an entire community: utilization and effectiveness of follow-up care. *Pediatrics* 1980; **65**: 964–970.
  24. Bowling, A., Isaacs, D., Armston, J., Roberts, J. E. and Elliott, E. J., Patient use of a paediatric hospital casualty department in the east end of London. *Fam Pract* 1987; **4**: 85–90.
  25. Weir, R., Rideout, E. and Crook, J., Pediatric use of emergency departments. *J Pediatr Health Care* 1989; **3**: 204–210.
  26. Feigelman, S., Duggan, A. K., Bazell, C. M., Baumgartner, R. A., Mellits, E. D. and DeAngelis, C., Correlates of emergency room utilization in the first year of life. *Clin Pediatrics* 1990; **29**: 698–705.
  27. Lombrail, P., Alfaro, C., Vitoux-Brot, C., Brodin, M., Bourrillon, A. and Beaufls, F., Patient characteristics at a pediatric ER: consequences for the organization of health care services (in French). *Arch Fr Pédiatr* 1993; **50**: 313–317.
  28. Woodward, C. A., Boyle, M. H., Offord, D. R., Cadman, D. T., Links, P. S., Munroe-Blum, H., Byrne, C. and Thomas, H., Ontario child health study: patterns of ambulatory medical care utilization and their correlates. *Pediatrics* 1988; **82**: 425–434.
  29. Weissman, J. S., Stern, R., Fielding, S. L. and Epstein, A. M., Delayed access to health care: risk factors, reasons, and consequences. *Ann Intern Med* 1991; **114**: 325–331.
  30. Newachek, P. W. and Halfon, N., Access to ambulatory services for economically disadvantaged children. *Pediatrics* 1986; **78**: 813–819.
  31. Judge, K. and Benzeval, M., Health inequalities: new concerns about the children of single mothers. *Br Med J* 1993; **306**: 677–680.
  32. Aïach, P. and Cèbé, D., Social inequalities in health (in French). *La Recherche* 1994; **261**: 100–109.
  33. Levy, J. C., Bonnano, R. A., Schwartz, C. G. and Sanofsky, P. A., Patterns of use of pediatric medical facilities. *Med Care* 1979; **17**: 881–893.
  34. Vivier, P. M., Lewander, W. J., Block, S. H., Simon, P. R., Alario, A. J. and Linakis, J. G., Is continuity of care preserved in children who utilize the pediatric emergency department? *Pediatrics* 1995; **95**: 37–41.
  35. Lombrail, P., Leroyer, A., Vitoux-Brot, C., Dolfuss, C., Bourrillon, A., Beaufls, F., Hassan, M. and Brodin, M., Effectiveness of the daily record review at the medical emergency room department in a French children's teaching hospital. *Qual Assur Health Care* 1992; **4**: 205–215.
  36. Andersen, R. and Newman, J. F., Societal and individual determinants of medical care utilization in the United States. *Milbank Memorial Fund Q* 1973; **51**: 95–124.
  37. Andersen, R. M., McCutcheon, A., Aday, L. A., Chiu, G. Y. and Bell, R., Exploring of access to medical care. *Health Serv Res* 1983; **18**: 49–74.
  38. Guignon, N., Health care utilization in relation to family structure (in French). In "Les Français et leur santé. Enquête santé 1991–92." *Solidarité santé, études statistiques*, 1994; **1**: 159–170.
  39. Mizrahi, A. and Mizrahi, A., *Access to care and health status of immigrants in France* (in French). CREDES, Paris, 1993.
  40. Rozenbaum, W., Degoulet, P., Aimé, F., Lang, T., Devriès, C. and Reach, I., Social status influence on dialysis treatment of advanced renal insufficiency (in French). *Rev Epidemiol et Santé Publ* 1983; **31**: 409–422.
  41. Andrén, K. G., A study of the relationship between social network, perceived ill health and utilization of emergency care. *Soc Sci Med* 1987; **25**: 825–831.
  42. McMahon, L. F., Wolfe, R. A., Griffith, J. R. and Cuthbertson, D., Socioeconomic influence on small area hospital hospitalization. *Med Care* 1993; **31**: Y29–Y36.
  43. Mormiche, P., Variations in health care use in 1991 (in French). *Economie et statistique* 1993; **265**: 45–52.
  44. Mizrahi, A. and Mizrahi, A., *Recent trends in inequalities in the utilization of ambulatory care* (in French). CREDES, Paris, Mai 1991.
  45. McCue, Horwitz, S., Horwitz, R. I. and Morgenstern, H., Maternal employment, maternal care and pediatric visits for minor acute illnesses. *J Clin Epidemiol* 1993; **46**: 981–986.
  46. Boisselot, P., and Rémond, M. C., Levels of health insurance and health care utilization (in French). In "Les Français et leur santé. Enquête santé 1991–92." *Solidarité santé, études statistiques*, 1994; **1**: 143–157.
  47. Soubie, R., Portos, J.-L. and Prieur, C., White paper on the health care and insurance system (in French). Rapport au premier ministre. La documentation française, Paris, 1994, 557p.
  48. StPeter, R. F., Newachek, P. W. and Halfon, N., Access to care for poor children. *Separate or unequal?* *JAMA* 1992; **267**: 2760–2764.
  49. Hayward, R. A., Bernard, A. M., Freeman, H. E. and Corey, C. R., Regular source of ambulatory care and access to health services. *JAMA* 1991; **81**: 434–438.
  50. BMDP Statistical Software. WJ Dixon Ed. University of California, Berkeley, 1983.

51. Bobo, J. K., Gale, J. L., Thapa, P. B. and Wassilak, S. G. F., Risk factors for delayed immunization in a random sample of 1163 children from Oregon and Washington. *Pediatrics* 1993; **91**: 308–314.
52. Nutting, P. A., Shorr, G. I. and Burkhalter, B. R., Assessing the performance of medical care systems: a method and its application. *Med Care* 1981; **19**: 281–296.
53. Sundqvist, J. and Rosén, U., The influence of social surroundings on consultation of private care, emergency department, hospital out-patient departments, and primary health care. *Eur J Public Health* 1993; **3**: 188–192.
54. Lang, T., Davido, A., Diakité, B., Agay, E., Viel, J.-F. and Flicoteaux, B., Non-urgent care in the hospital medical emergency room department in France: how much and which health needs does it reflect. *J Epidemiol Community Health* 1996; **50**: 1–7.
55. Riley, A. W., Finney, J. W., Mellits, D., Starfield, B., Kidwell, S., Quaskey, S., Cataldo, M. F., Filipp, L. and Shematek, J. P., Determinants of children's health care use: an investigation of psychosocial factors. *Med Care* 1993; **31**: 767–783.
56. Benzeval, M., Judge, K. and Smaje, C., Beyond class, race, and ethnicity: deprivation and health in Britain. *Health Serv Res* 1995; **30**: 162–177.
57. Oakley, A., Rigby, A. S. and Hickley, D., Life stress, support and class inequality. Explaining the health of women and children. *Eur J Public Health* 1994; **4**: 81–91.
58. Williams, D. R., The concept of race in health services research: 1966 to 1990. *Health Serv Res* 1994; **29**: 261–274.
59. Orr, S. T., Miller, C. A. and James, S. A., Differences in use of health services by children according to race. Relative influence of cultural and system-related factors. *Med Care* 1984; **22**: 848–853.
60. Guyomar, C., Hospital patients: who are they and why are they there? (in French). In "Les Français et leur santé. Enquête santé 1991–92." *Solidarité santé, études statistiques*, 1994; **1**: 103–107.
61. Beaufils, F., Brunschwig, O. and Nardou, M., Child patients in the ER: who are they? (in French). *Journées Parisiennes de Pédiatrie. Flammarion Médecine, Sciences*. Paris, 1982; 346–353.
62. Lebrun, E., and Bost, M., Pediatric ER visits at the teaching hospital of Grenoble (in French). *Pédiatrie* 1988; **43**: 51–57.
63. Quinet, B. and Bégué, P., Epidemiologic study of immigrant children in Paris (in French). *Ann Pédiatr* 1985; **32**: 865–868.
64. Bourdillon, F., Lombrail, P., Antoni, M., Benrekassa, J., Bennegadi, R., Leloup, M., Huraux-Rendu, C. and Scotto, J.-C., Health status of foreign people in France (in French). *Soc Sci Med* 1992; **32**: 1219–1227.
65. Bliss, H. A., Primary care in the emergency room high in cost and low in quality (letter). *N Engl J Med* 1982; **306**: 998.
66. Lemay, A., Béland, F., Contandriopoulos, A.-P., Boucher, M. and Lavoie, G., Economic evaluation of ER utilization by child patients (in French). *Sci Soc Santé* 1996; **14**: 5–37.
67. Kelly, L. J. and Birtwhistle, R., Is this problem urgent? Attitudes in a community hospital emergency room. *Can Fam Phys* 1993; **39**: 1345–1352.
68. Hansagi, H., Carlsson, B., Olsson, M. and Edhag, O., Trial of a method of reducing inappropriate demands on a hospital emergency department. *Public Health* 1987; **101**: 99–105.
69. Maynard, E. J. and Dodge, J. S., Introducing a community health center at Mosgiel, New Zealand: effects on use of hospital accident and emergency (A&E) department. *Med Care* 1983; **21**: 379–388.
70. Kogan, M. D., Alexander, G. R., Teitelbaum, M. A., Jack, B. W., Kotelchuck, M. and Pappas, G., The effects of gaps in health insurance on continuity of a regular source of care among preschool-aged children in the United States. *JAMA* 1995; **274**: 1429–1435.
71. MacKoul, D., Feldman, M., Savageau, J. and Krumholz, A., Emergency department utilization in a large pediatric group practice. *Am J Med Quality* 1995; **10**: 88–92.
72. Levy, J. C., Vulnerable children: parent's perspectives and the use of medical care. *Pediatr* 1980; **65**: 956–963.
73. Lozano, P., Connell, F. A. and Koepsell, T. D., Use of health services by African-American children with asthma on Medicaid. *JAMA* 1995; **274**: 469–473.
74. Berns, S. D., Linakis, J. G., Lewander, W. J., Alario, A. J. and Oh, W., Appropriate use of a pediatric emergency department: is the pediatrician called before the visit? *Ped Emerg Care* 1994; **10**: 13–17.
75. Green, J. and Dale, J., Primary care in accident and emergency and general practice: a comparison. *Soc Sci Med* 1992; **35**: 987–995.
76. Feldman, W. and Cullum, C., The pediatric walk-in clinic: a competition for the private practitioner. *Can Med Assoc J* 1984; **130**: 1003–1005.
77. Magnusson, G., The hospital emergency department as the primary source of medical care. *Scand J Soc Med* 1980; **8**: 149–156.
78. Coventry, J. A., Weston, M. S. and Collins, P. M., Emergency room encounters of pediatric patients with asthma: cost comparisons with other treatment settings. *J Ambulatory Care Manage* 1996; **19**: 9–21.
79. Riportella-Muller, R., Selby-Harrington, M. L., Richardson, L. A., Donat, P. L. N., Luchok, K. J. and Quade, D., Barriers to the use of preventive health care services for children. *Public Health Reports* 1996; **111**: 71–77.
80. Keith, A. R., Pirkis, J. E. and Viney, R. C., Delivery of primary care in hospital and community settings in Australia. *Qual Assur Health Care* 1993; **5**: 131–141.
81. Shortell, S. M., Continuity of medical care: conceptualization and measurement. *Med Care* 1976; **14**: 377–391.
82. Fletcher, R. H., O'Malley, M. S., Fletcher, S. W., Earp, J. A. L. and Alexander, J. P., Measuring continuity and coordination of medical care in a system involving multiple providers. *Med Care* 1984; **22**: 403–411.
83. Starfield, B., *Primary care: concept, evaluation and policy*. Oxford University Press, New York, 1992.