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## Use of the internet by legal guardians of patients from public and private pediatric urology health services in Brazil

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### KEYWORDS

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**Abstract Objective:** To describe the internet access characteristics of parents of patients in both public (PubHS) and private (PrivHS) pediatric urology health services.

**Materials and methods:** Question sheets (200) were supplied to the legal guardians (LG) of patients seen in the PubHS (100) and a PrivHS (100) which have different socio-economic perspectives. LG were questioned on whether they sought on the web information about the urologic problem of their child, the kind of information sought, and whether it affected communication and the overall relationship with their physicians.

**Results:** LG from the PubHS had less access to the internet than those from the PrivHS (51% vs 81%,  $P < 0.001$ ). Overall, 44 LG (with no significant difference between PubHS and PrivHS) reported that they sought on the web information about their child's urologic disease. Out of these, 28 considered that communication with their doctor improved. There were no statistically significant differences between the PubHS and PrivHS regarding peace of mind and confidence in treatment after internet consultation.

**Conclusion:** The internet is utilized by LG of patients in both the PubHS and PrivHS. Of the 44% who sought information on the web about their child's urologic disease, 64% considered that communication with the doctor improved.

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### Introduction

Since the development of the first web browser in 1990, the 'World Wide Web' has become the world's most important

and widespread source of information that is quick and easy to access. South America represents 7.1% of all internet users [1]. Brazil contains 50% of all South American users, reaching the mark of 50 million users by March 2008. These

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numbers represent a 900% growth in the number of Brazilian users from 2000 to 2008 [1].

The internet is widely used as a source of health information. A study by Morahan–Martin estimates that 4.5% of all research done on the internet is related to health [2]. The explanation for increasing use of the internet for finding health information is multifaceted. Some people access the internet to be better informed when they meet their physician. For many people, the internet has become a source of support, alternative answers and reassurance [3]. This reinforces the importance of the influence that this communication vehicle has acquired over the doctor–patient binomial.

Despite the web expansion in Brazil, little is known about how parents of patients in pediatric urology health care services use this tool. The objective of this study was to describe the characteristics of the internet access of legal guardians (LG) of patients in both public (PubHS) and private (PrivHS) pediatric urology health services (generally lower and middle–upper socio–economic class, respectively).

## Materials and methods

Two hundred confidential question sheets were supplied to LG of patients seen in pediatric urology health services. Half of them were applied to LG of patients in the PubHS and the other half to patients in a PrivHS. The questionnaire was filled in by the LG in the waiting room of a pediatric urology office (outpatients). Medical students were present to clarify any doubts. Patients participating in their first pediatric urology consultation were excluded. The LG was chosen randomly and the names of the LG were not identified. Data were collected between March and November 2008. The age of the patients varied from 10 months to 17 years old. The study was approved by the Research Ethics Committee of the hospital. The following is the distribution of patients in relation to disease: 16 phimosis, 11 hypospadias, 19 hydronephrosis/PUJ obstruction, 14 undescended testes, 15 neurogenic bladder, 4 urethral stenosis, 5 kidney stones, 15 UTI/voiding dysfunction/VUR, 3 nocturnal enuresis, 2 PUV, 2 varicoceles, 4 hydroceles, 2 bladder diverticuli, 1 pelvic kidney and 1 priapism; and 86 patients did not answer this question.

LG were questioned as to whether they sought on the web information about the urologic problem of their child, about the kind of information sought, the types of websites visited and their level of confidence in relation to the

**Table 1** Access to the internet according to health insurance.

	Do you access the internet?			<i>P</i>
	Yes	No	Total	
	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	
PrivHS	81 (81)	19 (19)	100 (100)	<0.001*
PubHS	51 (51)	49 (49)	100 (100)	
Total	132 (66)	68 (34)	200 (100)	

\*Fisher's exact test.

information they obtained on the web. They were also asked about how their internet research affected their communication and overall relationship with their physicians. Since the study was directed toward patients from PubHS and PrivHS (without and with health insurance, respectively), we could compare these populations from two different socio–economic perspectives.

Websites of universities, medical societies and electronic scientific journals were classified as specialized content websites and therefore considered as more reliable sources because they are directly related to medicine as a science. All other websites were classified as general content websites and in turn considered to have less trustworthy information.

Data were collected and stored in a database and then descriptive statistical analysis was performed using SPSS 15.0. Chi-square or Fisher's exact test was performed to compare categorical variables. A *P*-value less than 0.05 were considered significant.

## Results

We asked the LG of children with urologic diseases if they had access to the internet (Table 1). Our data show that LG of patients from the PubHS have less access to the internet than those from the PrivHS (51% vs 81%,  $P < 0.001$ ).

Those LG who accessed the internet ( $n = 132$ ) were asked questions about where this took place. Eighty percent of the participants from the PrivHS and 62.7% from the PubHS access the internet at home ( $P = 0.042$ ). Participants from the PrivHS have greater access to the internet at work than those from the PubHS (51.9% vs 27.5%,  $P = 0.007$ ), and 32.6% of the participants from the PrivHS and 29.2% from the PubHS use the internet in other locations ( $P = 0.710$ ).

**Table 2** Internet search regarding child's urologic disease.

	Have you ever searched the internet about your child's urologic disease?			<i>P</i>
	Yes	No	Total	
	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	
PrivHS	27 (33.3)	54 (66.7)	81 (100)	1.000*
PubHS	17 (33.3)	34 (66.7)	51 (100)	
Total	44 (33.3)	88 (66.7)	132 (100)	

\*Fisher's exact test.

**Table 3** Internet search regarding any other disease of the child.

	Have you ever searched the internet about any other disease of your child?			<i>P</i>
	Yes	No	Total	
	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	
PrivHS	40 (49.4)	41 (50.6)	81 (100)	0.209*
PubHS	19 (37.3)	32 (62.7)	51 (100)	
Total	59 (44.7)	73 (55.3)	132 (100)	

\*Fisher's exact test.

Our study demonstrates the following relationship between users in the PrivHS and PubHS groups in terms of the amount of time spent per week on the internet: 46.9% of PrivHS users vs 54.9% of PubHS users spent less than 2 h connected; 27.2% of PrivHS users vs 21.6% of PubHS users spent from 2–4 h connected; 25.9% of PrivHS users vs 23.5% of PubHS users spent more than 4 h connected ( $P = 0.863$ ).

Both groups were asked if they had searched the web regarding the urologic disease or any other disease affecting their child. Tables 2 and 3 show that there was no difference in either case between the LG of patients from the PrivHS and the PubHS.

The 44 participants who had searched the internet regarding urologic disease were asked about the types of websites accessed. Seven participants (15.9%) accessed only specialized content websites, 16 (36.4%) accessed general content websites only, 11 (25%) accessed both general and specialized content websites, and 10 (22.7%) did not remember the type of site accessed.

Participants were asked if they considered the information to be trustworthy. Among the 27 participants from the PrivHS and the 17 from the PubHS, 18 (66.7%) and eight (47.1%), respectively, considered the information trustworthy ( $P = 0.426$ ). Of all 26 participants who trusted the information found, two (7.7%) accessed specialized content sites, 10 (38.5%) accessed general content sites and nine (34.6%) accessed both types of web page; five participants (19.2%) were not able to recall the type of site accessed ( $P = 0.173$ ).

Participants evaluated the impact of the information obtained online on their communication with their physicians (Table 4). Twenty-eight (63.3%) participants out of 44 considered that communication had improved. Four of them (14.3%) accessed only specialized content websites, 12 (42.9%) accessed general content sites and five (17.8%) accessed both types of website; seven (25%) were not able to remember the types of site accessed ( $P = 0.113$ ).

Peace of mind and confidence in treatment after internet consultation were also evaluated (Tables 5 and 6). There were no statistically significant differences between the groups considering these two variables ( $P = 0.367$  and  $P = 0.936$ , respectively).

## Discussion

As expected, our data showed that people without health insurance have less access to the internet. Fogel et al., in a study done in Canada, investigated the prevalence and predictors of internet usage to search for medical information about women with breast cancer and reported a similar result [4]. They observed that the majority of patients who access the internet in order to research about their health were Caucasians from a higher economic educational strata. However, our data show that half the patients from the PubHS sector (without health insurance) currently use the internet. This demonstrates that the World Wide Web is already part of the routine of the general population. This finding may be due to the wide proliferation of internet access points which makes the web available in many places for both of the groups classified in our study. Currently, patients without access at home or at work, including our participants from the public services, have other access options. Notwithstanding the difference in the availability of internet access, there was no disparity in the use of this tool to search for information on diseases, general or urologic. Therefore, even individuals from a lower socio-economic class display a similar interest in a better comprehension of their children's disease.

Quality of information online is hard to evaluate. In our study, the websites from universities and from medical associations, as well as electronic scientific journals, were considered reliable. We acknowledge that this criterion is arbitrary, since many websites among those classified as reliable might contain false information. A meta-analysis

**Table 4** Impact of web research on relationship between LG and physician.

	What was the impact of the web research on your relationship with your physician?				Total <i>n</i> (%)	<i>P</i>
	Improved	Worsened	Did not change	No answer		
	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)		
PrivHS	17 (63)	3 (11.1)	7 (25.9)	0 (0)	27 (100)	0.587*
PubHS	11 (64.7)	1 (5.9)	4 (23.5)	1 (5.9)	17 (100)	
Total	28 (63.6)	4 (9.1)	11 (25.0)	1 (2.3)	44 (100)	

\*Pearson's Chi-square test.

**Table 5** Impact of online research on LG peace of mind.

	What was the impact of the online research on your peace of mind?			Total <i>n</i> (%)	<i>P</i>
	More calm	Less calm	No difference		
	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)		
PrivHS	13 (48.1)	3 (11.1)	11 (40.7)	27 (100)	0.367*
PubHS	5 (29.4)	4 (23.5)	8 (47.1)	17 (100)	
Total	18 (40.9)	7 (15.9)	19 (43.2)	44 (100)	

\*Pearson's Chi-square test.

**Table 6** Impact of online research on LG confidence.

	What was the impact of the online research on your confidence?			Total <i>n</i> (%)	<i>P</i>
	More confident	Less confident	No difference		
	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)		
PrivHS	11 (40.7)	3 (11.1)	13 (48.1)	27 (100)	0.936*
PubHS	6 (35.3)	2 (11.8)	9 (52.9)	17 (100)	
Total	17 (38.6)	5 (11.4)	22 (50.0)	44 (100)	

\*Pearson's Chi-square test.

including 79 studies about quality of online information found that 69.6% of the studies considered that quality is a problem on the internet [7]. These data indicate the necessity for physicians to inform themselves about online health sources in order to be capable of responsibly guiding patients seeking web-based health information. Another limitation of our study is that despite the fact that we only included patients after a first consultation with the pediatric urologist, it is possible that some patients may have searched the internet before the urological consultation. Many patients are referred by a pediatrician and their LG could be interested in researching online about the disease of their child. The usage of internet resources before medical consultation could enable the family to engage in more thorough and informed questioning during the consultation which in turn could augment confidence in the physician. Internet usage after consultation could be biased by the quality of the already established doctor–patient relationship.

There were no significant differences regarding the judgment patients made about a website's content. No matter which service they used, most of the patients considered the information reliable, even if they had accessed general content websites. Sillence et al. performed a study to investigate how menopause patients evaluated and made use of online information concerning hormone reposition therapy [8]. The study demonstrated that poor design was the main reason why these patients rejected certain sites.

Most of the individuals, independent of which group they belonged to, reported that communication with their physicians improved. This result supports the conclusions of other studies which affirm that internet access: positively affects the doctor–patient relationship, can be a supplementary source of information, is not able to replace communication with physicians, and does not alter the roles in the doctor–patient relationship [5,6]. Consequently, the

internet may become an important tool in our doctor–patient environment which can potentially improve this relationship, ameliorating not only the patient's knowledge about disease, but also treatment adherence and outcomes.

Participants were questioned about their confidence and peace of mind, and 35% and 40% of them, respectively, reported improvement. A minority, 15.9% and 11.4%, respectively, reported less confidence and peace of mind after searching the web. There was no difference observed for these parameters between the PubHS and the PrivHS. We acknowledge that this evaluation is entirely subjective, but suggest that economic strata had little influence on this investigation. The absence of an educational profile evaluation for the LG is a limitation of this study, but cultural aspects may be involved. Given that the use of web-based information both improves the doctor–patient relationship and affects little the patient's confidence and peace of mind, access to such information may improve the patient's relation with their disease and its treatment.

## Conclusion

LG of patients from the PubHS have less access to the internet than those from a PrivHS. Our data show that the internet is commonly utilized by LG of patients in both types of health care system. Forty-four percent of the participants sought on the web information about their child's urologic disease (with no difference between PubHS and PrivHS), and 64% of them considered that communication with their doctor improved. Thus, the internet has become a helpful source of information about health, affecting positively the doctor–patient relationship. Consequently, physicians must discover how to guide their patients in order to make the best usage possible, aiming to clarify patient's doubts about their disease through access to reliable information.

## Conflict of interest/Funding

None.

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