Do Consumers in Taiwan Need Physician Information?

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Background: This article was written to determine the extent of consumers' needs for physician information and what information consumers use in decision making when selecting a physician.

Methods: To collect data, a self-administered questionnaire was hand-delivered to 700 patients who visited the general surgery outpatient departments of seven hospitals during June 2003. A multiple logistic regression was conducted to identify the statistically significant factors related to patients' needs to use physician information.

Results: Of the respondents (N=687), 74.7% felt they "greatly needed" or "needed" physician information. About 90% of respondents would "certainly" or "possibly" change physicians if the performances of their physicians shown by physician profiling were not as good as others. Respondents ranked the three most needed physician information as specialties, malpractice history, and overall patient satisfaction level. The multiple logistic regression showed that respondent's age, hospital level, personal monthly income, and whether they had compared medical care quality provided by neighborhood physicians had significant relationships with the respondent's needs for physician information after adjusting for other factors.

Conclusions: This study found that 88.1% of respondents were in need of some amount of physician information. This is in light of calls for physician profiling from consumer-oriented organizations to assist consumers in selecting suitable physicians. It is recommended that the healthcare industry in Taiwan make a significant investment in a physician profiling system. The performance measures of this physician profiling system should be developed based on inputs from consumers, physicians, insurance companies, and researchers in this field.

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Key words: physician profiling, physician information, consumers.

During the past few years, the widespread use of administrative claim data and increasing developments in statistical computing power have made it possible to profile practice patterns of individual physicians. Considerable efforts have been devoted to developing and publicly disseminating information on physician performance via integrated delivery networks, hospitals, insurance carriers, and state

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governments in the US.[1,2] Although still in the early stages of development, the public release of information on physician performance has emerged as a new tool enabling consumers to make informed choices when selecting a physician by disease or by setting in the modern healthcare industry,[3] which is described as possessing medical information asymmetries between consumers and healthcare providers.

Many organizations in the US including state and federal governments, healthcare plans, and nonprofit organizations have begun publishing information on physician performance in response to the need for more objective physician performance data from consumers.[4-6] Such physician information includes physician's education, specialties, board certification, malpractice and disciplinary histories, criminal convictions, hospital affiliations as well as the insurance plans, reported patient satisfaction, quality of life, mortality rate, morbidity rate, length of stay for all ranges of illnesses, conformance to established protocols, postoperative infections, referrals, readmissions, the ordering of laboratory and other tests, and costs.[6-9] Aetna US Healthcare, a healthcare plan, even allows the patients to access their own information on medical claims submitted by physicians.[10]

With consumers' growing interests in healthcare provider information and increasing distrust of healthcare professionals, prospective patients can use physicians' information as resumes to compare the practice patterns of physicians with peer-practice-based norms or standards of practice when selecting a physician in the US.[11,12] One study conducted by Harris revealed that 70% of respondents answered that healthcare provider information was either very helpful or helpful in choosing their healthcare providers.[13] Hibbard and Jewett also found that consumers were consistently very interested in having access to provider information.[14] In addition, publicizing information on physician performance with regard to quality of care can also increase the pressure on physicians to provide medical care that meets professional standards for patients.[4,15] In a study conducted at Michigan State University, researchers found that the publications of physician information effectively decreased inappropriate antibiotic use and reduced overall complication rates among inguinal hernia patients by 40%.[16]

Physician information appears to be valuable for consumers for use in choosing physicians based on the experiences in the US.[16-18] However, very few movements have been instituted to release performance information on physicians in Taiwan to date although the Bureau of the National Health Insurance (BNHI) has been using physician information to monitor the behaviors of hospitals and physicians. Recently, many consumer-oriented organizations in Taiwan have enthusiastically been recommending that the healthcare authorities release performance information on healthcare providers to help consumers choose appropriate providers. The increased demands from consumer organizations and market forces will inevitably drive the field of healthcare provider information forward. In particular, unlike consumers in the US who lack a choice of healthcare providers or healthcare services under managed care,[20] consumers in Taiwan are able to exercise actual choices of individual physicians at any level of the healthcare system under the National Health Insurance (NHI) program. Therefore, this article was written to determine the extent of consumers' needs for physician information and what information consumers use in decision making when selecting a physician. This article can help healthcare professionals understand consumers' attitudes toward the issues of release of physician information, and it may also attract the attention of policy makers to increase their efforts toward developing and publicizing performance information on healthcare providers.

METHODS

Study subjects

Since the majority of physician information systems currently used in the United States include performance indicators targeted at surgeons, the potential subjects of this study were patients who visited general surgery outpatient departments of seven hospitals during June 2003. The reason for choosing ambulatory care patients rather than community residents was because those subjects would probably be more interested in the issue of physician information. In order to assure that the subjects were able to answer the questions, only patients over 18 years old and those who could read were eligible to participate in this study.

Instrument

A structured questionnaire of consumers' attitudes about using physician information (Consumer Attitudes toward Physician Information, CAPI) was developed by a research team through literature reviews and in-depth interviews with experts. In order to identify the possible dimensions of information included in the CAPI and to understand the current issues concerning physician information in Taiwan, interviews with eight experts (1 person each in charge of quality assurance at medical centers, regional hospitals, and district hospitals, 2 researchers who have studied in this field, and 3 staff members of consumer-oriented organizations) were conducted in May 2003. After development of the skeletal CAPI, a pretest was also performed on 30 outpatients, who were from the above seven hospitals and who shared the major characteristics of the targeted sample patients, to determine if the respondents had any difficulty understanding the questionnaire and whether further revisions were needed to improve the clarity of the wording. The final version of the CAPI was based on a review of previous reports in the literature, interviews with experts, and revisions of the questionnaire based on resulting comments during the pretest evaluation.

The CAPI consisted of three parts. The first part, which was designed to determine consumers' attitudes toward the need for physician information, included nine questions (Appendix). The second part, which was developed to determine consumers' attitudes toward the type of content consumers needed in choosing physicians, included 17 indicator questions. These 17 questions were categorized into physician background information (8 questions) and performance information (9 questions). The third part concerned respondent's sociodemographic information and perceived current health status.

Data collection and analysis

Seven hospitals, purposely selected to represent the range of services provided by hospitals in different hierarchies, included two medical centers, two regional hospitals, and three district hospitals, all of which were located in northern Taiwan. The convenience sampling of these seven hospitals was selected based on the availability for the study. Before distributing questionnaires to potential subjects, the researchers obtained permission to survey subjects from the administrators of each hospital. One hundred ambulatory patients from general surgery outpatient departments were selected at each sampled hospital using systematic sampling (the sampling interval was 3) during the 10-day investigation period (10 patients/day). For our study, the self-administered questionnaires were hand-delivered by the researchers to the patients. Respondents were assured that their responses would remain completely confidential and anonymous. In all, 687 of the selected 700 ambulatory patients completed and returned the questionnaires, yielding a 98.1% response rate.

Statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS 10.0 for Windows, 1997, SPSS, Chicago, Ill). All variables were analyzed using descriptions such as frequency, percentage, mean, and standard deviation. Chi-square tests were conducted to explore the associations between the extent of the patients' need to use physician information and the patients' ages (18-30, 31-50, and ≥ 51 years), gender, hospital level, highest educational degree, frequency of outpatient visits last year (< 7, 7-18, > 18), monthly personal income (<NT$20,000, NT$20,000-59,999, >NT$ 60,000), marital status (married and others), perceived current health status (good and others), visited the same physician when they felt sick, long-standing illnesses, visited the same physician, compared quality provided of the neighborhood physicians, and ability to find physician information. The extent of the patients' need to use physician information was treated as a dichotomous category on the basis of whether a consumer needed physician information. Patients that answered "greatly needed" or "needed" to the question of estimating the extent to which they needed information on physicians were recorded as "needed" and those which answered "somewhat needed", "not so needed", or "not necessary at all" were recorded as "not needed". In addition, a multiple logistic regression was performed to identify the statistically significant factors related to the patients' need to use physician information. In this regression model, the independent variables including patients' sociodemographic characteristics and attitudes toward the need for physician information were selected based on whether or not they were significantly associated with the patients' need to use physician information in chi-square analyses. All of the regression coefficients were considered significant at $p < 0.05$.

RESULTS

Respondent demographics

Table 1 summarizes the sociodemographic information of the sampled patients. Among the 687 respondents, 2.8% answered that their perceived current health status was "very good", 28.5% "good", 59.8% "not bad", 8.2% "bad", and 0.7% "very bad". As to age, patients ranged in age from 18 to 82 years, with a mean of 31.6 years and a standard deviation of 11.5 years. Patients with an age of 18-30, 31-50, and ≥ 51 years accounted for 56.5%, 36.5%, and 7.0% of the sample, respectively. The majority (62.2%) of the respondents was women and 37.8% was men. With regard to the highest degree/education level, more than half (64.7%) of the respondents had college or university degrees. A relatively small number (2.9%) of the respondents had only finished elementary school. About one-third (34.4%) of respondents made six or fewer outpatient visits last year. As to personal monthly income, the majority (30.7%) of respondents had no income, while only 4.5% had incomes above NT$80,000 (US$ 1 = NT$ 33). In addition, 60.3% of respondents were married, and the overwhelming majority (88.4%) had no long-standing illnesses.

Table 1. Sociodemographic Information of Sampled Patients (N=687)

Variable	No. (%)
Perceived current health status	
Very good	19 (2.8)
Good	196 (28.5)
Not bad	411 (59.8)
Bad	56 (8.2)
Very bad	5 (0.7)
Age (years)	
18-30	388 (56.5)
31-50	251 (36.5)
≥ 51	48 (7.0)
Gender	
Male	260 (37.8)
Female	427 (62.2)
Highest educational level	
Elementary school	20 (2.9)
Junior high school	35 (5.1)
Senior high school	142 (20.7)
College or university	444 (64.7)
Graduate school or higher	46 (6.7)
Frequency of outpatient visits last year	
0-6	236 (34.3)
7-12	202 (29.4)
13-18	118 (17.2)
19-24	55 (8.0)
25-30	26 (3.8)
Over 30	50 (7.3)
Monthly personal income	
No income	211 (30.7)
<NT$20,000	113 (16.4)
NT$20,000-39,999	190 (27.2)
NT$40,000-59,999	113 (16.4)
NT$60,000-79,999	29 (4.2)
Over NT$80,000	31 (4.5)
Martial status	
Unmarried	413 (36.2)
Married	249 (60.3)
Divorced	12 (1.7)
Widowed	12 (1.7)
Any long-standing illness	
Yes	80 (11.6)
No	607 (88.4)

Respondent's attitudes toward the need for physician information

Among the respondents, the overwhelming majority (88.4%) did not visit the same physician if they felt sick (Table 2). With respect to medical care quality, 58.8% answered that they had compared medical care quality provided by neighborhood physicians. Among those respondents (N=404) who had compared medical care quality provided by neighborhood physicians, 8.4% answered that the perceived extent of difference in medical care quality was "very different", 67.3% "different", 23.3% "slightly different", and 1.0% "no different". As to the extent to which they needed physician information, 24.3% of the respondents answered "greatly needed", 50.4% "needed", 13.4% "somewhat needed", "9.3% "not so needed", and 2.6% "not necessary at all". That is, over 88% of respondents felt they "greatly needed", "needed", or "somewhat needed"physician information.

As to the possibility of using physician information as a basis of selecting physicians, 33.6% answered "certainly", 61.3% "possibly", 4.5% "possibly not", and 0.6% "certainly not". If they found that their regular physicians had poorer performance compared with others in the neighborhood in the specialty, 23.6%, 67.0%, 8.3%, and 1.2% respectively answered that they would "certainly", "possibly",

Table 2. Subjects' Attitudes toward Using Physician Information (N=687)

Variable	No. (%)
Whether subjects visited the same physician if they felt sick	
Yes	80 (11.6)
No	607 (88.4)
Whether subjects compared medical care quality provided by neighborhood physicians	
Yes	404 (58.8)
No	283 (41.2)
Extent of difference in medical care quality provided by neighborhood physicians	
Very different	34 (8.4)
Different	272 (67.3)
Slightly different	94 (23.3)
No different	4 (1.0)
Extent of difficulty in finding background or performance physician information on a certain physician	
Very difficult	33 (4.8)
Difficult	245 (35.7)
Somewhat difficult	295 (42.9)
Not so difficult	85 (12.4)
Not difficult at all	29 (4.2)
Extent to which subjects need physician information	
Greatly needed	167 (24.3)
Needed	346 (50.4)
Somewhat needed	92 (13.4)
Not so needed	64 (9.3)
Not necessary at all	18 (2.6)
Possibility of using physician information when they need to select a physician in the future when sick	
Certainly	231 (33.6)
Possibly	421 (61.3)
Possibly not	31 (4.5)
Certainly not	4 (0.6)
Possibility of changing physicians if they found that their regular physician had a poorer performance than others	
Certainly	162 (23.6)
Possibly	460 (67.0)
Possibly not	57 (8.3)
Certainly not	8 (1.2)
Organizations which are the most appropriate to assess and release physician information	
DOH	236 (34.3)
BNHI	156 (22.7)
Medical associations	137 (19.9)
TJCHA	202 (29.4)
Non-profit organizations	242 (35.2)
How would they like physician information to be made available to them	
Pamphlets	309 (45.0)
Internet website	455 (66.2)
Telephone	108 (15.7)
Newspapers	73 (10.6)
Magazines	79 (11.5)
Videos	5 (0.7)

Abbreviations: DOH: Department of Health; BNHI: the Bureau of the National Health Insurance; TJCHA: the Taiwan Joint Commission on Hospital Accreditation.

"possibly not", and "certainly not" change physicians. In other words, over 90% of respondents would certainly or possibly change physicians if the performance of their physician shown on physician profiling was not as good as others.

Respondents' attitudes toward the indicators needed for physician information

Table 3 shows the frequencies and percentages of respondents' attitudes toward the extent of need for various indicators of physician information. Among the eight indicators of background information, the majority of respondents (55%) ranked specialties as "greatly needed". Only 3% of respondents respectively ranked physician age and gender as "greatly needed." Among the nine indicators of physician performance, most respondents perceived the following four indicators as greatly needed: postoperative complication rate (44%), patient overall satisfaction level (43%), postoperative 30-day mortality rate (41%), and postoperative infection rate (39%). On the other hand, most respondents perceived the indicator of length of stay for all ranges of illness as the least needed to be provided for physician information.

Associations between respondents' needs for physician information and other variables

Table 4 describes the association between respondents' needs for physician information and other variables. Chi-square tests revealed that the extents of patient needs to use physician information were associated with patient's age ($p<0.001$), hospital level ($p<0.001$), monthly income ($p<0.001$), marital status ($p<0.001$), compared medical care quality of the neighborhood physicians ($p<0.01$), and patient's ability to find physician information ($p<0.05$).

Factors related to respondents' needs for physician information

Table 5 illustrates the results of the multiple logistic regression analysis. It shows that respondent's age (31950 vs. 18-30 years, OR=3.90; 95% CI 2.14-7.09), hospital level (regional hospital vs. medical center, OR=0.53; 95% CI 0.30-0.95; district hospital vs. medical center, OR=0.34; 95% CI 0.21-0.56), personal monthly income (>NT$60,000 vs. <NT$20,000, OR=10.65; 95% CI 2.42-46.92), and compared medical care quality of the neighborhood physicians (OR=1.52; 95% CI 1.06-2.21) had significant relationships with respondents' needs for physician information after adjusting for other factors. This indicates that respondents aged between 31 and 50 years had 3.90 times the likelihood of respondents aged between 18 and 30 years to need physician information. The odds that respondents who visited regional hospitals and district hospitals would need physician information were 0.53 and 0.34, respectively, relative to medical centers. In addition,

Table 3. Respondent's Attitudes toward the Need for Indicators in Physician Information (N = 687)

Variable	Greatly needed N (%)	Needed N (%)	Somewhat needed N (%)	Not needed N (%)	Not needed at all N (%)
Physician age	20 (3)	196 (29)	253 (37)	85 (12)	133 (19)
Physician gender	19 (3)	185 (27)	232 (34)	69 (10)	182 (26)
Years of practical experience	138 (20)	367 (53)	86 (13)	53 (8)	43 (6)
Medical school graduated from	68 (10)	291 (42)	218 (32)	51 (7)	59 (9)
Healthcare institutions served in	149 (22)	336 (49)	129 (19)	40 (6)	33 (5)
Specialties	377 (55)	243 (35)	46 (7)	15 (2)	6 (1)
Malpractice history	365 (53)	227 (33)	57 (8)	26 (4)	12 (2)
Criminal convictions	375 (54)	189 (28)	64 (9)	24 (4)	35 (5)
Length of stay for all ranges of illnesses	74 (11)	213 (31)	286 (42)	42 (6)	72 (11)
Postoperative infection rate	270 (39)	257 (37)	107 (16)	31 (5)	22 (3)
Postoperative 30-day mortality rate	281 (41)	258 (38)	100 (15)	27 (4)	21 (3)
Postoperative complication rate	303 (43)	255 (37)	88 (13)	26 (4)	15 (2)
Patient overall satisfaction level	297 (44)	265 (39)	86 (13)	33 (5)	6 (1)
Average time spent with each patient	172 (25)	278 (41)	170 (25)	43 (6)	24 (4)
Unscheduled readmission with the same disease within 14 days	187 (27)	279 (41)	152 (22)	40 (6)	29 (4)
Referral rate	170 (25)	295 (43)	154 (22)	42 (6)	25 (4)
Average daily number of patient visits	166 (24)	272 (40)	177 (26)	35 (5)	37 (5)

respondents whose monthly incomes were more than NT$60,000 were 10-times more likely to need physician information compared with respondents whose monthly incomes were less than NT$20,000.

Table 4. Associations between Respondents' Needs for Physician Information and Other Variables

Variable	Respondents' needs for physician information		X^2 value
	Needed N (%)	Not needed N (%)	
Age (years)			36.29***
18-30	256 (66.0)	132 (34.0)	
31-50	218 (86.9)	33 (13.1)	
≥ 51	39 (81.3)	9 (18.8)	
Patient gender			1.12
Male	200 (76.9)	60 (23.1)	
Female	313 (73.3)	114 (26.7)	
Hospital level			13.65***
Medical center	132 (80.0)	33 (20.0)	
Regional center	146 (79.8)	37 (20.2)	
District hospital	214 (67.3)	104 (32.7)	
Patient's highest degree			7.35
Elementary school	16 (80.0)	4 (20.0)	
Junior high school	25 (71.4)	10 (28.6)	
Senior high school	97 (68.3)	45 (31.70	
College or university	335 (75.5)	109 (24.5)	
Graduate school or higher	40 (87.0)	6 (13.0)	
No. of outpatient visits last year			1.68
<7	177 (75.0)	59 (25.0)	
7-18	233 (72.8)	87 (27.2)	
>18	103 (78.6)	28 (21.4)	
Monthly income			19.04***
<NT$20,000	227 (70.1)	97 (29.9)	
NT$20,000~59,999	228 (75.2)	75 (24.8)	
>NT$60,000	58 (96.7)	2 (3.3)	
Marital status			14.78***
Married	207 (40.4)	306 (59.6)	
Unmarried	42 (24.1)	132 (75.9)	
Perceived current health status			3.20
Healthy	170 (79.1)	45 (20.9)	
Others	343 (72.7)	129 (27.3)	
Long-standing illness			0.04
Yes	59 (73.8)	21 (26.3)	
No	454 (74.8)	153 (25.2)	
Visiting the same physician			2.01
Yes	250 (77.2)	74 (22.8)	
No	263 (72.5)	100 (27.5)	
Compared medical care quality provided by neighborhood physicians		7.46**	
Yes	317 (78.5)	87 (21.5)	
No	196 (69.3)	87 (30.7)	
Having difficulty finding physician information			4.63*
Yes	437 (76.3)	136 (23.7)	
No	76 (66.7)	38 (33.3)	

***$p<0.001$; **$p<0.01$;*$p<0.05$.

Table 5. Logistic Regression Analysis Results Showing Factors Related to Patients' Needs for Physician Information (N=687)

Variable	Odds ratio	95% C.I.
Patient age (year)		
18-30 (ref. group)		
31-50 (yes/no)	3.90	(2.14- 7.09)
≥51 (yes/no)	2.08	(0.85- 5.08)
Hospital level		
Medical center (ref. group)		
Regional hospital (yes/no)	0.53	(0.30- 0.95)
District hospital (yes/no)	0.34	(0.21- 0.56)
Monthly income		
<NT$20,000 (ref. group)		
NT$20,000~59,999 (yes/no)	0.93	(0.61- 1.41)
>NT$60,000 (yes/no)	10.65	(2.42-46.92)
Marital status		
Married (yes/no)	0.82	(0.46- 1.47)
Unmarried (ref. group)		
Compared medical care quality provided by neighborhood physicians		
Yes (yes/no)	1.52	(1.06- 2.21)
No (ref. group)		
Having difficulty finding physician information		
Yes (yes/no)	1.43	(0.88- 2.34)
No (ref. group)		

Responders who had compared medical care quality of the neighborhood physicians were about 1.52 times more likely to need physician information than responders who had not.

DISCUSSION

The public release of physician information is in its incipient stage in Taiwan, but it has already served as an important tool to inform consumers as well as to modify physician behavior in the United States.[21] For example, physician profiling, which involves the collection and analysis of an individual physician's performance regarding the quality of care, has been widely used as a means of helping consumers make more well-informed healthcare decisions in the US. In this pioneering study, we found that about 80% of respondents in Taiwan perceived some extent of difficulty in finding background or performance information on physicians. This indicates that more people have increasingly begun to recognize medical information asymmetries between consumers and healthcare providers. We also found that over 85% of respondents were in need of some degree of physician information. This is in light of calls for the public release of physician information by consumer-oriented organizations to assist consumers in selecting suitable physicians. The issue of publicizing information on provider performance to prospective patients will certainly become more important in the increasingly competitive healthcare market in Taiwan.

The data in is study revealed that over 90% of respondents would use physician information if it were provided to select a physician when they feel sick in the future. This finding is analogous to a survey performed by the federal Agency for Health Care Policy and Research in 1996 which found that 80% of respondents in the US thought that information on providers was useful for consumers in making decisions about providers.[22] However, the percentage found in our study was even higher than that (69.5%) of a parallel study conducted by Song in 2000 using community residents as the study sample in Taiwan.[23] The possible reason contributing to the difference could be that outpatient visitors used in our study were more sensitive to the issue of provider information than were the community residents.

We also found that about 90% of respondents would "certainly" or "possibly" change physicians if they found out that their regular physicians had poorer performance than others on physician profiling in their specialty. This suggests that physician profiling would have a tremendous impact on physician choices by consumers in Taiwan. However contrary to our finding, a survey in Pennsylvania of 500 patients who underwent coronary artery bypass graft surgery showed that less than 1% of respondents said information on providers had a moderate or important impact on where they decided to have surgery.[24] The Minnesota Health Data Institute reported that while the majority of consumers read the disseminated information on providers, fewer than half of those consumers found the information to be helpful.[25] In addition, Marshall et al. reviewed the existing US literature and concluded that the public release of provider performance information only had limited impacts on consumers.[26] Additional empirical research using community residents is needed to clarify the extent to which the publication of provider information influences consumer choices of

providers. Determining the extent of the possible impact of provider information on consumer healthcare decisions is critical to the further movement towards the public release of physician information in Taiwan.

With regard to the initiating organizations, our findings showed that non-profit organizations were the most likely to be viewed as more appropriate to initiate and release physician information. This finding is comparable with the observation of Gibbs et al. who reported that most privately insured consumers viewed private non-profit organizations such as consumer groups as trustworthy sources of information.[27] Additionally, this study showed that respondents also considered the DOH as appropriate to initiate and release physician profiling. This finding is consistent with a comparable study conducted with inpatients in 1998 by Hsieh who concluded that government healthcare agencies are regarded as the most trustworthy organizations to initiate provider information.[28]

Understanding what provider information the consumers need is crucial in facilitating the use of comparative information by consumers in making healthcare decisions. However, little effort has been made by organizations or government officials that initiate physician profiling to seek inputs from potential consumers in the US to date. Our study suggests that respondents considered physicians' specialties as the most-needed physician background information. This is in agreement with the finding of a study of inpatients by Song that indicated that physicians' specialties ranked as the most-needed provider information.[23] In addition, criminal convictions and malpractice history were selected by respondents as the second and third most needed physician background information in this study. This is in light of the permutation or combination of information used by the majority of available physician profiling systems such as the Massachusetts and New York State physician profiling systems, which include malpractice, criminal convictions, and disciplinary histories of individual physicians.[11,29] However, many researchers have reservations about whether malpractice settlements should be indicative of professional competency or quality. In particular, it is estimated that four of five malpractice cases in the US are due to the litigious society rather than to negligence.[30] Unfortunately most patients seem to have the wrong impression that all malpractice lawsuits against physicians are due to negligence.

Physician performance indicators are also used by many physician profiling systems in the US to help consumers evaluate the overall quality of medical care provided by individual physicians. In this study, we found that the overall satisfaction level of patients was ranked by respondents as the most needed performance information. This is similar to a study by Hibbard et al in which they observed that the patient rating of satisfaction received the highest average importance rating among all indicators for breast cancer care.[31] Hibbard and Jewett also indicated that patient satisfaction ratings provided consumers with the most information on all aspects of healthcare based on a focus-group study on the insured, the uninsured, and Oregon healthcare plan members.[19] In addition, our study revealed that respondents viewed the postoperative complication rate, postoperative 30-day mortality rate, and postoperative infection rate as important physician performance information. This is in support of other focus-group results of 104 participants (the publicly insured, the privately insured, and the uninsured) conducted by Hibbard and Jewett which stated that consumers made provider choices based on their perceptions of risk.[32] MacStravic also indicated that physician performance was typically based on the rating of calculating "failure" rates.[33]

This study showed that the respondents who had monthly personal incomes of more than NT$60,000 were more likely to be in need of physician information compared with others after controlling for other factors. The possible explanation is that those who are in higher income groups tend to have a higher time price, which is demonstrated as one of the principal economic determinants of healthcare utilization.[34] The higher time price may drive those respondents who have monthly personal incomes of over NT$60,000 to search for physician information in order to make the right choice when seeking healthcare. However, further research is still needed to explore whether time costs incurred in finding provider information influenced the need for provider information.

Physician profiling has been developed and publicly disseminated during the past few years in the US. The ability to inform consumers, contain healthcare costs, and provide helpful information to physi-

cians in evaluating practice behaviors based on the US experience has been demonstrated. In this study, we found that 74.7% of respondents were in need of physician information. In particular, physician choice is not a barrier to consumers under the NHI in Taiwan. Consequently, it is recommended that the healthcare industry in Taiwan make a significant investment in a physician profiling system in order to provide high-quality information to the public on the performance of physicians. The performance measurements of this physician profiling system should be developed based on the input of consumers, physicians, insurance companies, and researchers in this field.

There are a couple of limitations to this study. First, the convenience sampling of seven hospitals used in this study was selected based on availability for the study. Without random selection, this non-probability sampling would be expected to exhibit some major weaknesses. Therefore, the findings of this study should be very conservatively used to generalize to the entire population. Second, the sampled patients excluded those who are illiterate because a self-administered questionnaire was used in this study. However, this group of people might need physician information most due to their reduced access to information. Thus, further investigation with people who are illiterate as samples to conform the ability to generalize the present findings is needed in future studies.

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Appendix.

Questionnaire of Consumer Attitudes toward Physician Information

Question	Responses
Part 1.	
1. Whether they visited the same physician when they feel sick	"Yes", "No"
2. Whether they ever compared the medical care quality provided by other neighborhood physicians	"Yes", "No (jump to question 4)"
3. Extent of differences in medical care quality provided by various neighborhood physicians	"Very different", "Different", "Slightly different", "No different"
4. Extent of difficulty in finding background or performance information on a certain physician	"Very difficult", "Difficult", "Somewhat difficult", "Not so difficult", "Not difficult at all"
5. Extent to which they needed information on physicians if a trustworthy organization were to provide this information	Greatly needed", "Needed", "Somewhat needed", "Not so needed", "Not necessary at all"
6. Possibility of using this information when they needed to select a physician when they were sick in the future	"Certainly", "Possibly", "Possibly not", "Certainly not"
7. Possibility of changing physicians if they found out that their regular physicians had poorer performance than others in the specialty shown on physician profiling	"Certainly", "Possibly", "Possibly not", "Certainly not"
8. What organizations are more appropriate to assess and release physician information (a multiple choice question)	"DOH", "BNHI", "Medical associations", "TJCHA", "Non-profit consumer organizations"
9. How they wanted physician information to be made available to them (a multiple choice question)	"Pamphlets", "Internet website", "Telephone", "Newspapers", "Magazines", "Videos"
Part 2	
Physician background information	"Greatly needed", "Needed", "Somewhat needed",
1. Physician's age	"Not needed", "Not needed at all"
2. Physician's gender	Same as above
3. Years of practical experience	Same as above
4. Medical school attended and completed	Same as above
5. Healthcare institutions served in	Same as above
6. Physician's specialties	Same as above
7. Whether a physician has a malpractice history	Same as above
8. Whether a physician has a criminal conviction	Same as above
Physician performance information	
1. Length of stay across all diseases treated	"Greatly needed", "Needed", "Somewhat needed", "Not needed", "Not needed at all"
2. Postoperative infection rate	Same as above
3. 30-day postoperative mortality rate	Same as above
4. Postoperative complication rate	Same as above
5. Patient overall satisfaction level	Same as above
6. Average time spent with each patient	Same as above
7. Unscheduled readmission with the same disease within 14 days	Same as above
8. Referral rate	Same as above
9. Average number of patient visits per day	
Part 3	
1. Respondent's age	
2. Respondent's gender	"Male", "Female"
3. Respondent's highest degree/education level	"Elementary school", "Junior high school", "Senior high school", "College or university", "Graduate school or higher"
4. Frequency of outpatient visits last year	"0-6", "7-12", "13-18", "19-24", "25-30", "over 30"
5. Monthly personal income	"Below NT$20,000", "NT$20,001~39,999", "NT$40,000~59,999", "NT$60,000~79,999", "over NT$80,000"
6. Marital status	"Never married", "Married", "Divorced", "Widowed"
7. Whether a respondent had a long-standing illness	"Yes", "No"
8. Respondent's perceived current health status	"Very good", "Good", "Not bad", "Bad", "Very bad"

台灣消費者是否有醫師資訊的需求?

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背 景： 本文旨在瞭解消費者對醫師資訊的需求程度及消費者用來選擇醫師所需要的資訊。

方 法： 於2003年6月間對到7家醫院外科門診的700位病人進行問卷調查，以邏輯斯迴歸分析確認影響病人對醫師資訊需求的相關因素。

結 果： 受訪者中 (N=687)，74.7%覺得“非常需要”或“需要”醫師資訊，約有90%的受訪者如果發現他們的醫師在醫師檔案上的表現比其他醫師差，他們“一定”或“可能”會更換醫師。受訪者認爲最重要的三種醫師資料爲醫師專長、醫療糾紛的記錄及病人整體的滿意程度。邏輯斯迴歸分析發現受訪者的年齡、醫院層級別、個人月收入、是否比較過附近醫師的醫療品質與受訪者是否有需求醫師資訊有顯著相關性。

結 論： 本研究發現88.1% 的受訪者對醫師資訊有不同的需求程度，這與消費者團體提出使用醫師檔案來幫助消費者選擇醫師的建議相呼應，建議台灣的衛生產業投資發展醫師檔案，且醫師檔案中所呈現的資訊需參考消費者、醫師、保險公司及此領域研究學者的意見。

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關鍵字： 醫師檔案，醫師資訊，消費者選擇。

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