Original Article

Experts' perceptions of the concept of induced demand in healthcare: A qualitative study in Isfahan, Iran

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ABSTRACT

Context: One of the most important subjects in health economics and healthcare management is the theory of induced demand. There are different views about the concept of induced demand. Extensive texts have been presented on induced demand, however a compatible concept has not necessarily been provided for this phenomenon and it has not been defined explicitly. **Aims:** The main aim of this article is to understand the concept of induced demand with the use of experts' perceptions of Isfahan University of Medical Sciences. **Settings and Design:** The research was done using a qualitative method. Semi-structured interview was used for data generation. Participants in this study were people who had been informed in this regard and had to be experienced and were known as experts. Purposive sampling was done for data saturation. **Materials and Methods:** Seventeen people were interviewed and criteria such as "reliability of information" and "stability" of the data were considered. The anonymity of the interviewees was preserved. **Statistical Analysis Used:** The data are transcribed, categorized and then the thematic analysis was used. **Results:** In this study, 21 sub-categories and three main categories were derived. Three main subjects were included: Induced demand definition, induced demand elements, and induced demand methods. Each of these issues contained some sub-subjects. **Conclusion:** The result of this study provides a framework for examining the concept of induced demand. The most notable findings include the definition of induced demand, induced demand elements, and method of induced demand. In induced demand definition, an important issue that is often overlooked is that inducing regarding to the effectiveness of clinical services and medical values can lead to better or worse outcomes for patients. These findings help the health policy makers study the phenomenon of induced demand with clear-sighted approach.

Key words: Concept, healthcare services, induced demand

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INTRODUCTION

One of the most important subjects in health economics and healthcare management is the theory of induced demand.[1,2] Newhouse[3] claimed that health service providers were able to create induced demand for their services. This issue soon became one of the controversial highlights in health economics.[4,5]

Numerous studies have confirmed physician induced demand and to identify this induction, most of them have studied the factors of supply and demand.[6-10] For example, greater number of service providers affect the possibility of physician's

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induced demand and patients preferences.[7] In fact, the induction of providing, care, or sale of non-essential services to the clients of the health systems with the power of service providers is called induced demand. Economic and structural factors, behavior of service providers and recipients, and lack of information asymmetries among them are effective in induction of demand[11,12] that sometimes cause goods and services to be used that are not much beneficial.

The hypothesis of induced demand reviews the relationship between physicians and patients. Since the patient does not have enough information to determine what services to be used, the physician can use his additional information to encourage the patient to use unnecessary medications and healthcare.[1] Understanding the agency relationship between physicians and patients is vital to health economics. More focus in the texts is on the subject that physicians act for their patients as perfect agencies. And if it is so, they can convince their patients to act in a manner that can be beneficial to physicians too. For example, one factor that can be taken into consideration is induced demand for their services.[13]

Some of the services offered by physicians have inducing properties. This means that physicians know that patients do not have full and appropriate information regarding their services; they induce a demand to them. In case the patients are fully and properly informed, such inducing and demand stimulation will be impossible.[14] Protection from people against disease costs and providing equity in financial contribution are the main goals of health systems that doubles the importance of attention to this issue.[11,15] Therefore, in order to make health system more efficient, different dimensions of induced demand should widely be studied. Due to variety of healthcare this issue can have an important role in healthcare policy.

There are different views on the concept of induced demand.[16-18] Extensive texts have been presented on induced demand, however a compatible concept has not necessarily been provided for this phenomenon and not often been defined explicitly.[19] For example, there are different opinions about this issue that states whether a comprehensive definition should indicate the effectiveness and appropriateness of care or main physicians' incentives should be stated in offered cares.[17] The concept of induced demand and different dimensions of its definition have not been studied intensively in Iran's healthcare system and may be different from the rest of the world's health systems. So the concept of induced demand can be considered as a major issue to be studied. In this article we want to understand the concept of induced demand with the use of expert's perceptions of Isfahan University of Medical Sciences.

MATERIALS AND METHODS

This study is an applicable research that was conducted in 2012. It is a qualitative method that contains in depth interview. Participants were members of the faculty, physicians, hospital administrators, executives and managers of insurance companies, and health economics researchers with execution and management experience. Sampling method has been done to know and get access to the participants through purposive sampling. Sample size depends on the data saturation. Therefore, 17 face-to-face interviews were conducted. All interviews were recorded and then transcribed. The duration of the interviews ranged between 30-90 min.

To gain credit for the researcher's expertise and validity of the data, the first few interviews were conducted on a trial basis with the use of supervisors and faculty advisors' experiences, before the research was begun by the researchers. Then the researchers began to work after necessary corrections. To enhance the reliability of the findings, interviews were referred to some of the participants and their views were considered.

Criteria such as "reliability of information", and "stability" of data were also considered. A method of data analysis in this study is based on thematic analysis method. Stages of data analysis included extraction of data, writing them on paper, storing them in the computer, immersion in the data, coding, reflexive remarks, marginal remarks, memoing, and developing preposition.

First, after each interview, they were transcribed immediately and then were typed and stored in the computers. Next, interview transcripts were read and reviewed several times, so that the researcher could dominate over the data. In the third stage, the data in the form of sentences and paragraphs associated with the original meaning were divided into semantic units (code). In each interview the themes were separated and then each theme was divided into sub-themes. So the themes and sub-themes were determined for all the interviews.

Registering the reflexive remarks is in fact the registration of notes and ideas that occur in a researcher's mind. These remarks relate notes to other parts of the data. In memoing stage, codes are categorized and compacted as small as possible on the basis of conceptual and semantic similarity. There is declining trend in the data in all the units of analysis as well as the main and sub-categories. Finally, data was placed on the main categories that were more general and more conceptual, and then themes were abstracted.

At the beginning of each interview, the aim and the topic were given to interviewees and if they desired the interviews were conducted. They had been informed about the ease of implementation and the interview was recorded. Interviewees were assured that their names will not be disclosed, and the information would remain confidential. So, all the names were changed to codes.

RESULTS

In this study, thematic analysis was conducted to obtain 21 sub-themes and three main themes. The three main themes

were: Induced demand definition, induced demand elements, and induced demand methods [Figure 1].

Definition of induced demand

A participant considers presenting unnecessary services as a part of induced demand definition and follows:

"Presenting unnecessary services or cares means the cares or services that are completely unnecessary and are given to the ill-informed patient by expert's power and recommendation." (Interview 4)

Another participant considers money as an important aspect in induced demand and says:

"With induced demand you can earn more money and when you earn more money, you will be more interested. You may see you have recommended a test for the patient unconsciously

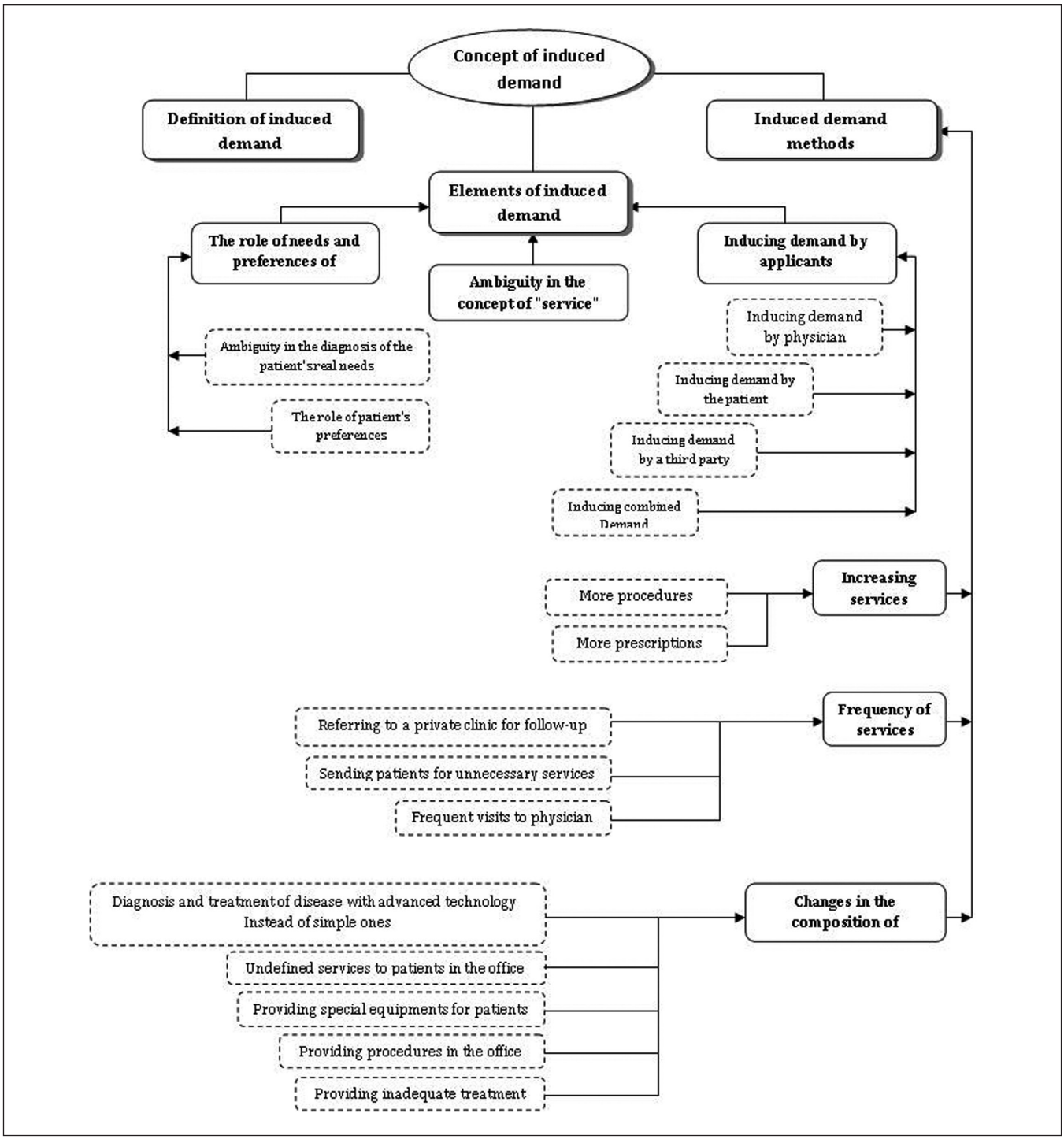

Figure 1: Schematic diagram of concept of induced demand

or consciously! The reason is that it has been economics." (Interview 7)

Another participant emphasizes the lack of asymmetry of information, and states the definition this way:

"It is a demand that because of disparate data or more information it is used by the service provider to induce it to the client, while it is surplus to needs. It means a demand that is not required for patient and consumer and is given to them because of provider's more information." (Interview 2)

Another participant describes pessimistic inference in induced demand as exploitative:

"We have ignored the optimistic side of the issue, because we're working on an induced demand that has a bad pessimistic view, it's a cynical view. Why? Because the physician can exploit the patient." (Interview 4)

Experts' testimonies showed that there is a pessimistic inference in induced demand and dimensions such as nonessential services and surplus to needs, lack of asymmetry of information, exploitation of patients, physician's power, follow the physician, and financial and personal interest of the physician are important to define induced demand.

Elements of induced demand

There are important elements in the phenomenon of induced demand such as "Inducing demand by applicants, the role of needs and preferences of the patient, and the ambiguity in the concept of "service as induced demand".

Inducing demand by applicants

Induced demand in healthcare can start from physician, patient, or a third party that causes four sub-themes to be obtained; "inducing demand from physician, patients, third party, or a combination (physician, patient and institute)".

Inducing demand by physician (physician-based)

Experts emphasized on inducing demand by the physician and his undeniable role in induced demand. Medical professionals provide inducing demand consciously or unconsciously. The participants say:

"Physician has the main role and it is because he is the main prescriber. Others are involved and have role, however, physician does it." (Interview 2). "Sometimes doctor knows and does it consciously. Sometimes he does not know he is inducing demand." (Interview 4)

Inducing demand by the patient (patient-centered)

Patients also can induce their demands to physician and to healthcare system that it can be considered a moral hazard. In this regard the participants say:

"Induced demand by patient is a way that shows he wants a series of healthcare services that due to the physical and geographical conditions and the job activity there is no need to prescribe. But the patient insists that it has to be done." (Interview 7). "Patients should make the doctor prescribe a drug, test, or what so ever. A patient that wants them and asks the doctor to do so, what can the doctor do? For example a doctor tells a patient that you have got a cold. Patient asks to prescribe dexamethasone, penicillin. Now well, he suggests that. He says that I will not feel better unless I am prescribed dexamethasone and penicillin. But he does not need them." (Interview 6)

Inducing demand by a third party (other-centered)

Third party can be healthcare system, institutions, a person who comes along with the patient, and health care personnel except physician. Participants refer to the role of various beneficiaries:

"Induced demand may be by a third-party, a clinical institution, or pharmaceutical company; they visit the physician to take a series of requests for patient and take more than patient's need." (Interview 12). "It might be a person accompanies patient, or has medical information, may be incomplete, wants to induce something." (Interview 6)

Inducing combined demand (physician, patient, and institution)

About the two-way and three-way nature of the induced demand participants say:

"We have false beliefs in the community, both for the physician and the patient, they are imposed by both and it is a reciprocal relationship." (Interview 6). "Induced demand can be on behalf of physician who is called therapist, or on behalf of patient or a third-party!" (Interview 12).

The role of needs and preferences of patient in induced demand

Participants stressed the need and preference of patient in expressing the concept of induced demand. In this part two sub-themes were determined: "The ambiguity in diagnosis of the real needs of the patient and the patient's preferences".

Ambiguity in the diagnosis of the patient's real needs

Patient's needs are an important issue, because determination of the need is important to consider induced demand. Most participants expressed that there is ambiguity in the diagnosis of the patient's real needs. This causes problems in detecting induced demand. A participant about ambiguity in identifying patient's real needs says:

"Perhaps no one can determine a number and a certain amount and tells the person's medical needs that certain amount. I give an example, you think you have a cold, for a simple cold one may go to the doctor or not. Does the one who visits the doctor do something wrong? He has not needed and has done too much than his need. Or he has needed? It is hard to say. There are many aspects of health for which a certain extent cannot really be identified." (Interview 1)

The role of patient's preferences in induced demand

Patient's preference is discussed in the phenomenon of induced demand. This can create a moral hazard. A participant in relation to the patient's desire to maximize the use of the services covered by insurance (moral hazard) says:

"When a person has an insurance handbook, he likes to use medical services and the most he uses these services he creates a dispute that is called moral hazard that means he is increasing his demand." (Interview 4)

Ambiguity in the concept of "service" as induced demand

Participants debate the ambiguity in the meaning of "service" in the health system as an element in the definition of induced demand. They believe in some cases there is no good definition, description, and presentation of "service" and in cases an unnecessary demand is defined as a service. A participant says:

"For example, the flu vaccine, I clearly saw 2 years ago the flu vaccine was introduced as part of induced demand. If a physician said a lot do that…don't do that. Now the situation is a little better and the vaccine is more accessible. Most people recommend injecting it. That is, a thing was part of induced demand and it is not anymore." (Interview 1)

Induced demand methods

To discuss the methods of induced demand, participants mentioned the sub-themes: "Increasing services, the frequency of services, and changes in the combination of services". Two general approaches are included:

Increasing services

This method is usually in the form of many procedures or many prescriptions for a patient. Participants refer to more medicine prescriptions or more prescriptions in paraclinical area:

"That is, sometimes you say if the patient took antibiotics he will feel better. Now the physician has prescribed 2, but one is enough" (Interview 1). "There are more prescriptions for diagnosis, for example using MRI that happens in medical orthopedic or the use of angiography that happens in the field of heart disease." (Interview 2)

Frequency of services

Participants considered the frequency of services in the form of sub-themes: "Referring to a private clinic for follow-up treatment, sending patients for unnecessary services, and frequent visits to physician".

A participant discussed referring to a private clinic for follow-up treatment. He believes sometimes patient is visited by a physician in a public and educational hospital and then is referred to the private office. In fact, hospital for physician is a place to get more clients:

"For follow-up treatment, patient should be referred to physician's office and the treatment will be done for them outside of the treatment protocols that in the hospital or clinics you can get them done. But it is seen that some people are trying to visit physician in their offices." (Interview 13)

Sending patients to seek unnecessary services are stated in another way by a participant. He suggests how physicians sometimes consider poor quality of a service as an excuse to use other unnecessary services:

"A simple example is to think that a patient may be given a series of tests and doctor says I do not accept them. Go again and do them in the laboratory where it is acceptable for me." (Interview 1)

According to a participant's point of view, frequency in services happens when physicians visit the patients frequently. He says:

"Frequency of services that physician provides, for example you should go to the office another week, two other weeks, or another month, I should visit you again." (Interview 2)

Changes in the composition of services

"Providing procedures in the office, providing special equipments for patients, diagnosis and treatment of disease with advanced technology instead of simple ones, providing inadequate treatment, and undefined services to patients in the office" are among the sub-themes that is mentioned by participants in the field of changes in the composition of the services.

"Some doctors provide procedures in their offices. For example, suppose the time when a lung specialist has spirometry system in his office and then statistics show that large percentages of patients have done spirometry there." (Interview 1). "The heart physicians who have ECG machine in their offices, you can see that even if patient has his ECG result from a couple of days ago, somehow they want him to take it again." (Interview 1)

According to a participant, providing special equipment to patients is in the form of improper relationship between physicians and equipment companies. He says:

"Now the companies that provide the equipment and physician can have a relationship with them, for that some physicians just use a special device for the patient." (Interview 5)

A participant refers to delivery about diagnosis and treatment with advanced technologies instead of simple ways. He says:

"About physicians for example obstetricians, there is a discussion that what kind of delivery can be better, it can easily be induced to the patient by physician." (Interview 2)

A participant also refers to providing undefined services in the office and says:

"Surgeries that are done in offices, but should not be done there. This is breaking; these are clinical but are done in the office. Like nose operation." (Interview 10)

Another participant considers change in physician's prescription in the type of drug because of patient's request and says:

"I should be given an injection", he expects but he has a simple runny nose. It is a virus cold, but now it is up to the patient. If you do not prescribe him injection, he feels that treatment has not been done and goes to another physician." (Interview 12)

DISCUSSION

The purpose of this article is to understand the concept of induced demand by the use of expert's perceptions of Isfahan University of Medical Sciences. Findings show that there is a pessimistic understanding of induced demand and dimensions such as nonessential services and surplus to needs, information asymmetries, exploitation cases, physician's power, follow the physician's recommendation, and financial and personal interest of physician are important in defining induced demand.

Folland *et al*., Abdoli, Fabbri, McGuire, Rice and Fuchs have defined negative definitions for induced demand. Physicians misuse their relations with patients to create demand for their private benefits and they provide additional services for financial encouragement. In fact the physician affects patient's demand. In a manner that is not consistent with the best interests of patients.[6-7,16,20-23] Since consumers know far less than physicians about medical diagnosis and appropriate period of treatment, this can cause prescribing of treatments to increase income.[10,24-28]

Bradford and Martin, Bickerdyke *et al*., and Hadley have stated definitions that are a combination of both positive and negative views of induced demand. Physicians are as agents for their patients and can use their diagnostic power to transfer demand. These treatments are dubious and are presented for profit. Induced demand may lead to positive results for example, where a patient may use effective care clinical package that is less than standard level. With the physician's emphasis the patient is convinced that he should receive more treatment.[25,29,30] The results show that we should not have a negative view about induced demand that has a difference with present study.

In the present study, induced demand by an applicant is considered as an issue. Many studies have addressed this issue.[31-34] Hansen and Folland and their colleagues focused on the effect of physicians on induced demand.[35,36] These studies show the role of physician on induced demand and providing unnecessary services to a patient. It is the same as the present study. However, in the present study patient, third party, or a combination of them is also mentioned.

Patient's preference is mentioned in the phenomenon of induced demand. Bickerdyke *et al*.,[25] refers to this point that patient's preferences are different to types and levels of care for certain medical conditions, so induced demand will be provided. Dosoretz[37] states that physicians are affected by patient's preferences when they want to make decisions for the patient, and about 25% of the intensity-modulated radiation therapy (IMRT) treatments are related to preferences of patients. In this study, patient's preference is expressed to be important in induced demand.

Also, patient's needs are an important issue because determination of the need is important to research-induced demand. In the present study, another theme is ambiguity in determining the needs of the patient. Fuchs[7] understands that the appropriate caring is different for the ultimate goal of treatment. Also, Bickerdyke and colleagues[25] in their study have pointed to the controversial determination of appropriate treatment, and state that the recognition of patient's conditions with different clinical patterns is difficult inherently, because the proper level of care criteria is not readily apparent. In this study, the uncertainty in determining the patient's needs is well understood. In fact, the amount of induction will be sensitized to identify the appropriate care.

Another issue in this study is the methods of induced demand. Bickerdyke and colleagues[25] have stated that induced demand may be in the form of increasing the number of services or a change in the composition of services to the patients.[25] Abdoli and Varahrami have expressed that if physicians in their offices provide services such as nutrition counseling or a private lab or even have some relationships with pharmacies; their motivation will be increased to do so. Also, a physician can make a patient take more medicine, because he is more informed.[1,38] It shows the physicians' ability to change the composition of services and their enhancement that is the same as present research findings.

Wilensky, Rossiter, Escarse, and Mahbubi have stated that the number of patients visiting the physician for the second time or number of medical prescriptions may be affected by induced demand.[31,33,39,40] The study by Amporfu[24] also implies that induced demand in outpatient services may be in the form of increasing the number of visits, diagnostic tests, and pharmaceutical composition. Delattre and Dormont and Hasaart have concluded that physicians balance the reducing number of consultations by increasing provided care.[41,42] The results also show an increase in services. Madden and colleagues[43] state that a physician may increase complexity of counseling or order ancillary services to have induced demand. The results also indicate changes in the composition of services that are consistent with the present study.

CONCLUSION

The purpose of this article understands the concept of induced demand, with the use of expert's perceptions of Isfahan University of Medical Sciences. The results of this study provided

a framework for examining the concept of induced demand. The most notable findings include the definition of induced demand, induced demand elements, and method of induced demand. In induced demand definition part, an important issue that is often overlooked is that induction can lead to better or worse outcomes for patients regarding to the effectiveness — if induced clinical services or medical values. Well-induced demand may arise somewhere for physician to convince patient to get further treatment, otherwise patient uses less effective clinical package of care. On the other hand, a bad-induced demand may arise where the physician convinces patient to be treated more than necessary in a way that an informed patient does not accept it and it is a type of dubious treatment.

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