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Strategic hospital services quality analysis in Indonesia

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ABSTRACT

Indonesia initially launched the Universal Health Coverage (UHC) program in early 2014 in an effort to ensure decent living conditions for all of its citizens through national health insurance. This program is mandated by the 1945 Constitution of the Republic of Indonesia Article 28 and 34 and is also aligned with the World Health Organization (WHO) program. However, as part of a program that provides health services, hospitals still have problems, such as the time-consuming administration process from registration to the payment process, which results in patient dissatisfaction and, subsequently, poor quality of hospital services. Therefore, the main purpose of this research is to analyze the dimensions that are required by the hospital to increase the quality of hospital services to meet the stakeholders' (i.e., hospital management, the Ministry of Health as a government policy maker, academicians, and patients) needs and expectations. This research was carried out using a qualitative and quantitative study by conducting interviews and distributing questionnaires to the management group (the Director of Health Efforts Referral [*Bina Upaya Kesehatan Rujukan*] of the Ministry of Health and the Hospital Accreditation Commission [KARS – *Komisi Akreditasi Rumah Sakit*]), 23 high-level management officers from 2 public central hospitals, 2 public regional hospitals, and 6 private hospitals, 2 academicians of Public Health and Computer Science, and 297 patients. We analyzed the data using the Entropy method. This research shows that the main dimensions that are necessary to be implemented by the hospitals in order of priority are human resources, process, policy, and infrastructure.

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1. Introduction

Organization sustainability is dependent on the quality of the given services (Alanezi, Kamil, & Basri, 2010). Researchers also agree that service quality is a means of achieving increased patronage, competitive advantages, long-term profitability, and financial performance as well as determining the demand of goods and services (Carter, Mckinley, Wise, & MacLeod, 2002). Quality has been widely recognized as the antecedent of customer satisfaction (Cronin & Taylor, 1992), and it is directly proportional to customer satisfaction, which means that a high quality of the provided services creates better customer satisfaction (Lee, Lee, & Kang, 2012). Customer satisfaction can be achieved when the organization meets both the customers' needs and expectations. Improving the quality of health care services as well as increasing the demand

for quality control and quality management are becoming more and more essential (Aghamolaei et al., 2014).

Indonesia is currently a developing country and is confronted with health quality issues. According to the data from the Global Health Index (<<http://www.worldlifeexpectancy.com/global-health-comparison-index-indonesia>>), Indonesia ranks 117 out of 199 countries. This suggests that the level of healthcare in Indonesia is slightly below the intermediate level. Thus, given this level and in order to actualize the 1945 Constitution of the Republic of Indonesia Article 28(1)(2)(3) as well as 34(1)(2) and the Law Number 36 year 2009 concerning healthcare, which declares that every person has an equal right to obtain access to health services with safe, adequate quality and affordable prices, a lot of effort is still required, especially for improving the health facilities. In order to meet the basic needs of life in which things occur that cause a loss or reduction in income due to illness, the government implemented a national program called Universal Health Coverage (UHC). Hospitals, as one of the health services providers, are also the involved in the UHC implementation; thus, increasing and enhancing their service quality is important to fulfill patients' needs.

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The Indonesian government has tried to improve hospital service quality through the regulations of the UHC implementation in Indonesia, which is presented in [Appendix A](#); however, there are some regulations and provisions that are incomplete, which results in the non-compliance of the relevant health organizations. As a consequence, the UHC faces a lot of difficulties, such as a lengthy administration process, a lack of medical staff in health facilities, and a shortage of health infrastructures. Discussions amongst researchers from the Institute of Public Administration and BPJS – Health regarding the UHC implementation revealed some problems, such as ([LAN Website, 2014](#)):

- Differences in commitment between management and healthcare providers resulting in a poor quality of services by the physicians, nurses, and healthcare personnel
- Exhausting (lengthy and time-consuming) preliminary UHC administration process due to lack of human resources as well as complex hospital bureaucracy

These situations occurred due to the fact that the top priorities of the Ministry of Health are empowering communities and the private sector in healthcare development as well as distributing health facilities and medicine evenly according to the Health Strategic Plan Year 2010–2014 ([Kementerian Kesehatan RI, 2010](#)). Often, healthcare programs that are implemented based on the Ministry of Health strategic plan do not have comprehensive and detailed guidance in implementing the UHC implementation ([CHAMPS Website, 2014](#)).

Under Law No. 36 of 2009 on Health, Law No. 44 of 2009 on the hospital, and the Minister of Health Regulation No. 1144/MENKES/PER/VIII/2010 on the organization and functioning of the health ministry, hospitals are required to conduct accreditation to improve the quality of its services. Hospitals are required to conduct the accreditation for at least 6 months after the decree of license renewal runs out and 1 year after the decree of the operational license; however, to date, half of all hospitals in Indonesia have not been accredited by national standards ([Amali, 2014](#)). In addition, the assessment of the national accreditation standards in 2012 has not been adjusted to include the international accreditation standards from Joint Commission International (JCI), so the quality of service of public hospitals has not been on par with international hospitals and other stakeholder needs ([Rahma, 2014](#)). Therefore, the importance of knowing the attributes that are important in improving the quality of healthcare needs to be explained in-depth from various perspectives of relevant stakeholders, especially in supporting the success of the UHC implementation.

As a means to achieve the optimal implementation of UHC, good quality health services would provide strategic value to Indonesia healthcare organizations. Good quality services can be used to compete with the competition in the market. Doctors, nurses, and social workers generally agree that the high quality services provided by the hospital had a positive effect on the patients' care ([Carter et al., 2002](#)). Woodruff states that customer value is a source to gain a competitive advantage ([Woodruff, 1997](#)). This is aligned with Clow and Vorhies' proposition that states that good quality care is one of the means of gaining a competitive advantage ([Clow & Vorhies, 1993](#)). Therefore, healthcare organizations must improve their productivity and innovation in order to provide better services to patients.

Services are different from products because of their particular characteristics that are intangible (cannot be touched and measured as things), heterogeneous (varies depending on the time or the service provider), inseparable (the acts of providing and receiving services cannot be truly separated from one another), and perishable (services not utilized at a certain time cannot be

replaced); however, healthcare services differ from other services because of the specific characteristics that are shown in [Table 1](#).

According to the American Society for Quality regarding technical usage, quality can have two meanings: (1) the characteristics of a product or service that impact its ability to satisfy stated or implied needs and (2) a product or service free of deficiencies ([ASQ Website, 2014](#)). The most prominent experts who have been researching quality for more than 30 years are [Crosby \(1979\)](#), [Deming \(1986\)](#), and [Juran and Godfrey \(1988\)](#). [Crosby \(1979\)](#) study defined quality as “conformance to requirements.” [Deming \(1986\)](#) did not define quality in a single phrase, but he asserted that the quality of any product or service can only be defined by the customer and stated that “the difficulty in defining quality is to translate future needs of the user into measurable characteristics, so that a product can be designed and turned out to give satisfaction at a price that the user will pay.” On the other hand, [Juran's study \(1988\)](#) stated that quality means “fitness for use.”

Moreover, Grönroos argues that both the technical and functional quality of services is a key ingredient in the success of a service organization (as cited in [Sohail \(2003\)](#)). Technical quality in healthcare is defined primarily on the basis of the technical accuracy of the diagnosis and procedures, while functional quality relates to the manner of delivery of the healthcare services ([Sohail, 2003](#)). Quality measurement in healthcare is more difficult to define than other services because it is the customer himself/herself and the quality of his/her life that is being evaluated ([Pai & Chary, 2013](#)).

A very popular theory related to service quality is SERVQUAL, which was proposed by [Parasuraman, Zeithaml, and Berry \(1988\)](#). SERVQUAL defines the quality of services as having five dimensions that include Tangible, Reliability, Assurance, Responsiveness, and Empathy, and it measures the quality of services by analyzing the gap between perceptions and expectations ([Parasuraman et al., 1988](#)). Another framework, viz. SERVPERF, was developed by Cronin and Taylor using the same dimensions as SERVQUAL. Unfortunately, these frameworks were developed for general purposes; therefore, they cannot be simply adapted to the needs of a hospital service quality assessment, and the quality is measured by the perception of consumers only ([Cronin & Taylor, 1994](#)).

As the industry structure changes, the role that patients play in defining what quality means has become a critical competitive consideration ([Carter et al., 2002](#)). Thus, it is helpful for hospitals to understand the customers' perception of service quality in order to provide optimal health services. Moreover, in implementing hospital service quality, hospital management should comply with the health regulations and standards that are defined by the health policy makers and academicians.

Because of the several health problems and issues in Indonesia as well as the limitation of previous research, which only focused on the patient or management perspective, this research was formulated to identify and analyze the strategic hospital services quality that is required in Indonesia based on the perspective of hospital management, government policy makers, academicians, and patients as the main stakeholders in the healthcare industry. The patient perspective represents the service consumers of the healthcare services, while the perspectives of hospital management, government policy makers, and academicians appear to be strongly associated with the management perspective as the service providers. Therefore, for this study, the results are divided into two groups: management perspective (hospital management, government policy makers, and academicians) and patient perspective. Subsequently, both the management and patient perspectives will be compared to identify the gap. Thus, the results of this research could provide guidelines to better improve hospital service quality, especially for the Indonesian government, and

Table 1
Distinct characteristics of medical services from other services (Pai & Chary, 2013).

Characteristics	Description
Healthcare is a needed service	A customer arrives with some combination of illness, pain, anxiety, fear, or stress
Lack of control	Patients are not in control because they cannot come and go at will
Surrender of confidentiality	Patients relinquish their privacy (and modesty) to clinicians
Healthcare services are labor and skill intensive	There is a variability in performance from one clinician to another
Made-to-order	The needs are to be tailored if the patient requires a more holistic and customized service
Collaboration	A patient's cooperation both during the encounter (answering questions honestly) and afterwards (taking the prescribed medication) is important for a successful treatment

hospital management, especially in the Southeast Asian countries for implementation in their health programs.

This paper is organized into nine sections. Section 2 explains the literature review, while the research conceptual model is explained in Section 3. The research methodology is discussed in Section 4. Then, the results and discussions of this research are subsequently elaborated on in Sections 5 and 6. Section 7 explores the implications of this research. Lastly, the final section discusses the conclusions and future work based on this research.

2. Literature review

2.1. Service quality

Service quality has become an important research topic in various industries due to its significant relationship to cost, profitability, customer satisfaction, customer retention, and service guarantee (Sohail, 2003). One of the most profound impacts on service quality and the successful application in several service fields in the American practice fields were first mentioned by Parasuraman et al., who introduced the SERVQUAL model in their 1985 study (Becser, 2007). Parasuraman et al. (1988) defined the SERVQUAL model as a tool aimed at assessing customer perceptions of service quality in service and retailing organizations by analyzing these dimensions:

- Tangibles: the physical appearance of the service, equipment, facilities, tools, and staff.
- Reliability: the ability to perform the promised service in an adequate and reliable manner.
- Responsiveness: capacity to solve the customer problems and to serve customers quickly.
- Assurance: the knowledge, politeness, and reliability of the employees.
- Empathy: care and personalized attention given by the organization to the customer.

There are studies that identified the potential difficulties related to the SERVQUAL instruments that questioned its predictive and convergent validity and unstable dimensionality. The Chakrapani study developed a simpler service quality model that consists of three dimensions that could also reduce the applicability of these dimensions to one specific type of organization (Sower, Duffy, Kilbourne, Kohers, & Jones, 2001), which suggests that the SERVQUAL dimensions should be added to completely address the related stakeholders' definition of service quality in the healthcare industry.

2.2. Healthcare service quality

In defining healthcare service quality, many researchers derived their dimensions based on the SERVQUAL model that was proven to be a useful instrument in service quality research (Aghamolaei

et al., 2014; Butt & de Run, 2010; Buyukozkan, Cifci, & Guleryuz, 2011; Chaniotakis & Lymperopoulos, 2009; Ladhari, 2009; Rashid & Jusoff, 2009; Zarei, Arab, Froushani, Rashidian, & Tabatabaei, 2012). Some of them defined the service quality based on either the patient's perspective or the management's perspective. In order to better identify the most important attributes that are compatible with the Indonesian characteristics, we reviewed other studies that focus on analyzing the service quality in the hospitals in developing countries, such as Iran, Turkey, and Qatar.

Aghamolaei et al. (2014) analyzed the service quality gap of the main hospital of the Hormozgan province in Iran based on SERVQUAL and 96 patients' perspectives. That study showed that the hospital was not able to completely meet patients' expectations, thus, further action was needed. Furthermore, the limitation of that study is only based on the results of one referral hospital in the Hormozgan province with a small number of patients. In order to complement the results of that study, a similar study was also conducted by Zarei et al. (2012) to determine different dimensions of the service quality in the private hospitals of Iran and to evaluate the service quality from the patients' perspective; however, Zarei et al. (2012) also limited their study to the private hospitals of Tehran city in which majority of patients were urban citizens and had insurance coverage.

In addition, Sower et al. (2001) developed a valid and reliable instrument to support hospital management's strategic and operational decision making that consists of respect and caring, effectiveness and continuity, appropriateness, information, efficiency, effectiveness-meals, first impression, and staff diversity. That study involved the collection of data from 125 participants of healthcare providers and patients in three United States hospitals. Moreover, Pai and Chary (2013) reviewed 47 studies regarding the dimensions of healthcare service quality from the patient's perspective who were selected from literature databases, such as Ebsco, Emerald Insight, and ABI/Inform.

According to a study by Mosadeghrad (2013) in Iran hospitals, quality healthcare is defined as "consistently delighting the patient by providing efficacious, effective, and efficient healthcare services according to the latest clinical guidelines and standards, which meet the patient's needs and satisfies providers." Patient satisfaction and the fulfillment of patients' needs is arguably the top priority in achieving hospital service quality. This research also defined the required dimensions by the hospitals, i.e., availability, accessibility, acceptability, appropriateness, affordability, competency, timeliness, privacy, confidentiality, empathy, attentiveness, caring, responsiveness, accountability, accuracy, reliability, comprehensiveness, continuity, equity, environment, amenities, and facilities. Even though this study explored healthcare stakeholders' perspectives, including patients, families, healthcare providers, third-party payers, managers, policy makers, and accreditation staffs, this study is limited by the small sample of the number of policy makers, managers, and payers (Mosadeghrad, 2013).

A study by Büyüközkan et al. (2011) defined an evaluation framework of the healthcare service quality model for hospitals

as well as evaluated the performance of the quality of services provided by four hospitals in Turkey, which had a good accreditation score. The dimensions being evaluated consisted of tangibles, responsiveness, reliability, assurance, empathy, and professionalism. Each dimension had several criteria, and those criteria were tested using fuzzy AHP (Analytical Hierarchy Process). Data were collected from five medical specialists in Turkey. The results show that the hospitals should be more focused on the dimensions of empathy, professionalism, and reliability to improve the quality of health services provided by the hospital (Büyükoçkan et al., 2011).

In addition, the research of Chaker and Al-Azzab (2011) identified the elements required in improving patient satisfaction in their case study at Qatar Orthopedic and Sports Medicine Hospital. The elements studied were ease and waiting time in getting service, behavior of personnel, facilities, confidentiality of data, and information personnel. The study concluded with the result that patients are satisfied with the services provided by the hospitals, but, to continuously improve the quality of services, the hospital management should implement the Balanced Scorecard methodology (Chaker & Al-Azzab, 2011).

In summary, the limitation of previous studies was focusing only on one perspective from specific stakeholders; thus, it could not be determined whether or not the services provided by hospitals are able to satisfy patients' needs based on the results. As stated by Carter et al. (2002), it is important for hospitals to understand the customers' perception of service quality in order to provide optimal health services. With the exception of

Büyükoçkan's (2011) study, most of the previous studies do not rank the important dimensions that should first be implemented by the hospitals, which makes it difficult for hospital management and the government to conform their policies.

The summary of the dimensions and the criteria that were used in the aforementioned works is shown in Table 2.

2.3. Entropy

The data processing for this research was performed using the Entropy technique. This technique is used to determine the weight of each criterion. Each attribute is assigned a value measured by each alternative to calculate the entropy values and then compared for each criterion. Next, the entropy weight is obtained based on the appraisal matrix information, which belongs to the objective weight values (Hsu & Hsu, 2008). The steps undertaken to perform the weight determination using the Entropy methods are:

1. Normalizing matrix of the questionnaire result.
As the given value of a criterion increases, the criterion becomes more important. The normalization of the matrix values was performed by subtracting all of the criteria with the highest value.
2. The value obtained in step 1 was divided by the total value of all of the criteria.

The formula used is as follows:

$$a_{ij} = \frac{k_{ij}}{\sum_{i=1}^m \sum_{j=1}^n k_{ij}}$$

Table 2
Summary of healthcare service quality framework.

Dimension	Criterion	Definition	Büyükoçkan	Parasuraman	Mosadeghrad	Chaker & Al-Azzab
Tangibles	Building layout	Aesthetics, the convenience of the hospital	✓	✓	✓ (Acceptability, Appropriateness, Environment)	✓
	Equipment	The availability of the equipment in the hospital to provide a satisfactory service	✓	✓	✓ (Facilities)	✓
	Hygiene	Hygiene of the hospital and personnel	✓	✓	✓ (Environment)	✓
Responsiveness	Timeliness	Ability to provide operations and the promised service on time	✓	✓	✓	✓
	Completeness	The availability of all kinds of service at the clinic	✓	✓	✓ (Continuity)	
	Willingness	Willingness to assist the patients whenever needed, listen to the patients' complaints, and develop the solutions for the patients' needs	✓	✓	✓	
Reliability	Automatic	Provide automated process by exploiting the systems			✓ (Accountability)	
	Accuracy	Accuracy and consistency of the given information (e.g., cost, diagnosis of the disease, etc.)	✓	✓	✓	
	Expertise	Authority of staff providing reliability	✓		✓	
	Image	Creating a good image for the public	✓		✓	
Assurance	Security/privacy	Protection of every type of customers' data (e.g., information about patients, etc.)	✓		✓ (Privacy & confidentiality)	✓
	Cost	Favorable cost of service to the patient	✓		✓ (Affordability, equity)	
	Courtesy	Courtesy of personnel and their ability to inspire trust and confidence	✓	✓		
Empathy	Compensation	To provide a guarantee to the patients in case of a problem	✓			
	Caring	Individualized customer service and attention to patients, understanding needs of patients	✓	✓	✓	
	Manner	The attitude of personnel in the service setting	✓	✓	✓ (Amenities)	✓
Professionalism	Communication	Transfer of information between personnel and customer, the degree of interaction, the level of two-way communication	✓	✓	✓	
	Skill	Competence and performance of staff	✓		✓	
	Experience	Having continuously experiences	✓			
	Innovation	Developing the personnel and hospital services by training and using new technologies	✓			
	Physically accessible	Medical personnel is easily encountered by patients in consultation or other medical treatments			✓	✓

for $m > 1, i = 1, \dots, n; j = 1, \dots, m$, where n is the number of decision makers, and m is the number of criteria.

- Determining the value of the entropy, the dispersion, and the weight of each criterion based on results of step number two. The formula used to determine the entropy is as follows:

$$E_i = \left[\frac{-1}{\ln(n)} \right] \sum_{j=1}^n [a_{ij} \ln(a_{ij})]$$

The dispersion of each criterion can be calculated using the following formula:

$$D_i = 1 - E_i$$

The weight of each criterion can be calculated using the following formula:

$$w_i = \frac{D_i}{\sum D_i}$$

3. Conceptual model of research

By summarizing the dimensions and criteria in the literature review and classifying those dimensions and criteria to the group of Human Resources (People), Processes, Infrastructure, and Policy, this research proposes a research model as shown in Fig. 1. Each sub-criterion was chosen in accordance with the definition statement on the questionnaire that was distributed to two groups of respondents, which were management (hospital management, government policy makers, academicians) and patients.

The group dimension readiness, i.e., the people, process, technology, and policy, is most required when management and policy makers want to improve their organization’s performance. The people dimension refers to an organization that is supported by medical and non-medical personnel who both are professional and have a pleasant disposition. The process dimension indicates that the organization should have a high response level and be reliable to deliver the promised services. The infrastructure dimension means that the facility should have an adequate building and

equipment. Lastly, the policy dimension refers to providing assurance for all of the promised services. The details of the healthcare service quality evaluation criteria are provided in Table 4.

4. Methodology

4.1. Data collecting procedure

This research was quantitative and used a survey technique that was developed based on the group criteria and the criteria to evaluate the quality of healthcare in general hospitals, as shown in Fig. 1. Before the questionnaire was distributed, the questionnaire was tested to identify the errors and ambiguity in each statement. This questionnaire was tested by four academicians involved in this research, i.e., three lecturers from the Faculty of Computer Science and one lecturer from the Faculty of Public Health, Universitas Indonesia. The researcher selected the samples based on respondents’ health service experiences or knowledge (purposive sampling). Then, the questionnaire was distributed directly to the management group (hospitals, the Directorate of the Referral Health Effort of the Ministry of Health as the health policy maker, and the Governing Body of the Hospital Accreditation Commission, which involved the hospital service quality standard and lecturers) and patients.

In order to reach many patients, the questionnaires were distributed at two government public hospitals, and patients could also fill out the questionnaire online at <<http://health-care.cs.ui.ac.id/kuesioner/>>. The link for the patients’ questionnaire was provided through several mailing lists that had more than 100 participants, which were active mailing lists in which messages were posted every day. The mailing lists largely belonged to groups of students or alumni at the University of Indonesia. Thus, the patients’ questionnaires were collected offline and online.

4.2. Instruments

In the questionnaire, there are 20 statements that contain all of the criteria in Table 4, each of which should be scored by the

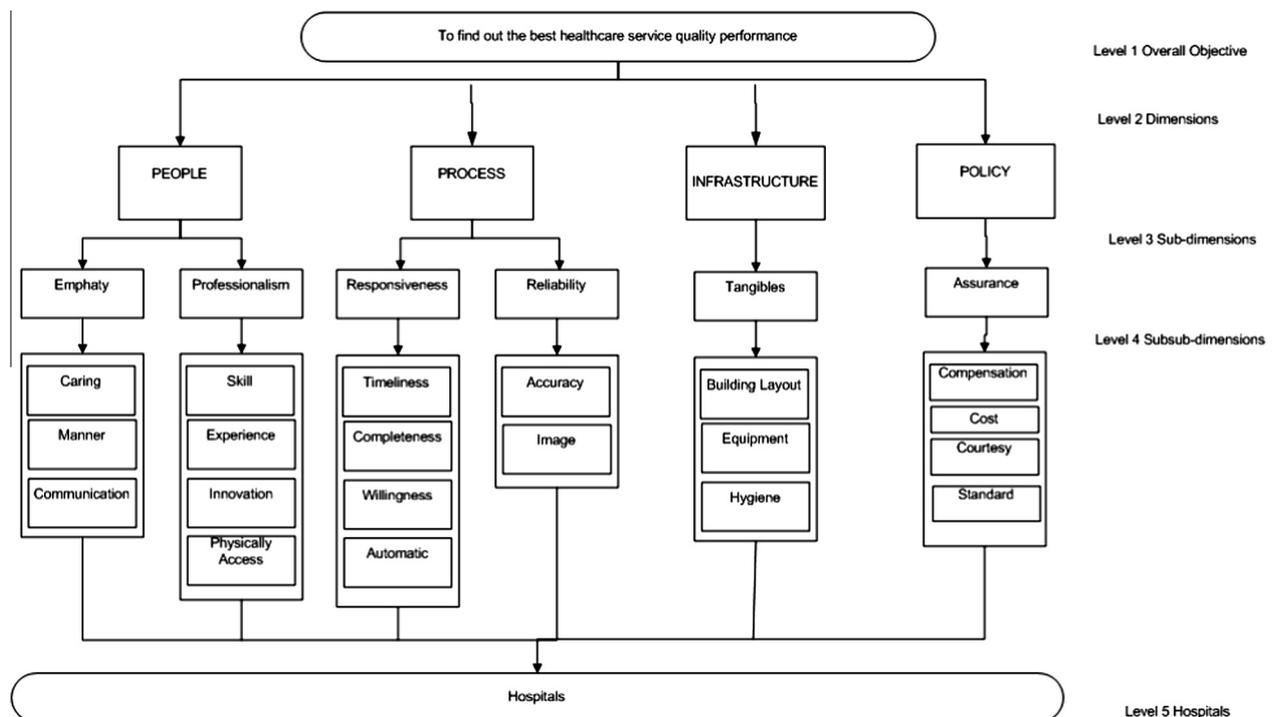


Fig. 1. The evaluation framework of the healthcare service quality model.

Table 3
Patient's demography.

Demography	Attributes	Percentage (%)	Demography	Attributes	Number of respondents
Gender	Men	42	Reason for choosing the hospital	Recommendation from family, friends, etc.	66
	Women	58		Reputation	38
Age	<17 years	2	Activities carried out in the hospital	Location	182
	17–25 years	25		Complete facilities	81
	26–35 years	31		Affordable price	62
	35–45 years	20		Insurance covered	96
	>45 years	22		Medical staff conformity	63
Education	Primary school	5	The hospital unit frequented during the visit	Others	24
	Junior high school	6		Medical control	141
	Senior High School	27		Having medical action	64
	Bachelor	48	Payment method	Treatment	190
	Master	14		Others	30
	Doctor	1		Inpatient	109
Job	Employee	43	Payment method	Outpatient	200
	Civil servant	16		Emergency unit	79
	Entrepreneur	5		Others	43
	Housewife	15		Personal payment	118
	Others	21		Insurance	142
Income	<1 million	23	Government health insurance	Government health insurance	32
	1–3 million	27		Others	12
	3–5 million	24			
	5–10 million	16			
	>10 million	10			
Hospital type	Public hospital	65			
	Private hospital	35			

respondents for its importance. For each statement, a Likert scale of 1–5 is provided to rate each sub-dimension. Scale 1 is used to express a very unimportant sub-dimension, scale 2 is used to express an unimportant sub-dimension, scale 3 is used to express a neutral sub-dimension, scale 4 is used to express an important sub-dimension, and scale 5 is used to express a very important sub-dimension. A larger scale number chosen by the respondents indicated a higher level of respondents' agreement for the importance of the selected sub-dimension to be implemented in the hospital in order to increase hospital service quality.

5. Results

5.1. Respondent demographics

By the end of August of 2014, the data that was collected by distributing questionnaires to the management group consisted of (1) six management staff of two government public hospitals and six management staff of two district public hospitals (i.e., the Head of Health Information Management Installation, the Deputy Head of Emergency Nursing, the Head of Hospital Management Information System, and the Deputy Head of General Inpatient Unit); (2) nine management staffs of nine private hospitals; (3) the Directorate of the Referral Health Effort of the Ministry of Health; (4) the Governing Body of the Hospital Accreditation Commission (i.e., the Head of Research and Development, the Head of Education and Training, and the Head of Secretariat); (5) two lecturers, one from the Faculty of Public Health, Universitas Indonesia, whose field of study is Hospital Administration and the other one from the Faculty of Computer Science, Universitas Indonesia, who also holds a Medical Doctor degree; and (6) 297 patients. Table 3 describes the respondents' demographics of the patients' perspective of hospital service quality. Most of the respondents who participated were young people (under 45-years-old) who

have a bachelor degree and have already received major health services from public hospitals. Respondents could also choose more than one attribute for the reason for choosing the hospital, activities carried out in the hospital, and the most visited unit in the hospital.

5.2. Measurement with Entropy

The data processing in this research was performed using the Entropy technique to determine the weight of each criterion. The steps undertaken to perform the weight determination using the Entropy methods are:

1. Normalize the matrix of the questionnaire result by subtracting all of the criteria with the highest values.
2. Divide the value obtained in step 1 by the total value of all of the criteria.
3. Determine the value of the entropy, the dispersion, and the weight of each criterion.

Table 5 describes the data processing results of the strategic hospital service quality evaluation using the Entropy method.

6. Discussions

Because the aim of this research is to identify and analyze the strategic hospital service quality based on patient and management perspectives, this section elaborates on the results from both perspectives and compares them to identify the gap. Patient perspective represents the service consumers of the healthcare services, while the perspectives of hospital management, government policy makers, and academicians appear to be strongly associated with the management perspective as the service providers because of their activities and experiences in managing Indonesian

Table 4
Healthcare service quality evaluation criteria and criteria group.

Dimension	Criteria	Sub criteria	Definition	References
Human resources	Empathy	Caring	Individualized customer service and attention to patients, understanding needs of patients	Mosadeghrad (2013), Büyükožkan et al. (2011), Chaker and Al-Azzab (2011), ICW Website (2010)
		Manner	The attitude of health workers and their ability to inspire trust and confidence	Mosadeghrad (2013), Büyükožkan et al. (2011), Chaker and Al-Azzab (2011), ICW Website (2010)
		Communication	Transfer of information between health workers and customers, the degree of interaction, the level of two-way communication	Mosadeghrad (2013), Büyükožkan et al. (2011), Chaker and Al-Azzab (2011), ICW Website (2010)
	Professionalism	Skill	Competence and performance of health workers	Mosadeghrad (2013), Büyükožkan et al. (2011), Chaker and Al-Azzab (2011), ICW Website (2010)
		Experience	Having continuously experiences	Mosadeghrad (2013), citebib8, Chaker and Al-Azzab (2011), ICW Website (2010)
		Innovation	Developing the personnel and hospital services by training and using new technologies	Büyükožkan et al. (2011)
		Physically accessible	Medical personnel is easily encountered by patients in consultation or other medical treatments	Mosadeghrad (2013), ICW Website (2010)
Process	Responsiveness	Timeliness	Ability to provide operations and the promised service on time	Mosadeghrad (2013), Büyükožkan et al. (2011), Chaker and Al-Azzab (2011), ICW Website (2010)
		Completeness	The availability of all kind of services at the hospital	Mosadeghrad (2013), Büyükožkan et al. (2011), Chaker and Al-Azzab (2011), ICW Website (2010)
		Willingness	Helping the patients willingly whenever help is needed, listening to the patients' complaints and developing solutions for the needs of customers	Mosadeghrad (2013), Büyükožkan et al. (2011), Chaker and Al-Azzab (2011), ICW Website (2010)
		Automatic	Provides automated process by utilizing a system	Mosadeghrad (2013), ICW Website (2010)
	Reliability	Accuracy	Accuracy and consistency of the given information (e.g., cost, diagnose of the disease, etc.)	Mosadeghrad (2013), Büyükožkan et al. (2011), Chaker and Al-Azzab (2011), ICW Website (2010)
		Image	Creating a good image for the public	Mosadeghrad (2013), Büyükožkan et al. (2011), Chaker and Al-Azzab (2011), ICW Website (2010)
Infrastructure	Tangible	Building Layout	Aesthetics, convenience	Mosadeghrad (2013), Büyükožkan et al. (2011), Chaker and Al-Azzab (2011), ICW Website (2010)
		Equipment	The availability of equipment in the hospital to provide a satisfactory service	Mosadeghrad (2013), Büyükožkan et al. (2011), Chaker and Al-Azzab (2011), ICW Website (2010)
		Hygiene	Hygiene of the hospital and personnel	Mosadeghrad (2013), Büyükožkan et al. (2011), Chaker and Al-Azzab (2011), ICW Website (2010)
Policy	Assurance	Cost	Favorable cost of service to patient	Mosadeghrad (2013), Büyükožkan et al. (2011), Chaker and Al-Azzab (2011), ICW Website (2010)
		Courtesy	Courtesy of personnel and their ability to inspire trust and confidence	Mosadeghrad (2013), Büyükožkan et al. (2011), ICW Website (2010)
		Compensation	Providing guarantees to the patients in case of problems	Mosadeghrad (2013), Büyükožkan et al. (2011), Chaker and Al-Azzab (2011), ICW Website (2010)
		Standard	Comply with applicable standards for personnel, processes, and infrastructure that are used (e.g., implementing ISO or performing hospital accreditation of the Ministry of Health)	Mosadeghrad (2013)

hospitals. The discussion begins with examining the results of the groups of Human Resources (People), Processes, Infrastructure, and Policy to facilitate government and hospital management in prioritizing future health planning in order to improve the quality of hospital services.

6.1. Management group perspectives of hospital service quality

According to Table 5, the management group, which is also comprised mostly of medical staff in public hospitals, states that human resources (weight of 0.35) and processes (weight of 0.29) are the top most important dimensions in improving the hospitals' quality. The other dimensions that should be considered by

management are policy (weight of 0.19) and infrastructure (weight of 0.15). In Mosadeghrad's study (2013), healthcare professionals consider healthcare quality to be "the right thing to do" according to "current technical standards" and "available resources" that satisfy "patients" and "them," "quality is the degree to which a doctor reaches clinical results defined in the guidelines. The closer to clinical standards, the higher the quality," and "doing the right thing and doing it better than before every time." This means that the policy dimension is the most important dimension that should be defined first in comparison with other dimensions in order to guarantee that all hospital activities comply with the applicable standards for personnel, processes, and infrastructure that are used. Thus, the result of Mosadeghrad's study (2013) that stated

Table 5
Data processing results of the strategic hospital service quality evaluation.

Patient perspective				Management group perspective			
Dimension	Criteria	Sub criteria	Criteria weight	Dimension weight	Dimension	Criteria	Criteria weight
Human resources	Empathy	Manner	0.05014188	0.349062	Human Resources	Professionalism	0.052487803
		Caring	0.04999995			Experience	0.050731505
		Communication	0.04999948			Innovation	0.049992199
Process	Responsiveness	Skill	0.05020655	0.298989	Process	Physically accessible	0.04953058
		Experience	0.05019378			Caring	0.053596762
		Innovation	0.04991429			Communication	0.051378845
Policy	Assurance	Physically accessible	0.04860656	0.200522	Policy	Manner	0.050639539
		Completeness	0.05002809			Timeliness	0.051470811
		Willingness	0.04992029			Willingness	0.04953058
Infrastructure	Tangible	Timeliness	0.04968362	0.151427	Infrastructure	Automatic	0.049067172
		Accuracy	0.04943273			Completeness	0.047402839
		Image	0.05010682			Accuracy	0.051840463
Infrastructure	Tangible	Image	0.04981695	0.151427	Infrastructure	Image	0.048362578
		Courtesy	0.05042461			Courtesy	0.050639539
		Standard	0.0501162			Standard	0.049159138
Infrastructure	Tangible	Compensation	0.05005054	0.151427	Infrastructure	Cost	0.047866247
		Equipment	0.05050203			Compensation	0.045125878
		Hygiene	0.05047182			Hygiene	0.053227109
Infrastructure	Tangible	Building layout	0.05045321	0.151427	Infrastructure	Equipment	0.049992199
		Building layout	0.05045321			Building layout	0.047958213
		Building layout	0.05045321			Building layout	0.047958213
							0.202742
							0.155615
							0.197471
							0.100203
							0.192791
							0.151178
							0.151178

policy dimension is the most important dimension is contrary to the results of this study, due to most of Indonesia health programs are still focusing on strengthening access to health.

The federal government as well as the local government should pay more attention to developing medical staff, which includes increasing the number, competency, and knowledge of the staff as well as the distribution of medical staff. According to Lucyati, the Head of the Health Office in West Java Province, up to now, the need for doctors with the ratio of 1 doctor to 2500 patients has not been reached (Lucyati, 2014). West Java is a province that has the densest population in Indonesia. According to Table 5, in the human resources dimension, the management group agrees that the hospital staff should reflect high professionalism with empathy for the patients. Unfortunately, this condition cannot be achieved optimally due to the number of patients that must be treated, so doctors often do not have time to show a high level of empathy to patients and cannot keep their practice schedules punctual. In addition, most of medical staff in the primary healthcare facilities do not have adequate skills, and, until now, the government has not finished developing the rules and guidelines in improving primary care physicians (Nasution, 2014). This shows that there is still a huge gap between the actual situation with an expectation of the management, which demands that a professional healthcare worker have excellent skills and sufficient experience, conducting continuous innovation in accordance with the latest technology and health sciences developments who are accessible at any time whenever needed by the patients. In order to build a comfortable and reliable treatment process, professional healthcare personnel should be able to take care of the patients with a high level of attention, engage in two-way communication, and have the ability to inspire trust as well as confidence.

Next, the management group stated that the process dimension should reflect responsiveness and reliability. In order to provide excellent public services, hospitals should be able to provide operations and the promised services on time, help the patients willingly, provide an automated process, and be able to provide all types of services required by the patients. Providing an automated process shows that the management group is aware that the hospital's activities should be optimized through information technology, such as a Hospital Information System. With the accuracy of data and information that would result from the Hospital Information System, the hospital image would be consequently improved by the increased speed of the given health services; however, most of the hospitals in Indonesia have not implemented the Hospital Information System in order to increase their responsiveness and reliability (Kementerian Kesehatan RI, 2011).

Two dimensions, human resource and process, cannot be executed smoothly without a clear, thorough, standardized, and formalized policy. Policy is required to govern the implementation of human resources, processes, and infrastructure planning. Unfortunately, some of the hospitals in Indonesia have not completely defined their clinical pathway as their baseline for patient treatments and medical claims (Jubaidah, 2012). Johnson (1997) introduced the idea of using an integrated clinical pathway as a tool to improve healthcare quality in which clinical pathways are all elements of care and treatment that are anticipated by a multidisciplinary team for patients with a particular case within the time agreed upon for the achievement of the agreed outcomes. In addition, according to the management group, the policy dimension should also include guarantees in accordance with the principle of decency to increase the patients' confidence, increase applicable standards in Indonesia, and provide affordable services for all patients as well as the compensation or warranty given to the patients whenever problems arise. To date, most of the hospitals in Indonesia have not joined the UHC program (BPJS Kesehatan

Website, 2014); thus, access to affordable healthcare has not been achieved.

Lastly, the infrastructure dimension also plays an important role in improving hospital service quality, and this dimension should also be measured. The sub-criteria that are included in this dimension are (1) the existence of a hygienic infrastructure, including buildings, medical equipment, and health personnel, (2) the availability of medical equipment (the capacity of rooms and beds, surgical instruments, medicines, etc.), and (3) an aesthetically pleasing and convenient building layout (e.g., easily found symbols and signs to provide clear directions for the patients); however, the capacity of beds and rooms for UHC patients with a ratio of 1 bed for 1000 patients has not been reached until now in West Java (Lucyati, 2014).

6.2. Patient's perspective of hospital service quality

Similar to the results of the management group, the patients stated that human resources (weight of 0.34), process (weight of 0.29), policy (weight of 0.20), and infrastructure (weight of 0.15) are the four most important dimensions to improve hospital quality. The distribution of hospitals and medical workers in Indonesia are unevenly distributed, especially for remote areas, which causes a high number of patients in densely populated areas to receive treatment from a limited number of medical workers. In such situations, the medical workers do not have sufficient time to ask comprehensive questions about the patient's complaints or provide information related to the treatment to be carried out. Meanwhile, the patients usually feel as if they are in an inferior position than the doctor (superior–inferior), which makes the patients hesitant and reluctant to ask and tell, and then they just answer any appropriate questions from the medical staff (Konsil Kedokteran Indonesia, 2006). In fact, patients want doctors to listen to their complaints and want to understand the possibilities and limitations in searching for alternatives according to the conditions and the situation, with all its medical indication and effects to the patients. Hence, the patients need a high level of empathy followed by professionalism from the medical workers. A high level of empathy means that the medical workers should be able to inspire trust and confidence, understand the needs of patients, and engage in two-way communication. Unfortunately, the medical workers in Indonesia are not prepared to build effective communication in the medical education curriculum (Konsil Kedokteran Indonesia, 2006). Next, according to the patients' perspective, professional health personnel should have excellent skills and sufficient experience, should be involved in continuous innovation in accordance with the latest technologies and health sciences developments, and should be accessible at any time whenever needed by the patient.

The patients stated that the process dimension should reflect responsiveness (i.e., ability to provide all kinds of services required by the patients, helping the patients willingly, ability to provide operations and the promised service on time, and implement an automated process) and reliability (i.e., accuracy and image). Those two dimensions support the policy and infrastructure dimension. Based on the patients' perspective, the policy dimension includes guarantees in accordance with the principle of decency to increase the patients' confidence, applicable standards in Indonesia, the compensation or warranty given to the patients whenever problems arise, and affordable services for all patients. Finally, the infrastructure dimension consists of the availability of medical equipment (the capacity of rooms and beds, surgical instruments, medicines, etc.), the existence of a hygienic infrastructure, including buildings, medical equipment, and health personnel, and an aesthetically pleasing and convenient building layout (e.g., easily found symbols and signs to provide clear directions for the patients).

Compared with [Pai and Chary's study \(2013\)](#) based on their review to 47 studies regarding hospital service quality from patients' perspective, Indonesian patients require more empathy than professionalism, while patients in other countries require the opposite. This condition is in accordance with the fact that Indonesian people require more attention during a treatment due to the current limited number of doctors. In addition, according to that study, most of the patients in the world stated that tangible attributes, such as the availability of medical equipment in the hospital, the building layout, and hygiene, are the most important attributes for the hospitals to provide in order to better treat patients ([Pai & Chary, 2013](#)).

6.3. Conformance between management groups' and patients' perspective of service quality

It can be concluded that both management groups and patients have a common perception that the dimensions that can improve hospital service quality are human resources, process, policy, and infrastructure. The top dimensions that determine the hospital service quality are human resources and process according to management groups and patients. These dimensions indicate that as a public institution that deals with human safety, the most important thing that should be well-prepared and organized by the hospitals are health personnel who possess a high level of empathy toward the patients (e.g., caring, communicative, and well-mannered). Medical staff with a high level of empathy are especially required by the patients to make them feel safe and comfortable during the treatments. The communication process between patients and medical staff should be a two-way communication; thus, the patients receive more attention. Both the management groups and patients agree that professional health personnel should have excellent skills and sufficient experience, be involved in continuous innovation in accordance with the latest technologies and health sciences developments, and be accessible at any time whenever needed by the patient.

Next, both the management groups and patients agree that the second dimension is the responsiveness and reliability process. Hospitals must clearly define, formulate, and disseminate their business processes to all health personnel who support the operational activities of the hospital. These rules and procedures are required to increase the responsiveness and reliability of the hospitals to accommodate all of the needs of the hospital operations and promised services. According to the management group, hospital responsiveness means that the hospital is able to deliver the promised services on time that are supported by the hospital information system, which could make the process more effective and efficient, is willing to help patients whenever needed, and has all of the required services available. Moreover, due to the remote as well as unevenly distributed hospital locations, the patients desire that all required services are available in a timely manner with the greatest willingness to help the patients. Nevertheless, because of the lack of information technology awareness as well as knowledge, most patients do not consider information technology to be an important criterion to increase the hospital service quality.

According to the patients and management groups, the next dimensions are policy and infrastructure. It is essential to define policy before setting up the infrastructure; therefore, developing all of the required procedures from the policy should be completed first. After that, this policy should be disseminated to all hospital workers. Through these procedures, hospitals could manage their infrastructures effectively and efficiently. The management groups and patients agree that the policy dimension should include the principle of decency to increase the patients' confidence and provide guarantees in accordance with the applicable standards in Indonesia. Moreover, the patients would like for hospitals to provide

the compensation or warranty given to the patients whenever problems arise as well as to provide affordable services for all patients. On the contrary, the management groups should provide affordable services for all patients in order to provide access to unlimited health services prior to providing the compensation or warranty.

The required infrastructure according to the patients should have adequate equipment (the capacity of rooms and beds, surgical instruments, medicines, etc.), while the management groups selected hygiene as the most important criterion in the infrastructure dimension followed by adequate equipment and an aesthetically pleasing and convenient building layout (e.g., easily found symbols and signs to provide clear directions for the patient).

7. Implications

According to [Mosadeghrad \(2013\)](#), a widely accepted healthcare quality definition is required for healthcare quality assessment and improvement. Our findings have direct implications for the Ministry of Health and the Province/District Health Office as the health policy makers as well as for hospitals as health service providers in order to encourage the regular monitoring of healthcare quality as well as to initiate continuous quality improvement programs through accreditation to maintain or increase patient satisfaction. The hospital accreditation assessment has been conducted periodically and gradually by the Governing Body of the Hospital Accreditation Commission according to the readiness of the hospital. Therefore, the national accreditation assessment standards that should fit the needs of all relevant stakeholders as well as international standards absolutely must be developed in order to achieve an optimal quality of health care.

In addition, these research results do not fit with the government health programs under the Health Strategic Plan Year 2010–2014, which focus more on empowering communities and the private sector in health development as well as distributing evenly the health facilities and medicine ([Kementerian Kesehatan RI, 2010](#)). In implementing the bureaucratic structure, the same focus is also reflected in the strategic plan of the local government and government public hospitals; however, as a result of the UHC implementation, there has been a surge of patients in health centers that cannot be handled by the medical staff, so patients are often directly referred to a hospital or other healthcare facility. Consequently, patients cannot receive immediate health services due to the lack of medical staff. This problem is particularly observed in the province of West Java ([Lucyati, 2014](#)), which has a shortage of health facilities and staff. Thus, as a significant implication, the Ministry of Health as the nation's health policy maker in Indonesia must:

1. Be able to provide implementing regulations and guidance for the required equipment as well as the funding for the health facilities with assistance from the province/district health offices. In the absence of implementing regulations and guidance from the Ministry of Health will result in non-compliance by the relevant health organization with the prevailing law.
2. Define guidance to medical workers in order to increase the competency and skills of medical workers as well as facilitate communication with patients and/or their family by embedding that guidance into the medical curriculum. Through an understanding of the important issues in the development of doctor–patient communication, a change would be expected in the nature of the doctor–patient relationship, which would increase the level of empathy between doctors and patients.
3. Pay more attention to distributing the medical workers and facilities evenly, particularly for those who are located in the

hinterlands. This can only be achieved by the government fully coordinating with the provincial/district health offices and other government units (e.g., Ministry of Finance, Ministry of Home Affairs, etc.) so that there is no conflict or redundancy among programs in each unit of government. This is an important issue due to the local autonomy in Indonesia in which the provincial/district health office is authorized to implement policies in their region according to Government Regulation No. 25 of 2000 regarding the authority of the provincial government as an autonomous region. This regulation has been defined as a decentralization of health for the province as specified in Article 3 which includes: (1) the establishment of guidelines for education and health campaigns; (2) the management and licensing of health infrastructures, such as specialized psychiatric hospitals, leprosy hospitals, and cancer hospitals; (3) certification technology and nutrition; (4) surveillance epidemiology and prevention of disease outbreaks and extraordinary events; (5) the strategic placement of health personnel, the transfer of certain health workers among districts/cities, and the organization of education and healthcare training.

Subsequently, regarding hospitals, they should be equipped with a hospital information system, which could be integrated with other medical equipment and applications to provide a quick response and accurate information to the patients. The system would only be successfully implemented if the Ministry of Health has defined standard policies with their compliance in implementing a hospital information system that applies to all hospitals in Indonesia. Moreover, hospitals should also be supported by a sufficient health and information technology infrastructure in order to deliver an excellent customer experience that would imply customer satisfaction and retention, which would enable hospitals to prepare their investment strategies in medical and non-medical technologies. Finally, the results of this research could also be adopted as a guideline for assessing hospital healthcare quality in countries with similar characteristics, such as Southeastern Asian countries.

8. Conclusions and future works

Based on the results of the questionnaires, the hospital service quality dimensions that should be implemented by hospitals in the order of priority according to the management groups and patients are the support of a professional and well-mannered human resources, responsive business processes as well as responsiveness in following the development of science and technology, measurable policies, and adequate infrastructures. Change is expected in the nature of the doctor–patient relationship by increasing the level of empathy between doctors and patients. Moreover, by utilizing a hospital information system, the hospitals can conduct their business processes responsively, efficiently, and effectively. The system would also allow the hospitals to provide data/information in an accurate and integrated manner as well as to support the implementation of the Patient Safety Act in which patients are handled with complete health data.

The focus of this research is limited because it defined the attributes of service quality based only on previous literature studies; thus, future research to identify other dimensions by collecting data from relevant stakeholders is necessary to complement the results of this study so that the end results will be more comprehensive and appropriate in the context of Indonesia. In addition, given the limited scope of this research, future research is necessary to identify other important perspectives, such as the health security agency for the definition of hospital service quality.

Additional perspectives are required to reconcile the disparity of the service quality among different perspectives in healthcare in order to synchronize all of the efforts required to achieve optimal hospital services. An assessment of the quality awareness from the perspectives of hospital management as well as patients is needed to describe the knowledge and the comprehension of the provision of good health services. Finally, conformance to the national and international accreditation standards for hospitals is required to ensure that the quality attributes that are required by most of the stakeholders are well-defined in the accreditation assessment points.

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Appendix A

1. Law No. 40 of 2004 regarding Universal Health Coverage (UHC).
2. Law No. 44 of 2009 regarding Hospital.
3. Law No. 24 of 2011 regarding Social Security Agency (namely BPJS – Health).
4. Government Regulation No. 46 of 2014 regarding Health Information System.
5. President Regulation No. 12 of 2013 regarding the Health Insurance as amended President Regulation No. 111 of 2013.
6. Minister of Health Regulation No. 228/Menkes/SK/III/2008 regarding the Minimum Service Standards of Hospitals.
7. Minister of Health Regulation No. 147/Menkes/Per/I/2010 regarding the Hospital Licensing.
8. Minister of Health Regulation No. 340/Menkes/Per/I/2010 regarding Classification of Hospitals.
9. Minister of Health Regulation No. 1438 Year 2010 regarding Standards of Medical Care.
10. Minister of Health Regulation No. 1171/MENKES/PER/VI/2011 regarding Hospital Reporting System.
11. Minister of Health Regulation No. 1691/Menkes/Per/VIII/2011 regarding Hospital Patient Safety.
12. Minister of Health Regulation No. 69 of 2013 regarding standard rates on primary and advanced level health facility in the implementation of the UHC.
13. Minister of Health No. 71 of 2013 regarding health care in the UHC implementation.
14. Minister of Health Regulation No. 28 of 2014 regarding guidelines for UHC implementation.
15. Minister of Health regulation No. 56 of 2014 regarding licensing and identification of hospital class.
16. Minister of Health Regulation No. 59 of 2014 regarding standard rates of health services in the implementation of UHC.

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