



Results of a Survey of Private Hospitals in the Era of Indonesia's *Jaminan Kesehatan Nasional*

Impact of Contracting with National Health Insurance on Services, Capacity, Revenues, and Expenditure



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Abbreviations

ALOS	average length of stay
BOR	bed occupancy rate
BPJS-K	Badan Penyelenggara Jaminan Social-Kesehatan
DiD	difference in difference
HIV	human immunodeficiency virus
HP+	Health Policy Plus
INA-CBG	Indonesian case-based groups
JKN	Jaminan Kesehatan Nasional
NCD	non-communicable disease
TB	tuberculosis
TNP2K	National Team for the Acceleration of Poverty Reduction
UGM	University of Gadjah Mada

Executive Summary

Background

Indonesia's national health insurance scheme (*Jaminan Kesehatan Nasional* or JKN) is a **key element of the Government of Indonesia's** (GOI) commitment to ensuring equitable access to healthcare, especially for the poor and the near-poor. **JKN's contracting with** private providers was expected to expand reach faster than simply working through the public sector. The single-payer agency for JKN, *Badan Penyelenggara Jaminan Sosial-Kesehatan* (BPJS-K), contracts private clinics under capitation and pays hospitals through case-based groups. In September 2017, 60 percent of BPJS-K-contracted hospitals were private. How has the single payer and its associated policies impacted these private hospitals?

This analysis, conducted by the U.S. Agency for International Development-funded Health Policy Plus (HP+) project and the National Team for the Acceleration of Poverty Reduction (TNP2K), asked how private hospital capacity, utilization, and finances have changed since JKN implementation. We also assessed whether providers perceive reimbursement processes to be fair.

Methods and Data

HP+/TNP2K collected primary data from 73 private hospitals in 11 provinces. The final sample included 61 BPJS-K and 12 non-BPJS-K-contracted hospitals. Survey instruments collected quantitative and qualitative data from 2013 (before JKN initiation) and 2016 (after JKN initiation). At each hospital, surveyors interviewed the facility administrator, financial officer, and a service provider to capture perspectives of changes in strategic decision making, facility finances, client demand, and service offering. Surveyors also collected operational and financial data from hospital administrative records.

We used descriptive statistics and statistical tests of change between data years to determine whether there has been a shift in the variables of interest. We employed difference-in-difference models to test whether any changes could be associated with BPJS-K contracting status; we treated non-BPJS-K-contracted hospitals as a comparison group in measuring changes in outcomes between 2013 and 2016 data.

Results

Private hospital sector facility capacity increased and offers more services, but contracting with BPJS-K does not significantly affect facility investment decisions. Sampled hospitals reported increasing their installed capacity, including number of outpatient clinics, inpatient beds, and diagnostic testing machines. Hospitals also hired more staff; the average number of clinical and administrative staff at BPJS-K-contracted hospitals increased 23 percent and 15 percent, respectively, between 2013 and 2016. Meanwhile, the average number of administrative staff decreased by 3 percent at non-BPJS-K-contracted hospitals. Despite the observed increasing trends overall, our models did not demonstrate a statistically significant effect of BPJS-K contracting status on these and other capacity measures.

Eighty-one percent of hospitals reported increased inpatient and outpatient service utilization since JKN started. Our analyses demonstrate that clinic and inpatient ward diversity and hospital class strongly affects this change. The average number of TB services provided annually increased by 84 percent between 2013 and 2016. The average number of non-communicable disease services provided annually also increased by 72 percent between 2013 and 2016. Growth was also observed in maternal, newborn, and child services and diagnostic testing.

Financial indicators suggest out-of-pocket spending declined significantly in hospitals contracted with BPJS-K. However, BPJS-K-contracted hospitals seem to become cost-conscious as they receive more JKN revenue. The proportion of revenue from out-of-pocket spending decreased among BPJS-K-contracted hospitals, while it increased in others. Drugs as a part of total expenditures decreased in BPJS-K-contracted hospitals vs. others, significantly. We found BPJS-K-contracted hospitals used more generic drugs (58% of total drugs, vs. 26% in others) and used the e-catalogue for reference pricing more (72% of hospitals, vs. 33% of others).

Few private hospitals perceive reimbursement rates to be sufficient to cover direct and indirect costs of all services provided, nor JKN claims simple to process. However, most BPJS-K-contracted hospitals reported that reimbursement rates can cover the direct and indirect costs for some services. New JKN claims processing systems were put in place in 70 percent of hospitals, hiring 5.3 new staff members, on average, to process claims. Though the majority of BPJS-K-contracted hospitals reported receiving reimbursements within four weeks of submission, waiting more than one month was not uncommon, given reviews before payment.

Conclusions and Policy Recommendations

This analysis confirms growth in private hospital infrastructure in the JKN era between 2013 and 2016, with a significant decline in out-of-pocket spending at BPJS-K-contracted hospitals. However, contracting with BPJS-K does not seem to be significantly connected with investing in capacity. Separately, BPJS-K-contracted hospitals are focused on cutting costs and achieving efficiency. For these hospitals, the claims processes remain a problem. For the Government of Indonesia to continue directing the private sector towards investment and greater provision of essential and high-quality services, we recommend the following:

- Increase transparency in the JKN hospital-level tariff setting process, including the reference to treatment standards, so that hospitals can continue to manage their resources and procedures to control costs as price-takers, while providing acceptable quality.
- Improve the e-claims processes to systematize documentation and reduce administrative burden, both for BPJS-K and providers.

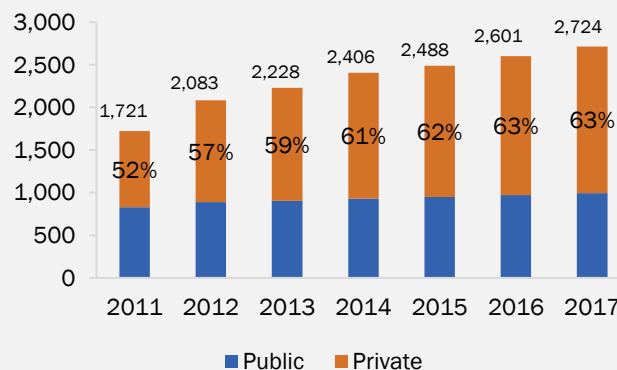
Introduction

The private hospital industry has grown significantly over the last seven years. In 2011, the public-private mix was almost equal, but by 2017, private hospitals had almost two-thirds of the market (Figure 1). Primarily, private hospitals remain clustered in the Java islands where there are larger urban and peri-urban centers (Figure 2).

As larger proportion of the Indonesian population access healthcare through the national health insurance scheme (*Jaminan Kesehatan Nasional*, or JKN), the private sector is well poised to respond to the increased demand. Through JKN, the Government of Indonesia has committed to ensuring access to healthcare, especially for the poor and the near-poor (the bottom 40%). The supply-side challenges, notably the lack of healthcare hospitals, has long been a concern for Indonesia, and the partnership with private providers is one of the quickest approaches to addressing this issue. The Government of Indonesia, through the national health insurance agency (*Badan Penyelenggara Jaminan Sosial-Kesehatan*, or BPJS-K), have contracted with private clinics and hospitals since the start of the scheme in January 2014. As of September 2017, over 60 percent of BPJS-K-contracted clinics and hospitals were in the private sector (Idris, 2017). With this reliance, BPJS-K and other Government of Indonesia institutions, such as the Ministry of Health, must put in place the right incentives and oversight systems to make sure that a more comprehensive set of health services are being provided at progressively higher quality through the private sector. At the same time, BPJS-K must ensure that the scheme is financially sustainable.

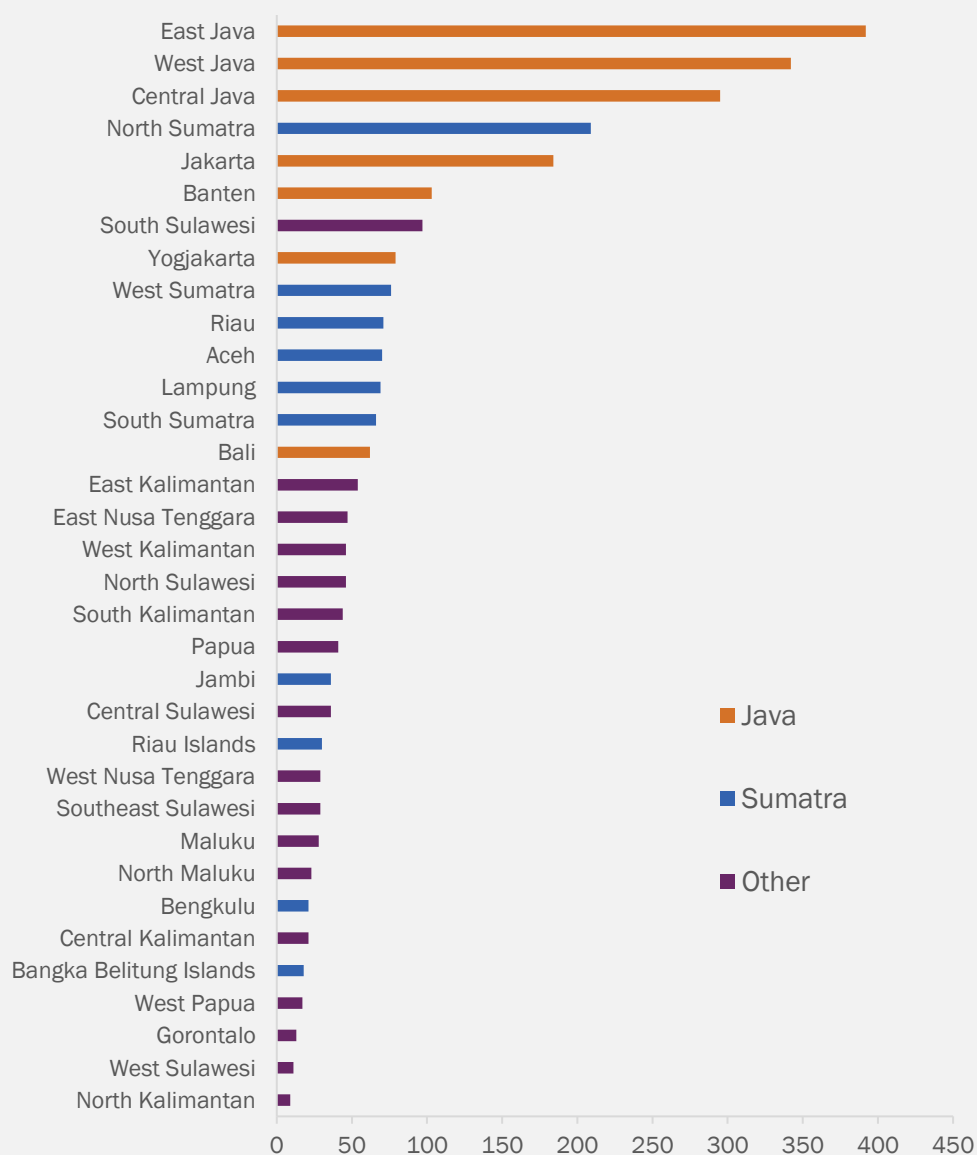
In late 2016, three years into its initiation, the Government of Indonesia embarked on a comprehensive assessment of **JKN's** impact. Coordinated by the National Team for the Acceleration of Poverty Reduction (TNP2K) with support from the U.S. Agency for International Development-funded Health Policy Plus (HP+) project, this study assessed the scheme through four key perspectives: payer, patient, provider, and private sector. It aimed to understand the **scheme's** value for money given other demands on government spending. The Ministry of Finance was especially keen to understand the effects of JKN on the private health sector, the areas in which positive effect has been realized and the factors related to that success, the areas in which growth has not been seen, and how modified health sector incentives could further bolster the growth of high quality, accessible healthcare. The evidence generated should inform policymakers to refine, put in place, or remove policies so that the scheme can achieve universal coverage by 2019 while ensuring **the scheme's sustainability and improved access to healthcare for the population, especially the bottom 40 percent.**

Figure 1: Number of Hospitals in Indonesia, by Sector, 2011-2017



Source: Ministry of Health Annual Health Sector Profile 2011 - 2016; Ministry of Health online database compiled by authors, August 2017

Figure 2: Number of Private Hospitals in Indonesia, by Province, 2017



Source: Ministry of Health online database compiled by authors, August 2017

The most direct policy lever available for BPJS-K to influence private hospitals to engage in JKN and contribute to improving access to quality health services is through its reimbursement rates. Both public and private hospitals contracted with BPJS-K are reimbursed for health services per admission, outpatient visit, or procedure, based on the definitions set by the Indonesian case-based groups (INA-CBG). The rates set prior to JKN initiation varied based on diagnosis, severity of condition, geographic location of the hospital, hospital class (A through D), and treatment class (I through III). These INA-CBG reimbursement rates were updated in 2016 to differentiate between public and private hospitals, with private hospitals getting slightly higher reimbursements with the intention to equalize the budget support that the Ministry of Health provides to the public hospitals beyond INA-CBG, such as for equipment purchase, infrastructure development and maintenance, staff salary, and staff training. Private hospitals should cover all costs associated with care through the flat rate INA-CBG payment, including staff salary, supplies and drugs, equipment use, as well as overhead. Chemotherapy and chronic conditions that are not stable are exceptions in which BPJS-K will reimburse specifically for drug costs.

Depending on the type of condition, private hospitals may have a harder or easier time in maintaining profitable operations with the INA-CBG, and the Government of Indonesia would like to strike the balance in which they are not overpaying for services and appropriately incentivizing the private sector to offer quality care.

To investigate the impact of JKN on the private sector, HP+/TNP2K posed the following three key research questions:

- What has been the impact of JKN on providers?
- Are the reimbursement processes (rates, performance adjustments, mechanism) attractive and fair for providers?
- Has the total market for healthcare in Indonesia changed due to the JKN (i.e., increasing choice and competition)?

To answer these questions, HP+/TNP2K gathered data through three approaches: (1) a private hospital survey, (2) key informant interviews, and (3) secondary data analysis.

This report focuses on the findings from the private hospital survey. The private hospital survey aimed to assess whether there were any perceived or realized changes to private hospitals related to these research questions, and how they differ, if at all, between BPJS-K-contracted and non-BPJS-K-contracted hospitals. The quantitative and qualitative data gathered directly from the private hospitals allowed us to answer more richly the first two research questions. Comparatively, *Expanding Markets while Improving Health in Indonesia: The Private Health Sector Market in the JKN Era* more comprehensively answers the third research question on the total market by combining the findings from this hospital survey with key informant interviews and secondary data findings (Britton, K. et al., 2018).

This report's three chapters align with the three research questions. Following methodology in Chapter 2, Chapter 3 focuses on analyzing the effect of JKN on providers, notably on their facility capacity, utilization, and finances, including the type of services offered, human resources for health available, number of services provided, and whether this has changed between 2013 (before JKN initiation) and 2016 (after JKN initiation). Chapter 4 investigates the perceptions of the reimbursement rates on hospitals, including their strategic decisions around which services to offer. Chapter 5 addresses the question on shifts in the **total market, based on hospital staff's perception on whether the competitive market** has changed since JKN started, and whether they feel their hospital is competitive given their BPJS-K contracting status. Cross-cutting issues around access and quality are critical to measure the success of JKN; these issues and notable effects on priority health areas of maternal and newborn health and tuberculosis (TB) are also analyzed throughout this report.

Methodology

Sample Frame

To assess JKN impact on private hospitals, we sampled private hospitals to reflect their presence across **Indonesia's diverse** geography. Indonesia consists of seven geographic units, each made up of many provinces, ranging from only two in a region in Maluku to 10 in Sumatra. Each province is also divided into several districts, and within those, regencies (*kabupaten*) and cities (*kota*). Java is the most populous geographic unit and has the highest average number of private health hospitals per province, while Maluku and Papua have the smallest population and the lowest average number of private health hospitals per province (see Annex A for sampling frame).

We created a **sampling frame using the Ministry of Health's** online database of registered hospitals. This database included data on hospital name, ownership,¹ facility class, location (province, *kabupaten/kota*, address), and contact information.² Drawn from the database in August 2017, the sampling frame consisted of 1,397 private hospitals after excluding duplicate records and those with incomplete data on location and class. Hospitals were selected from the sampling frame in two stages: we first sampled provinces within geographic unit, and then sampled hospitals within the selected provinces. In the first stage, we ensured that we selected up to three provinces per region, to encompass regional diversity and reflect population distribution. Province selection was roughly proportional to the average number of private hospitals per province. We oversampled hospitals in Maluku and Papua regions, as these regions had the smallest number of private hospitals. Oversampling ensured that we had sufficient sample size to represent those regions. In the second stage of sampling, hospitals were randomly selected with hospital class stratification. Per province, hospitals were redrawn if at least one of each type of hospital ownership within the province was not selected.

In total, we sampled 73 hospitals from 11 provinces (out of 34 provinces), representing approximately 5 percent of the registered private hospitals in the country. Table 1 details the geographic unit, province, and total number of hospitals sampled. Hospitals were stratified by province, classification, BPJS-K contracting status, and facility ownership. In all, the survey was administered to 61 BPJS-K-contracted hospitals and 12 non-BPJS-K-contracted hospitals representing 13 Class B hospitals, 38 Class C hospitals, and 21 Class D hospitals.

¹ Within the Ministry of Health hospital database, “hospital ownership” is defined as private (*swasta/lainnya*), corporate (*perusahaan*), individual (*perorangan*), nongovernmental organization (*organisasi sosial*), and faith-based organizations (*organisasi Islam, organisasi Katholik, organisasi protestant, and organisasi Hindu*). For this analysis, hospital ownership is further aggregated to nonprofit, faith-based, for-profit independently owned, and for-profit networked.

² Ministry of Health database.

Table 1: Sample Details

Geographic Unit	Province	Class B		Class C		Class D		Total
		BPJS-K-Contracted	Non-BPJS-K-Contracted	BPJS-K-Contracted	Non-BPJS-K-Contracted	BPJS-K-Contracted	Non-BPJS-K-Contracted	
Sumatra	Aceh	0	0	2	0	4	1	7
Nusa Tenggara	Bali	0	1	6	0	1	0	8
Java	Yogyakarta	3	0	2	0	3	0	8
Java	Jakarta	3	0	4	1	0	0	8
Java	East Java	1	1	1	2	2	1	8
Kalimantan	East Kalimantan	1	0	1	3	2	0	7
Sumatra	Lampung	0	0	6	0	0	1	7
Maluku	Maluku	0	0	1	0	2	0	3
Papua	Papua	0	0	1	1	1	0	3
Sulawesi	South Sulawesi	2	0	5	0	0	0	7
Sulawesi	North Sulawesi	1	0	2	0	4	0	7
Total		11	2	31	7	19	3	73

Hospitals that were not found or that refused to participate in the study were replaced from a replacement sampling frame. In all, two hospitals were replaced because they closed or could not be found, eight hospitals were replaced because they were established after 2014 and thus could not provide data prior to JKN initiation, and 25 hospitals were replaced due to refusal to participate in the study. Of these hospitals, 25 hospitals contracted with BPJS-K and 10 had not, with replacement occurring most frequently in Jakarta. Most hospitals that refused participation explained that they were not willing or able to share financial and operational data with data collectors.

Data Collection

To assess JKN effects on private hospitals, this study was designed to measure the change over time in BPJS-K contracted hospitals compared to the change over time in non-BPJS-K-contracted hospitals. Survey instruments captured quantitative and qualitative data from key informants at hospitals, collecting data from 2013, before JKN initiation, and 2016, after JKN initiation, to allow for quantitative and qualitative measures of change. We developed six questionnaires to capture perspectives of changes in strategic decision making, facility finances, client demand, and service offering. At each facility, surveyors interviewed the facility administrator, financial officer, and a service provider (each with a distinct survey instrument). Surveyors also collected operational and financial quantitative data from hospital administrative records from 2013 and 2016. Box 1 further details the survey instruments used.

HP+/TNP2K partnered with the University of Gadjah Mada (UGM), Center for Population and Policy Studies, to collect the data. The UGM team collaborated with HP+/TNP2K in finalization and translation of the data collection tools. Enumerator training and piloting of the data collection instruments took place over five days in November 2017 with 47 participants. Eight data collection teams, each with three team members, collected the data through in-person interviews, review of aggregated hospital records, and visual review of facility infrastructure and equipment. Data collectors recorded responses electronically, and data collection teams took handwritten supplementary notes. Data was collected simultaneously in all provinces between December 2017 and January 2018. The hospital director (or designate) consented to the overall data collection, and each interviewee provided verbal consent to respond to the qualitative data collection process. Within each facility, data was collected over the course of two to three days. To ensure data quality, data error checks were programmed into electronic survey tools, and data were sent to the data quality check team at UGM daily for review so that any follow-up could be done the next day. Additionally, survey team managers reviewed preliminary data and requested validation during follow-up visits. UGM was responsible for data processing throughout the data collection period. Data cleaning and standardizing were completed by the UGM team in consultation with HP+/TNP2K in March 2018.

Box 1. Data Collection Tools

- Qualitative data collection instrument unique to BPJS-K and non-BPJS-K contract status and interviewee
 - Hospital director/facility administrator
 - Finance department
 - Provider (doctor/matron)
- Quantitative data collection instrument standard for both BPJS-K- and non-BPJS-K-contracted hospitals

Data Analysis Approach

We used descriptive and statistical analyses to assess the effect of BPJS-K contracting status on private hospital capacity, utilization, and finances. All data analyses were performed in STATA SE, version 15 (StataCorp, 2017). On a case-by-case basis, we replaced outlier values with sample averages stratified by hospital classification. We used descriptive statistics and statistical tests of differences between data years to determine whether there has been a change in variables of interest. We built difference-in-difference (DiD) models to test whether change can be associated with BPJS-K contracting status; we treat non-BPJS-K-contracted hospitals as the comparison group in measuring change in outcomes between 2013 and 2016 data. In each DiD model, we controlled for geographic group (Java, Sumatra, and all others), urban or rural classification of the district, population density of the district, hospital classification (B, C, and D), and hospital ownership type (nonprofit, religious organization, for-profit individually owned, and for-profit network), which have been shown to influence hospital performance, growth, and utilization (Harmadi and Irwandy, 2018; Broughton et al., 2015; Heywood and Choi, 2010; Rokx et al., 2010; Hort and Djasri, 2013; EY Indonesia, 2015; Barber et. al, 2007; Thabrany, 2008; Mardia and Basri, 2013). In some models, we also include clinic or ward diversity, or the number of different types of clinics or wards that each hospital has. See Annex B for list of all DiD models used in the study.

Data Limitations

Though we achieved the targeted sample size, many sampled hospitals refused to participate in the study. As a result, our sample does not include any Class A hospitals. Additionally, with only 12 non-BPJS-K-contracted hospitals, we do not aim to generalize findings across the entire private sector.

Impact of JKN on Private Hospital Capacity, Utilization, and Finances

This chapter presents findings on whether JKN has increased private hospital capacity and utilization and improved their finances. Enrollment into JKN could reduce financial barriers to healthcare for a sizable population, especially the poor and near-poor, who may have found private hospitals to be cost prohibitive prior to JKN. Given the limited number of public hospitals available, JKN may now allow individuals to access care more easily through private hospitals. Furthermore, given the rich benefit package offered through JKN, more services may be covered by BPJS-K rather than by the patients, who may not have the ability to pay. With the likely growth in the number of patients demanding care for a larger set of services, HP+/TNP2K expected that private hospitals would increase their capacity, experience increase in their utilization, and see improvement in hospital finances.

Has JKN Initiation Affected Available Private Hospital Capacity?

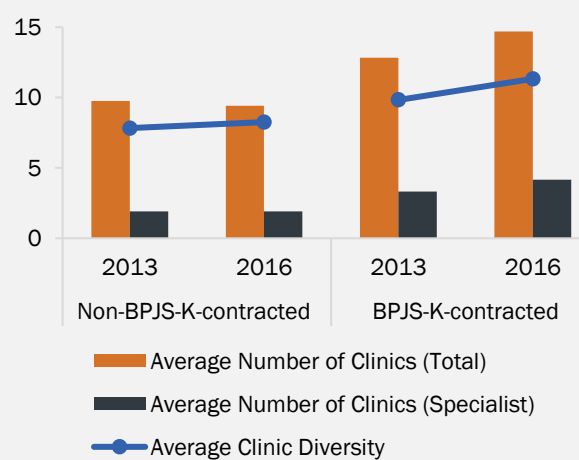
We hypothesized that JKN initiation would have a promotive effect, that is, hospitals who are a part of the BPJS-K network would expand capacity, increasing services available and/or offered and the number of staff. To assess whether hospital capacity has changed, we consider whether hospitals experienced changes in installed capacity, availability of equipment, and staffing.

Private hospital sector facility capacity increased, but contracting with BPJS-K did not significantly affect facility investment decisions. We measure installed capacity by the following:

- Number of outpatient clinics within hospital (overall and specialized clinics only)
- Total number of outpatient clinics that offer different services (clinic diversity)
- Total number of beds in inpatient wards
- Equipment investment

According to the facility directors interviewed, most hospitals (75% among BPJS-K-contracted and 67% among non-BPJS-K-contracted) increased the types of services offered since JKN was initiated. On average, across both BPJS-K- and non-BPJS-K-contracted hospitals and across all hospital classes (B, C, and D), the diversity and number of outpatient clinics increased between 2013 and 2016 (Figure 3). We did not find a significant change in number of specialty clinics in hospitals between 2013 and 2016, including ENT, eye, cardiology, pulmonary, hemodialysis, physiotherapy, oncology, neurology. In both years, BPJS-K-contracted hospitals had more types (diversity) and number of outpatient clinics than non-BPJS-K-contracted hospitals, which

Figure 3: Installed Outpatient Department Capacity



may imply that BPJS-K-contracted hospitals, in general, were larger or had greater capacity to expand regardless of JKN initiation.

Installed capacity of inpatient departments, as measured by the number of beds in the facility, increased between 2013 and 2016. Facility administrators reported that bed capacity increased since JKN initiation (54% of BPJS-K-contracted hospitals while only 25% of non-BPJS-K-contracted hospitals). Records review supported these claims (Figure 4). The average number of beds in BPJS-K-contracted hospitals increased 17 percent between 2013 and 2016, while only increasing 3 percent in non-BPJS-K-contracted hospitals. Our DiD models did not provide strong evidence that BPJS-K contracting affected observed installed outpatient or inpatient department capacity increases (full model outputs in Annex C).

Though limited, equipment availability increased since JKN initiation. Financial officers at 75 percent of all hospitals reported increased investment in equipment. The number of hospitals with X-ray, CT scan, MRI, incubator, and GeneXpert machines increased between 2013 and 2017 (Table 2); this change was statistically significant for X-rays, incubators, and GeneXpert machines. Out of all equipment, the number of hospitals with incubators had the largest increase among BPJS-K-contracted hospitals. Among the sampled hospitals, only BPJS-K-contracted hospitals had GeneXpert machines available in either 2013 or 2017; of these only one facility had a GeneXpert machine in 2013, increasing to five BPJS-K-contracted hospitals by 2017. The average number of machines available per facility increased only slightly between 2013 and 2016 (Table 2). The average number of incubators per facility increased from three to four.

Figure 4: Installed Inpatient Department Capacity

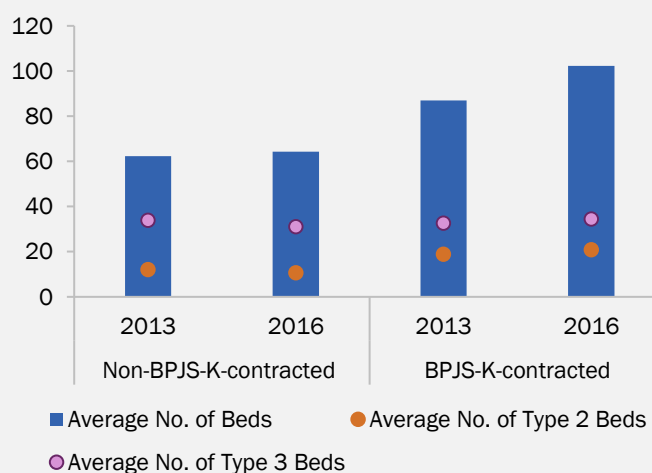


Table 2: Equipment Availability (2013, 2017)

Number of Hospitals with Equipment	Non-BPJS-K-Contracted		BPJS-K-Contracted	
	2013	2017	2013	2017
X-ray	6	8	53	57
CT scan	3	3	17	19
MRI	0	1	7	7
Incubator	10	10	50	54
GeneXpert	0	0	1	5

Average Number of Equipment per Facility	Non-BPJS-K-Contracted		BPJS-K-Contracted	
	2013	2017	2013	2017
X-ray	1.67	1.50	1.85	1.86
CT scan	1.00	1.00	1.12	1.11
MRI	-	1.00	1.00	1.14
Incubator	3.00	3.80	3.22	3.74
GeneXpert	-	-	1.00	1.00

Overall, there was an increase in human resources, but we did not find evidence that these increases were an effect of BPJS-K contract status. Qualitatively, 85 percent of BPJS-K-contracted hospitals and 58 percent of non-BPJS-K-contracted hospitals reported hiring more nurses and specialists since JKN initiation. Specifically, we found significant increases in the average number of inpatient nurses, general practitioners, and specialists employed at surveyed hospitals; this trend was seen across both permanent and contracted doctors. The average number of clinical staff at all hospitals increased 23 percent between 2013 and 2016, and this change was higher among BPJS-K-contracted hospitals in our sample. The average number of administrative staff increased 15 percent among BPJS-K-contracted hospitals within the sample, while among the non-BPJS-K-contracted hospitals, the average number of administrative staff decreased 3 percent (though not statistically significant). Despite this difference in change between hospital contract status, our DiD models did not show strong evidence that BPJS-K contracting affected this trend (Annex D).

Box 2: Maternal Health and TB Infrastructure and Human Resource Capacity

Overall, infrastructure and human resources for maternal health was more readily available than TB in sampled hospitals (Table 3). Regardless of contract status, most hospitals have maternal health services, as it is often the popular service to be offered from the lowest type D hospital. Comparatively, uptake of TB services is still limited in the private health sector, where only about half of the sampled facilities had a specialist. Overall, both maternal health and TB capacity increased from before to after JKN started, although BPJS-K contracting status did not affect this change.

Table 3: Key Statistics on Maternal Health and TB Capacity

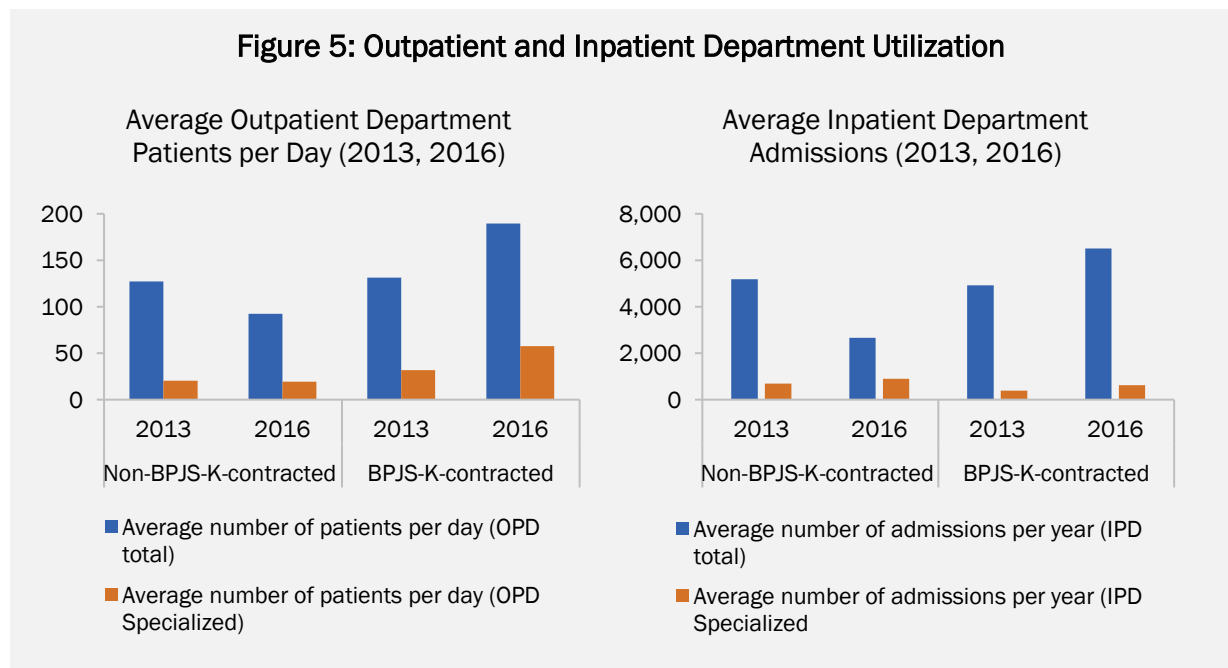
Statistic	Non-BPJS-K-Contracted		BPJS-K-Contracted	
	2013	2016	2013	2016
Hospitals with at least one maternity ward	9 (75%)	10 (83%)	33 (54%)	37 (61%)
Average number of beds in maternity ward	14	14	12	15
Hospitals with at least one obstetrician or gynecologist	11 (92%)	12 (100%)	51 (84%)	57 (93%)
Hospitals with at least one pulmonary clinic	2 (17%)	4 (33%)	46 (75%)	50 (82%)
Hospitals with at least one pulmonologist	2 (17%)	3 (25%)	17 (28%)	29 (47%)

Has JKN Changed Utilization of Private Hospitals' Services and the Hospitals' Ability to Provide More and/or Deeper Care?

To understand the effect of JKN on utilization of services at private hospitals, we consider change in volume and type of services provided at private hospitals, including changes in numbers of patients per day in the outpatient department, annual inpatient department admissions, and average length of stay (ALOS).

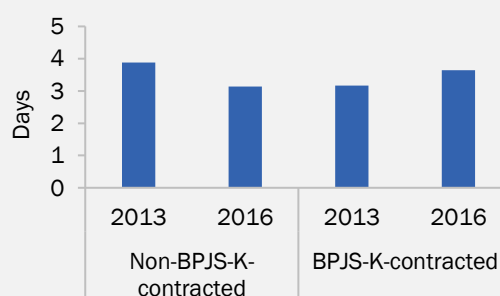
Though service utilization increased between 2013 and 2016, we do not find an effect of being contracted with BPJS-K on outpatient or inpatient department utilization. Facility directors and providers reported observed increases in outpatient and inpatient service utilization since JKN initiation (81% of all hospitals report increase in patient volume). Figure 5 illustrates outpatient and inpatient department utilization changes between 2013 and 2016. Overall, there was a statistically significant increase in average number of outpatient department patients per day in the pooled sample and among the BPJS-K-contracted hospitals, increasing from 131 patients per day in 2013 to 190 patients per day in 2016. Patients per day in specialized outpatient clinics increased more drastically in BPJS-K-contracted hospitals, increasing from 32 to 58 patients per day in 2013 and 2016, respectively. In contrast, the number of outpatient department patients per day in non-BPJS-K-contracted hospitals decreased between 2013 and 2016, from 127 to 92 total, and 20 to 19 in specialized clinics.

We find a similar trend in inpatient department utilization, increasing among BPJS-K-contracted hospitals (from 4,924 to 6,505 annual admissions between 2013 and 2016), and decreasing among non-BPJS-K-contracted hospitals (decreasing from 5,190 to 2,659 annual admissions). However, the average annual admissions in specialized wards increased in both BPJS-K- and non-BPJS-K-contracted hospitals. Our DiD models did not provide evidence of effect of BPJS-K contracting on outpatient or inpatient department service volume. Rather, results indicate that the observed change in utilization in outpatient and inpatient department is primarily explained by clinic (or ward) diversity and hospital class (see Annexes E and F).



Across the full sample, ALOS increased between 2013 and 2016. Though results are not statistically significant, ALOS decreased from 3.88 days to 3.14 days among non-BPJS-K-contracted hospitals, while it increased from 3.17 days to 3.64 days among BPJS-K-contracted hospitals (Figure 6). We do not find a statistically significant effect of BPJS-K contracting status on ALOS (Annex G). ALOS could change based on various factors, including **the severity of the patient's** condition and the efficiency and effectiveness of the treatment provided by the facility. We did not assess whether access to JKN caused more sick patients to go to BPJS-K-contracted hospitals more (one facet of adverse selection), nor do we account for possible improvement in effectiveness and efficiency in the use of hospital infrastructure and human resources, which is critical when INA-CBG payment rates are set.

Figure 6: Average Length of Stay (2013, 2016)



Box 3: Maternal Health Service Utilization

Similar to the overall health service volume for outpatient clinics and inpatient wards, utilization statistics for maternal health services did not change significantly. There does not seem to be any effect of BPJS-K contracting status to the patient volume or length of stay for maternal health, indicating that for this essential health services, access to JKN has not changed the patient behavior to access care or provider service patterns. However, the following section notes that other complementary set of reproductive, maternal, and newborn health (RMNH) services saw some diversification and use.

Table 4: Key Statistics on Maternal Health Utilization

Statistic	Non-BPJS-K-Contracted		BPJS-K-Contracted	
	2013	2016	2013	2016
Average number of patients per day (gynecology clinic)	16.5	15.9	15.7	18.5
Average annual admissions (maternity ward)	1,242	1,044	846	957
ALOS (maternity ward)	2.9	3.3	3.0	2.7

Access to wider set of services in the private hospital sector increased between 2013 and 2016. We consider four key health areas, non-communicable diseases (NCD); reproductive, maternal and newborn health (RMNH); TB; and diagnostic tests in assessing change in presence and volume of services offered within outpatient and inpatient departments (Box 4). Overall, access to services in all four health areas increased, as more hospitals offered these service areas in 2016 than in 2013. In both years, nearly all hospitals, regardless of BPJS-K contracting status, offered RMNH services. Between years, the number of BPJS-K-contracted hospitals that offered NCD services increased the most out of all services, while the number of non-BPJS-K-contracted hospitals offering NCD services was static. The number of non-BPJS-K-contracted hospitals offering TB services and diagnostic tests decreased between 2013 and 2016 (TB: 9 to 8; diagnostic tests: 6 to 4), while the number of BPJS-K-contracted hospitals that offer TB services and diagnostic tests increased (42 in 2013 to 45 in 2016, and 50 in 2013 to 51 in 2016, respectively).

Box 4: Key Health Areas and Included Services

NCD services: cardiovascular disease diagnosis and management, orthopedic services, dialysis, cancer diagnosis and management, and chemotherapy

RMNH services: antenatal and postnatal services, immunization, family planning counseling and services, obstetric care, C-sections, and neonatal emergency care

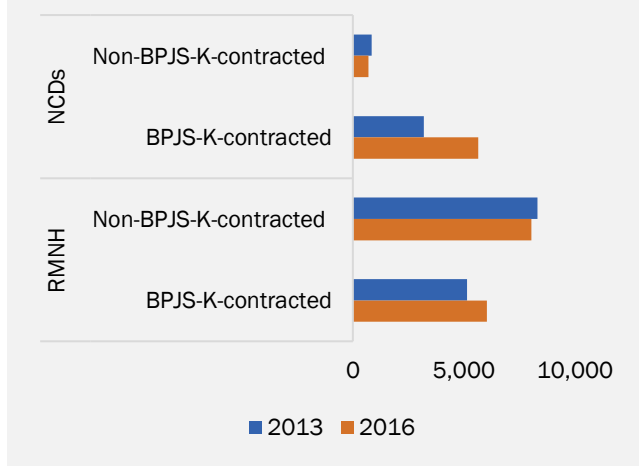
TB services: diagnosis, outpatient treatment, inpatient treatment

Diagnostic tests: GeneXpert, X-ray, MRI, and CT Scan

As access increased, the volume of services provided in these health areas increased. In both years, service volume was highest for RMNH services, and higher among non-BPJS-K-contracted hospitals than BPJS-K-contracted hospitals. Among BPJS-K-contracted hospitals, the next highest service volume was NCD services, increasing from an average number of services provided annually from 3,200 to 5,647 (Figure 7). Among non-BPJS-K-contracted hospitals, the number of NCD services provided decreased from an annual average of 846 in 2013 to 700 in 2016. Despite this difference between years and contracting-status, we do not find evidence of an effect of BPJS-K-contracting on NCD service volume (Annex G).

Provision of TB services increased between 2013 and 2016 in both BPJS-K- and non-BPJS-K-contracted hospitals, although those are likely limited to ongoing treatment rather than testing. According to providers, 42 percent of non-BPJS-K-contracted hospitals and 74 percent of BPJS-K-contracted hospitals currently provide TB services, relative to 33 percent non-BPJS-K-contracted hospitals and 68 percent of BPJS-K-contracted hospitals before JKN initiation. Most facilities reported patients coming to the hospital because of lack of testing capacity at the referring provider. At the same time, of those hospitals that reported providing TB services, many reported referring cases to other facilities (80% of non-BPJS-K-contracted, 78% of BPJS-K-contracted) because they lacked the testing capacity as well. Overall, most hospitals have the capacity to provide ongoing treatment and monitoring, but not necessarily the testing **services to determine the patient's TB status and condition**. The low number of hospitals with GeneXpert machines, as noted previously, corroborate this finding.

Figure 7: Average Number of Services Provided in Key Health Areas (2013, 2016)



Our analysis indicates that in both BPJS-K- and non-BPJS-K-contracted hospitals, hospitals utilized their diagnostic test equipment more efficiently in 2016 compared to 2013. As the number of hospitals with GeneXpert, X-ray, MRI, and CT scan machines increased, the average number of diagnostic tests provided increased between 2013 and 2016. To better understand the utilization of diagnostic testing equipment, we considered the average number of diagnostic tests provided in 2013 and 2016 per machine available in the facility in 2013 and 2017, respectively. Due to limited sample size, we did not include GeneXpert machines. Between 2013 and 2016, the ratio of tests per machine increased for X-ray, MRI, and CT scan machines, suggesting an increase in efficiency for these services (Figure 8). The number of tests per X-ray machine increased 50 percent between 2013 and 2016 among non-BPJS-K-contracted hospitals, where the average number of X-ray machines per hospital decreased from 1.67 in 2013 to 1.5 in 2016, though it increased only 9 percent among BPJS-K-contracted hospitals, where average number of X-Ray per hospital remained the same. BPJS-K-contracted hospitals had greater increases in tests per MRI (31% increase between 2013 and 2016) and tests per CT scan (15% increase), compared to non-BPJS-K-contracted hospitals, which did not provide MRI services and tests per CT scan only increased 8 percent between 2013 and 2016.

Bed occupancy rate (BOR) – another measure of hospital capacity use – increased more in BPJS-K-contracted hospitals. Table 5 shows change in BOR among non-BPJS-K- and BPJS-K-contracted hospitals. BOR was slightly higher among non-BPJS-K-contracted hospitals in 2013, though in 2016, BPJS-K-contracted hospitals have a higher BOR. Among the BPJS-K-contracted hospitals, average BOR increased overall between 2013 and 2016, increasing in hospitals in each hospital Class (B, C, and D), though most prominently among Class D hospitals. Among non-BPJS-K-contracted hospitals, BOR decreased between 2013 and 2016, though not significantly. Among Class B non-BPJS-K-contracted hospitals, BOR increased from 32.4 to 55.9, but BOR decreased in Class C and D hospitals. Our DiD model did not provide evidence of an effect of contracting with BPJS-K on BOR (Annex F; refer to *Is Indonesia's National Health Insurance Scheme Associated with Greater Hospital Efficiency? Evidence from a Private Sector Survey* (HP+ and TNP2K, 2018) for more information).

Figure 8: Presence and Volume of Key Health Area Services

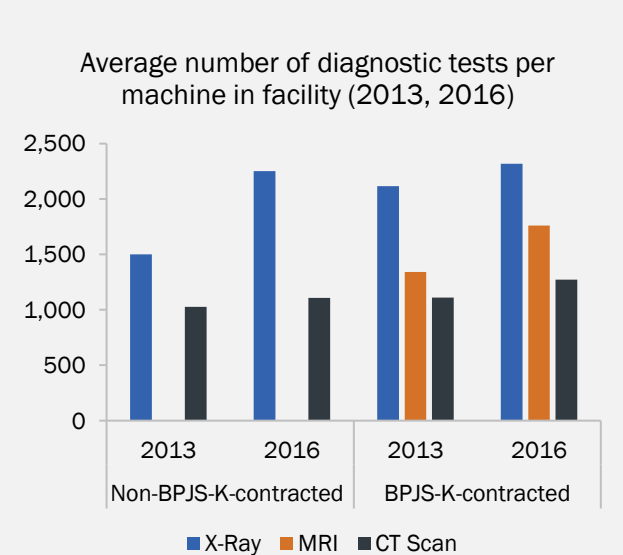


Table 5: Bed Occupancy Rate

Bed occupancy rate	Non-BPJS-K-Contracted		BPJS-K-Contracted	
	2013	2016	2013	2016
Average BOR	41.5	41.1	40.9	48.4
Class B	32.4	55.9	43.3	44.1
Class C	42.5	39.9	40.7	47.0
Class D	45.1	39.0	39.8	52.4

Has Contracting with BPJS-K Affected Private Hospital Revenue, Expenditure, or Profitability?

To assess the effect of contracting with BPJS-K on the financial health of private hospitals, we analyzed change in revenue and expenditure ranges, composition of revenue sources, direct and indirect costs, and service fees charged at hospitals between 2013 and 2016. Respecting the sensitivity of financial data, we collected financial data using total revenue and expenditure ranges, and composition of revenue and expenditure sources as proportions of the total range.

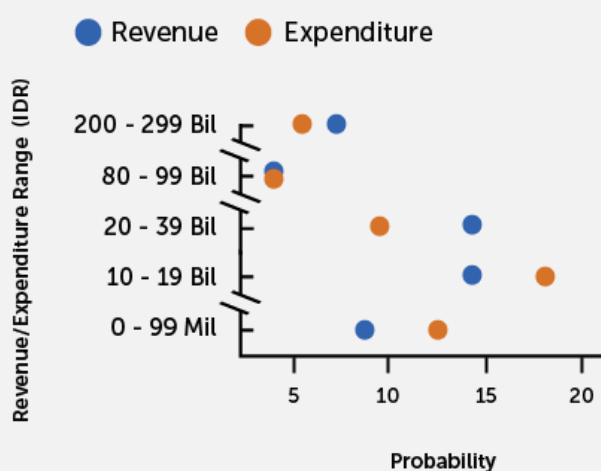
Qualitative data collected from financial officers and facility administrators **suggest differing perspectives of the hospital's financial health since** JKN initiation. The majority (67%) of financial officers at BPJS-K-contracted hospitals felt that the hospital was in improved financial health, whereas only 33 percent of financial officers at non-BPJS-K-contracted hospitals felt that financial health had improved between 2013 and 2016. In comparison, facility directors were, in general, equally undecided as to whether **their hospital's profitability** had increased. Non-BPJS-K-contracted hospitals were more optimistic about their profitability, whereas, BPJS-K-contracted hospitals were less optimistic about profitability since JKN initiation, relative to their financial officer counterparts.

Quantitatively, we found that average annual revenue and average expenditure range were higher among BPJS-K-contracted hospitals in both 2013 and 2016. BPJS-K-contracted hospitals reported, on average, annual revenue between IDR 20-39 billion in both 2013 and 2016, while non-BPJS-K-contracted hospitals reported average annual revenue range of IDR 10-19 billion. Average annual expenditure range, across all hospitals increased from IDR 10-19 billion in 2013 to IDR 20-39 billion in 2016. However, when disaggregated, neither group, based on BPJS-K contracting status, experienced change in the range of expenditures. BPJS-K-contracted hospitals reported annual expenditure range of IDR 20-39 billion in both years, and non-BPJS-K-contracted hospitals report annual expenditure range of IDR 10-19 billion in both years.

BPJS-K contracting was associated with a movement to a higher annual revenue and expenditure range.

All other factors being constant, contracting with BPJS-K was associated with 1.8 times the odds for being in a higher revenue range in 2016 compared to 2013. Similarly, contracting with BPJS-K is associated with twice the odds of being in the next higher expenditure range when other covariates are held constant (Annex H). Figure 9 shows the probability of increase associated with BPJS-K contracting status for five revenue and expenditure ranges (out of the potential 10 possible range choices in the survey). These probabilities are the average marginal effects adjusting for all covariates from the logistic regression model. With these parameters in revenue and expenditure range, we find that

Figure 9: Probability of Moving to Next Higher Annual Revenue or Expenditure Range with BPJS-K Contracting, by Selected Ranges of Same*

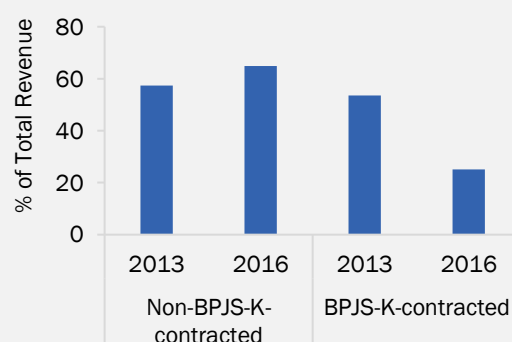


*Full model output in Annex H

BPJS-K contracting status has a statistically significant effect on revenue and expenditure increases for selected hospital sizes as measured by expenditure and revenue ranges. We find that with BPJS-K contracting, the probability of increasing revenue (range) is higher among the lower-middle revenue hospitals. Specifically, for hospitals in the revenue range of IDR 0-99 million, there is a 9 percent probability of increasing to the next higher range (IDR 1-9 billion). Whereas, for those hospitals in the IDR 10-19 billion range, BPJS-K contracting is associated with a 14 percent probability of increasing to the IDR 20-39 billion range. We find a similar predictive trend with expenditure ranges, the effect of BPJS-K contracting on the probability of increasing expenditure range is higher for lower-middle expenditure range hospitals. For instance, among hospitals in the IDR 10-19 billion range, BPJS-K contracting increased the probability of a shift to the next higher expenditure range (IDR 20-39 billion) by 18 percent.

The composition of total revenue shifted significantly away from out-of-pocket payments toward greater reliance on insurance revenue among BPJS-K-contracted hospitals. Before JKN started, out-of-pocket payments made up the largest **proportion of revenue on average, regardless of the facility's BPJS-K contract status in 2016**. BPJS-K-contracted hospitals had a slightly larger proportion of revenue accountable to publicly financed health insurance or social security scheme prior to 2014, such as Jamkesmas and Askes (20% in BPJS-K-contracted hospitals as compared to 11% in non-BPJS-K-contracted hospitals). As all of these schemes got integrated into JKN, this share of revenue in non-BPJS-K-contracting facilities seems to have shifted mostly to out-of-pocket payments; out-of-pocket payments increased from 57 to 65 percent for non-BPJS-K-contracted hospitals (Figure 10), and private insurance increased from 16 to 18 percent. Comparatively, revenue for BPJS-K-contracted hospitals overwhelmingly shifted to JKN to become the majority source of revenue (60%). Concurrently, out-of-pocket revenue decreased from 54 to 25 percent.

Figure 10: Proportion of Total Revenue from Out-of-Pocket (2013, 2016)



There is a significant effect of BPJS-K contracting on the proportion of revenue from public insurance and out of pocket. The DiD models showed that there is a positive and statistically significant effect of BPJS-K contracting status on proportion of revenue from public insurance (Jamkesmas and others prior to 2014, and JKN since 2014) (Annex I). With all covariates held constant, BPJS-K contract status is associated with a higher proportion of total revenue from public insurance; specifically, we find that BPJS-K contract status is associated with 47 percent more of total revenue from public insurance. Additionally, we find a statistically significant negative effect of BPJS-K contracting status on out-of-pocket share of total revenue. When all covariates are held constant, BPJS-K contract status is associated with a decrease in out-of-pocket as a share of revenue of 36 percent.

The proportion of total revenue shifted further towards inpatient services among BPJS-K-contracted hospitals since JKN initiation. In both 2013 and 2016, inpatient services and pharmaceutical sales accounted for the largest proportion of total revenue (Figure 11). Revenue from inpatient services was higher among BPJS-K-contracted hospitals than non-BPJS-K-contracted hospitals, increasing from 40 to 42 percent in 2013 and 2016; non-BPJS-K-contracted hospitals decreased from 36 to 35 percent. The second largest contributor to total revenue, pharmaceuticals, decreased between 2013 and 2016 in both BPJS-K- and non-BPJS-K-contracted hospitals (24% in 2013 to 21% in 2016, and 37% to 32%, respectively).

Compared to revenue trends, the proportion of total expenditure that was associated with pharmaceutical costs decreased among BPJS-K-contracted hospitals, which is possibly explained by the level of use of generic drugs. Among non-BPJS-K-contracted hospitals, the proportion of expenditures associated with pharmaceutical costs was 20 percent in 2013 and 2016. Among BPJS-K-contracted hospitals, the proportion of total expenditure that is pharmaceuticals decreased from 20 percent in 2013 to 18.5 percent in 2016 (Annex J). Data shared by financial officers on generic drug procurement and use of e-catalogue for reference pricing suggest that BPJS-K-contracted and non-BPJS-K-contracted hospitals made different strategic decisions about pharmaceutical purchases. Between 2013 and 2017, the proportion of drugs purchased that were generic increased in both BPJS-K and non-BPJS-K-contracted hospitals (Figure 12), increasing 36 percent among BPJS-K-contracted hospitals and 33 percent among non-BPJS-K-contracted hospitals. Despite this difference, we do not find evidence that the proportion of pharmaceuticals that are generic is affected by BPJS-K contracting status (Annex K). Furthermore, 72 percent of BPJS-K-contracted hospitals report referencing pharmaceutical prices on the e-catalogue – where prices are often significantly lower as the bulk procurement by the public sector is significantly larger than private hospital could procure. On the other hand, only 33 percent of non-BPJS-K-contracted hospitals reported using the e-catalogue for reference pricing. As BPJS-K-contracted hospitals rely more on JKN for their revenue, this finding seems to indicate that they are becoming more cost conscious and taking various strategies to reduce their expenses to maintain a positive net revenue.

Service fees of both BPJS-K- and non-BPJS-K-contracted hospitals have increased since 2013. JKN could influence the service price for those paying out of pocket; for example, with hospitals that are more efficiently using their resources because of higher patient volume with JKN could potentially reduce the service price for out-of-pocket patients, since their fixed costs are covered more through JKN. Alternatively, if JKN

Figure 11: Revenue Source, by Service Type (2013, 2016)

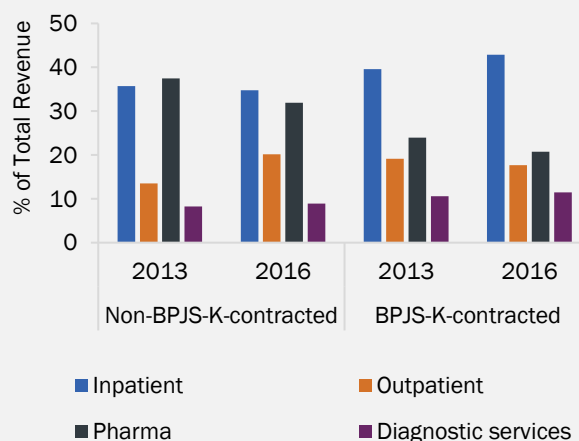
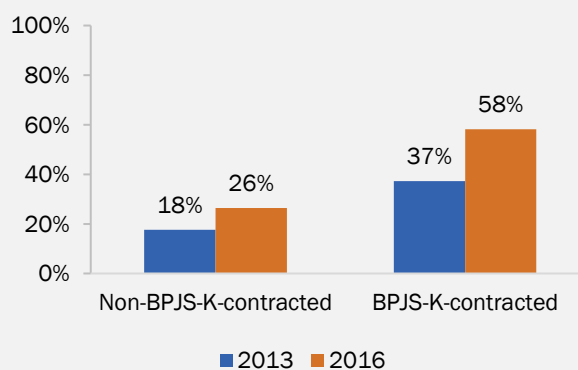


Figure 12: Proportion of Drugs Purchased that are Generics



reimbursements were not sufficiently covering the cost of these services, the facility may need to increase the price of their service to offset the fixed costs that are not covered by JKN. Since JKN initiation, most directors at non-BPJS-K-contracted hospitals perceived no change in service fees charged to patients (66%), though 54 percent of BPJS-K-contracted facility directors report that service prices have increased. Financial data collected from hospitals suggest that hospitals' service fees for outpatient visits at an internal medicine clinic, HIV testing, normal delivery, C-sections, and one course of dialysis have increased between 2013 and 2016 across the board (Table 6). For all services, except for HIV testing in 2016, service fees were higher among non-BPJS-K-contracted hospitals. However, even for C-sections that saw the largest increase in service fees, we did not find evidence of an effect of BPJS-K contracting on service fees for C-sections (Annex K). This finding may indicate that the service fees are set **primarily based on the patient's willingness to pay, which may not have changed based on JKN.**

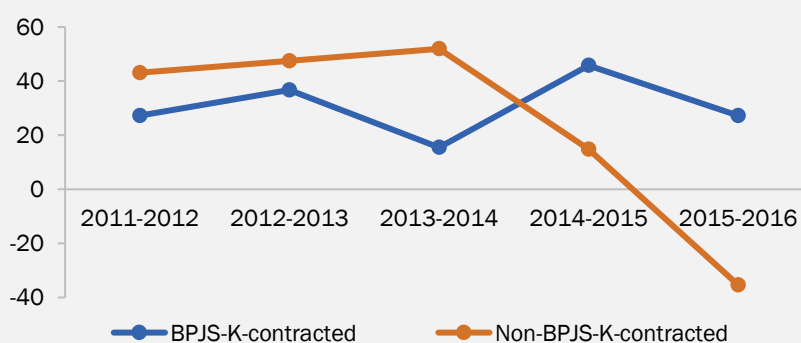
Profits have continued to increase since 2011 for BPJS-K-contracted hospitals, while non-BPJS-K-contracted hospitals saw slowed growth since JKN initiation. Facility financial records indicate that revenue and expenditure growth have stayed relatively constant for BPJS-K-contracted hospitals, while non-BPJS-K-contracted hospitals showed a slowdown. By 2015-2016, hospitals that were not contracted, on average, saw a decline in profit (Figure 13).

Table 6: Average Out-of-Pocket Fee for Select Services (2013, 2016)

Service	Non-BPJS-K-Contracted		BPJS-K-Contracted	
	2013	2016	2013	2016
Outpatient Visit - Internal Medicine	47,715	104,417	29,838	75,818
HIV Test	94,609	210,143	85,281	212,983
Normal Delivery	1,682,387	4,000,364	1,302,534	2,991,299
C-Section	5,029,262	10,700,000	3,854,550	8,152,507
Dialysis	601,563	1,200,000	534,747	1,022,091

All values presented in 2016 IDR equivalent

Figure 13: Average Annual Percent Change in Net Revenue (2011-2016)

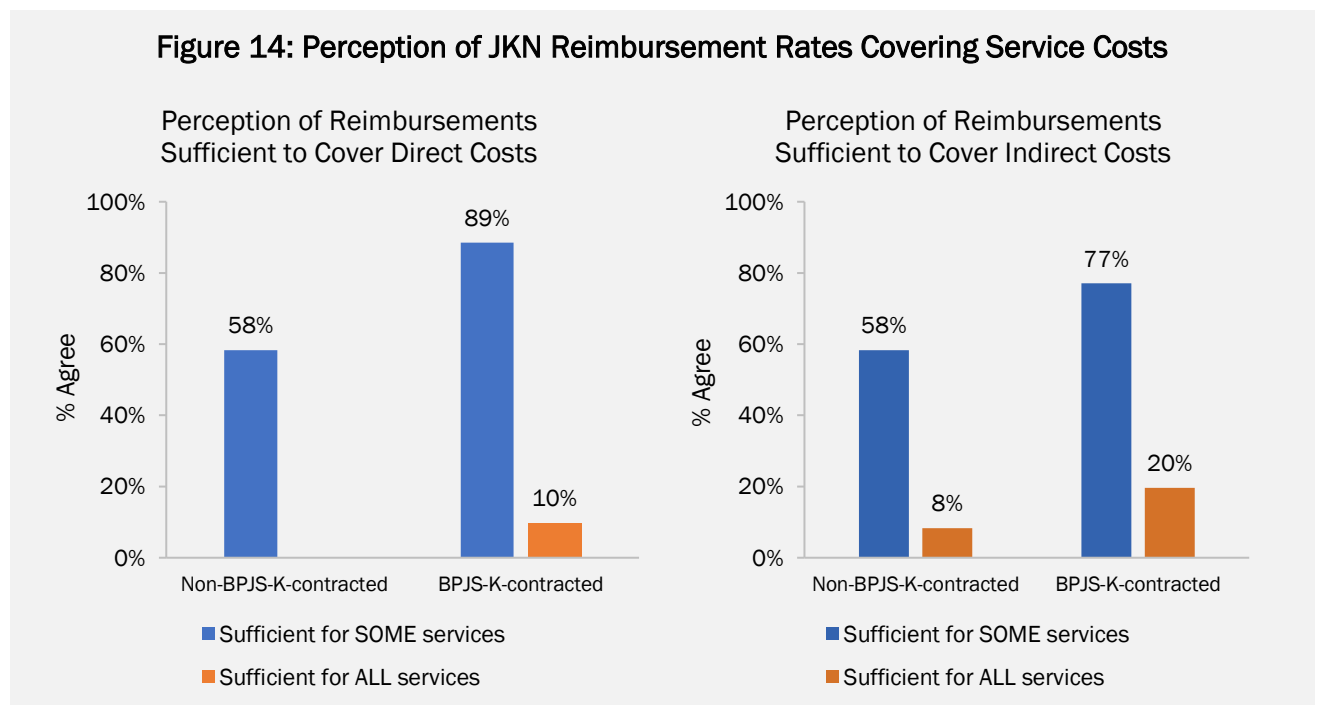


Are BPJS-K Reimbursement Processes Perceived to Be Attractive and Fair?

This chapter assesses whether the BPJS-K reimbursement process is driving more active participation and investment by private hospitals. We expect that if BPJS-K reimbursement were attractive and fair, private hospitals would proactively grow the service area that is profitable and put systems in place, such as quality improvement mechanisms, to attract more patients for these services.

Few private hospitals perceive reimbursement rates to be sufficient to cover all costs. Overall, financial officers at private hospitals reported positive perceptions of BPJS-K reimbursement rates; when asked whether the direct costs and indirect costs could be covered for the services offered at the hospital, the majority of BPJS-K-contracted hospitals reported that reimbursement rates can cover the direct and indirect costs associated with some or all services provided at the facility (Figure 14). Interestingly, more hospitals report that reimbursement rates covered indirect costs for all services, relative to direct costs coverage.

Similarly, most non-BPJS-K-contracted financial officers reported that if their facility were to contract with BPJS-K, reimbursement costs would cover direct and indirect costs associated with provision of some, though not all, services. Non-BPJS-K-contracted **hospitals' responses seem to align with the general perception** that the BPJS-K reimbursement rates are not sufficiently covering services overall, that it may be difficult to maintain positive cash flow relying on JKN. While our respondents from BPJS-K-contracted hospitals had a more positive experience, the data does not indicate whether revenue from "some" services will be sufficient to cover for the losses from other services that are net losses under the scheme.



As hospitals contracted with BPJS-K, their most profitable service lines changed. We asked the financial officers about the top three services that were currently most profitable. We scored the answers by giving three points to services that were most profitable, two points for second most profitable, and one point for third most profitable. Based on this weighting, we found that internal medicine, antenatal care (ANC), and eye care were the most profitable for BPJS-K-contracted hospitals (Table 7). ANC was also the most profitable service among non-BPJS-K-contracted hospitals, followed by inpatient and outpatient services. The majority of respondents (82%) felt that the most profitable service had changed since JKN initiation. **Compared to the expectation of JKN's rich benefit package** incentivizing the private hospitals to expand services to more comprehensive and more complex set of services, our findings here and from the previous section on investments in equipment seem to show limited effect. Among BPJS-K-contracted hospitals, surgery was perceived to be least profitable, with 57 percent of respondents reporting that this was a shift since JKN initiation. Among non-BPJS-K-contracted hospitals, radiology and surgical services were considered least profitable.

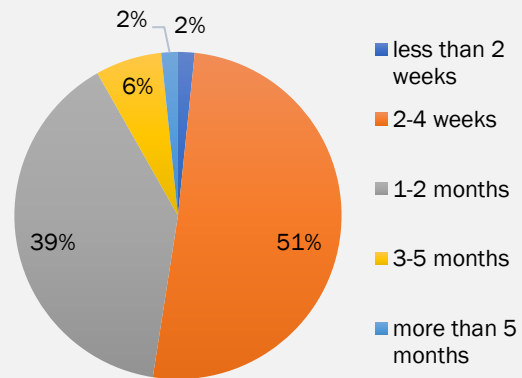
Despite positive or attractive reimbursement rates, processing procedures and time are considered cumbersome to facility administrators. Seventy percent of BPJS-K-contracted hospitals reported having put new systems in place to process JKN claims and, on average, hired 5.3 new staff members specifically for claims processes. Nearly all non-BPJS-K-contracted hospitals reported that they would need to hire new staff and set up new systems (paperwork, software, etc.) to be able to process BPJS-K claims if they were to join.

The length of time from claims filing to **payment could affect private hospitals'** cash flow. BPJS-K states it will reimburse hospitals within two weeks of a claim being verified. There is added time necessary for the claim to be reviewed, and potentially steps taken to verify the claim with additional documentation. Figure 15 illustrates that many BPJS-K-contracted hospitals in our sample (53%) received reimbursements within four weeks of submission. Yet, 39 percent wait 1-2 months, and 9 percent report waiting three or more months. As noted before, BPJS-K is becoming the largest revenue source for many of these private hospitals. If the reimbursement takes more than one month, this could have an indirect effect of the hospitals not being able to pay their staff or vendors in a timely fashion.

Table 7: Most Profitable Hospital Services under JKN

Respondent Rank	Service Type
Most profitable	Basic internal medicine
Second most profitable	Antenatal clinic/OB-GYN
Third most profitable	Eye care

Figure 15: Average Length of Time between Submitting Claim and Reimbursement Received



Box 5: What Has Been the Impact of JKN on Quality of Care in Private Hospitals?

Without collecting health outcomes data, we measure quality, or capacity to provide quality care, based on equipment investments, patient experience, clinical guidelines, and tracking of patient satisfaction.

Since JKN initiation, private hospitals have been investing in facility equipment and infrastructure. As mentioned above, both BPJS-K and non-BPJS-K-contracted hospitals made investments in equipment between 2013 and 2016. Additionally, most hospitals' financial officers reported that the facility was financially able to make both capital and infrastructure investments. Among non-BPJS-K-contracted hospitals, 83 percent of financial officers reported that the facility was financially able to make capital investments, and 58 percent reported infrastructure investments since JKN initiation. Among BPJS-K-contracted hospitals, 95 percent of finance officers reported that the facility had the financial capacity to invest in infrastructure, and 79 percent reported that the infrastructure investment had occurred since JKN initiation.

There has not been a significant change in patient wait times at private hospitals. On average, perceived wait times have not changed for outpatient, specialized, or emergency room services at private hospitals. Average wait times for general outpatient care were 15-30 minutes. Though the average wait times did not change, we find that among BPJS-K-contracted hospitals, more hospitals perceive wait times to be more than 30 minutes currently, relative to before JKN initiation. This may reflect the increased patient volume since starting to accept JKN. In contrast, more providers at non-BPJS-K-contracted hospitals reported general outpatient wait times of 15-30 minutes currently, compared to 2013. Similarly, the average wait time for referral appointments with specialist doctors has remained at 15-30 minutes. Again, more BPJS-K-contracted hospitals report wait times of 15-30 minutes currently, increasing slightly from a less than 15-minute wait time. Finally, no change is reported in wait times for emergency room, with nearly all hospitals, regardless of BPJS-K contract status, reporting waiting times of less than 15 minutes. While there have been concerns raised about significant increase in wait times for patients using JKN compared those paying out of pocket, our study did not show any evidence of this effect.

BPJS-K-contracted hospitals reported increased frequency of staff training since JKN initiation. Given the flat reimbursement rate set by INA-CBG, there is incentive for private hospitals to standardize services as much possible, and to ensure that the most efficient and effective treatment protocols are followed. According to respondents, nearly all hospitals that offered labor and delivery, and TB diagnosis services had a clinical guideline. Among BPJS-K-contracted hospitals, 48 percent reported updating their protocol to manage complications in labor and delivery, while 36 percent of non-BPJS-K-contracted hospitals did so. A third of all sampled hospitals updated their clinical protocols for TB diagnosis. So, while BPJS-K contracting status may have incentivized improved systems slightly for labor and delivery, this was not the case for the majority of hospitals. We did find that BPJS-K-contracted hospitals reported increased frequency of staff trainings (64%), while 42 percent of non-BPJS-K-contracted hospitals reported increased frequency of trainings.

Nearly all surveyed hospitals reported using some patient satisfaction tracking mechanism. Most hospitals reported using exit surveys to measure satisfaction. Among non-BPJS-K-contracted hospitals with a mechanism, 58 percent reported having it before 2014. Comparatively, 46 percent of BPJS-K-contracted hospitals with a tracking system reported already having it established by 2014. A larger proportion of BPJS-K-contracted hospitals had quality assurance or quality improvement teams in place during the survey period (87% of contracted hospitals compared to 67% of non-contracted hospitals), of which the majority (74%) were established after 2014, indicating contracting with BPJS-K may push for such quality systems to be put in place.

Has the Total Market for Private Hospitals Changed since JKN Initiation?

If BPJS-K reimbursement processes are attractive and fair, it is likely that the total market for private hospitals will shift with more competition to acquire the JKN clients. This competition can ultimately benefit the Government of Indonesia as purchaser of services, as it will have more bargaining power over this competitive market.

Generally, private hospitals in our study regarded JKN as a business opportunity. Seventy-four percent of BPJS-K-contracted hospitals noted that they saw JKN as an opportunity to increase patient load, and eighty-three percent of non-BPJS-K-contracted hospitals similarly noted this potential benefit of partnering with the government. Having experienced the process of being contracted with BPJS-K, these hospitals noted that increased patient load and ability to offer better quality services were some of the most notable benefits of partnering with the government. While progressively becoming a minority among private hospitals, those that are yet to contract with BPJS-K are most concerned by their ability to make necessary investments, slow reimbursement, and low reimbursement rates, which is preventing them from contracting. However, 92 percent said that they have a plan to join or will likely join BPJS-K soon.

Some BPJS-K-contracted hospitals had intentions of expanding their services and improving quality, but it is unclear whether this has come into reality. Of the currently contracted hospitals, 68 percent said that accepting JKN patients would allow them to expand services or improve quality of their services. However, less than one-third has realized this intention. Reimbursement rates remain the most prominent challenge, likely minimizing the service access improvements envisioned through BPJS-K.

While BPJS-K-contracted hospitals feel competition has increased, patient volume seems to be matching or surpassing the growth in supply. Most BPJS-K-contracted hospitals (62%) believed that the number of hospitals operating in their catchment area increased since JKN initiation. Interestingly, only 33 percent of non-BPJS-K-contracted hospitals felt the same way. Despite increased number of hospitals, most hospitals reported feeling more competitive amongst the other hospitals in their catchment area, and thus is well positioned to capture the growing number of patients accessing healthcare. A higher proportion of the BPJS-K-contracted hospitals said their competitiveness has increased relative to other hospitals in the area regardless of the **competitor's contracting status**. Approximately 10 percent of hospitals suggested that they were less competitive with hospitals in their catchment area, and this perception was higher among non-BPJS-K-contracted hospitals. Respondents may be gauging their level of competitiveness by the change in patient volume at their facility, and the strategies their facilities have made to accommodate the patients. For most hospitals to feel confident about their competitiveness, it is likely that the patient volume has increased more than the growing supply of hospitals in the catchment area, enabling most facilities to observe increased patient volume.

Discussion and Policy Recommendations

Our study found that in most cases, private hospitals grew their capacity and utilization improved with the introduction of JKN, regardless of their contracting status. JKN has communicated the importance of healthcare across the country; the majority of the population now have JKN, and it is likely that healthcare use has increased across the board. Accordingly, hospitals increased their installed capacity such as the number of beds and healthcare workers. Patient volume increased on average across all hospitals, although there seems to have been a slightly larger growth seen among BPJS-K-contracted hospitals.

Facilities are being more efficient, and BPJS-K-contracted hospitals seem to be more consciously trying to lower costs. BPJS-K-contracted hospitals, especially small to mid-sized hospitals, were more likely to see growth in net revenue as compared to their non-BPJS-K-contracted counterparts. A significant proportion of their revenue relies on JKN reimbursements, which often places cost pressures on them. BPJS-K-contracted hospitals are taking various strategies to operate more efficiently. For example, while there was a small increase in the amount of diagnostic equipment at the sampled hospitals; tests per machine actually increased, suggesting a strategic decision by the hospital administrators to maximize the use of their equipment before adding more. Similarly, the BOR increased, indicating more efficient use of their fixed costs. Furthermore, BPJS-K-contracted hospitals are using more generic drugs and referencing the e-catalogue to negotiate lower prices for their drugs.

For priority health services such as maternal health, TB, and NCD, BPJS-K contracting status seem not to have a significant effect on service availability or use. For most hospitals, maternal health was already provided in many cases, and the availability of clinics and specialists did not change for these health areas after JKN initiation. However, there was a slight increase in the type of services offered within these health areas, indicating that when the facility offers certain health area, they tend to offer a more comprehensive package of services in that health area. This improvement in service offering was seen across the board, although more prominently among BPJS-K-contracted hospitals. The diversity across the interpretation of profitable services by respondents, the type of services that were utilized more frequently, and the type of equipment purchased shows that the JKN reimbursement rate is not clearly indicating what services could be profitable, in demand, and should be a priority for the private hospitals to offer.

BPJS-K-contracted hospitals have improved their financial status slightly more than non-BPJS-K-contracted hospitals, and are able to invest more into their facilities. The majority of hospitals, regardless of their contracting status, thought that more hospitals are operating now than in 2013 in their catchment areas. Yet, most believed that they were competitive in this market. Our quantitative data indicates that the net profit has grown more for BPJS-K-contracted hospitals, supporting the claims made by these **facilities' finance directors** on the financial health of their facilities. On the other hand, our sample of non-BPJS-K-contracted hospitals reported on average that their net profit has declined in the last year. As more facilities start relying on reimbursements from BPJS-K as their primary source of revenue, streamlining and speeding up the claims process will likely be needed to mitigate any negative effects on the rest of the health system, such as distributors and manufacturers that these hospitals must pay for the supplies.

This study gathered data from a large number of hospitals and provides critical insights to continuing to improve access to healthcare through private hospitals partnering with BPJS-K. We gathered both quantitative and qualitative data that highlights the benefits and challenges faced by private hospitals in providing care when contracted with BPJS-K. It also highlighted the lack of effect by BPJS-K contracting status

that can be seen currently with our sample. It is likely that some of the lack of significance of BPJS-K contracting in our DiD models could be attributed to the small sample size of the non-BPJS-K-contracted hospitals and/or variation between hospital groups at baseline. The study sample included 12 hospitals that did not contract with BPJS-K, and we saw wide variation in responses among these hospitals often making trends among this sample group difficult to find. Despite these limitations, the statistically significant findings as well as qualitative insights allow us to draw the following policy recommendations:

- Provide more clarity to the tariff-setting process and the costs that are included in the calculation. This will allow private hospitals to better align their treatment decisions to the INA-CBG.
- Improve the e-claims process to reduce administrative burden for both the private hospitals and BPJS-K. The lack of consistency in the claims review process leads to delays in payment that can negatively impact the daily financing of the hospital, potentially forcing them not to contract with BPJS-K. Furthermore, this inconsistency is preventing private hospitals from learning how much revenue they can get for each service. This blunts INA-CBG effectiveness in acting as a lever to **incentivize private hospital's** business decisions.
- Test additional mechanisms that improve incentives beyond the INA-CBG, such as performance-based payments based on hospital outcomes, as well as assistance in accessing debt markets to incentivize further growth. Expanding hospitals into new health areas can be costly, as investments are needed to hire new staff or upskill staff, purchase equipment, and build up infrastructure. For services like TB and NCDs, these barriers may be too high for most independent hospitals to take on. Incremental payments from INA-CBG may not be enough to incentivize this large upfront investment. Thus, innovative financing mechanism that improves the return on investment, or assists in making these investments may be necessary.
- Improve coordination between BPJS-K and the Indonesia Commission for the Accreditation of Hospitals (KARS) to link contracting status with standardized accreditation processes and incorporate patient safety, experience, and quality performance indicators. Further, as private hospitals tackle improving their efficiency and effectiveness to operate with JKN reimbursement rates, quality assurance systems will be critical. Survey results suggest that measures to improve hospital quality, including service protocols, trainings, and quality assurance systems, have been put in place at many BPJS-K-contracted hospitals, though they are not standardized. Governance of quality assurance and monitoring should be better coordinated between BPJS-K and the Ministry of Health to standardize and improve quality assurance system requirements within contracted hospitals and designate authority over monitoring.

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Annex A: Sample Frame—Number of Private Hospitals by Geographic Unit

Geographic Unit	Provinces in Unit	No. of Class A Hospitals	No. of Class B Hospitals	No. of Class C Hospitals	No. of Class D Hospitals	Total No. of Hospitals
Java	6	6	116	464	253	839
Sumatra	10	0	28	200	99	327
Sulawesi	6	0	11	51	19	81
Kalimantan	5	0	4	39	23	66
Nusa Tenggara	3	0	2	34	31	67
Maluku	2	0	0	2	9	11
Papua	2	0	0	2	4	7
Total	34	9	168	824	449	1,397

Source: Ministry of Health Database, 2017

Annex B: List of DiD Models Used

Analysis Component	Outcome of Interest	Full Model Annex Reference
Outpatient department installed capacity	Number of Outpatient Department Clinics	C
Inpatient department installed capacity	Inpatient Department Beds	C
Inpatient department installed capacity	Maternity Ward Beds	C
HR capacity	Outpatient Nurses	D
HR capacity	Inpatient Nurses	D
HR capacity	Doctors - General	D
HR capacity	Doctors - Specialist	D
HR capacity	Ratio of General to Specialist Doctors	E
HR capacity	Ratio of Permanent to Contract Doctors	E
HR capacity	Ratio of Nurses to Doctors	E
Outpatient department utilization	Outpatient Department Patients Per Day (Total)	F
Outpatient department utilization	Outpatient Department Patients Per Day (Specialized)	F
Outpatient department Utilization	Outpatient Department Patients Per Day (Gynecology)	F
Inpatient department utilization	Inpatient Department Annual Admissions (Total)	G
Inpatient department utilization	Inpatient Department Annual Admissions (Specialized)	G
Inpatient department utilization	Inpatient Department ALOS (Total)	G
Inpatient department utilization	Inpatient Department ALOS (Maternity Ward)	G
Capacity-utilization	BOR	G
Service volume	NCD Service Volume	H
Service volume	Diagnostic Test Service Volume	H
Finance - Revenue	Revenue Range OR	I
Finance - Expenditure	Expenditure Range OR	I
Finance - Revenue	Source of Revenue - Public insurance	J
Finance - Revenue	Source of Revenue - Private insurance	J
Finance - Revenue	Source of Revenue - Out-of-Pocket	J
Finance - Expenditure	Expenditures - Pharmaceuticals	K
Finance - Expenditure	Expenditures - Ratio of Indirect to Direct Costs	K
Finance - Generics	Percentage of Pharmaceuticals that are Generics	L
Finance - Service fees	Service Fees: C-Section	L

Annex C: Installed Capacity, DiD Models Output

Covariate		Number of Outpatient Department Clinic	Inpatient Department Beds	Maternity Ward Beds
JKN Affiliation		3.53	16.82	-4.52
Year Dummy		-0.33	-1.86	-0.16
Interaction JKN*Time		2.22	9.49	3.14
Clinic/Ward Diversity			9.26 ***	-0.45
Geographic Group (reference = Sumatra)	Java	9.87 ***	-0.46	-0.45 ***
	All	-1.46	-3.48	-7.56 ***
Urban-Rural		2.61	3.46	0.22
Population Density		0.00 ***	-0.002	0.001 ***
Hospital Class (reference = Class B)	C	-15.03 ***	-113.05 ***	1.48
	D	-20.35 ***	-134.55 ***	-0.78
Hospital Ownership (reference = Non-profit)	Religious Organization	-0.39	-5.72	1.40
	Individual	-4.60	-41.79 ***	-4.12
	Commercial	-0.78	-39.43 ***	-5.70
Constant		24.46 ***	157.33 ***	21.90 ***

*** p < 0.05

Annex D: Human Resources Capacity, DiD Models Output

Covariate		Nurses – Outpatient Department	Nurses – Inpatient Department	Doctors - General	Doctors - Specialist
JKN Affiliation		1.35	2.05	6.75	6.99
Year Dummy		-2.83	1.58	4.75 ***	0.50
Interaction JKN*Time		4.05	13.30	4.77	5.88
Geographic Group (reference = Sumatra)	Java	17.88	-0.99	-0.90	-1.91
	All	-19.48	-23.39	-1.75	-0.62
Urban-Rural		1.61	3.19	0.02	-0.31
Population Density		-0.001	0.00	0.001	0.001
Hospital Class (reference = Class B)	C	-59.45 ***	-93.08 ***	-50.30 ***	-38.89 ***
	D	-67.96 ***	-127.15 ***	-59.89 ***	-45.54 ***
Hospital Ownership (reference = non- profit)	Religious Organization	34.04	-32.29	-7.47	-3.38
	Individual	-3.92	-63.10 ***	-10.71	-3.38
	Commercial	5.64	-72.52 ***	-4.29	-1.08
Constant		69.85	204.98 ***	73.01 ***	47.85 ***

*** p < 0.05

Results of a Survey of Private Hospitals in the Era of Indonesia's Jaminan Kesehatan Nasional

Covariate		Ratio of General to Specialist Doctors	Ratio of Permanent to Contract Doctors	Ratio of Nurses to Doctors
JKN Affiliation		-0.42	0.69	-1.35 ***
Year Dummy		0.37	1.06	-1.63 ***
Interaction JKN*Time		-0.59	-1.35	1.46
Geographic Group (reference = Sumatra)	Java	0.52	-0.55	0.19
	All	-0.05	0.63	-0.53
Urban-Rural		0.14	1.64 ***	0.34
Population Density		0.000 ***	0.000	0.000 ***
Hospital Class (reference = Class B)	C	0.74 ***	0.07	0.06
	D	0.52	1.01	-0.85
Hospital Ownership (reference = non-profit)	Religious Organization	0.32	-0.46	0.82
	Individual	-0.69 ***	1.20	-1.77 ***
	Commercial	-0.51	-0.11	-1.93 ***
Constant		2.25 ***	-1.19	5.58 ***

*** p < 0.05

Annex E: Outpatient Department Utilization, DiD Models Output

Covariate		Outpatient Department Patients Per Day (Total)	Outpatient Department Patients Per Day (Specialized)	Outpatient Department Patients Per Day (Gynecology)
JKN Affiliation		-24.48	0.33	1.62
Year Dummy		-41.78	-3.31	-0.47
Interaction JKN*Time		76.15	20.91	4.49
Clinic/Ward Diversity		16.66 ***	5.74 ***	-0.26
Geographic Group (reference = Sumatra)	Java	5.37	-10.65	2.37
	All	-65.24	-32.07 ***	-3.59
Urban-Rural		-66.39	-9.98	-11.68 ***
Population Density		0.00	0.00	0.00
Hospital Class (reference = Class B)	C	-95.48 ***	-29.70	-13.48 ***
	D	-126.40 ***	-43.31	-24.28 ***
Hospital Ownership (reference = non-profit)	Religious Organization	47.23	8.55	-4.31
	Individual	-33.73	-11.90 ***	-8.51
	Commercial	-53.72	-24.57	-12.24 ***
Constant		150.84	30.70	40.59 ***

*** p < 0.05

Annex F: Inpatient Department Utilization, DiD Models Output

Covariate		Inpatient Department Admissions (Total)	Inpatient Department Admissions (Specialized)	Inpatient Department ALOS (Total)	Inpatient Department ALOS (Maternity Ward)	BOR
JKN Affiliation		-681.81	-366.51	-0.91	0.57	-5.31
Year Dummy		-2785.34	158.82	-0.78	-0.01	-0.39
Interaction JKN*Time		3944.39	0.92	1.23	-0.23	7.83
Clinic/Ward Diversity		610.09 ***	87.41 ***			
Geographic Group (reference = Sumatra)	Java	14.29	260.60	-0.48	0.57	6.66
	All	-708.35	-446.54 ***	-0.22	1.38	-1.29
Urban-Rural		89.95	162.58	0.49	-0.19	8.98
Population Density		-0.09	-0.04	0.00	0.00	0.00
Hospital Class (reference = Class B)	C	-5149.75 ***	-400.96	-0.02	-0.12	6.45
	D	-6444.57 ***	-685.78 ***	-0.58	-1.28	8.82
Hospital Ownership (reference = non-profit)	Religious Organization	-1910.24	-811.19 ***	-0.02	-0.98	-18.43 ***
	Individual	-3680.74 ***	-1375.94 ***	-0.84	-1.11 ***	-33.64 ***
	Commercial	-3227.45	-911.95 ***	-0.20	-2.55 ***	-16.08
Constant		10483.21 ***	1920.19 ***	4.93 ***	3.84 ***	59.84 ***

*** p < 0.05

Annex G: Services Provided, DiD Models Output

Covariate		NCD Service Volume	Diagnostic Tests Service Volume
JKN Affiliation		1771.956	1648.671
Year Dummy		-146.5833	-31.3333
Interaction JKN*Time		2593.682	361.0055
Geographic Group (reference = Sumatra)	Java	2927.749	3662.062 ***
	All	-3621.422	-667.484
Urban-Rural		-1171.262	1770.767
Population Density		-0.0187531	-0.43609 ***
Hospital Class (reference = Class B)	C	-12707.06 ***	-7952.47 ***
	D	-15158.2 ***	-10200.3 ***
Hospital Ownership (reference = non-profit)	Religious Organization	5802.128	2120.009
	Individual	-1308.864	48.21303
	Commercial	-826.2775	509.5938
Constant		13351.25 ***	8037.812 ***

*** p < 0.05

Annex H: Revenue and Expenditure Range, DiD Models Output

Covariates		Revenue Range OR	Expenditure Range OR
JKN Affiliation		2.69	2.55
Year Dummy		1.31	1.05
Interaction JKN*Time		1.80	1.96
Geographic Group (reference = Sumatra)	Java	2.59	2.07
	All	1.37	0.85
Urban-Rural		1.82	1.12
Population Density		1.00	1.00
Hospital Class (reference = Class B)	C	0.04 ***	0.04 ***
	D	0.01	0.01 ***
Hospital Ownership (reference = non-profit)	Religious Organization	0.53	0.61
	Individual	0.27 ***	0.20 ***
	Commercial	0.35	0.33
	cut 1	-7.35	-8.23
	cut 2	-5.32	-5.63
	cut 3	-3.36	-3.90
	cut 4	-2.51	-2.83
	cut 5	-1.56	-2.17
	cut 6	-0.71	-1.38
	cut 7	0.34	-0.56
	cut 8	0.94	0.02
	cut 9	1.26	0.90
cut 10	1.84	1.44	

*** p < 0.05

Note: Revenue and Expenditure Ranges Used (IDR billions: Bil)

Less than 0; 0 - 99 Million; 1 Bil - 9 Bil; 10 Bil - 19 Bil; 20 Bil - 39 Bil; 40 Bil - 59 Bil; 60 Bil - 79 Bil; 80 Bil - 99 Bil; 100 Bil - 149 Bil; 150 Bil - 199 Bil; 200 Bil - 299 Bil

Annex I: Source of Revenue, DiD Models Output

Covariate		Source of Revenue - Public Insurance	Source of Revenue - Private Insurance	Source of Revenue - Out-of-Pocket
JKN Affiliation		3.30	1.85	-0.65
Year Dummy		-8.83	1.42	7.50
Interaction JKN*Time		47.45 ***	-9.11	-35.83 ***
Geographic Group (reference = Sumatra)	Java	-3.23	-6.39	7.74
	All	-0.01	-0.87	-12.81
Urban-Rural		9.89	3.84	-2.08
Population Density		0.00	0.00	0.00
Hospital Class (reference = Class B)	C	23.42 ***	-11.25 ***	-4.97
	D	32.04 ***	-17.88 ***	-2.35
Hospital Ownership (reference = non-profit)	Religious Organization	2.56	-5.84	12.23
	Individual	-10.56	0.49	16.69 ***
	Commercial	-3.69	-4.04	19.62 ***
Constant		-9.3	28.24 ***	54.60 ***

*** p < 0.05

Annex J: Expenditure, DiD Models Output

Covariate		Expenditures - Pharmaceuticals	Ratio of Indirect to Direct Costs
JKN Affiliation		-0.67	-0.12
Year Dummy		0.21	-0.03
Interaction JKN*Time		-1.90	0.11
Geographic Group (reference = Sumatra)	Java	-2.43	0.08
	All	-3.36	-0.21
Urban-Rural		0.35	-0.02
Population Density		0.00	0.00
Hospital Class (reference = Class B)	C	-1.80	0.12
	D	-0.86	0.00
Hospital Ownership (reference = non-profit)	Religious Organization	6.11	-0.11
	Individual	2.10	-0.08
	Commercial	5.84	0.00
Constant		20.40 ***	0.51 ***

*** p < 0.05

Annex K: Generic Medicines and Service Fees, DiD Models Output

Covariate		Proportion of Pharmaceuticals that are Generics	Service Fees: C-Section
JKN Affiliation		20.00 ***	-1979783
Year Dummy		8.75	1484909
Interaction JKN*Time		11.92871	-380721.9
Geographic Group (reference = Sumatra)	Java	2.54	2312113
	All	-3.82	2959512 ***
Urban-Rural		-1.48	552271.6
Population Density		0.00	209.4997
Hospital Class (reference = Class B)	C	20.25 ***	-2684000 ***
	D	25.48 ***	-4464975 ***
Hospital Ownership (reference = non-profit)	Religious Organization	-8.50	302749.2
	Individual	-13.08 ***	2480718 ***
	Commercial	-12.43	-290768
Constant		12.08367	7108926 ***

*** p < 0.05



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