

March 2021



THE IMPACT OF COVID-19 ON SUBNATIONAL GOVERNMENT FINANCING AND HOUSEHOLD FINANCIAL RISK PROTECTION IN INDONESIA

MARCH 2021

This publication was prepared by Huling Pan (Palladium), Kevin Ward (Palladium), Dorit Stein (Palladium), Ery Setiwan (Consultant, Palladium), and Arin Dutta (Palladium) of the Health Policy Plus project.

Suggested citation: Pan, H., K. Ward, D. Stein, E. Setiwan, and A. Dutta. 2021. *The Impact of COVID-19 on Subnational Government Financing and Household Financial Risk Protection in Indonesia*. Washington, DC: Palladium, Health Policy Plus.

Cover photo by Oscar Siagian/USAID-JALIN.

ISBN: 978-1-59560-276-3

Acknowledgements: The authors gratefully acknowledge the comments provided by reviewers from the U.S. Agency for International Development (USAID). This report benefited from discussion with the Center for Health Financing and Insurance (PPJK) and participant questions during presentations of preliminary results in December 2020. The authors also acknowledge technical leadership from the Health Policy Plus (HP+) project, assistance from the HP+ Indonesia team in data sourcing, and funding from USAID.

Health Policy Plus (HP+) is a seven-year cooperative agreement funded by the U.S. Agency for International Development under Agreement No. AID-OAA-A-15-00051, beginning August 28, 2015. HP+ is implemented by Palladium, in collaboration with Avenir Health, Futures Group Global Outreach, Plan International USA, Population Reference Bureau, RTI International, ThinkWell, and the White Ribbon Alliance for Safe Motherhood.

This report was produced for review by the U.S. Agency for International Development. It was prepared by HP+. The information provided in this report is not official U.S. Government information and does not necessarily reflect the views or positions of the U.S. Agency for International Development or the U.S. Government.

Contents

Abbreviations	iv
Summary	v
Subnational Government.....	v
Households.....	v
Subnational Government Analysis	7
Methods.....	7
Key Findings	9
Discussion	12
Household Analysis.....	13
Approach.....	13
Key Findings	14
Discussion	16
References	18
Annex A. Detailed Methods and Summary of Estimated FY 2021 Budgetary Needs for Non-vaccine COVID-19 Interventions	21
Annex B. Detailed Methods and Summary of Estimated FY 2021 Budgetary Needs for COVID-19 Vaccine Rollout.....	25
Annex C. Detailed Methods and Summary of Estimated FY 2021 Subnational Government Budgets	29
Annex D. Detailed Methodology for Household Analysis.....	31

Abbreviations

APBD	Anggaran Pendapatan dan Belanja Daerah (regional revenue and expenditure budget)
CHE	catastrophic health expenditure
FKTP	Fasilitas Kesehatan Tingkat Pertama (primary care health facilities)
FY	fiscal year
HP+	Health Policy Plus
IDR	Indonesian rupiah
IEC	information, education, and communication
INA-CBG	Indonesia case-based groups
JKN	Jaminan Kesehatan Nasional (national health insurance)
OOPHE	out-of-pocket health expenditure
PPJK	Pusat Pembiayaan dan Jaminan Kesehatan (Center for Health Financing and Insurance)
puskesmas	Pusat Kesehatan Masyarakat (public health center)
RKAKL	Rencana Kerja dan Anggaran Kementerian Negara/Lembaga (Work Plan and Budget of State Ministries/Institution)
Sismonev	Sistem Monitoring dan Evaluasi JKN (System for Monitoring and Evaluation for JKN)
Susenas	Survei Sosial Ekonomi Nasional (National Socioeconomic Survey)
USAID	U.S. Agency for International Development
USD	U.S. dollar
WHO	World Health Organization

Summary

The U.S. Agency for International Development-funded Health Policy Plus (HP+) project conducted analyses to understand the impact of COVID-19 on (1) subnational government budgets and (2) households' healthcare use and spending (Box 1). This work was undertaken in support of the Center for Health Financing and Insurance (*Pusat Pembiayaan dan Jaminan Kesehatan* or PPJK) within the Ministry of Health of the government of Indonesia. The following is a summary of key findings and policy implications, which are further expanded on in the report.

Subnational Government

COVID-19 Budgetary Needs

Subnational governments may need to spend on average 4 percent (range: 1–8 percent across jurisdictions) of their projected province-level aggregated budget for 2021 on COVID-19 responsibilities, including operational costs of implementing the COVID-19 vaccine. Healthcare worker incentives and hand-hygiene protocols pose the highest costs, comprising 66 percent and 28 percent, respectively, of **subnational governments'** overall COVID-19 response costs.

Policy Implications

Provinces in which the COVID-19 financing responsibilities will be too high a share of the total budget may need to allocate resources from other budget areas. Policy options include reprioritizing fiscal year (FY) 2021 health sector spending or pursuing alternative strategies to reduce the cost of the local COVID-19 response, e.g., private sector collaboration for handwashing facilities and local nonprofit organization engagement in vaccine delivery.

Households

Healthcare Utilization

HP+ estimated that healthcare visits by national health insurance (*Jaminan Kesehatan Nasional* or JKN) members decreased by 36 percent in relation to public and private hospitals, 28 percent for public health centers (*Pusat Kesehatan Masyarakat* or puskesmas), and 28 percent for private primary care clinics compared to a counterfactual scenario in which the COVID-19 pandemic never occurred.

Financial Risk Protection

HP+ estimated that the change in the incidence of catastrophic health expenditure (CHE) ranged from a 15 percent increase in Southeast Sulawesi to a 43 percent decrease in Bali, after adjusting for the economic impact of COVID-19 on household consumption. Poorer

Box 1. HP+ Answers Two Research Questions:

- **Subnational Government Analysis.** What are the total costs to subnational governments for financing legally mandated COVID-19 interventions and the eventual vaccine campaigns? How do these costs compare to anticipated available resources for FY 2021?
- **Household Analysis.** How has healthcare utilization changed in response to COVID-19? What are the implications for household out-of-pocket health expenditures and financial risk protection across provinces in Indonesia?

households were more likely to experience CHE compared to before the pandemic due to large reductions in total consumption among lower income deciles.

Policy Implications

The government of Indonesia should ensure poor households, including subsidized members of JKN, are truly protected from out-of-pocket charges for healthcare during the continuing COVID-19 crisis. The government could also consider additional cash transfers or social safety net payments for poor households at risk of CHE, while addressing the implications of the declined use of essential health services. Based on province-specific changes in healthcare visits and CHE incidence, provinces should be prioritized for interventions to offset these effects.

Subnational Government Analysis

Impact of COVID-19 on Subnational Government Financing

Indonesia reported its first domestic COVID-19 cases in early March 2020 and the virus quickly achieved community-level transmission across many parts of the country (Yulisman, 2020). As of January 29, 2020, Indonesia had observed 1,051,795 confirmed cases and 29,418 deaths nationwide related to COVID-19 (KPCPEN, 2021). The ongoing pandemic has caused a severe crisis in both the health sector and the economy of the country. Assuming no change in the nationwide COVID-19 response, modeling studies indicate the country could face 24.8 million additional cases over the five months following January 2021.¹ On the economic side, **Indonesia's economy contracted significantly in 2020** for the first time since the Asian financial crisis more than two decades ago (Sihombing, 2020a).

The Health Policy Plus (HP+) project conducted a subnational government-level analysis to answer two key questions: (1) What are the total costs to subnational governments for financing legally mandated COVID-19 interventions at the local level and the planned COVID-19 vaccine campaign with a prioritized and phase rollout? (2) How do these costs compare to anticipated available resources at the province level (aggregating district budgets) for fiscal year (FY) 2021? The findings from this analysis can be used to inform subnational government health financing decisions in FY 2021. The analytical model developed in this exercise can be adapted by the government of Indonesia in ongoing **planning efforts as new data on the country's COVID-19** situation become available.

Methods

HP+ conducted a desk review of government of Indonesia ministerial decrees and circulars to identify local and provincial government responsibilities in the COVID-19 response. Fiscal year 2021 budgetary needs for each line item of the legally mandated COVID-19 interventions were estimated using reference unit costs from the literature and guided by international recommendations (e.g., from the World Health Organization [WHO]) as well as national policies in Indonesia. HP+ forecasted needs for each province for a five-month period assuming continuation of the current pandemic trajectory, until necessary public health measures are properly financed and implemented. Detailed methods and assumptions can be found in Annex A. Referenced unit costs are listed in Table 1.

Table 1. Reference Unit Costs Used in the Subnational Government Analysis

Category	Item	Unit Cost	Definition	Source
1. Provision of handwashing station at public facilities	Handwashing station	USD 50–450	Estimated price range for one free-standing water tank with tap(s)/outlet(s)	UNICEF, 2020
	Liquid soap	USD 0.90	Estimated unit cost of liquid soap per liter	WHO, 2020a
	Alcohol-based hand rub	USD 8.30	Estimated unit cost of alcohol-based hand sanitizer per liter	WHO, 2020a
	Closed trash bin	IDR 235,000	Catalogued unit price of one medium-sized closed trash bin with pedal	Palladium Indonesia

¹ Based on the Institute for Health Metrics and Evaluation's **daily infection projection of 165,000 per day** for the current period, multiplied by 150 days (five months) (IHME, 2021).

Category	Item	Unit Cost	Definition	Source
2. Communication campaigns	Printing and distribution of flyers	IDR 10,000–20,000	Calculated unit price of printing and distributing one media information, education, and communication (IEC) leaflet or handbook and other IEC materials	National Mid-Term Development Plan
3. Surveillance activities	Transport for manual contact tracers	IDR 600,000–5,500,000	Reported range of intra-provincial transport cost for workers (per person per day) conducting surveillance activities	RKAKL*
	Per diem for workers conducting manual contact tracing	IDR 550,000	Reported per diem rate for workers (per person per hour) conducting surveillance activities	RKAKL
4. Incentive payment for healthcare workers	Specialist doctor	IDR 15 million	Monthly incentive payment for public sector healthcare workers in the specialist cadre	Ministry of Health
	General physician and dentist	IDR 10 million	Monthly incentive payment for public sector healthcare workers in the general physician or dentist cadre	Ministry of Health
	Midwife and nurse	IDR 7.5 million	Monthly incentive payment for public sector healthcare workers in the midwife or nurse cadre	Ministry of Health
5. Death compensation for healthcare workers	Death compensation	IDR 300 million	One-time death payment to each healthcare worker who has died from COVID-19 on duty	Ministry of Health
6. COVID-19 specimen referral to designated laboratories	Specimen shipping	IDR 55,000–400,000	Calculated range of shipping cost for one five kilogram package including specimen and cold storage packaging	Author calculation
7. COVID-19 vaccine campaign costs excluding vaccines	Scenario 1: Healthcare workers	USD 0.96	Financial unit cost per fully vaccinated person, including introductory cost of the campaign (cold storage investment, social mobilization, training, monitoring and evaluation, and transport); excluding vaccine	Griffiths et al., 2016
	Scenario 2: Frontline workers	USD 1.72	Financial unit cost per fully vaccinated person, including transportation, cold chain, personnel, social mobilization, planning/training, and supervision; excluding vaccine	Doshi et al., 2017
	Scenario 3: General population	USD 0.74	Financial unit cost per fully vaccinated person, including capital (building, equipment, and vehicles) and recurring costs (personnel and operations); excluding vaccine	Van Hoang et al., 2008
	Scenario 3: General population	USD 1.24	Financial unit cost per fully vaccinated person, including personnel, transport, social mobilization, monitoring and evaluation, additional cold chain equipment, and vehicles; excluding vaccine	Babigumira et al., 2011

* RKAKL=Rencana Kerja dan Anggaran Kementerian Negara/Lembaga (Work Plan and Budget of State Ministries/Institution)

Three scenarios were developed to estimate provincial governments' financing needs around nationwide introduction, supply and logistics including cold chain, and delivery costs of the COVID-19 vaccine. These costs exclude the procurement cost of the vaccines. The scenarios take into account normative guidance from WHO for phased rollout **and Indonesia's** prioritization strategy, i.e., (a) health care workers will be prioritized in the initial phase when vaccine supply is expected to be limited, then (b) all other frontline workers including police, the army, and educators in the second phase, and finally (c) universal vaccination for the general population in the extended term when vaccine supplies are less constrained (WHO, 2020c). HP+ did not model intermediate scenarios prioritizing other population groups, mindful that more details would emerge from the government of Indonesia's vaccination strategy as time goes by and vaccine orders are firmed up. Due to the lack of information around **the exact mix of Indonesia's future procurement across currently known** effective COVID-19 vaccine candidates and specific variations in operational cost requirements (e.g., due to varying needs related to cold chain) at the time the analysis was conducted, unit cost per person vaccinated for service delivery and logistics reflect estimates from non-COVID-19 vaccination campaigns, e.g., for measles vaccines. These estimates (see Table 1) were taken from existing literature to proxy for the operational cost of the upcoming COVID-19 vaccine campaign in Indonesia. Detailed assumptions can be found in Annex B.

Finally, provincial governments' total budgets for FY 2021 were projected from historical local revenue and expenditure budget (*Anggaran Pendapatan dan Belanja Daerah* or APBD) data aggregated across all constituent districts and inclusive of additional budget available at the provincial level between 2015 and 2018. In the absence of publicly available APBD data for 2019–2021, HP+ assumed that subnational government budgets, including local revenue and central transfers, would follow the same trends in macroeconomic conditions for the same period. The analysis used actual 2018–2019 central government revenue and 2020–2021 projections made by the World Bank published in December 2020 to model changes in subnational government budgets for the same periods (Kahkonen et al., 2020).² Detailed methods are summarized in Annex C.

Key Findings

Budgetary Needs for Non-vaccine COVID-19 Interventions

Provinces with different populations, infrastructure, and healthcare workforce will have different levels of budgetary needs in 2021 to meet their COVID-19 response responsibilities, ranging from 32.8 billion to 1.4 trillion Indonesian rupiah (IDR). Most of the cost (66 percent on average) comes from incentive payments to healthcare workers, followed by the provision of handwashing facilities in public places (28 percent on average). Box 2 summarizes the range of budgetary needs for each intervention. Detailed estimates by province are available in Annex A.

² A previous version of this analysis that was presented to stakeholders in Indonesia was modeled after macroeconomic projections made by HP+ in a fiscal space analysis conducted in mid-2020 based on assumptions that were available then. Recovery in central government revenue and transfers to local governments was based on cautiously optimistic projections, which assumed growth (and hence revenue) recovery in 2021 and a return to pre-COVID-19 baseline in transfers by 2022 (Dutta et al., 2020). Projections by the World Bank were more conservative; central government revenue in percent of GDP was expected to be 9.8 percent in 2020, 9.9 percent in 2021, and slowly rise to 10.4 percent in 2022 (Kahkonen et al., 2020).

Box 2. Subnational Government Financial Responsibilities for the Local COVID-19 Response, in IDR



Provision of handwashing station at public facilities

Low: 7.8 billion (Kalimantan Utara)
High: 389 billion (Jawa Tengah)



Communication campaigns

Low: 48 million (Kalimantan Utara)
High: 1.9 billion (Jawa Tengah)



Surveillance activities

Low: 0.4 billion (Kalimantan Utara)
High: 55.5 billion (DKI Jakarta)



Incentive payment for healthcare workers

Low: 21 billion (Sumatera Barat)
High: 1,008 billion (Jawa Timur)



Death compensation for healthcare workers

Low: 0.9 billion (Sulawesi Barat, Kalimantan Utara)
High: 46 billion (Jawa Timur)



COVID-19 specimen referral to designated laboratories

Low: 176 million (Jambi)
High: 3.8 billion (Sulawesi Tenggara)

Budgetary Needs for a Phased COVID-19 Vaccine Campaign

The government of Indonesia has expressed readiness to use a mix of vaccine candidates and had already secured bilateral agreements with manufacturers in October 2020 for delivery of an initial supply to vaccinate 4.1 million Indonesians (Frandedya, 2020). Since then, there have been additional orders placed, pending delivery. Although the vaccines are procured centrally at the national level and distributed to each province, subnational governments will need to allocate funds and prepare technical capacity for local COVID-19 vaccine campaigns.

This analysis focuses on the cost of introducing the vaccine campaign (e.g., training, additional cold storage equipment, and social mobilization) and inoculation, which are the responsibility of subnational governments. This analysis does not include the cost of procuring and distributing the vaccines to each province, which are the responsibility of the central government. HP+ took into account a phased approach that prioritizes healthcare workers first, especially those in areas with the highest COVID-19 cases (DKI Jakarta and Jawa Timur), with rollout to other demographic groups and geographic areas later. Because details on the government's plan to

vaccinate priority populations beyond frontline workers were not known at the time of the analysis, HP+ did not account for additional scenarios targeting other demographic groups.

Under scenario 1, the cost of rolling out COVID-19 vaccines in healthcare facilities and prioritizing healthcare workers is estimated to be IDR 270 million (USD 18,236) for DKI Jakarta and IDR 339 million (USD 22,887) for Jawa Timur, totaling IDR 2.34 billion (USD 157,786) for the whole country (see Annex B for estimates by province). This cost includes the introductory cost of the campaign, such as cold storage investment, social mobilization, training, monitoring and surveillance, and transport; it excludes vaccine procurement costs. Given the government of Indonesia's order for COVID-19 vaccines (140–160 million doses for a portfolio of vaccines requiring one and two doses), it is likely that Indonesia is ready to implement scenario 2. Under scenario 2, subnational governments will have to finance service delivery costs for inoculating a broader set of frontline workers including healthcare workers, the military, police, and school teachers, who will all receive the vaccine at designated health facilities or other delivery locations. The cost of the campaign to subnational governments is estimated to be IDR 4.2 billion (USD 283,639) for DKI Jakarta, IDR 16.1 billion (USD 1.1 billion) for Jawa Timur, and IDR 121 billion (USD 8.2 billion) for the whole country. In the longer-term scenario of expanded vaccination (scenario 3),

subnational governments should expect a total estimated cost of IDR 3.58 trillion (USD 242 million) for delivering vaccines to 80 percent of the general population using a variety of facility-based and community settings (Figure 1).

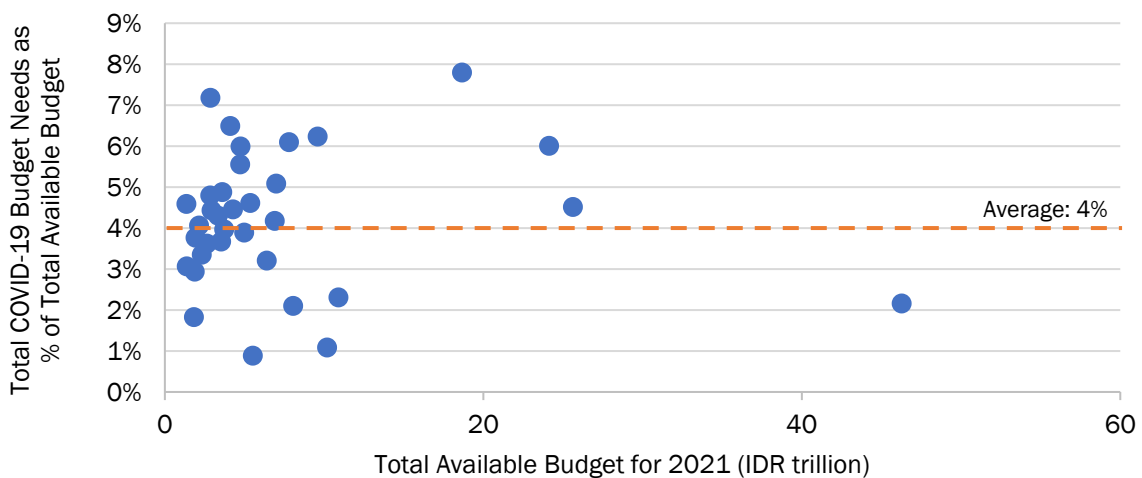
Figure 1. COVID-19 Vaccine Campaign Costs Excluding Vaccines, for DKI Jakarta, Jawa Timur, and Nationwide under Three Scenarios of Phased Population Prioritization

Location	Scenario 1: Healthcare workers in designated COVID-19 hospitals	Scenario 2: Frontline workers including healthcare workers, military, police, and teachers	Scenario 3: General population
DKI Jakarta	IDR 270 million	IDR 4.20 billion	IDR 136 billion
Jawa Timur	IDR 339 million	IDR 16.1 billion	IDR 505 billion
Nationwide	IDR 2.34 billion	IDR 121 billion	IDR 3.58 trillion

Total Cost of COVID-19 Response to Subnational Governments Compared to Available Budgetary Space for Subnational Governments

Combining the costs of legally mandated COVID-19 interventions listed in Box 2 with the costs of support systems (e.g., additional cold chain investment, training, monitoring and evaluation) and service delivery of COVID-19 vaccines under scenario 2 (frontline workers), HP+ plotted COVID-19-related costs as a proportion of the total available budget (Figure 2). On average, provinces are expected to need 4 percent of their provincial-level forecasted budget to finance COVID-19 interventions in 2021. Provinces with a smaller healthcare workforce and fewer public facilities requiring handwashing stations, such as Papua and West Papua, only need 1 percent of their FY 2021 budget for local COVID-19 responses. Populous provinces with fewer financial resources, such as Jawa Tengah, may need up to 8 percent of their FY 2021 budget to finance the local COVID-19 response in 2021.

Figure 2. Subnational Governments’ Proportional COVID-19 Financing Responsibilities Compared to Total Available Budgets



Note: The numerator used in calculating proportional spending for COVID-19 interventions and vaccine campaigns includes the costs of all six legally mandated non-vaccine interventions for COVID-19 and service delivery costs of a COVID-19 vaccine campaign under scenario 2 (i.e., the most likely scenario in the immediate future).

Discussion

Subnational governments in Indonesia will be expected to increase health sector spending in FY 2021 to finance COVID-19-related public health interventions needed to curb the pandemic and ensure that a vaccine campaign is rolled out successfully. Although the Indonesian parliament has approved a national budget for 2021 that seeks to bring the economy back to 5 percent growth and hence revive government of Indonesia revenue, much uncertainty remains around fiscal transfers and local revenue collection this year (Sihombing, 2020b). Constrained fiscal conditions will present challenges in raising additional spending at the subnational level to fund ongoing COVID-19 contact tracing, surveillance, and testing, as well as the ability of subnational governments to finance operational costs of the COVID-19 vaccine campaign and COVID-19 prevention interventions. A set of fiscal space analyses conducted by HP+ in mid-2020 posited that earmarking more tobacco tax revenue at the local level and allocating the entirety of sugar beverage excise taxes to health when they are implemented will provide new fiscal space at the subnational level (Dutta et al., 2020). HP+ had estimated that these policies could release an additional IDR 15–19 trillion per year for the health sector. However, the specific amount that could be released at the subnational level might still not be enough for provinces like Jawa Tengah, which would face IDR 1.5 trillion in COVID-19 response costs in 2021 or 8 percent of its anticipated provincial-level budget, when it is traditionally only mandated to allocate 10 percent of its budget to health.

In the absence of additional supplementary funding for COVID-19, subnational governments that do not have sufficient budgetary space will face difficult choices in allocating their limited health sector budgets to COVID-19 interventions versus competing essential health programs. Hence, subnational governments will need to explore strategies to absorb the cost of local COVID-19 interventions. These strategies may need to involve private sector resources, for example, through public-private partnerships. Although the private sector is also expected to have constrained resources given the slowly recovering economy, one of the areas where the private sector can continue to contribute is in COVID-19 prevention, including hand-hygiene provisions in public and private locations, which is the second-greatest driver of subnational government budget needs for COVID-19.

Although the national government is expected to finance the procurement and distribution of vaccine doses to each province, the complementarity of subnational government financing for the local rollout of COVID-19 vaccines will be critical for the success of the campaign. Health workers on the islands of Jawa and Bali are expected to become the first priority population to receive the vaccine (Aditya and Ho, 2020). Effective vaccine rollout to healthcare workers across Indonesia has the potential to significantly reduce mortality among those immediately at highest risk, i.e., the frontline healthcare workforce. In the extended term when Indonesia will be rolling out universal vaccination, geographic barriers, social factors, and vaccine hesitancy will pose challenges in meeting vaccination targets among the general population and drive up operational costs of the campaign. HP+ recognizes that meeting the full needs of the ongoing COVID-19 vaccine campaign will require leveraging local partners and organizations across Indonesia as well as leveraging gains in service delivery efficiency that HP+ could not model due to data availability challenges.

Household Analysis

Estimating the Impact of COVID-19 on Healthcare Utilization and Financial Risk Protection for JKN-Insured Households

Indonesia's policy response to the COVID-19 pandemic and individual fears of nosocomial infection have led patients and their providers to postpone or cancel healthcare visits. If routine healthcare use is associated with some level of out-of-pocket health expenditure (OOPHE), this reduced utilization will produce temporary reductions in OOPHE. Yet, due to the pandemic-related reduction in economic activity, household incomes and hence consumption may have declined, and this may mean that some households are spending a greater share of their income (total value of consumption) on healthcare. This trend may be pronounced among the poorest households, which tend to see the largest reductions in consumption during recessions.

Research Question for Household-Level Analysis

How has healthcare utilization changed in response to COVID-19, and what are the implications for household out-of-pocket expenditure and catastrophic health expenditure in Indonesia?

HP+, in support of the Center for Health Financing and Insurance (Pusat Pembiayaan dan Jaminan Kesehatan or PPJK) at the Ministry of Health, estimated the COVID-19-related change in healthcare utilization and financial risk protection for households insured by JKN, with all results disaggregated by province. While data limitations prevented an analysis of households not insured by JKN, this currently represents only 17 percent of the Indonesian population. Findings from this analysis can be used to target efforts to maintain access to essential health services and household financial risk protection during the pandemic.

Approach

Estimating the pandemic-related change in healthcare utilization and financial risk protection required a multi-step analysis and various data sources. The estimated changes in healthcare utilization at the national level—including visits to primary care practices and inpatient and outpatient claims—are based on data from JKN's Monitoring and Evaluation System (*Sistem Monitoring dan Evaluasi JKN* or Sismonev) (DJSN, n.d.). To disaggregate these changes by province, HP+ used Google's COVID-19 Community Mobility Reports (Google, n.d.) for each province as a proxy for missing province-level data on utilization changes.

Applying the estimated change in healthcare utilization by province to the latest household expenditure data from the national socioeconomic survey (Survei Sosial Ekonomi Nasional or Susenas) (BPS, 2019) produced estimates of the average change in household OOPHE by province. HP+ used these estimates to calculate the change in the incidence of catastrophic health expenditure (CHE) by province, where OOPHE exceeding 10 percent of total household consumption was considered catastrophic. Since CHE incidence is affected by changes in both OOPHE and total household consumption, the analysis adjusted overall household consumption by per capita household consumption percentile based on estimates from Suryahadi et al. (2020).

This approach has several limitations. For example, province-level variation in the change in use of transit stations may not be a good proxy for province-level variation in the change in healthcare visits. The approach is also not sensitive to any changes to per-visit OOPHE that may have occurred since the period covered by the most recent Susenas (April 2018 to March 2019). A more accurate—though more time-intensive—approach to estimating the change in OOPHE and CHE incidence would have been to conduct a provincially representative household survey. A detailed explanation of the methodology, including a more detailed accounting of its limitations, is provided in Annex D.

Key Findings

The following summary of findings covers pandemic-related changes in healthcare utilization and financial risk protection at the national and provincial levels. See Annex D for complete results from each province.

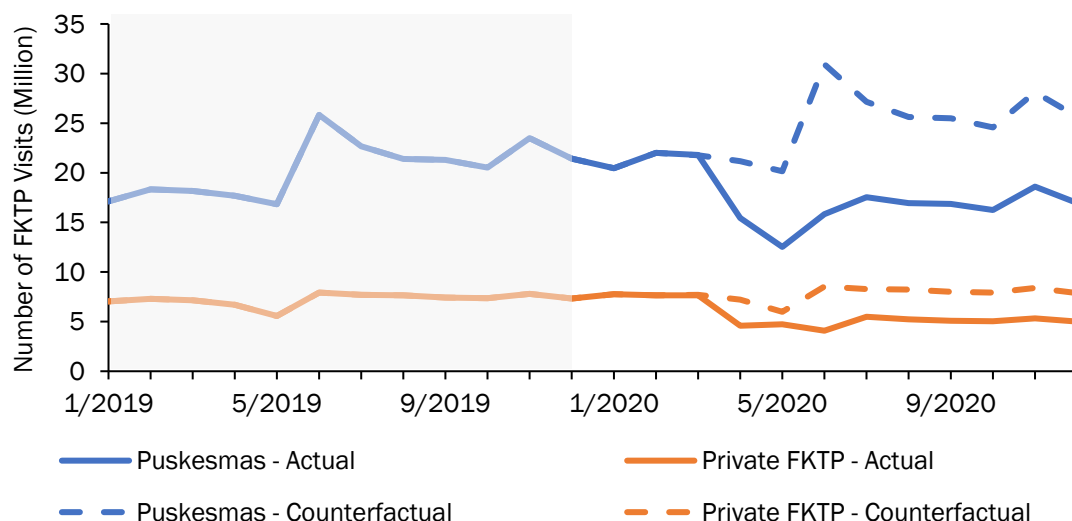
Healthcare Utilization

Primary care visits. HP+ estimates declines in annual visits to both public and private primary healthcare centers (*Fasilitas Kesehatan Tingkat Pertama* or FKTP) among JKN-insured households. Annual visits to public health centers (*Pusat Kesehatan Masyarakat* or puskesmas) at the national level were down 27.9 percent from where they would have been without COVID-19 (Figure 3). Based on observed changes in the use of transit stations by province, the estimated change in visits to puskesmas by province ranges from -44.0 percent in Bali to -12.9 percent in East Nusa Tenggara.

Visits to private FKTPs were down 27.7 percent relative to the counterfactual scenario in which the COVID-19 pandemic never occurred. At the province level, the change in visits to private primary care practices ranges from -43.7 percent in Bali to -12.8 percent in East Nusa Tenggara.

Figure 3. Number of FKTP Visits

JKN-Insured Households, Actual vs. Counterfactual Without COVID-19



Hospital visits. HP+ estimates a 35.5 percent drop in the volume of all outpatient claims relative to the counterfactual. This result is based on claims for the top 10 Indonesia case-based groups (INA-CBGs) from January 2019 to August 2020, as these are the only claim

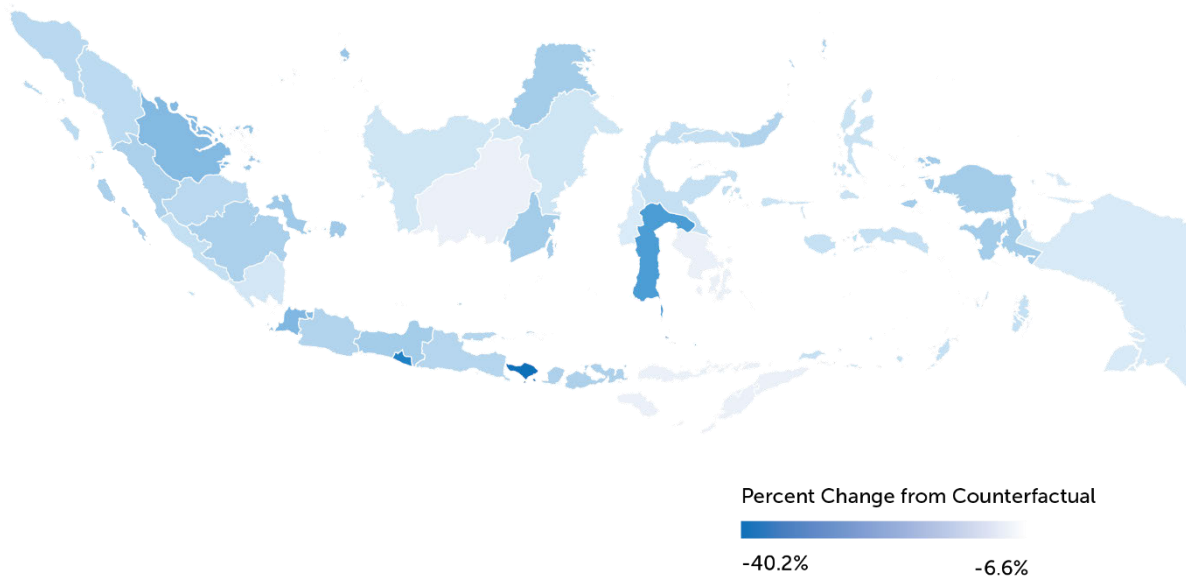
volumes reported by Sismonev.³ The estimate is driven largely by the percent change in cases for INA-CBG category **“other minor chronic diseases,”** which accounts for 65 percent of cases for the top 10 codes by caseload and is estimated to be down 33 percent.

For inpatient INA-CBG claims, HP+ estimates a 36.8 percent decline relative to the counterfactual. The 10 most common inpatient INA-CBGs are not consistent from January 2019 to August 2020, so results are based on the eight INA-CBGs that remain in the top 10 through the entire period.⁴ The number of cases in the **“miscellaneous abdominal pain and gastroenteritis”** category is estimated to have changed by -3 percent, while claims for **“neonatal care (birthweight > 2.5 kilograms) without major procedure”** changed by -74 percent.

Financial Risk Protection

Out-of-Pocket Health Expenditure. HP+ estimates a national-level decline of 19 percent in average OOPHE per JKN-insured household. This estimated change assumes fewer visits to primary care facilities and hospitals with other categories of healthcare spending unaffected. Estimates of changes to OOPHE at the province level range from -6.6 percent in East Nusa Tenggara to -40.2 percent in Bali (Figure 4). The interquartile range of the change in OOPHE is -13.5 percent to -18.9 percent.

Figure 4. Estimated Change in Out-of-Pocket Health Expenditure by Province
JKN-Insured Households, Actual vs. Counterfactual Without COVID-19

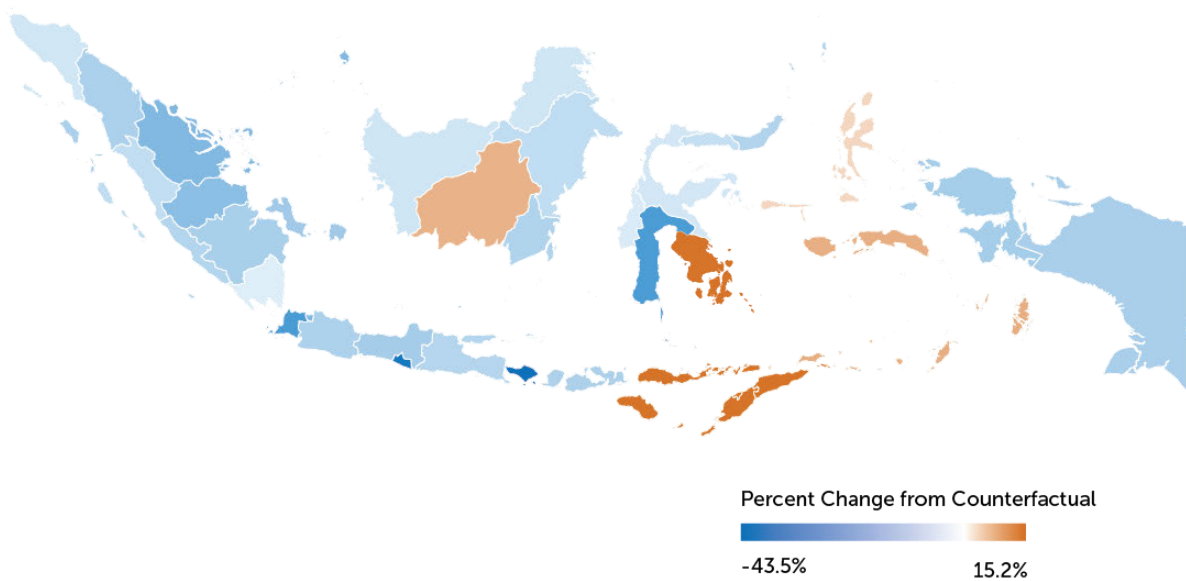


³ The top 10 outpatient INA-CBGs from January 2019 to August 2020 are consultation or examination, miscellaneous minor acute illness, miscellaneous minor chronic disease, wound care, dialysis, eye procedure, dental procedures, rehabilitation, physical therapy, and gynecological ultrasound.

⁴ The eight INA-CBGs consistently in the top 10 inpatient INA-CBGs from January 2019 to August 2020 are the lowest severity INA-CBGs for Caesarean section, non-bacterial infection, miscellaneous abdominal pain and gastroenteritis, bacterial infections, vaginal delivery, miscellaneous digestive system diagnosis, neonatal care (birthweight > 2.5 kilograms) without major procedure, and epiglottitis inflammation and laryngotracheitis.

Catastrophic Household Expenditure Incidence. At the national level, HP+ estimates that CHE incidence for 2020 is 14.8 percent lower than it would have been in the absence of COVID-19. This change reflects both declines in utilization of facility-based healthcare (which reduces household OOPHE) and declines in overall household consumption. The estimated change in CHE incidence by province ranges from an increase of 15.2 percent in Southeast Sulawesi to a decrease of 43.5 percent in Bali with an interquartile range of -17.5 percent to -7.8 percent (Figure 5). Six provinces see increases in CHE incidence despite the decrease in OOPHE: Southeast Sulawesi, East Nusa Tenggara, Maluku, Central Kalimantan, North Maluku, and Gorontalo.

Figure 5. Estimated Change in Catastrophic Health Expenditure Incidence by Province
JKN-Insured Households, Actual vs. Counterfactual Without COVID-19



Discussion

Data from Sismonev suggest that JKN members significantly reduced their healthcare utilization in 2020 due to the COVID-19 pandemic. Despite the policy prohibiting health facilities from charging JKN members user fees, JKN-insured households still reported, as of the most recent Susenas, significant facility-related OOPHE. HP+ therefore expected that the pandemic-related reduction in healthcare utilization would have led to a reduction in OOPHE with variation across provinces.

Though all provinces saw decreases in OOPHE—at least for facility-based care—the burden of health expenditure may have increased in some provinces. Poorer households in Indonesia are more likely to have experienced larger reductions in household consumption, meaning that OOPHE could make up a larger share of their household expenditure, all other things equal. Using a CHE threshold of 10 percent, HP+ found six provinces where it is expected that the COVID-19 pandemic will increase CHE incidence.

Policy Implications

Findings suggest the government of Indonesia must:

- Mitigate the decline in healthcare utilization
- Offset increased catastrophic health expenditure incidence
- Prioritize provinces by need/impact

To guarantee continued access to affordable healthcare, the government of Indonesia will need to address both health and financial barriers to access. Enforcing policies eliminating user fees for JKN members must be a priority and payments to healthcare providers must be sufficient to cover the cost of care without the need to resort to user fees. If these policies cannot be fully implemented given other constraints, the government could expand the use of existing mechanisms of cash transfers and social safety nets targeting poor households to offset the increased financial burden of using healthcare services.

The province-level results of this analysis could help the government of Indonesia better target interventions designed to increase healthcare utilization. While measures to reduce transmission should be targeted geographically and by population group, based on epidemiological data, reduced healthcare utilization may reflect a lack of confidence that nearby health facilities can effectively isolate COVID-19 patients or may reflect closures or reduced health facility capacity following a sharp decline in elective visits. The government can provide transportation subsidies to households as well as target grants and loans to strategically located health facilities to help them continue operations and improve their infection control measures. Because declines in healthcare utilization will translate into increased disease and death, the government should consider healthcare utilization as a **factor in prioritizing provinces' vaccine distribution efforts.**

References

- Aditya, A. and Y. Ho. 2020. “Younger People Get Vaccines First in Indonesia’s Unusual Rollout.” *Bloomberg News*, December 15, 2020. Available at: <https://www.bloomberg.com/news/articles/2020-12-15/younger-people-get-vaccines-first-in-indonesia-s-unusual-rollout>.
- Babigumira, J., A. Levin, C. Burgess, L. Garrison, C. Bauch, et al. 2011. “Assessing the Cost-Effectiveness of Measles Elimination in Uganda: Local Impact of a Global Eradication Program.” *The Journal of Infectious Diseases* 204(1): S116-S123.
- Badan Pusat Statistik (BPS). 2019. “Survei Sosial Ekonomi Nasional 2019 Maret.” Available at: <https://silastik.bps.go.id/v3/index.php/mikrodata/detail/M0tVNzBSbjZ6NThJekNNNGtjdUItUT09>.
- Data Commons. 2019. “Indonesia Population.” Data from datacatalog.worldbank.org. Available at: <https://datacommons.org/place/country/IDN>.
- Dewan Jaminan Sosial Nasional (DJSN). n.d. “Sistem Monitoring Terpadu.” Available at: <http://Sismonev.djsn.go.id/Sismonev.php>. Accessed November 30, 2020.
- Doshi, R. H., P. Eckhoff, A. Cheng, N. A. Hoff, P. Mukadi, et al. 2017. “Assessing the Cost-Effectiveness of Different Measles Vaccination Strategies for Children in the Democratic Republic of Congo.” *Vaccine* 35(45): 6,187–6,197.
- Dutta, A., K. Ward, E. Setiawan, and S. Prabhakaran. 2020. *Fiscal Space for Health in Indonesia: Public Sector Opportunities and Constraints in Achieving the Goals of Indonesia’s Mid-Term Development Plan (RPJMN) 2020–2024*. Jakarta: Kementerian PPN/Bappenas.
- Franedy, R. 2020. “Bye Corona! Vaksinasi COVID-19 di RI Mulai Awal November 2020.” *CNBC Indonesia*, October 12, 2020. Available at: <https://www.cnbcindonesia.com/tech/20201012070125-37-193519/bye-corona-vaksinasi-covid-19-di-ri-mulai-awal-november-2020>.
- Google. n.d. “COVID-19 Community Mobility Reports.” Available at: <https://www.google.com/covid19/mobility/>. Accessed November 30, 2020.
- Griffiths, U. K., F. M. Bozzani, C. Chansa, A. Kinghorn, P. Kalesha-Masumb, et al. 2016. “Costs of Introducing Pneumococcal, Rotavirus and a Second Dose of Measles Vaccine into the Zambian Immunisation Programme: Are Expansions Sustainable?” *Vaccine* 34(35): 4,213–4,220.
- Gu, Y. 2020. “COVID-19 Projections: Indonesia.” Last updated on October 6, 2020. Available at: <https://covid19-projections.com/indonesia>.
- Hirschmann, R. 2019. “Number of Adults in Indonesia 2010-2019.” Available at: <https://www.statista.com/statistics/667511/number-of-adults-in-indonesia/#:~:text=Number%20of%20adults%20in%20Indonesia%202010%2D2019&text=In%202019%2C%20there%20were%20just%20under%20173%20million%20adults%20in%20Indonesia>.

Institute for Health Metrics and Evaluation (IHME). 2020. “COVID-19: What’s New for June 25, 2020.” Available at:

https://www.healthdata.org/sites/default/files/files/Projects/COVID/Estimation_update_062520.pdf.

Institute for Health Metrics and Evaluation (IHME). 2021. “Indonesia: Daily Infections and Testing.” Available at: <https://covid19.healthdata.org/indonesia?view=infections-testing&tab=trend&test=infections>. Accessed January 29, 2021.

Johns Hopkins University & Medicine. 2020. “Coronavirus Resource Center: Mortality Analyses.” Available at: <https://coronavirus.jhu.edu/data/mortality>. Accessed December 18, 2020.

Kahkonen, S., A. Cox, P. Warjiyo, R. van Doorn, A. Shrivastava, et al. 2020. “Towards a Secure and Fast Recovery.” Available at:

<https://www.worldbank.org/en/country/indonesia/publication/indonesia-economic-prospect#2020>.

Komite Penanganan COVID-19 Dan Pemulihan Ekonomi Nasional (KPCPEN). 2021. “Peta Sebaran COVID-19.” Available at: <https://covid19.go.id/peta-sebaran-covid19>. Accessed January 29, 2021.

Kulisch, E. 2020 “UNICEF Plans COVID Vaccine Transport to Low-Income Countries.” *American Shipper*, December 6, 2020. Available at

<https://www.freightwaves.com/news/unicef-plans-covid-vaccine-transport-to-low-income-countries>.

Ritchie, H., E. Ortiz-Ospina, D. Beltekian, E. Mathieu, J. Hasell, et al. n.d. “Our World in Data.” Available at: <https://ourworldindata.org/coronavirus-testing#indonesia>. Accessed December 18, 2020. Based on Hasell, J., E. Mathieu, D. Beltekian, B. McDonald, C. Giattino, et al. 2020. “A Cross-Country Database of COVID-19 Testing.” *Scientific Data* (7)345.

Sihombing, G. 2020a. “Indonesia Sees Economy Contracting for First Time Since 1998.” *Bloomberg News*, September 22, 2020. Available at:

<https://www.bloomberg.com/news/articles/2020-09-22/indonesia-lowers-gdp-growth-estimate-to-1-7-to-0-6>.

Sihombing, G. 2020b. “Indonesia Parliament Approves 2021 Budget to Seek 5% Growth.” *Bloomberg News*, September 29, 2020. Available at:

<https://www.bloomberg.com/news/articles/2020-09-29/indonesia-parliament-approves-2021-spending-to-seek-5-growth>.

Suryahadi, A., R. Al Izzati, and D. Suryadarma. 2020. “Estimating the Impact of COVID-19 on Poverty in Indonesia.” *Bulletin of Indonesian Economic Studies* 56(2): 175-192.

Tan-Torres Edejer, T., O. Hanssen, A. Mirelman, P. Verboom, G. Lolong, et al. 2020.

“Projected Health-Care Resource Needs for an Effective Response to COVID-19 in 73 Low-Income and Middle-Income Countries: A Modelling Study.” *Lancet Global Health* 8(11): E1372–E1379. Supplementary Appendix available at:

[https://www.thelancet.com/cms/10.1016/S2214-109X\(20\)30383-1/attachment/d03c31e1-bd13-417f-8d2f-fdce01b11689/mmc1.pdf](https://www.thelancet.com/cms/10.1016/S2214-109X(20)30383-1/attachment/d03c31e1-bd13-417f-8d2f-fdce01b11689/mmc1.pdf).

UNICEF. 2020. “Handwashing Stations and Supplies for the COVID-19 Response.” UNICEF Fact Sheet. Available at:
<https://www.unicef.org/media/75706/file/Handwashing%20Facility%20Worksheet.pdf>.

Van Hoang, M., T. Nguyen, B. Kim, L. Dao, Nguyen, T., et al. 2008. “Cost of Providing the Expanded Programme on Immunization: Findings from a Facility-Based Study in Viet Nam, 2005.” *Bulletin of the World Health Organization* 86(6): 429–434.

World Health Organization (WHO). 2020a. “COVID-19 Essential Supplies Forecasting Tool.” Available at: <https://www.who.int/publications/m/item/covid-19-essential-supplies-forecasting-tool#:~:text=The%20WHO%20COVID%2D19%20Essential,current%20pandemic%20of%20COVID%2D19.>

World Health Organization (WHO). 2020b. “Recommendations to Member States to improve hand hygiene practices to help prevent the transmission of the COVID-19 virus: Interim guidance.” Available at:
[https://www.who.int/publications/i/item/recommendations-to-member-states-to-improve-hand-hygiene-practices-to-help-prevent-the-transmission-of-the-covid-19-virus.](https://www.who.int/publications/i/item/recommendations-to-member-states-to-improve-hand-hygiene-practices-to-help-prevent-the-transmission-of-the-covid-19-virus)

World Health Organization (WHO). 2020c. “WHO SAGE Roadmap for Prioritizing the Uses of COVID-19 Vaccines in The Context of Limited Supply.” Available at:
[https://www.who.int/docs/default-source/immunization/sage/covid/sage-prioritization-roadmap-covid19-vaccines.pdf?Status=Temp&sfvrsn=bf227443_2.](https://www.who.int/docs/default-source/immunization/sage/covid/sage-prioritization-roadmap-covid19-vaccines.pdf?Status=Temp&sfvrsn=bf227443_2)

Yulisman, L. 2020. “Mother and Daughter Test Positive for Coronavirus in Indonesia, First Confirmed Cases in the Country.” *The Straits Times*, March 2, 2020. Available at:
[https://www.straitstimes.com/asia/se-asia/indonesia-confirms-two-coronavirus-cases-president.](https://www.straitstimes.com/asia/se-asia/indonesia-confirms-two-coronavirus-cases-president)

Annex A. Detailed Methods and Summary of Estimated FY 2021 Budgetary Needs for Non-vaccine COVID-19 Interventions

1. The cost of providing handwashing stations and consumables to public facilities is estimated using unit cost estimates from UNICEF for handwashing stations and from WHO for hand-hygiene consumables (UNICEF, 2020; WHO, 2020a). For the quantity of handwashing stations, HP+ assumed that all public facilities in each province have at least two handwashing stations placed at the main entrance (as recommended by WHO) (WHO, 2020b). HP+ also assumed that alcohol-based hand rub will be provided throughout public facilities. For the quantity of hand-hygiene consumables needed for a five-month period, HP+ used the projected quantity in clinical facilities in the province using the WHO essential supply forecast tool and applied a multiplier assuming that the general public would use 40 percent less hygiene consumables compared to the clinical setting. Projections are not based on daily traffic of persons visiting public facilities, as such data are not available. Public facilities in these calculations include train stations, bus terminals, airports, seaports, schools, healthcare facilities, and markets.

2. The cost of communication campaigns is limited to the production and distribution of information, education, and communication materials and estimated using unit costs derived from the *Work Plan and Budget of State Ministries and Institutions (Rencana Kerja dan Anggaran Kementerian Negara/Lembaga or RKAKL)* for communication campaigns under the immunization program. It was assumed that public service announcements will be financed by the central government through direct contracts with national television and radio networks, and that no-cost or low-cost social media campaigns will be leveraged by local health authorities. The HP+ estimation assumes that at least two fliers or posters with COVID-19 prevention media and messaging contents will be placed at the entrance of every public building where handwashing stations will also be provided. HP+ did not model demand for such materials by province-level population or population density within the province.

3. The cost of surveillance activities is limited to manual contact tracing and estimated using transport and contact tracer per diem costs from RKAKL for surveillance activities under the immunization program. The number of contact tracers needed for a five-month period is estimated using the methods in Tan-Torres Edejer, et al. (2020). The HP+ estimation takes into account the provincial-level burden of disease but not variation in population density and distribution within the province.

4. The cost of provider incentives and death payments for a five-month period is estimated using payment amounts for public sector doctors and nurses according to COVID-19 policies. The number of healthcare providers activated for the COVID-19 clinical response is estimated at 60 percent of the total available healthcare workforce (doctors and nurses only) in each province. The number of deaths among healthcare workers is forecasted assuming (a) 1.3 percent of the population will become newly infected in the next five months, with (b) a case fatality rate of 3.7 percent, and (c) the probability of healthcare workers dying from COVID-19 can be reduced by 50 percent with the use of personal protective equipment and infectious disease control precautions in the clinical setting (Gu, 2020; Johns Hopkins, 2020; IHME, 2020). In practice, the central government of Indonesia also directly finances some of the incentive payment for providers working in national

hospitals; subnational governments are responsible only for financing incentive payments to providers working in lower-level hospitals. The healthcare workforce data HP+ used do not distinguish between national and subnational hospitals in the public sector. As a result, the analysis may have overestimated the cost of provider incentive payments to subnational governments.

5. The cost of COVID-testing sample transport is assumed to apply only to provinces with fewer than eight designated laboratories for COVID-19 testing. HP+ estimated the number of specimens in each province that will need to be referred to a designated lab in a neighboring province for the next five-month (21-week) period. The number of additional tests needed per week in each province is calculated by taking the difference between the number of people that should be tested to achieve the WHO recommendation of testing one per 1,000 population and the estimated current number tested per week based on the three-week national average daily test rate of 0.11 in November 2020 (Ritchie et al., n.d.). It is further assumed that only 30 percent of the specimens will be prioritized for referral due to limitations in flight **during an ongoing pandemic as well as the receiving laboratory's** strained capacity. Unit costs for sample transport is estimated based on the average distance between each district in the origin province and the capital of the destination province where the designated referral labs are presumed to be as well as known shipping costs from sample transport vendors in Indonesia. The estimated unit cost for sample transport varies for each applicable province.

Table A1. FY 2021 Budgetary Needs for Legally Mandated COVID-19 Interventions (IDR), by Province

Province	1. Handwashing Facility	2. Communication Campaign	3. Surveillance Activities	4. Healthcare Worker Incentive Payment	5. Healthcare Worker Death Compensation	6. COVID-19 Testing Sample Transport	Total 2021 Budget Needs (Non-Vaccine)
	Cost Input: Handwashing facilities (USD 250/unit), hand soap (USD 0.90/unit), alcohol-based hand rub (USD 8.30/unit), and closed trash bin (USD 15.86/unit)	Cost Input: Production and dissemination of IEC materials regarding COVID-19 prevention (IDR 15,000/unit)	Cost Input: Transportation (IDR 600,000–5,500,000/unit depending on region) and per diem (IDR 550,000/unit) for outreach workers	Cost Input: Provider incentive payment (IDR 5–15 million per person per month depending on cadre of healthcare worker)	Cost Input: Death compensation to families of healthcare workers (IDR 300 million per person)	Cost Input: Shipping cost (IDR 55,000–400,000/unit depending on origin and distance to destination laboratory)	
Aceh	66,102,865,506	349,140,000	3,129,000,000	170,212,500,000	7,500,000,000	973,853,731	247,293,505,506
Bali	30,571,273,266	219,660,000	7,040,250,000	213,825,000,000	9,600,000,000	-	261,256,183,266
Bangka Belitung	10,586,135,437	75,480,000	391,125,000	58,287,500,000	2,400,000,000	313,871,204	71,740,240,437
Banten	212,465,817,790	457,560,000	3,911,250,000	243,087,500,000	10,800,000,000	-	470,722,127,790
Bengkulu	19,263,459,901	139,920,000	782,250,000	63,425,000,000	3,000,000,000	-	86,610,629,901
DI Yogyakarta	27,956,137,243	190,380,000	1,955,625,000	225,187,500,000	10,200,000,000	-	265,489,642,243
DKI Jakarta	72,483,128,305	307,320,000	55,539,750,000	828,850,000,000	36,900,000,000	-	994,080,198,305
Gorontalo	17,603,690,237	94,080,000	2,346,750,000	36,750,000,000	1,500,000,000	3,511,123,140	58,294,520,237
Jambi	34,946,773,879	241,800,000	391,125,000	101,725,000,000	4,500,000,000	175,634,400	141,804,698,879
Jawa Barat	324,489,864,121	1,833,240,000	15,645,000,000	761,750,000,000	35,100,000,000	-	1,138,818,104,121
Jawa Tengah	389,300,175,800	1,876,140,000	17,209,500,000	986,637,500,000	46,200,000,000	-	1,441,223,315,800
Jawa Timur	341,881,663,448	1,792,140,000	35,983,500,000	1,007,912,500,000	46,200,000,000	-	1,433,769,803,448
Kalimantan Barat	87,178,016,773	397,140,000	782,250,000	92,625,000,000	4,200,000,000	3,113,965,960	185,182,406,773
Kalimantan Selatan	61,175,474,988	254,580,000	8,604,750,000	116,287,500,000	5,400,000,000	-	191,722,304,988
Kalimantan Tengah	55,564,042,570	257,100,000	3,129,000,000	65,362,500,000	3,000,000,000	893,630,848	127,312,642,570
Kalimantan Timur	35,093,410,381	190,920,000	6,258,000,000	120,337,500,000	5,400,000,000	-	167,279,830,381

Province	1. Handwashing Facility	2. Communication Campaign	3. Surveillance Activities	4. Healthcare Worker Incentive Payment	5. Healthcare Worker Death Compensation	6. COVID-19 Testing Sample Transport	Total 2021 Budget Needs (Non-Vaccine)
Kalimantan Utara	7,796,196,477	48,420,000	391,125,000	23,700,000,000	900,000,000	186,575,785	32,835,741,477
Kepulauan Riau	14,376,929,044	102,540,000	1,564,500,000	74,437,500,000	3,300,000,000	968,834,388	93,781,469,044
Lampung	77,548,612,382	463,560,000	782,250,000	157,400,000,000	7,200,000,000	-	243,394,422,382
Maluku	25,664,733,991	177,960,000	2,346,750,000	45,812,500,000	2,100,000,000	597,132,294	76,101,943,991
Maluku Utara	20,954,161,407	135,660,000	1,955,625,000	29,875,000,000	1,200,000,000	368,371,961	54,120,446,407
Nusa Tenggara Timur	78,175,652,782	479,160,000	391,125,000	61,637,500,000	2,700,000,000	1,470,238,821	143,383,437,782
Nusa Tenggara Barat	56,467,178,096	299,160,000	2,737,875,000	109,112,500,000	4,800,000,000	-	173,416,713,096
Papua	44,589,702,755	225,240,000	4,693,500,000	56,650,000,000	2,400,000,000	-	108,558,442,755
Papua Barat	17,710,735,293	96,900,000	1,564,500,000	27,625,000,000	1,200,000,000	-	48,197,135,293
Riau	49,461,611,018	327,240,000	5,084,625,000	139,675,000,000	6,300,000,000	1,149,036,078	200,848,476,018
Sulawesi Barat	18,121,498,166	127,620,000	391,125,000	21,187,500,000	900,000,000	553,315,722	40,727,743,166
Sulawesi Selatan	94,930,972,563	610,260,000	12,516,000,000	232,300,000,000	10,500,000,000	-	350,857,232,563
Sulawesi Tengah	46,482,174,870	272,580,000	391,125,000	77,087,500,000	3,600,000,000	493,015,804	127,833,379,870
Sulawesi Tenggara	118,999,253,544	243,240,000	1,955,625,000	73,350,000,000	3,300,000,000	3,750,305,584	197,848,118,544
Sulawesi Utara	32,097,888,932	213,780,000	3,911,250,000	94,587,500,000	4,200,000,000	670,938,740	135,010,418,932
Sumatera Barat	93,193,731,558	371,640,000	3,911,250,000	176,675,000,000	7,800,000,000	-	281,951,621,558
Sumatera Selatan	72,420,047,894	470,520,000	4,693,500,000	197,700,000,000	9,000,000,000	-	284,284,067,894
Sumatera Utara	290,773,083,871	916,020,000	8,604,750,000	278,950,000,000	12,000,000,000	-	591,243,853,871
Total	2,946,426,094,287	14,258,100,000	220,985,625,000	6,970,025,000,000	315,300,000,000	19,189,844,460	10,466,994,819,287
Minimum	7,796,196,477	48,420,000	391,125,000	21,187,500,000	900,000,000	175,634,400	32,835,741,477
Median	52,512,826,794	255,840,000	2,933,437,500	105,418,750,000	4,650,000,000	782,284,794.03	179,299,559,935
Maximum	389,300,175,800	1,876,140,000	55,539,750,000	1,007,912,500,000	46,200,000,000	3,750,305,584	1,441,223,315,800

Annex B. Detailed Methods and Summary of Estimated FY 2021 Budgetary Needs for COVID-19 Vaccine Rollout

Development of the scenarios: Two simple scenarios were initially developed focusing on an initial vaccine campaign prioritizing healthcare workers, which was emerging in the global public health community in fall 2020 as the consensus for first-wave prioritization, and eventually expanding to universal vaccination among the general public. As more details emerged in October 2020 **on Indonesia's plan to prioritize a broader set of frontline workers**, HP+ added a second, intermediate scenario for a vaccination campaign prioritizing healthcare workers, the army, police, and teachers. The analysis did not model additional intermediate scenarios involving other population groups, mindful that more details would emerge from the government of Indonesia's **vaccination strategy as time goes by and vaccine orders are firmed up**. For example, by late December 2020, the government of Indonesia had expanded its vaccination strategy for 2021 to include the younger and working population at large. The simple scenarios provided in this analysis will inform planning efforts at the subnational level for the initial COVID-19 vaccine campaign and provide an analytical model for the government to adapt for further use. The government of Indonesia will be in a better position to update this analysis with their latest information on updated vaccine strategies and available local data.

Selection of reference unit costs: Reference unit costs were taken from existing literature in the Immunization Delivery Cost Catalogue as not enough is known at the time this analysis was developed about effective vaccine candidates and any special operational requirement (e.g., ultra-cold storage requirements). HP+ assumed that the eventual COVID-19 vaccine would be a one-to-two dose vaccine requiring normal cold chain storage and searched the catalogue for vaccine campaigns that would match each of the scenarios while taking into account potential cost-efficiency achieved by scale and delivery setting.

Target population for scenario 1 is limited to doctors and nurses working in designated COVID-19 hospitals in each province assuming that the initial supply of vaccines will be very limited and may need to be prioritized to specific cadres of healthcare workers in the foremost frontline of the clinical COVID-19 response. The total number of doctors and nurses in each province in both the public and private sectors are sourced from the Ministry of Health. As the number of doctors and nurses activated for COVID-19 clinical response cannot be ascertained, HP+ applied the assumption that up to 60 percent of the healthcare workforce can be activated for COVID-19. The reference unit cost (USD 0.96 per fully vaccinated person) used in this scenario was from a 2014 Zambia costing study for facility-based measles vaccine delivery (Griffiths et al., 2016). Cost inputs include introductory cost including cold chain storage investment, social mobilization, training, transport, and monitoring and evaluation.

Target population for scenario 2 is limited to all doctors and nurses, the army, the police, and teachers in each province and does not include all other frontline workers such as paramedics due to limited data availability. Assuming that scenario 2 will be a multi-setting targeted campaign, the unit cost would be higher than the facility-based unit cost in scenario 1. The reference unit cost (USD 1.72 per fully vaccinated person) used in this scenario is from a 2013 costing study in Congo for a measles vaccine campaign. Cost inputs include

transportation, cold chain, personnel, social mobilization, planning/training, and supervision (Doshi et al., 2017).

Target population for scenario 3 assumes 80 percent of the adults and children in Indonesia will need to be vaccinated to achieve prevention effects in the overall population. HP+ assumes that 65 percent of the provincial population are adults (based on a 2019 estimate that there are 173 million adults in Indonesia while the national population is 267.7 million) and the remaining 35 percent are children (Hirschmann, 2019; Data Commons, 2019). Adults will need to receive vaccines through a targeted campaign in a mix of facility- and community-based settings, which may have a similar unit cost as scenario 2 but slightly lower due to potential economies of scale. The unit cost (USD 1.24 per fully vaccinated person) used to estimate the cost of vaccinating adults was from a 2011 Uganda costing study for a measles vaccine campaign (Babigumira et al., 2011). Assuming COVID-19 vaccines can be integrated into the routine childhood immunization program, the unit cost for service delivery per child vaccinated is expected to be significantly lower. The unit cost (USD 0.74 per fully vaccinated child) used for estimating the cost of vaccinating children is from a 2005 Vietnamese study of providing the measles vaccine as part of a routinized vaccine program (Van Hoang et al., 2008).

Limitations: There are three limitations in this analysis. First, target populations included in scenarios 1 and 2 are restricted to specific cadres of healthcare and other frontline workers, which likely resulted in a much smaller estimation of the target population size compared to that anticipated by **Indonesia's evolving vaccine priority plans**. HP+ was not able to obtain enumeration data on the excluded cadres of healthcare and other frontline workers at the provincial level. Second, in the absence of information on the vaccine candidate that will be used in Indonesia and support system requirements such as cold storage and provider training, this analysis relied on assumptions on dosage requirements, cold chain needs, delivery settings, and referenced unit costs of existing vaccine campaigns meeting the assumed characteristics. WHO and UNICEF have since released in December 2020 an estimated average vaccine price of USD 10.55 per dose for a two-dose regimen through COVAX (COVID-19 Vaccines Global Access). An additional 15 percent to 20 percent will be required for the costs of injection consumables and service delivery (Kulisch, 2020). Without including the additional costs from cold chain infrastructure requirements or additional normal cold chain capacity to store the surge of COVID-19 vaccines, the WHO-estimated operational cost for each fully vaccinated person is already expected to exceed the unit price referenced in this analysis.⁵ The WHO estimate is higher than the HP+ estimate perhaps due to the inclusion of injection consumables in the WHO analysis; the HP+ analysis assumes injection consumables would be financed by the central government along with procurement of the vaccines and would not incur additional costs to subnational governments. Third, due to data availability challenges, the additional resources required to vaccinate geographically hard-to-reach populations across the vast Indonesian archipelago and to conduct targeted communication campaigns to overcome potential vaccine hesitation cannot be modeled in this analysis. To account for the cost increase incurred by overcoming geographic barriers, HP+ tried to develop a multiplier for the last-mile rollout of the COVID-19 vaccine. Unfortunately, HP+ was not able to quickly find publicly available provincial-level data on road infrastructure, average distance to health facility, population density, or presence of geographical barriers such as mountains or large water bodies. For vaccine hesitancy, HP+ checked both country (e.g., Badan Pusat Statistik) and global survey results

⁵ WHO-estimated operational cost is USD 1.06 to 2.11 per dose, with the cost per fully vaccinated person expected to be higher.

but could not find an estimate on the COVID-19 vaccine acceptance rate among the Indonesian general population. The results of the HP+ analysis therefore should be regarded as lower-end estimates for rapid planning purposes in the absence of more precise information.

Table B1. Estimated Operational Costs of Upcoming COVID-19 Vaccine Campaigns, by Province (IDR)

Estimate by Province (in IDR)	Scenario 1: Prioritizing Healthcare Workers	Scenario 2: Prioritizing Select Frontline Workers	Scenario 3: Universal Vaccination
	<i>Target population:</i> Doctors and nurses in designated COVID-19 hospitals <i>Delivery setting:</i> Facility <i>Reference unit cost:</i> USD 0.94 per fully vaccinated person	<i>Target population:</i> Doctors and nurses in both public and private sectors, the army, the police, teachers <i>Delivery setting:</i> Campaign <i>Reference unit cost:</i> USD 1.72 per fully vaccinated person	<i>Target population:</i> Children and adults in the general population <i>Delivery setting:</i> Routine immunization for children, campaign for adults <i>Reference unit cost:</i> USD 0.74 per fully vaccinated child; USD 1.24 per fully vaccinated adult
Aceh	56,520,852	3,336,004,636	70,521,907,034
Bali	70,163,816	1,513,180,596	8,611,608,092
Bangka Belitung	19,646,437	687,092,921	18,670,312,766
Banten	80,193,315	4,682,780,804	166,161,632,471
Bengkulu	21,908,410	914,957,959	5,068,635,218
DI Yogyakarta	75,242,583	1,495,179,799	5,553,187,710
DKI Jakarta	270,241,655	4,203,250,420	135,985,885,519
Gorontalo	12,490,639	636,511,816	16,708,450,182
Jambi	34,683,573	1,490,593,384	7,906,167,439
Jawa Barat	257,438,039	18,122,682,823	630,531,852,720
Jawa Tengah	337,802,069	14,074,101,213	441,146,295,299
Jawa Timur	339,167,788	16,082,178,444	504,508,080,081
Kalimantan Barat	31,895,230	2,382,502,337	64,830,896,222
Kalimantan Selatan	39,620,078	2,046,010,092	54,341,391,552
Kalimantan Tengah	22,150,256	1,536,988,477	33,827,011,210
Kalimantan Timur	40,502,105	1,956,349,200	57,595,057,120
Kalimantan Utara	7,568,360	413,041,472	8,878,618,257
Kepulauan Riau	24,938,599	1,020,364,667	28,309,541,854
Lampung	52,750,898	3,984,468,412	107,586,864,706
Maluku	16,146,782	1,126,410,017	23,129,181,037
Maluku Utara	10,157,535	758,108,158	16,145,857,694
Nusa Tenggara Timur	21,239,776	3,356,682,464	69,964,541,623
Nusa Tenggara Barat	36,888,640	2,817,135,870	64,714,738,973
Papua	19,148,519	2,028,774,237	112,963,228,255

Estimate by Province (in IDR)	Scenario 1: Prioritizing Healthcare Workers	Scenario 2: Prioritizing Select Frontline Workers	Scenario 3: Universal Vaccination
Papua Barat	9,332,413	640,684,405	23,273,758,936
Riau	45,979,208	3,402,324,682	86,989,960,950
Sulawesi Barat	7,013,536	840,450,073	19,608,000,273
Sulawesi Selatan	78,329,677	4,605,800,648	111,353,137,266
Sulawesi Tengah	26,560,390	1,707,500,742	39,102,065,436
Sulawesi Tenggara	25,379,612	3,815,468,505	249,853,132,820
Sulawesi Utara	31,084,334	1,282,499,096	31,928,092,694
Sumatera Barat	58,981,991	3,034,029,265	69,426,683,054
Sumatera Selatan	67,517,735	4,053,664,201	108,176,489,005
Sumatera Utara	89,539,955	7,076,059,382	185,643,273,858
Total	2,338,224,806	121,123,831,218	3,579,015,537,328

Annex C. Detailed Methods and Summary of Estimated FY 2021 Subnational Government Budgets

Subnational budget data for districts from 2015 through 2018 were sourced from the Ministry of Finance website. Revenue lines for each province and their constituent districts are rolled up to the provincial level for each year. Total revenue includes locally generated revenue, balance funds, and other legal regional income such as grants. HP+ was not able to obtain the revised provincial and district-level budgets for 2019 and 2020 for this analysis. Assuming that subnational government budgets would follow the same trend observed in macroeconomic conditions, HP+ projected the expected subnational government revenue for 2019 using actual central government revenue for 2018 and 2019 published by the World Bank. HP+ modeled 2020–2021 subnational government revenue based on changes in macroeconomic projections made by the World Bank for the same period. Table C1 summarizes the estimated FY 2021 subnational government budget by province.

A previous version of this analysis that was presented to stakeholders in Indonesia was modeled after macroeconomic projections made by HP+ in a fiscal space analysis conducted in mid-2020 based on assumptions that were available then (Dutta et al., 2020). In the HP+ fiscal space analysis, central government revenue as a percent of GDP was expected to be 13.5 percent in 2019, to fall to 10.3 percent in 2020, and to rise to 11.8 percent in 2021. Recovery in central government revenue and transfers to local governments were based on cautiously optimistic projections, which assumed growth (and hence revenue) recovery in 2021 and a return to pre-COVID-19 baseline in transfers by 2022. Projections by the World Bank in December 2020 were more conservative: central government revenue as a percent of GDP was expected to fall from 12.4 percent in 2019 to 9.8 percent in 2020, remain at a similar level (9.9 percent) in 2021 as the economy begins to rebound, and slowly rise to 10.4 percent in 2022 (Kahkonen et al., 2020).

Table C1. Estimated FY 2021 Available Budget (IDR), by Province

Province	FY 2021 Estimated Available Budget (IDR)
Aceh	10,903,439,118,352
Bali	4,730,361,780,389
Bangka Belitung	1,932,372,469,317
Banten	7,799,360,805,478
Bengkulu	2,155,183,358,301
DI Yogyakarta	4,113,547,597,762
DKI Jakarta	46,277,455,343,631
Gorontalo	1,360,457,774,262
Jambi	3,334,610,625,671
Jawa Barat	25,633,459,398,492
Jawa Tengah	18,668,164,128,761
Jawa Timur	24,137,248,477,594
Kalimantan Barat	4,277,448,876,260
Kalimantan Selatan	4,982,226,386,767

Province	FY 2021 Estimated Available Budget (IDR)
Kalimantan Tengah	3,535,401,602,344
Kalimantan Timur	8,063,242,270,098
Kalimantan Utara	1,829,356,709,770
Kepulauan Riau	2,645,043,627,526
Lampung	5,364,880,768,074
Maluku	2,323,558,808,388
Maluku Utara	1,881,050,952,121
Nusa Tenggara Barat	3,734,224,812,887
Nusa Tenggara Timur	3,613,190,124,403
Papua	10,191,753,159,216
Papua Barat	5,524,228,866,912
Riau	6,407,787,110,471
Sulawesi Barat	1,374,728,808,863
Sulawesi Selatan	6,992,137,192,942
Sulawesi Tengah	2,933,081,372,904
Sulawesi Tenggara	2,860,845,002,051
Sulawesi Utara	2,856,476,262,671
Sumatera Barat	4,755,240,270,775
Sumatera Selatan	6,908,364,642,098
Sumatera Utara	9,600,021,375,582

Annex D. Detailed Methodology for Household Analysis

Healthcare utilization. Sismonev reports the number of monthly primary care visits by JKN members for a few different facility types and the number of claims by INA-CBG for the top 10 inpatient and outpatient INA-CBGs by volume (DJSN, n.d.). To construct the counterfactual of 2020 visits and claims, HP+ projected trends in 2019 visits and claims into 2020.

Because there were no reported cases of COVID-19 in Indonesia before March 2020, HP+ assumed that the number of visits and claims in January and February of 2020 were unaffected by the COVID-19 pandemic. The analysis then took the average of the percent change in monthly visits and claims from January 2019 to January 2020 and from February 2019 to February 2020 and assumed that this percent change would have held constant through the year in the absence of COVID-19. For example, puskesmas visits in January 2020 were 19.5 percent higher in January 2020 than in January 2019 and 20.1 percent higher in February 2020 than in February 2019. For March through December of 2020, **HP+'s** counterfactual visits to puskesmas were therefore 19.8 (an average of 19.5 and 20.1) percent higher than in 2019.

For inpatient and outpatient claims, Sismonev reports only the number of claims for the top 10 INA-CBGs in each month. For outpatient cases, the top 10 INA-CBGs remained consistent from January 2019 to August 2020. For inpatient cases, eight codes remained in the top 10 from January 2019 to August 2020. Overall changes in inpatient and outpatient claims were calculated from the volumes observed for this subset of cases.

At the time of this analysis, Sismonev's most recent results were from August 2020, so the actual number of visits and claims for the last four months of 2020 had to be forecasted. HP+ assumed that the same percent change in the number of monthly visits and claims from August 2019 to August 2020 held for September 2019 to September 2020, October 2019 to October 2020, and so on. For example, the number of visits to puskesmas in August 2020 was 20.8 percent lower than in August 2019, so HP+ assumed that the number of visits from September through December of 2020 was also 20.8 percent lower than in September through December of 2019. This assumption is consistent with projected changes in mobility from the Institute for Health Metrics and Evaluation, which indicate only very limited changes in social distancing through this period, ranging from -14 percent to -19 percent compared to the same months in 2019 (IHME, 2020).

Because Sismonev only reports the number of visits and claims at the national level, HP+ had to create a proxy for the ratio of **each province's number of healthcare visits and claims** to the national-level number of visits and claims. **Google's COVID-19 Community Mobility Reports** provide the difference in mobility between a given day in 2020 and the corresponding day in 2019 (e.g., the first Monday of 2020 compared to the first Monday of 2019) based on location data collected from mobile devices (Google, n.d.). These data are disaggregated for different types of locations, such as transit stations, grocery stores, parks, etc. and are available for every province in Indonesia. The list of locations does not include health facilities. At the national level, changes in the use of transit stations most nearly approximated the estimated pandemic-related changes in visits to healthcare facilities, so HP+ used relative use of transit stations as its proxy.

Change in healthcare utilization by province is listed in Table D1.

Limitations and areas for improvement. Limitations in access to data required HP+ to make several assumptions discussed in the methodology described above. Suggestions for improvement are proposed:

1. *JKN internal projections*: The counterfactual estimates of JKN visits and claims for 2020 were **constructed based on several assumptions. If made available, JKN's** internal projections from before the pandemic may serve as a better counterfactual.
2. *Visit and claims data for September 2020 to December 2020*: HP+ projected actual visits and claims for September through December because data for these months was not available at the time of the analysis. These projections should be replaced with actual data once available on the Sismonev platform.
3. *Complete claims for 2020*: Estimates of inpatient and outpatient claims—and ultimately hospital visits—are based on the subset of INA-CBGs reported on Sismonev, which may not be representative of the overall changes in claims. With access to the number of claims for all INA-CBGs, the estimated pandemic-related change in the number of claims would be more precise.
4. *Province-level visit and claims for 2020*: HP+ used Google mobility data on the use of transit stations to create a proxy for the ratio of province-level healthcare utilization to national-level health utilization for each province, as Sismonev does not currently produce province-level data on visits and claims.
5. *Susenas for March 2020*: HP+ used household healthcare spending data from April 2018 to March 2018 (the period covered by the most recent Susenas). The analysis should be updated with healthcare spending data from the next Susenas (covering April 2019 to March 2020) when possible.
6. *Linking Susenas to Sismonev*: If Susenas and Sismonev could be linked by INA-CBG, HP+ could more accurately project which households would see declines in utilization rather than randomly selecting households to forego care. However, Susenas does not ask for details on the purpose of health visits and Sismonev provides only the number of claims by INA-CBG for the codes with the ten highest caseloads.
7. *Data for all healthcare services*: About 30 percent of OOPHE in Susenas was for healthcare services other than visits to public and private hospitals, puskesmas, and private FKTP. Other categories of spending included visits to traditional medicine provider, purchases of medicines, and purchases of family planning products. HP+ assumed that out-of-pocket spending on these categories remained constant as a share of household consumption, but the analysis could be improved with data on utilization or expenditure on additional categories.
8. *Change in household consumption*: Suryahadi et al. (2020) estimated the pandemic-related change in household consumption by household consumption percentile **using data from Indonesia's 2005 fuel price shock**. Because the distributional impact of the current economic shock may be substantially different, this analysis should be updated with actual data on 2020 household consumption when made available.

Table D1. Changes in Healthcare Utilization Due to COVID-19

Province	Puskesmas Visits (%)	Private FKTP Visits (%)	Outpatient Claims (%)	Inpatient Claims (%)
National	-27.9	-27.7	-33.3	-36.8
Aceh	-19.6	-19.4	-23.3	-25.8
Bali	-44.0	-43.7	-52.5	-58.0
Bangka Belitung Is.	-27.8	-27.6	-33.2	-36.7
Banten	-31.7	-31.5	-37.8	-41.8
Bengkulu	-19.9	-19.7	-23.7	-26.2
Central Java	-21.8	-21.6	-26.0	-28.7
Central Kalimantan	-15.2	-15.1	-18.1	-20.0
Central Sulawesi	-22.3	-22.1	-26.5	-29.3
DI Yogyakarta	-37.6	-37.3	-44.8	-49.5
DKI Jakarta	-30.4	-30.1	-36.2	-40.0
East Java	-23.9	-23.7	-28.5	-31.5
East Kalimantan	-22.9	-22.7	-27.3	-30.1
East Nusa Tenggara	-12.9	-12.8	-15.4	-17.0
Gorontalo	-21.3	-21.1	-25.4	-28.0
Jambi	-21.8	-21.6	-26.0	-28.7
Lampung	-19.9	-19.7	-23.7	-26.2
Maluku	-23.7	-23.5	-28.2	-31.1
North Kalimantan	-19.4	-19.2	-23.1	-25.5
North Maluku	-19.8	-19.6	-23.6	-26.1
North Sulawesi	-23.2	-23.0	-27.7	-30.6
North Sumatra	-22.5	-22.3	-26.9	-29.7
Papua	-20.3	-20.1	-24.2	-26.7
Riau	-26.9	-26.7	-32.1	-35.5
Riau Islands	-37.0	-36.7	-44.2	-48.8
South Kalimantan	-23.4	-23.2	-27.9	-30.9
South Sulawesi	-29.2	-29.0	-34.8	-38.5
South Sumatra	-26.3	-26.1	-31.4	-34.7
Southeast Sulawesi	-16.1	-16.0	-19.2	-21.2
West Java	-21.2	-21.0	-25.3	-27.9
West Kalimantan	-26.1	-25.9	-31.1	-34.4
West Nusa Tenggara	-27.5	-27.3	-32.8	-36.2
West Papua	-29.1	-28.8	-34.7	-38.3
West Sulawesi	-17.8	-17.7	-21.2	-23.4
West Sumatra	-25.2	-25.0	-30.1	-33.2

Financial risk protection. To understand how estimated changes in healthcare utilization are affecting OOPHE, HP+ used Indonesia's Susenas, which collects household-level expenditure data representative at the province level (BPS, 2019). These data are disaggregated by category of expenditure and include the amount each household spent on different types of healthcare, including health visits to puskesmas, private FKTP, and public and private hospitals. The most recently published Susenas data were collected in March 2019 and therefore reflect spending from April 2018 to March 2019. HP+ assumed that, in the absence of COVID-19, healthcare spending as a share of household consumption for the surveyed JKN-insured households and the distribution of this spending by category (e.g., the percent spent on visits to primary care clinics, visits to hospitals, medication, etc.) would be the same from January 2020 to December 2020 as it was for April 2018 to March 2019.

To determine the average change in OOPHE per household in each province, HP+ applied the estimated reductions in visits to puskesmas, private primary care clinics, and public and private hospitals to the Susenas 2019 data (using the average of the reduction in inpatient and outpatient claims as a proxy for the change in visits to both private and public hospitals). For each province, HP+ randomly selected households to forego all healthcare visits and therefore all OOPHE on healthcare visits. For example, in Aceh, visits to puskesmas were estimated to be 19.6 percent lower than the counterfactual. HP+ therefore randomly selected 19.6 percent of households in Aceh to reduce their spending on visits at puskesmas to zero. The same process was repeated for private primary care facilities and hospitals.

Finally, HP+ estimated the pandemic-related change in incidence of CHE by province, using a threshold of 10 percent of overall household consumption. To estimate the pandemic-related change in overall household consumption, HP+ applied results from a recently published analysis of the change in overall household consumption by per capita household consumption percentile for a given 2020 GDP growth rate (Suryahadi et al., 2020). HP+ updated this analysis with a recent projection that Indonesia would experience a 1.6 percent GDP contraction in 2020 (Kahkonen et al., 2020). After applying the distributional impact on overall consumption to the households in Susenas 2019, HP+ estimated the change in CHE incidence by province.

Table D2 provides the percent change in OOPHE and CHE incidence by province.

Table D2. Changes in Healthcare Expenditure Due to COVID-19

Province	Change in OOPHE (%)	Change in CHE Incidence (%)
National	-19.0	-14.8
Aceh	-15.9	-8.1
Bali	-40.2	-43.5
Bangka Belitung Is.	-19.1	-18.0
Banten	-23.2	-30.1
Bengkulu	-14.5	-12.9
Central Java	-18.6	-15.1
Central Kalimantan	-7.7	8.2
Central Sulawesi	-14.3	-7.5
DI Yogyakarta	-35.9	-40.3
DKI Jakarta	-22.6	-35.1
East Java	-16.5	-12.5
East Kalimantan	-13.3	-10.7
East Nusa Tenggara	-6.6	12.8
Gorontalo	-14.0	0.2
Jambi	-15.8	-19.5
Lampung	-12.5	-5.6
Maluku	-14.1	8.8
North Kalimantan	-18.9	-9.0
North Maluku	-13.5	4.4
North Sulawesi	-16.9	-8.0
North Sumatra	-15.6	-14.1
Papua	-11.8	-14.5
Riau	-22.9	-21.3
Riau Islands	-19.8	-35.0
South Kalimantan	-15.1	-13.5
South Sulawesi	-29.7	-14.1
South Sumatra	-17.5	-14.6
Southeast Sulawesi	-7.2	15.2
West Java	-16.9	-14.0
West Kalimantan	-13.0	-9.0
West Nusa Tenggara	-17.3	-16.5
West Papua	-18.6	-15.3
West Sulawesi	-11.5	-4.7
West Sumatra	-16.6	-10.6

For more information, contact:

Health Policy Plus

Palladium

1331 Pennsylvania Ave NW, Suite 600

Washington, DC 20004

Tel: (202) 775-9680

Fax: (202) 775-9694

Email: policyinfo@thepalladiumgroup.com

www.healthpolicyplus.com

Cover photo: Oscar Siagian/ USAID-JALIN

