



# Modifying Payment Systems to Improve Outcome of Tuberculosis Treatment: A Paper-based Payment Simulation

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# BACKGROUND

- Indonesia ranks second in TB disease burden globally.
  - Challenges in TB control due to under-detection and under-reporting
  - Significant number of “missing cases” (244,691 patients)
- Additional incentives can positively influence providers’ behaviour to improve TB services and enhance compliance with guidelines.
- The study, which was initiated in 2020, aimed to simulate a pay-for-performance (P4P) model in TB service delivery, with “strict” (P4P) and “flexible” payment scenarios based on guideline adherence, using TB service delivery data in 2019 in one Puskesmas and one clinic in Medan

# METHODOLOGY



Data  
Sources

Data  
imputation

Claims  
status

Tariff  
calculation

- 2019 TB reports (*Sistem Informasi TB – SITT*) from one Puskesmas (360 patients) and one private clinic (12 patients) in Medan, using forms TB06 (diagnosis phase) and TB03 (treatment phase)

- Patient identifiers removed
- Service provided
- Date of service provision
- Treatment phase
- Type of provider

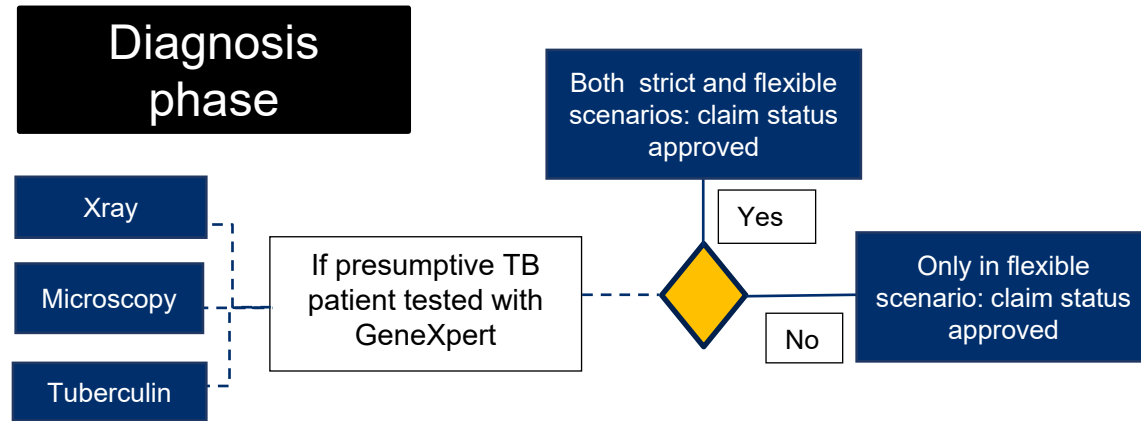
- Determine claim status based on TB guideline
- If NOT following the guidelines, → claim status in strict scenario is “Rejected”; claims status in flexible scenario “Approved”
- If following the guidelines → claim status in strict scenario is “Approved”; claim status in flexible scenario is “Approved”

- Model input tariff applied under “old scenario”, “strict scenario”, and “flexible scenario”
- Calculate gap between strict and old tariff; as well as flexible and old tariff
- Sum up gap/revenue of each phase of each provider

The strict scenario is when providers are only paid for providing TB services exactly according to TB guidelines. The flexible scenario is when providers are paid for all provided TB services.

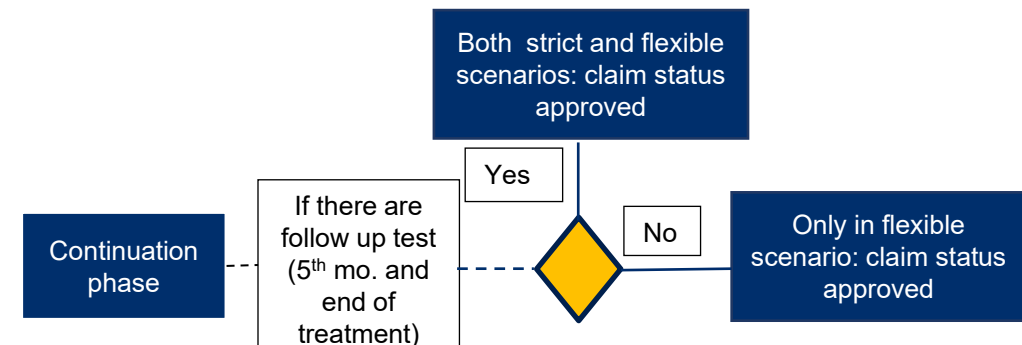
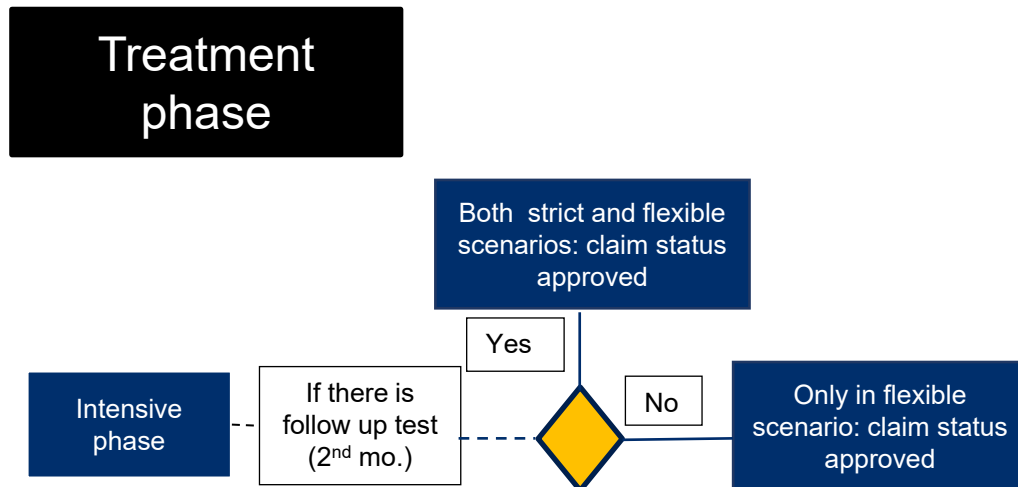
# METHODOLOGY

## Rules Applied to Determine Claim Status



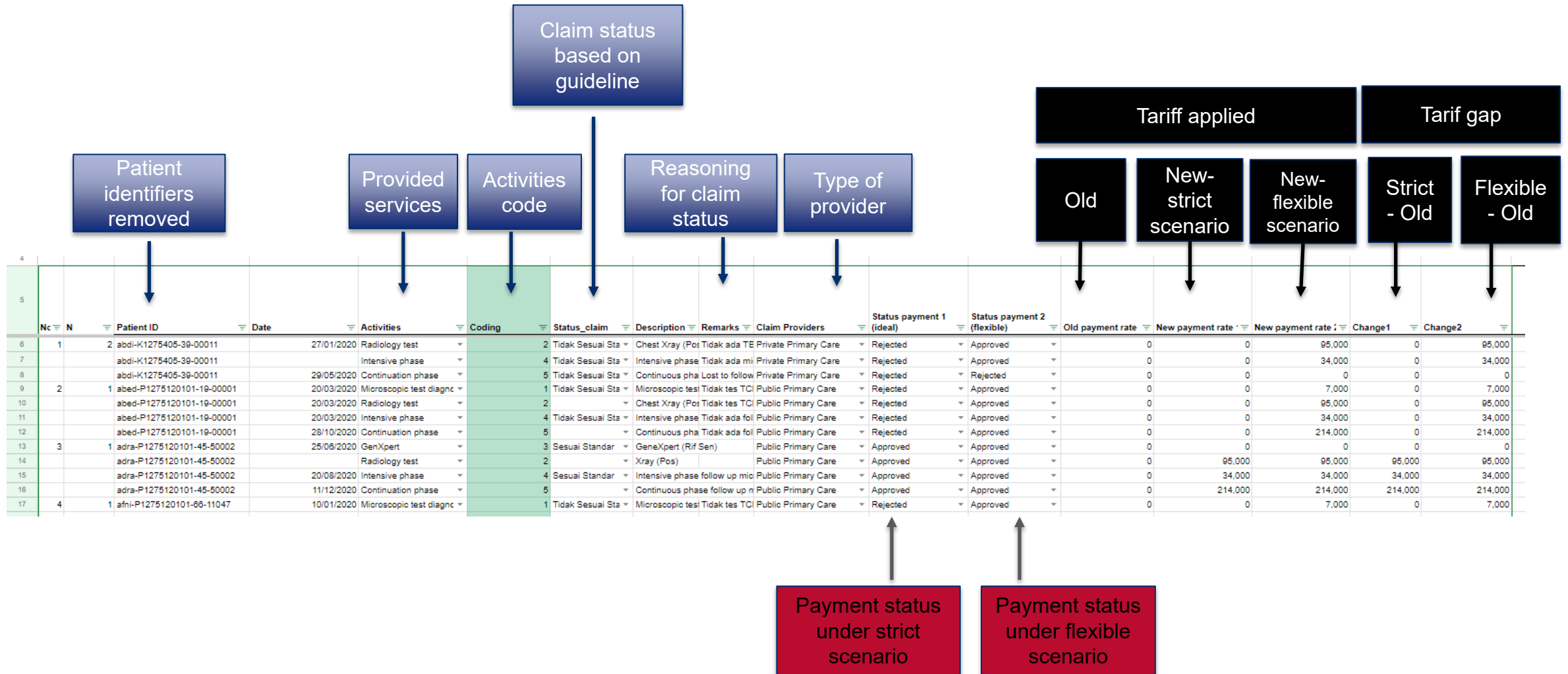
The 'strict scenario' is when providers are only paid for providing TB services exactly according to TB guidelines

The 'flexible scenario' is when providers are paid for all provided TB services



# METHODOLOGY

## Simulation Model



# METHODOLOGY

## Tariff Applied

Activities	Strict scenario	Flexible scenario	Tariff (old scenario)	Tariff (covered by JKN under SHP pilot scheme)	Remarks
Outpatient visit	no extra reimbursement; covered by capitation	no extra reimbursement; covered by capitation	0	0	
GeneXpert test	GeneXpert as first line diagnostic is covered by national budget and the Global Fund	GeneXpert as first line diagnostic is covered by national budget and the Global Fund	0	0	
Microscopy test diagnostic	Eligible for reimbursement, if, provider also uses GeneXpert for diagnostic testing	Eligible for reimbursement	0	7,000	Service fee only (the supplies are provided by the Government)
Tuberculin test	Eligible for reimbursement if provider also uses GeneXpert for diagnostic testing	Eligible for reimbursement	0	46,875	Service fee only (the supplies are provided by the Government)
Xray	Eligible for reimbursement if provider also uses GeneXpert for diagnostic testing	Eligible for reimbursement	0	95,000	Service fee and testing supplies
Intensive treatment phase	Eligible for reimbursement only if provider conducts follow-up test (2 <sup>nd</sup> mo.)	Eligible for reimbursement whether or not provider conducts follow-up test (2 <sup>nd</sup> mo.)	0	34,000	Bundled payment: Covering service fee for microscopy follow-up test, service fee for HIV test, and blood glucose test)
Continuation treatment phase	Eligible for reimbursement only if provider conducts follow-up tests (at 5 <sup>th</sup> mo. & end of treatment)	Eligible for reimbursement whether provider conducts follow-up tests at 5 <sup>th</sup> mo. or at end of treatment or not at all	0	214,000	Bundled payment: Service fee for microscopy follow-up tests and performance rewards

In the old scenario, tariff applied is “0” as it covered through capitation by BPJSK and/or supplied by NTP

# RESULTS

## Utilization Review for Strict Scenario

Services	Puskesmas				Private clinics			
	N patient	% (N/ total patient)	n (approved services)	% (n/N)	N patient	% (N/ total patient)	n (approved services)	% (n/N)
Microscopy test	326	90.56%	15	4.60%	3	25.00%	0	0.00%
GeneXpert test	23	6.39%	23	100.00%	0	0.00%	0	0.00%
Radiology test	139	38.61%	6	4.32%	12	100.00%	0	0.00%
Tuberculin test	1	0.28%	0	0%	0	0%	0	0%
Intensive treatment phase	155	43.06%	82	52.90%	9	75.00%	1	11.11%
Continuation treatment phase	116	32.22%	33	28.45%	8	66.67%	0	0.00%

## Differences in Payer's Investments for Additional Payment

Indicator	Expenditure at Puskesmas (in IDR)		Expenditure at Private clinics (in IDR)	
	Strict	Flexible	Strict	Flexible
Expenditure	10,525,000	45,097,875	34,000	2,965,000
Average expenditure per patient	29,236	125,272	2,833	247,083

# RESULTS

## Total Payer's Investment by Type of Service and Scenario

Services	Puskesmas		Private clinics	
	Total cost per service (strict scenario) (in IDR)	Total cost per service (flexible scenario) (in IDR)	Total cost per service (strict scenario) (in IDR)	Total cost per service (flexible scenario) (in IDR)
<b>Microscopy test</b>	105,000	2,282,000	0	21,000
<b>GeneXpert test</b>	0	0	0	0
<b>Radiology test</b>	570,000	13,205,000	0	1,140,000
<b>Tuberculin test</b>	0	46,875	0	0
<b>Intensive treatment phase</b>	2,788,000	5,168,000	34,000	306,000
<b>Continuation treatment phase</b>	7,062,000	24,396,000	0	1,498,000
<b>Total</b>	10,525,000	45,097,875	34,000	2,965,000



# CONCLUSIONS & RECOMMENDATIONS

- Adopting a more stringent approach (“strict scenario”), where providers are reimbursed only for exact adherence to TB guidelines, could enhance efficiency and improve quality.
- However, barriers outside funders’ control (such as access limitations, inadequate supply-side readiness, and low patient adherence) may render pay-for-performance ineffective in enabling providers to adhere strictly to TB guidelines.
- Where supply-side readiness, access, and patient adherence are challenges, the government may consider applying flexible reimbursement standards. However, payers would allocate more funds to providers.
- Additional studies are required to include referral data to measure payments to hospitals for referred patients.
- The Government of Indonesia (GoI) has established a new payment mechanism, defined the TB benefit package, and set payment rates. GoI is currently piloting this payment mechanism in six districts to evaluate its effectiveness and efficiency in improving TB treatment outcomes.

# REFERENCES

- World Health Organization. (2022). Global Tuberculosis Report.
- NTP Dashboard per September 2023 <https://tbindonesia.or.id/pustaka-tbc/dashboard/>
- Sistem Informasi TB Terpadu. 2019. Kementerian Kesehatan

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# Thank you

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# LIMITATIONS

- The simulation only used data from one Puskesmas and one private clinic. However, the number of TB patients at these providers was sufficient for the simulation.
- The simulation could not identify the purchaser's hospital expenses, as the SITB data does not identify referrals to hospitals and could not be integrated with JKN data.
- The team did not collect primary data from TB patients to capture out-of-pocket payments. Provider revenue is potentially biased if the out-of-pocket costs are higher than the proposed tariffs.
- Payment rates and the benefit package have not yet been agreed upon, so caution is needed in interpreting the data.