

IMPLICATIONS OF FACILITY SERVICE DELIVERY READINESS FOR PATIENT SATISFACTION

FINDINGS FROM A NATIONWIDE PRIMARY SURVEY
IN PAPUA NEW GUINEA



Nicolas Rosemberg

Sudip Bhandari

Aneesa Arur

July 6, 2018

Outline

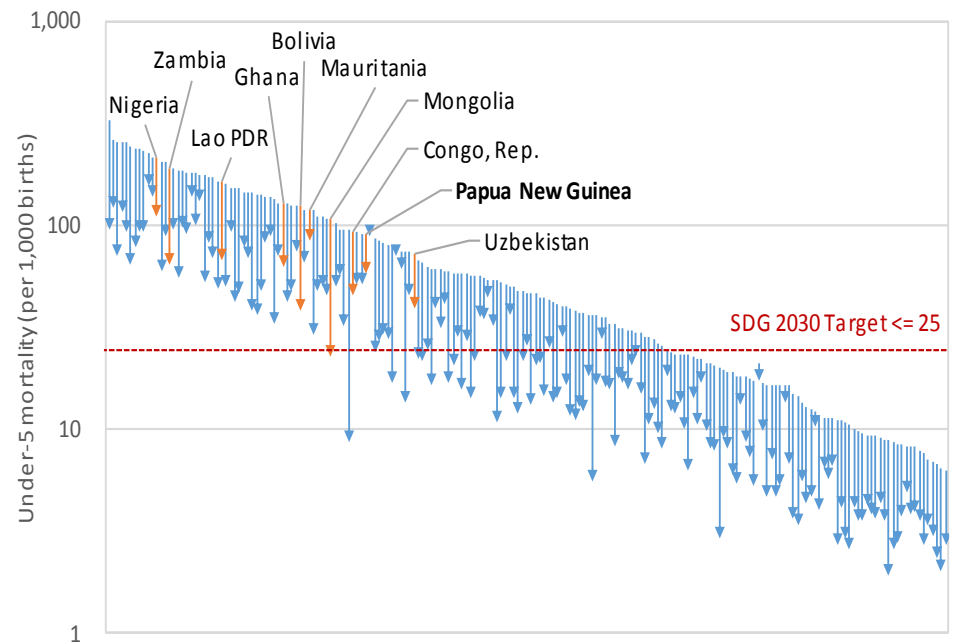
1. PNG Context
2. Research Question and Methods
3. Results
4. Conclusions and Future Research



Health outcomes in PNG do not compare favourably with other regional countries

- Papua New Guinea (PNG) has seen some improvements in health indicators over the last 25 years, **but the pace of improvements is not as fast as expected** for its level of income.
- The high rates of multidrug-resistant (MDR) and extensively drug-resistant (XDR) TB point to a **very weak health system**, particularly the delivery of frontline health services.

Changes in U5 Mortality Rates (1990-2015)

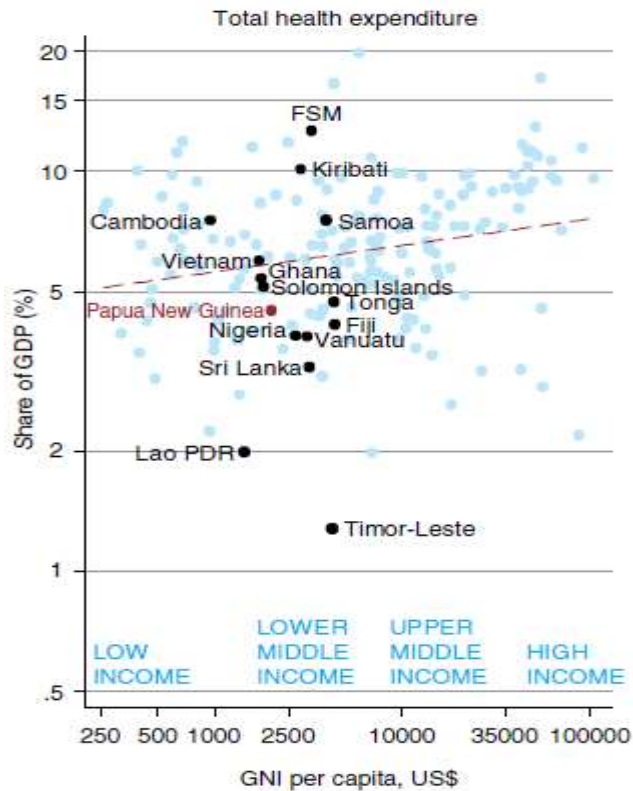


Source: World Bank World Development Indicators

PNG fell short of all health-related MDGs.

Total Health Expenditure (THE) is relatively low, and in real per capita terms it is declining

THE as % of GDP in PNG and comparator countries and trend in THE per capita



Source: World Development Indicators database and World Bank 2016

The National Health Service Standards organize service delivery in seven levels of care

	NHSS level	Type of facility	Approximate catchment population	Staffing estimates (minimum)	Description of services
Tertiary or specialist care	Level 7	National Referral Hospital (PMGH)	National (7-8 million)	Multiple medical, surgical, nursing and allied health specialties.	National tertiary referral role <ul style="list-style-type: none"> • Inpatient and outpatient care, including medical, maternal and child health, and major surgical services, public health • Sub-speciality services • Clinical support services
	Level 6	Regional Referral Hospitals	1 per region (2-3 million)	Multiple medical, surgical, nursing and allied health specialties.	Regional tertiary referral role <ul style="list-style-type: none"> • Inpatient and outpatient care, including medical, maternal and child health, and intermediate/major surgical services, public health • Some sub-speciality services • Clinical support services
	Level 5	Provincial Hospitals	1 per province (60,000-700,000) (2.7 beds/1,000 population)	Dependent on size of province. Some specialist health workers.	Provincial secondary referral role <ul style="list-style-type: none"> • Inpatient and outpatient care, including medical, maternal and child health, and intermediate surgical services, public health • Some sub-speciality services • Clinical support services
	Level 4	District Hospitals	1 per district (30,000-100,000)	1 Rural Medical Specialist 1+ doctors 1-2 nurses 2 CHWs	District primary/secondary referral role <ul style="list-style-type: none"> • Inpatient and outpatient care, including medical, maternal and child health, and minor/intermediate surgical services, public health • Public health, primary health care and clinical support services • Outreach & supervisory programs to Level 3, 2 and 1
Health care	Level 3	Health Centres (Rural)	Local Level Government (LLG) jurisdiction (5,000-40,000)	1-2 HEOs 1-2 nurses 2 CHWs (same approximate staffing for both)	LLG primary referral role <ul style="list-style-type: none"> • Outpatient and inpatient care, including core clinical services - medical, maternal and child health, and minor surgical services • Public health, primary health care and clinical support services • Outreach & supervisory programs to Level 2 and 1 (for Urban Clinics, as above minus inpatient care services)
		Urban Clinics			
Primary health care	Level 2	Community Health Posts	Multiple wards or small urban centre Grade 1: >10,000 Grade 2: 5-10,000 Grade 3: <5,000	1 Nurse 2 CHWs	Community primary referral role <ul style="list-style-type: none"> • Inpatient short stay care up to 24 hours • Outreach & mobile services • Outpatient care, including reproductive and child health, TB DOTS, HIV and malaria prevention, nutrition, school and dental health
	Level 1	Aid Posts	Ward or multiple small villages (1,000-2,000)	1-2 CHWs	Basic health care and referral (outpatient services) <ul style="list-style-type: none"> • Public health education • Basic primary health care • Community-based programs and community support

Research Question: What are the implications of facility readiness for patient satisfaction?

Facility Readiness

Electricity connected to supply grid
Backup generator
Electricity availability (supply or generator)
Blackout last week
Problem last month running generator due to fuel shortage
Water from main line
Water shortage last year
Water available for use by health care providers
Water available in delivery room
Facility do direct blood transfusion
Blood transfusions done last month
Facility has designated space for clinicians to provide service
Facility has on-call room or space for health care providers to take rest
Facility has telephone or shortwave radio
Facility has ambulance
Ambulance out of service last year
Facility has other vehicles
Facility has operation theatre



Patient Satisfaction

Your overall visit was satisfactory.

Completely Disagree

Disagree

Agree

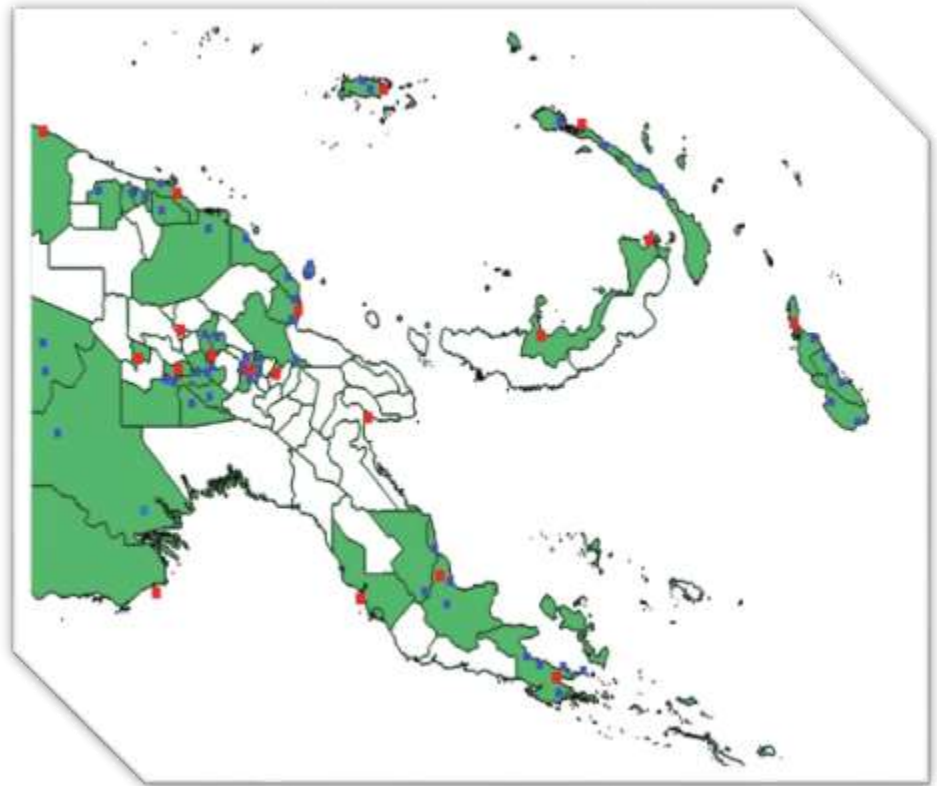
Completely Agree



Methods

- The goal of the survey was to investigate:
 - Adequate resourcing
 - Efficiency of service delivery
- Survey covered
 - All secondary (level 5-6) and tertiary (level 7) facilities
 - A sample of functional upper primary-level health facilities (level 3-4).

Map of PNG with Districts Visited (green) and Location of Surveyed Facilities (red and blue squares)



Number of Observations by Level of Care

Type of Facility	Number of facilities	Number of Patients Interviewed
Level 3	41	250
Level 4	12	66
Level 5	15	159
Level 6	4	23
Level 7	1	10
Total	73	508

Average Patient Satisfaction by Facility Level

Type of Facility	Number of facilities	Mean Satisfaction Score (Standard Deviation)
Level 3	41	2.96 (0.53)
Level 4	12	2.86 (0.49)
Level 5	15	3.01 (0.47)
Level 6	4	2.55 (0.71)
Level 7	1	3.5 (.)

Service Provision Readiness Index by Facility Level

Readiness indicators	Level 3-4				Level 5-6		Level 7	
	Public	%	Church	%	No	%	No	%
Electricity connected to supply grid	10	34.48	7	28.00	17	94.44	1	100.00
Backup generator	14	48.28	19	76.00	18	100.00	1	100.00
Electricity availability (supply or generator)	20	68.97	21	84.00	18	100.00	1	100.00
Blackout last week	8	27.59	6	24.00	15	83.33	0	0.00
Problem last month running generator due to fuel shortage	8	27.59	10	40.00	3	16.67	0	0.00
Water from main line	2	6.90	3	12.00	15	83.33	1	100.00
Water shortage last year	18	62.07	11	44.00	7	38.89	0	0.00
Water available for use by health care providers	24	82.76	21	84.00	18	100.00	1	100.00
Water available in delivery room	13	44.83	18	72.00	18	100.00	1	100.00
Facility do direct blood transfusion	3	10.34	3	12.00	16	88.89	1	100.00
Blood transfusions done last month	3	10.34	3	12.00	18	100.00	1	100.00
Facility has designated space for clinicians to provide service	20	68.97	20	80.00	18	100.00	1	100.00
Facility has on-call room or space for health care providers to take rest	3	10.34	11	44.00	10	55.56	1	100.00
Facility has telephone or shortwave radio	14	48.28	14	56.00	15	83.33	1	100.00
Facility has ambulance	26	89.66	24	96.00	17	94.44	1	100.00
Ambulance out of service last year	11	37.93	10	40.00	6	33.33	0	0.00
Facility has other vehicles	8	27.59	5	20.00	18	100.00	1	100.00
Facility has operation theater	8	27.59	9	36.00	18	100.00	1	100.00
Index of readiness	40.26		48.56		84.57		100.00	

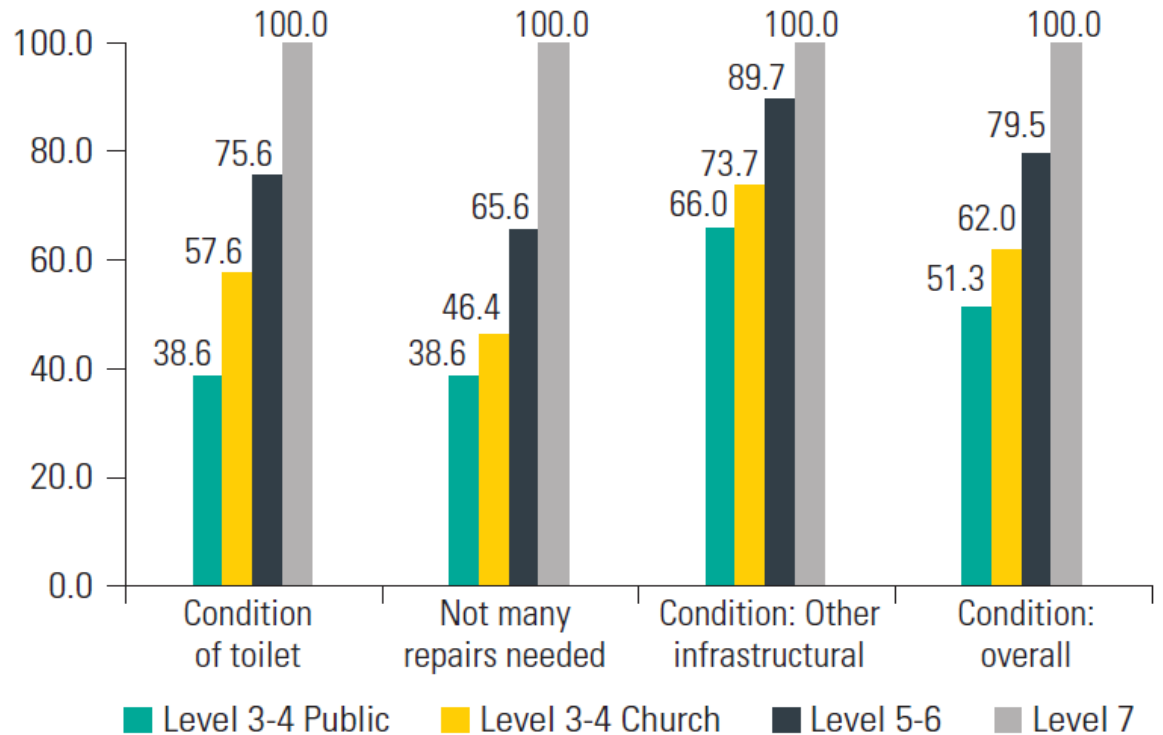
findings



Basic infrastructure and amenities lacking at most upper primary facilities

For example, electricity and water supply connectivity is limited at upper primary facilities

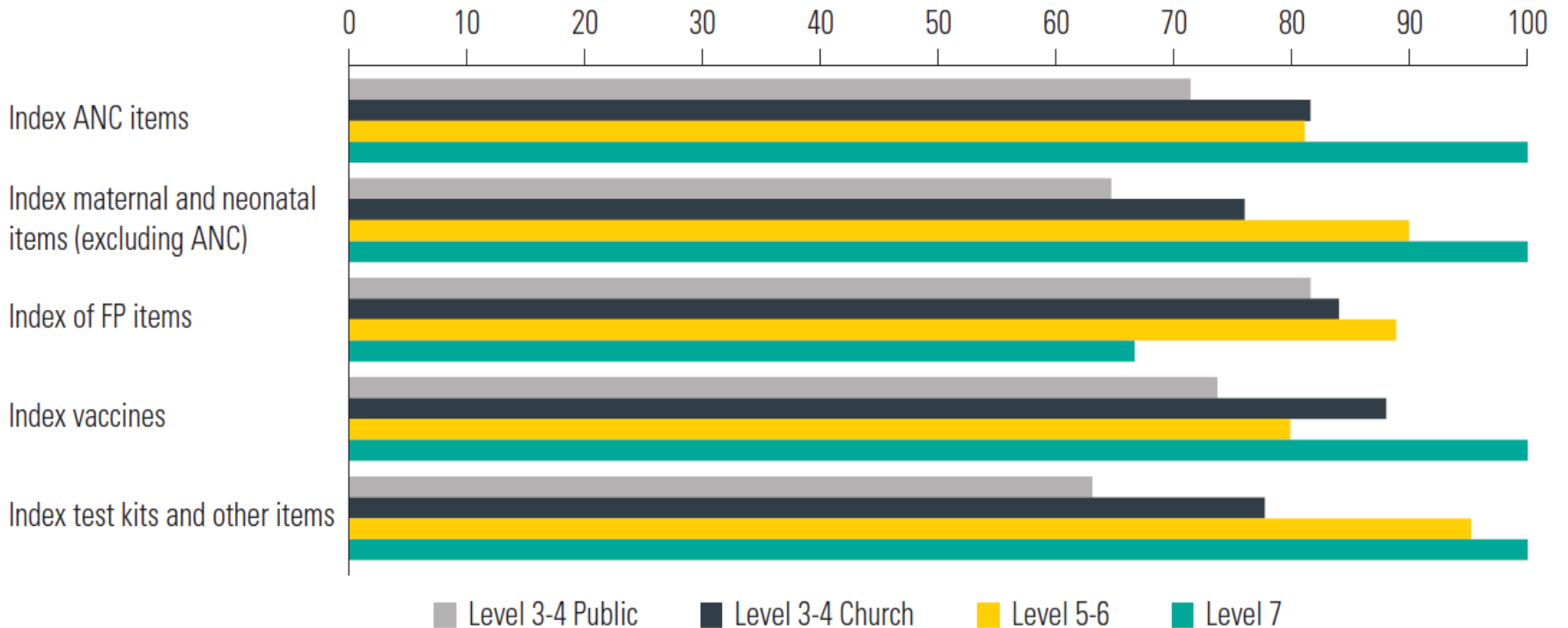
- ✓ 75% of public and 52% of church level 3-4 facilities need major repairs to water supply system
- ✓ Only 34% of public and 28% of church level 3-4 facilities were connected to electric supply line



findings



Availability of essential items is limited, particularly at upper primary public facilities



findings

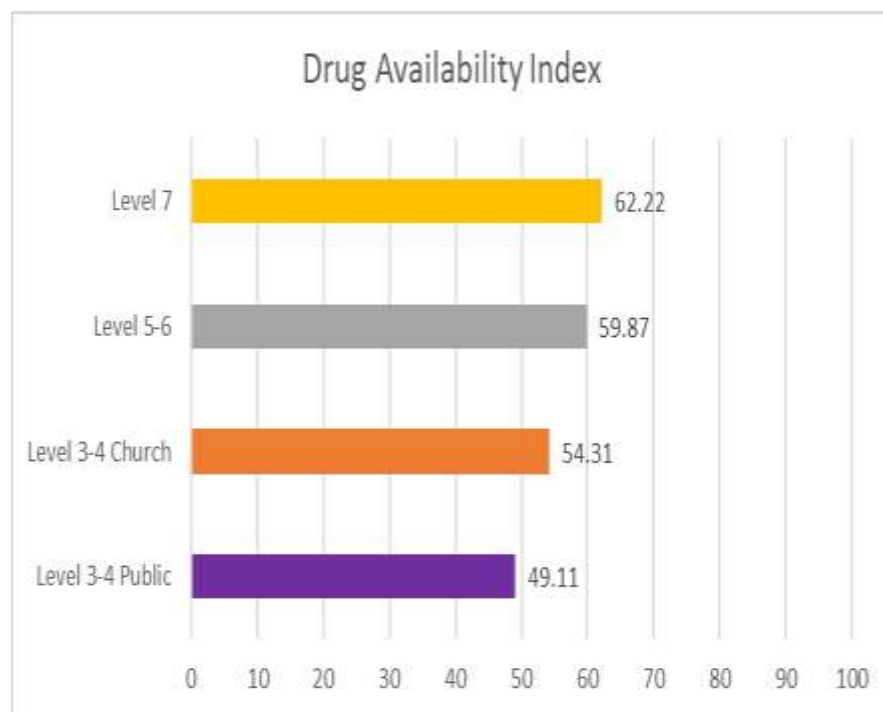


Availability of drugs is limited at all facility levels

Level 3-4 **public** and **church** facilities reporting continuous availability of:

- ✓ Rifampicin: **34%** and **48%**
- ✓ Paracetamol liquid: **24%** and **20%**
- ✓ Amoxicilin tablet or capsule: **83%** and **88%**

Drug availability is defined as *continuous* availability in past 30 days for a list of 45 drugs



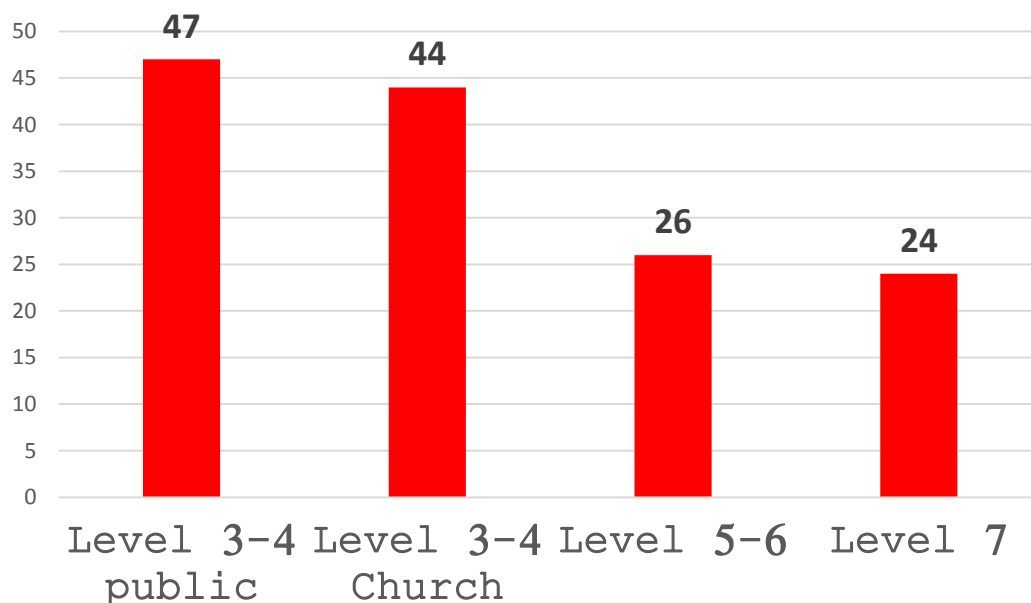
findings



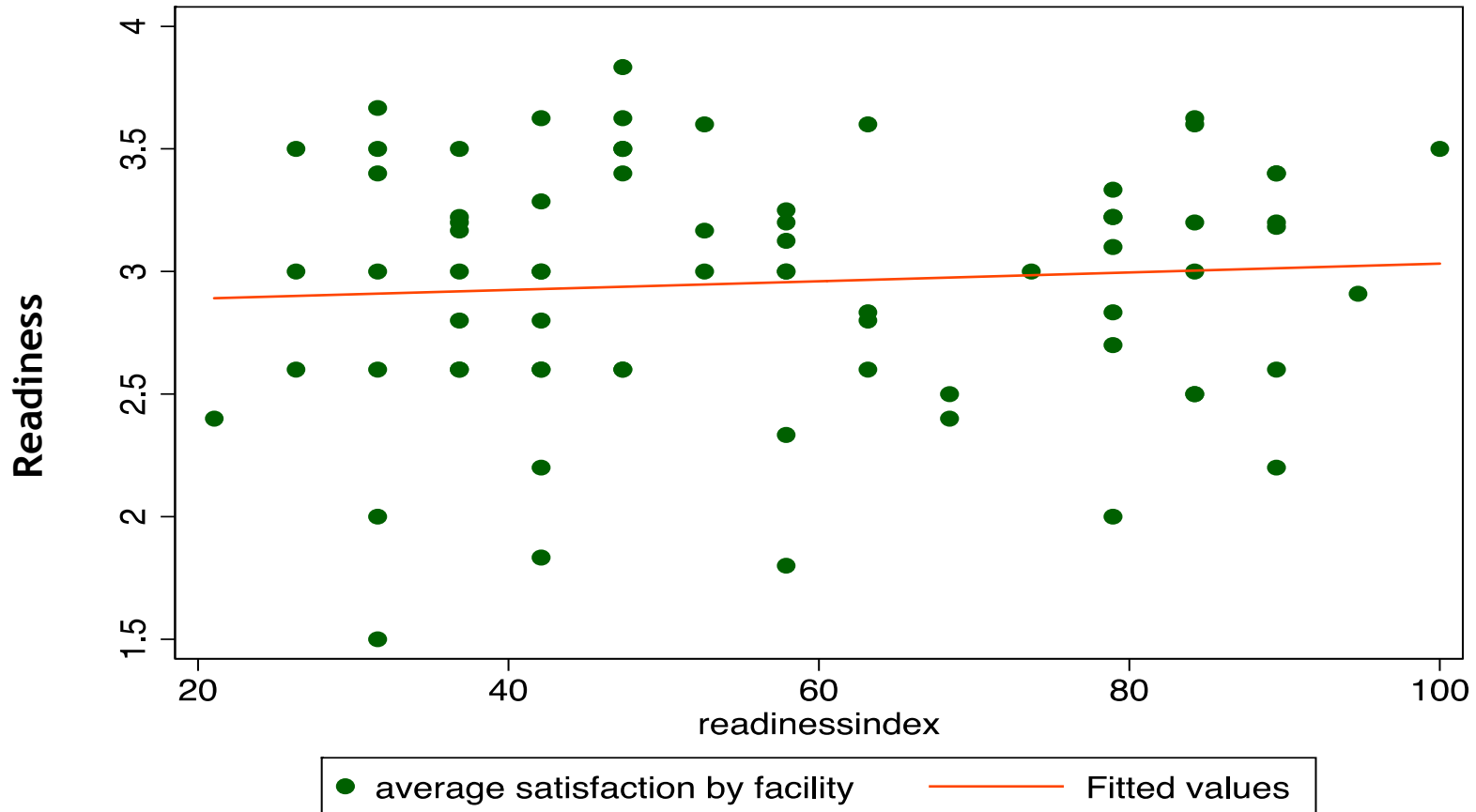
Shortage of doctors, particularly at lower level facilities

- ✓ A significant share of budgeted positions remain vacant
- ✓ More than 40% of positions for doctors at level 3 and 4 facilities remain vacant
- ✓ Nursing officers and Community Health Workers account for the majority of health facility personnel (excluding non-clinical staff)

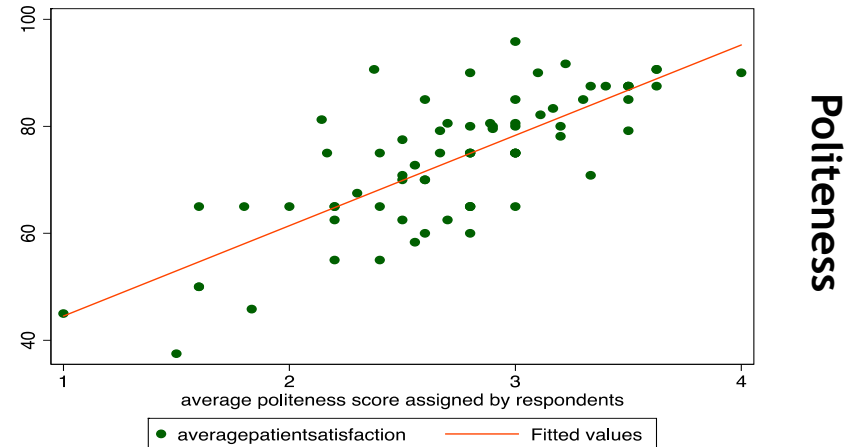
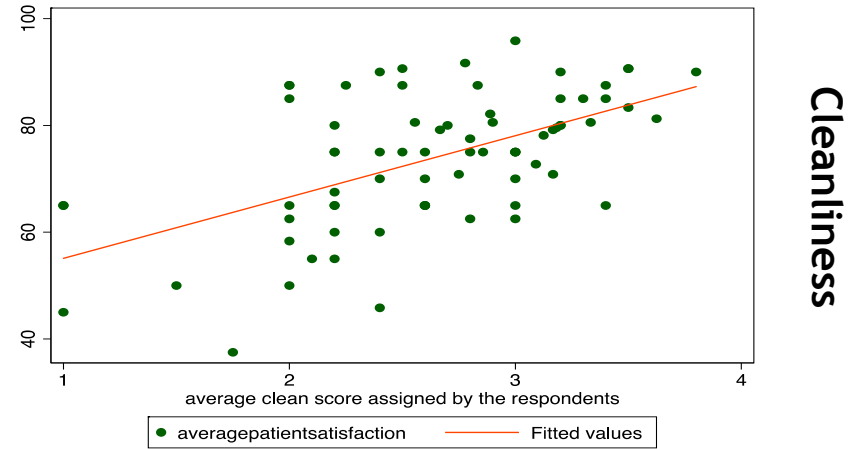
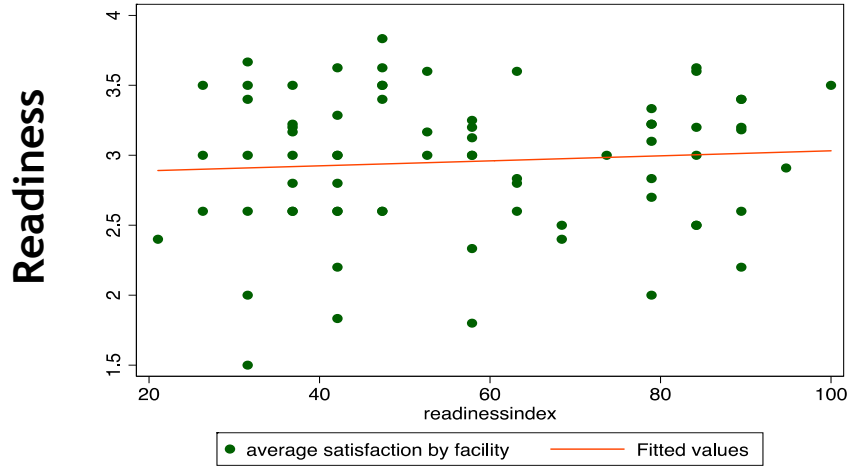
Vacant positions for doctors (%)



Service delivery readiness not correlated with patient satisfaction



But cleanliness, trust in skills and politeness were positively correlated with patient satisfaction



After controlling for confounders, cleanliness and trust in health worker continue to drive patient satisfaction

Predictor	Coefficient	Standard Error	P-value
Constant	2.0208	1.0935	0.074 (*)
Readiness Index	- 0.0002	0.0058	0.97 5
Province	- 0.0182	0.0115	0.123
District	- 0.0625	0.0479	0.202
Type of Facility	- 0.0939	0.1213	0.446
Age	0.0036	0.0103	0.732
Travel cost	0.0036	0.0145	0.808
Wait time	- 0.0030	0.0866	0.972
Cost of test	-0.0252	0.0486	0.609
Perception of cleanliness	0.2724	0.1361	0.054 (*)
Patients' trust of healthcare worker	0.4833	0.2339	0.047 (**)
Income	-.02106	0.30967	0.501

.... Health worker politeness emerges as the main driver of patient satisfaction

Predictor	Coefficient	Standard Error	P-value
Constant	26.0667	24.3499	0.293
Readiness Index	0.2862	0.1201	0.813
Province	-0.1795	0.2576	0.491
District	-1.5514	1.0262	0.141
Type of Facility	-1.6322	2.6080	0.536
Age	-0.0145	0.2228	0.949
Travel cost	0.0601	0.3118	0.848
Wait time	0.1544	1.8552	0.934
Cost of test	-0.1092	1.0499	0.918
Perception of cleanliness	3.1624	3.1007	0.316
Patients' trust of healthcare worker	8.2648	5.1163	0.117
Perception of politeness	10.3895	2.9737	0.002 (***)
Income	-0.9123	6.7333	0.893

Limitations

- It is not possible to generalize the findings to all health facilities because the study did not collect information from lower-level health facilities (levels 1-2).
- The survey is not a nationally representative survey of level 3-4 facilities.
- The survey design selected larger, functional level 3-4 facilities in target provinces.

Conclusions

Facility Readiness

- Overall, service delivery readiness at levels 3-4 facilities in PNG clearly needs strengthening
 - Most facilities need major building repairs
 - Many lack adequate toilets, stable electricity and water supply connectivity
 - Shortages of doctors and nurses is a concern

Patient Satisfaction

- Patient satisfaction did not increase with service delivery readiness
 - Future research should explore the impact of alternative domains of readiness and its implications on patient satisfaction
- Cleanliness, trust and politeness of service providers clearly influence patient satisfaction
 - Provider politeness was by far the most striking driver of patient satisfaction in terms of magnitude of association

