

Catastrophic Health Expenditure in Odisha, India: Sources and Underlying Causes

India Health Systems Project

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Outline

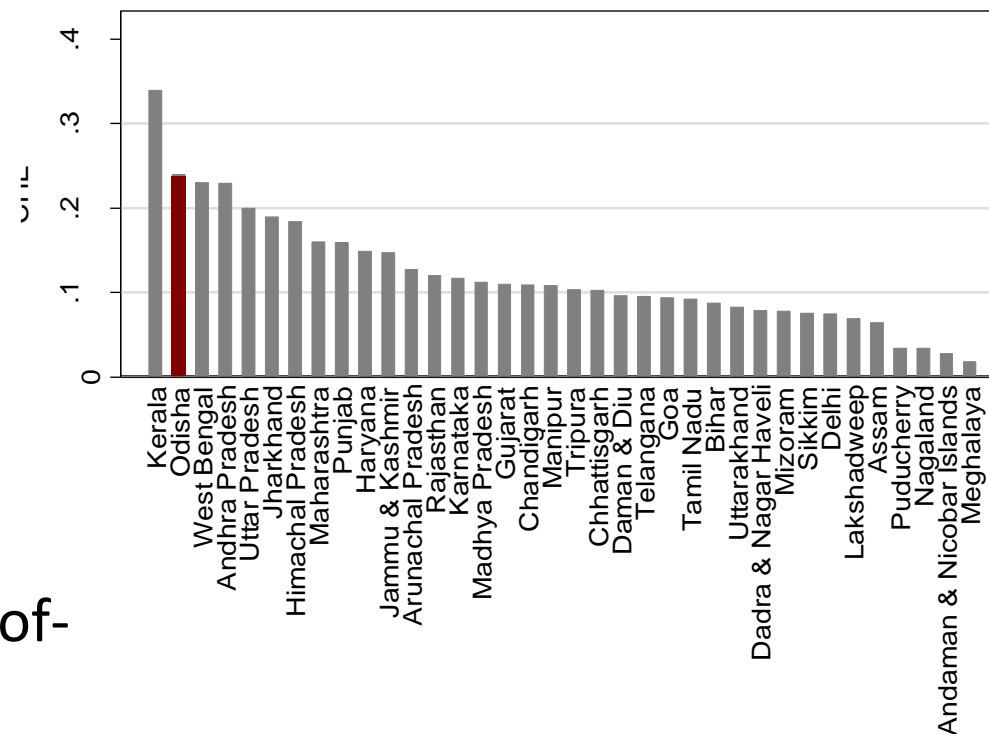
- Catastrophic health expenditure (CHE) in Odisha, India
- Major sources of CHE and their underlying causes
- Low value care
- Reflections

Catastrophic Health Expenditure in Odisha

Catastrophic health expenditure (CHE) in India, Odisha & other LMICs

- 24% incur CHE in Odisha
- 16% incur CHE in India
- 9% in other lower-middle income countries
- Pharmaceuticals make up two-thirds of out-of-pocket (OOP) health spending in Odisha
- Free healthcare (including drugs) at government-run facilities

CHE rates by Indian state
(75 NSS)



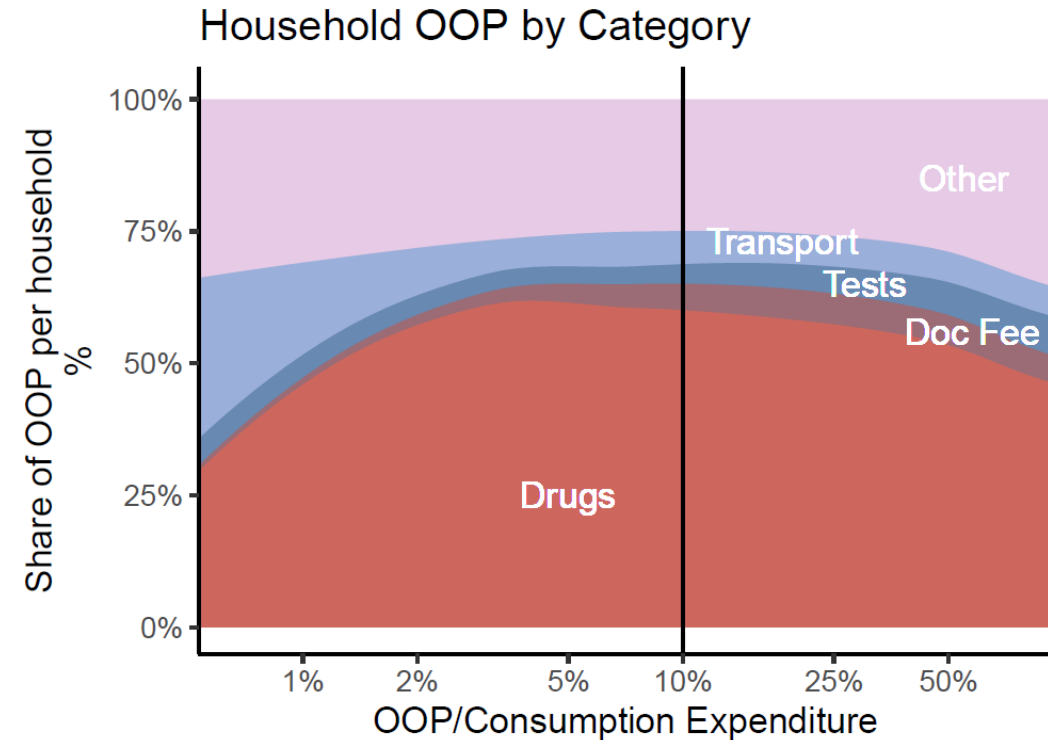
Sources of Catastrophic Health Expenditure

Novel linked dataset, collected 2019-2020

- >7,500 households, >30,600 individuals, state representative
 - Ask about care sought in the last 15 days, where drugs obtained
 - Patient satisfaction ratings
- 554 hospitals and health clinics, 1,035 private pharmacies
 - 75 essential medicine list drugs in stock on the day of the survey
- Link 919 outpatient visits to the facility used (name reported)
- Link all health facilities to nearby private pharmacies based on distance (GPS coordinates)
 - Pharmacy sampling: 1) located within 3km of facilities (mapping), 2) households report using, and 3) snowball sampling

Drugs for Outpatient Visits a Major Driver for CHE

- 78% of CHE cases is due to outpatient care, not hospitalizations
- Spending on drugs is a major driver: at CHE (10%), drugs make up about 65% of OOP
- Eliminating use of private drugs would reduce CHE by 56%



Drugs from Private Pharmacies Make Up a Big Share of Total Drug Spending

Spending on drugs

Type of care and provider	Share of patients with CHE (using monthly consumption expenditure)	Mean spend per visit (Rupees)	Drug share of OOP	Mean drug OOP (Rupees)	Share purchasing drugs from private sector chemist
Outpatient					
Public (46%)	25%	790	59%	428	72%
Private hospital outpatient departments and solo providers (24%)	38%	1404	67%	754	100%
Private Chemists and other providers (30%)	25%	735	73%	512	98%
Inpatient					
Public (75%)	19%	10,407	41%	3,287	n/a
Private (25%)	52%	33,886	37%	10,380	n/a

86% of outpatient visits use private sector for drugs.

54% of outpatient visits are in the private sector.

Among those who visited public clinics, 72% purchased drugs from private pharmacies

Shapley decomposition model

Financial Hardship due to Healthcare Costs
OOP
OOP/CE
CHE
Distress Financing

Level
(Primary, Hospital, Other)

Sector
(Public, Private)

Insurance Use
(for hospitalizations)

Intensity of Utilization
(number of outpatient visits, inpatient stays or drugs obtained)

Healthcare Determinants

Cause of Illness
(Fever, Child Birth, Diarrhea, Acute Respiratory, Injury or Other)

Severity of Illness
(Days of work or school missed, Poor self-reported health share)

Diagnosis of Chronic Condition

Health Determinants

Wealth Quintile

Age or Share Older than 60

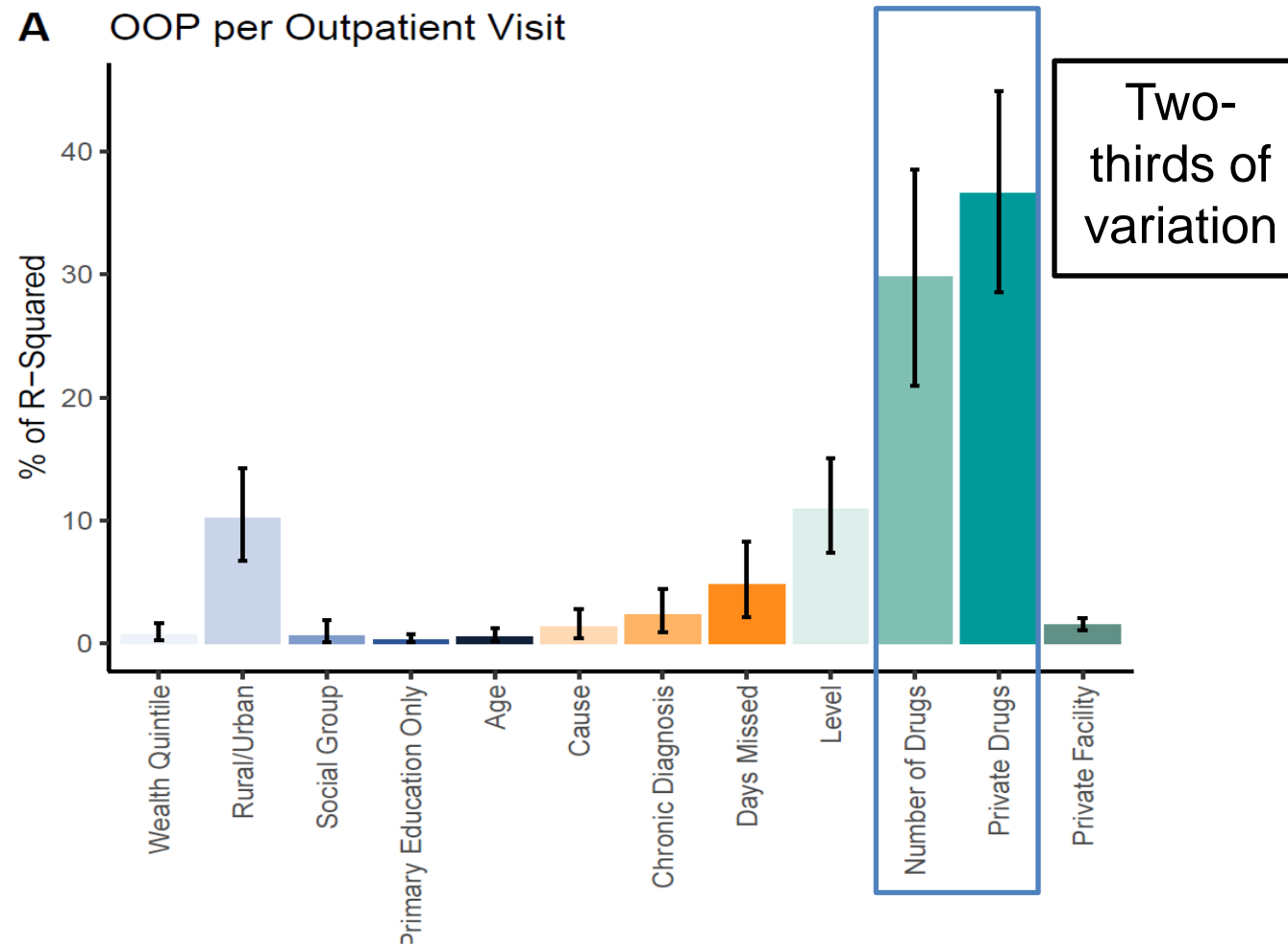
Share with Primary Education

Social Group
(Scheduled Caste or Tribe)

Social Determinants

OOP per outpatient visit explained by private sector & no. drugs

- 2.5 drugs obtained per outpatient visit



Causes of High OOP on Drugs (mostly privately purchased)

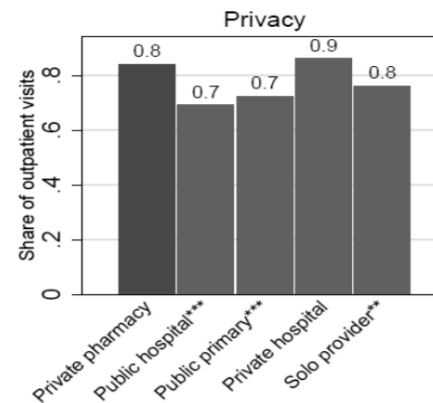
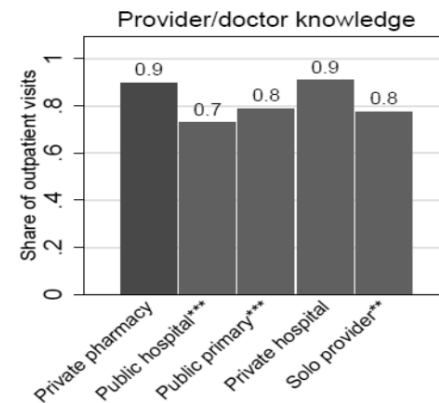
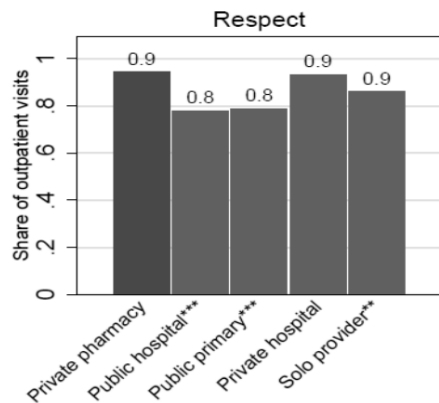
Government insurance programs

- In Odisha, 80% of households are reportedly eligible for the state-run insurance program, BSKY
 - Covers costs of hospitalization at public hospitals and 200 empaneled private hospitals
 - Does not cover outpatient care, anything purchased outside the facility empaneled, e.g. drugs, diagnostics, etc.
- Existing studies find that government insurance programs in other states reduce OOP but no statistically significant impact on CHE
- No existing studies on CHE (86 identified in 2019 review) examine the role of the private market for pharmaceuticals in depth
 - Large state and national surveys do not collect information on the private market for drugs

**Drugs are Provided Free at Public Facilities.
Why do People Seek Care in Private Sector or
Buy Drugs from Private Pharmacy?**

Patient perceptions about care quality

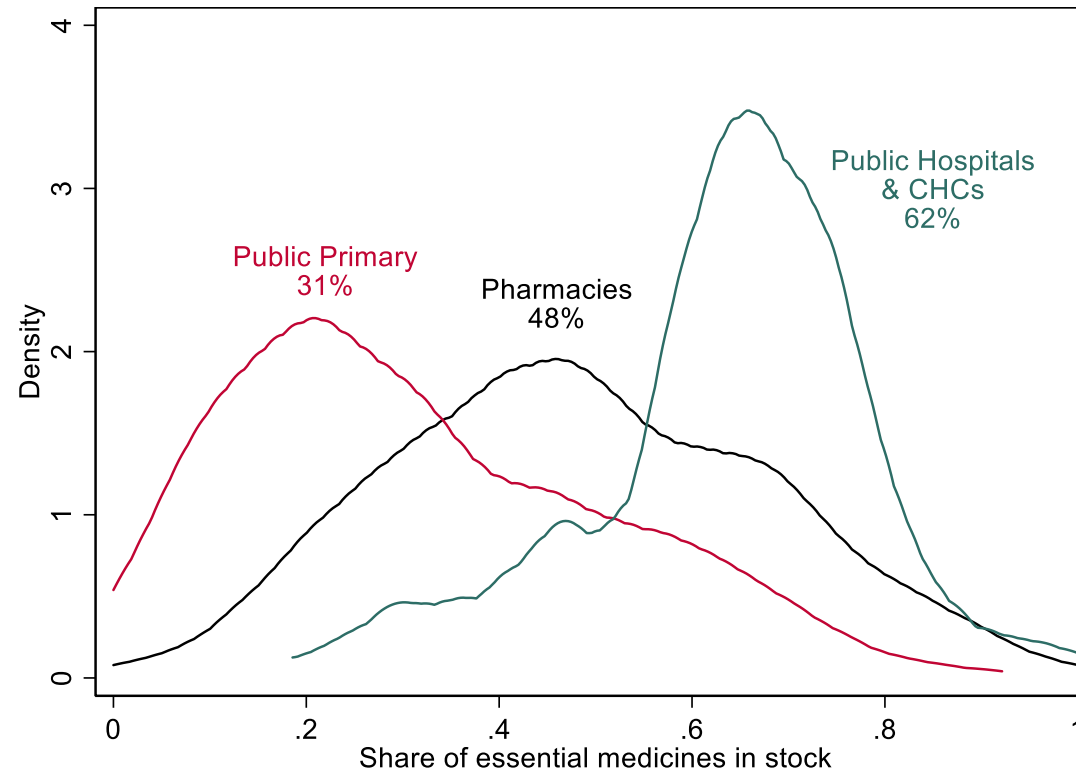
- Households reported preferring private pharmacies over public-sector primary care providers. Majority (54%) seek OP care in the private sector & private pharmacies
 - 90% pvt pharmacies reported providing medical advice, and 26% reported substituting prescriptions
- Common reasons stated by households for preferring private pharmacies:
 - Availability of drugs (Stocks and types)
 - Convenience of timings & location
 - Other studies show patients perceive private pharmacy/branded drugs to be better quality
- Our assessment of patient experience & satisfaction showed better ratings for private sector providers



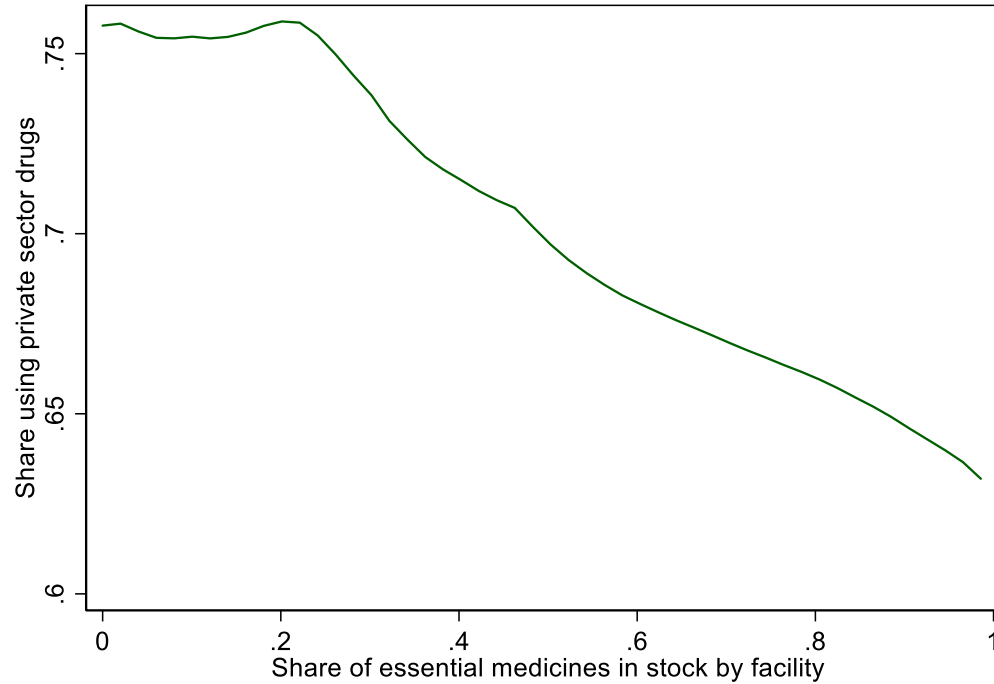
Patients preferred to go to pvt providers & perceived pvt pharmacies & pvt hospitals as better on respect, provider knowledge, privacy than public providers

Private pharmacies have better stocks than public primary facilities although worse than hospitals

- Not perfect substitutes: public facilities stock generics, 84% of private sector stocks branded & branded generics



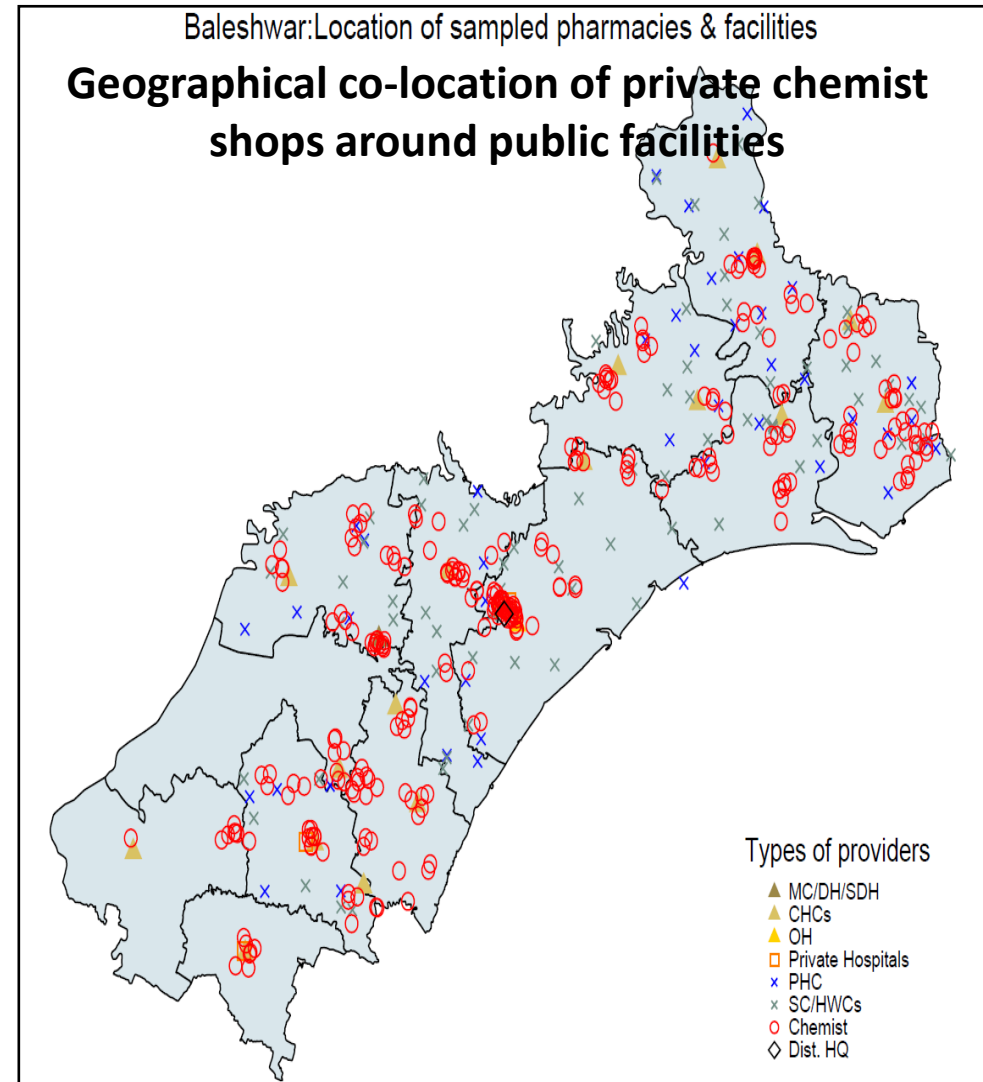
Use of private sector declines with higher stocks but 60%+ use private sector even when all drugs in stock



Note: Local Polynomial.

Financial Ties between Public Providers and Private Pharmacies

- 15% patients reported that the provider referred them to a specific chemist shop
- 93% public hospitals have ~8 chemist shops & 58% public primary facilities have ~2 shops within 3 km radius
- 20% private pharmacies registered as shops not pharmacies
- >50% pharmacy staff unqualified
- Users of private chemists for outpatient care more satisfied overall



Quality of Care?

Clinical quality/effectiveness: competence of healthcare providers to make timely & correct diagnoses & advise correct treatment that is evidence-based (neither underuse or overuse)

Data

550 clinical interactions with 110 randomly sampled public & private sector primary care providers, irrespective of medical qualifications

685 solo provider surveys
320 PHC provider surveys
1036 private pharmacies

Clinical Vignettes

Clinical vignettes for 5 common conditions:

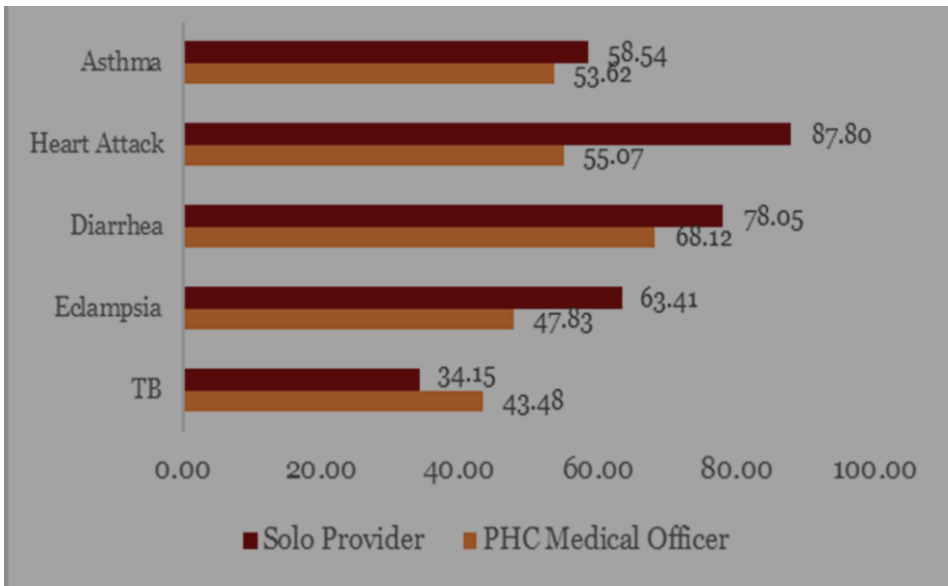
TB (infectious disease)
Pre-eclampsia & childhood diarrhea (MCH)
Heart attack & asthma (NCDs)

Clinical interactions compared against standard treatment guidelines (STGs) for each condition

Very poor competence of providers to diagnose & treat common conditions – need to focus on “*access with quality*”

- **Incorrect diagnosis** - 58% diagnosed all 5 conditions correctly.
 - Providers wrongly diagnosed as a less serious illness (E.g., cold, fever for TB, headache for preeclampsia, acidity for heart attack).
- **Incorrect treatment** - Only 2.3% providers advised correct treatment for the 5 conditions, although ~50% prescribed at least one correct drug. 42% prescribed only unnecessary (sometimes harmful) drugs/antibiotics – raising concerns of anti-microbial resistance.
- **Differences between public & pvt providers**

Competence of public v/s pvt providers to diagnose conditions



Competence of providers to diagnose & treat conditions

Condition	Providers who diagnosed correctly (%)	Providers who gave the right treatment as per standard treatment guidelines (%)	Providers who gave at least one correct drug (%)	Providers who gave only unnecessary/incorrect drugs (%)
Tuberculosis	40	6.82	N/A	91.90
Pre-eclampsia	53.64	0	52.54	39.98
Diarrhea	71.82	5.06	72.15	22.78
Heart Attack	67.27	0	55.41	25.68
Asthma	55.45	0	60.66	29.51

Competence of public v/s pvt providers to treat conditions

Condition	Correct Treatment as per standard treatment guidelines (%)		At least one correct drug (%)		Providers who gave only unnecessary/incorrect drugs (%)	
	Public	Private	Public	Private	Public	Private
Tuberculosis	10.00	0	N/A	N/A	16.00	0
Pre-eclampsia	0	0	33.33	65.38	51.52	34.62
Diarrhea	4.26	6.25	89.36	46.88	6.38	46.88
Heart Attack	0	0	39.47	72.22	44.74	5.56
Asthma	0	0	60.11	60.00	27.78	32.00

Private pharmacy characteristics and services

- Almost 25% of pvt pharmacies are not registered under the appropriate act, making regulations difficult to enforce
- 72% of pvt pharmacy staff who regularly attend to patients are not qualified; 27% are high school graduates
- Only 6% of the staff have undergone any in-service training on pharmacy courses
- Two-third of the sales are branded drugs
- 90% pvt pharmacies offer medical advice, and report substituting doctor-prescribed drugs for 26% of the patients

Registration status	
Pharmacies registered under Pharmacy Act	74.07%
Pharmacies registered under Shops and Establishment Act	19.77%
Unregistered pharmacies	1.35%
Registered as other entities	4.81%
Mean number of staff per pharmacy	2.15
Staff qualifications	
Share of respondents with a pharmacy (Diploma in Pharmacy, Bachelors in Pharmacy, Masters of Pharmacy) or medical degree (MBBS)	28.29%
Bachelor's or Master's degrees in Arts, Commerce, and Science	42.76%
High school graduates and diplomas	27.22%
Other diplomas (unrelated to health, pharmacy or medicine)	1.73%
Staff who have undergone any in-service training on pharmacy courses	6.08%
Share of sales	
Share of branded drugs sales per week	74.02%
Share of generic drugs sales per week	9.57%
Services offered by pharmacies	
Percentage of pharmacies that provide other outpatient care/medical advice	90.00%
Percentage of patients who come with prescriptions	69.99%
Percentage of patients for whom pharmacies substituted drugs that were prescribed	26.02%

Implications for policy

- **To reduce CHE & impoverishment:**
 - How to pool the 76% OOPe into pre-payment mechanisms to cover OP services?
 - How to reduce unnecessary spending on drugs in the private sector?
- **To improve quality & deliver high-value care, how to assure that money will translate to effective services?**
 - Through better incentives?
 - Through better organization, governance and accountability of the healthcare delivery system?
 - Policies need to go beyond physical access or symbolic/hospital focused quality improvement
 - Include the private sector & informal providers when designing reforms for delivering primary care
 - Quality improvement must involve private sector & outpatient care, not just hospitals

Thank You!

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Collaborators & Donors

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Haakenstad et al. 2022. [The role of private sector pharmacies in financial hardship in India: a health system analysis in the state of Odisha.](#) *Health Policy and Planning*. 37(7).

Kalita et al. 2023. [Private pharmacies as healthcare providers in Odisha, India: analysis and implications for universal health coverage.](#) *BMJ Global Health*. 8:e008903.