

Study of Quality of Care in Public and Private Sectors

Nilmini Wijemanne on behalf of Study Team*

Private Sector In Health

The Good, the bad and the indistinguishable

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Study Organization

*Study Team

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Study Objective

- To assess levels and differences in quality of care in public and private medical sectors in Sri Lanka

Funding

- World Bank contract to IHP, IHP Public Interest Research Fund Grant PIRF-2012-03, IDRC Grant 106439-003

Ethical Review

- Ethical review and clearance of study design and survey instruments by IHP Ethical Review Committee (IHP ERC Approval Nos. 2012/006A, 2012/006B)

Outline

Presenting both **inpatient** and **outpatient** studies

- Background
- Methodology
- Findings
- Conclusions
 - Study specific
 - General studies

Background

- Importance of measuring quality
- Background on Sri Lanka

A reason to measure quality

- Most low and middle-income countries (LMIC) have a mix of public and private services delivering healthcare
- Need to know the role of the private system for policy decisions:
 - Who they treat
 - Relative costs
 - **Quality of care provided**

when compared to the public sector

Concepts

What is quality?

- “The degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge.”
 - Institute of Medicine 1991

Dimensions of quality (Donabedian 1980)

- **Structure**
 - Whether providers have correct inputs, equipment, training, etc.
- **Process**
 - Whether good practices are followed.
- **Outcomes**
 - Impact of medical services on patients, including health outcomes and patient satisfaction

Measuring Process Quality

- No set protocol, not as commonly studied as structural and outcome quality
- Examples of quality bodies:
 - The Joint Commission, USA – involved in accreditation of 17,000 health care services
 - Centers for Medicare & Medicaid Services (CMS), USA – Hospital Compare for > 4,000 Medicare certified hospitals
- Few studies in the USA (including those based on VHA data), UK, Switzerland using a broad range of conditions and indicators
- Disease specific assessment of quality of care

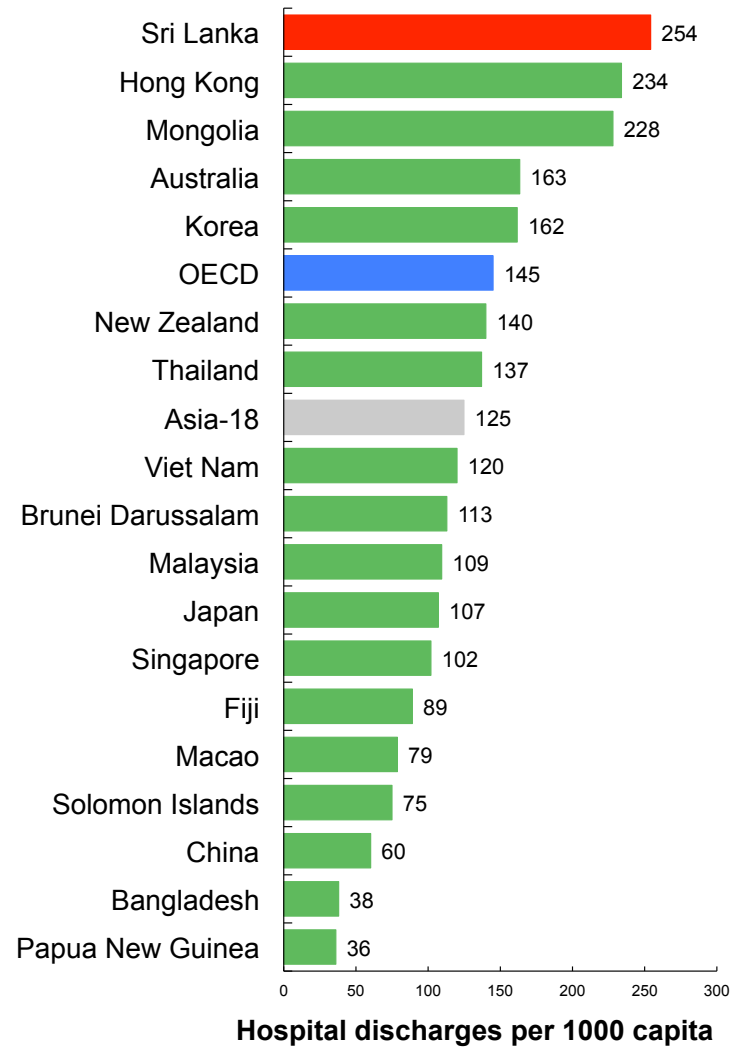
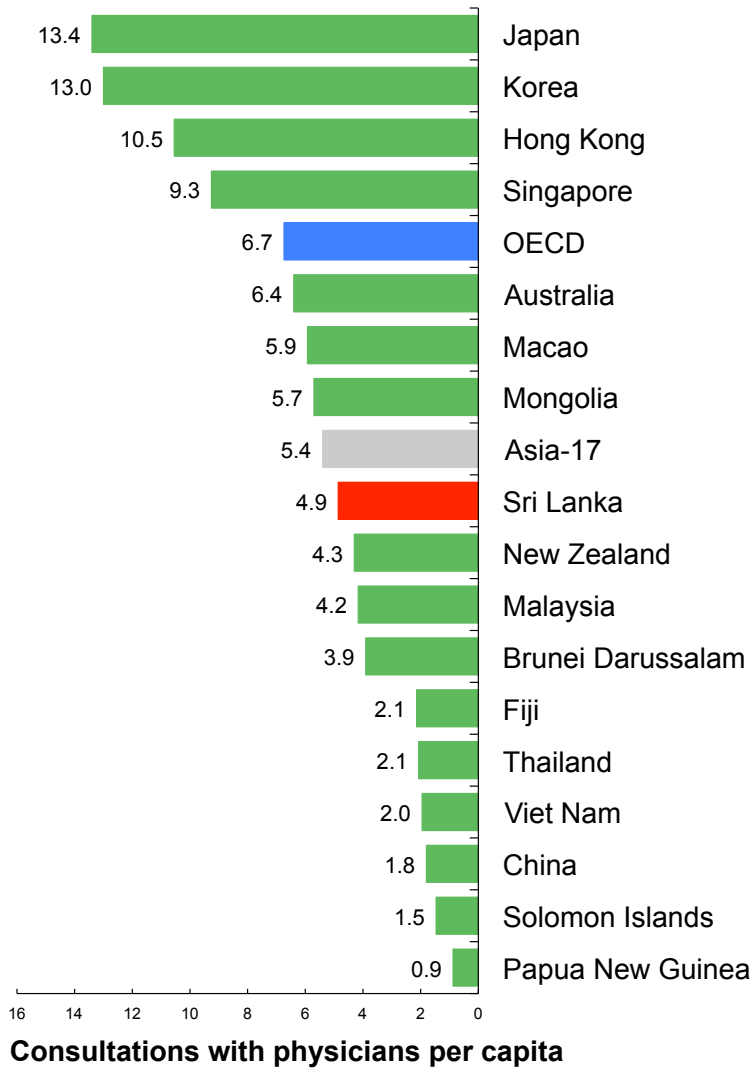
Policy questions

- Concerns of Ministry of Health and World Bank on how to manage the public / private sector mix
- General global debate on the role of the private sector in healthcare
 - little study on quality of healthcare delivered
 - systematic review by Berendes et al. (2011)
 - Focuses on ambulatory care → few studies on process quality
 - No systematic pattern of differences

Background on Sri Lanka

- Population: 21 million, 75% in rural areas
- Lower-middle income country, GDP US \$2,835 per capita
- Good health outcomes
 - Life expectancy: 77 (female), 71 (male)
 - Infant mortality rate: 11.2 per 1,000 live births
 - Maternal mortality rate: <1 per 1,000 live births

Health services utilization, Sri Lanka and regional countries



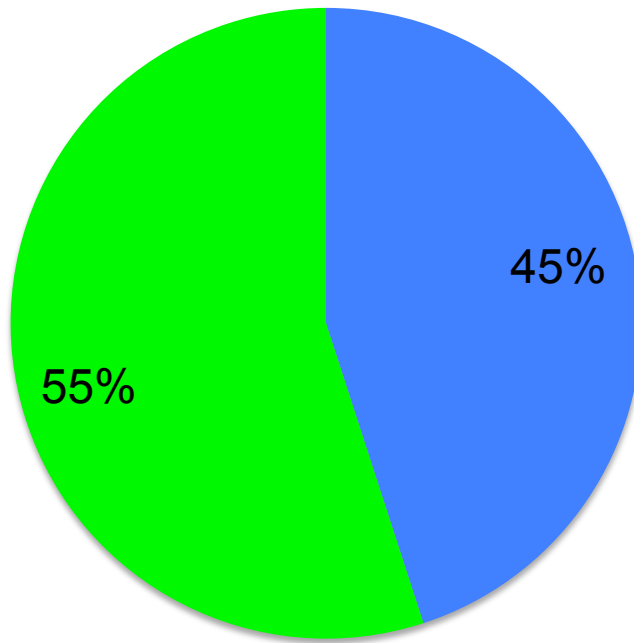
Source: IHP-OECD AP HaG 2010 Database

Sri Lanka – expenditure on healthcare

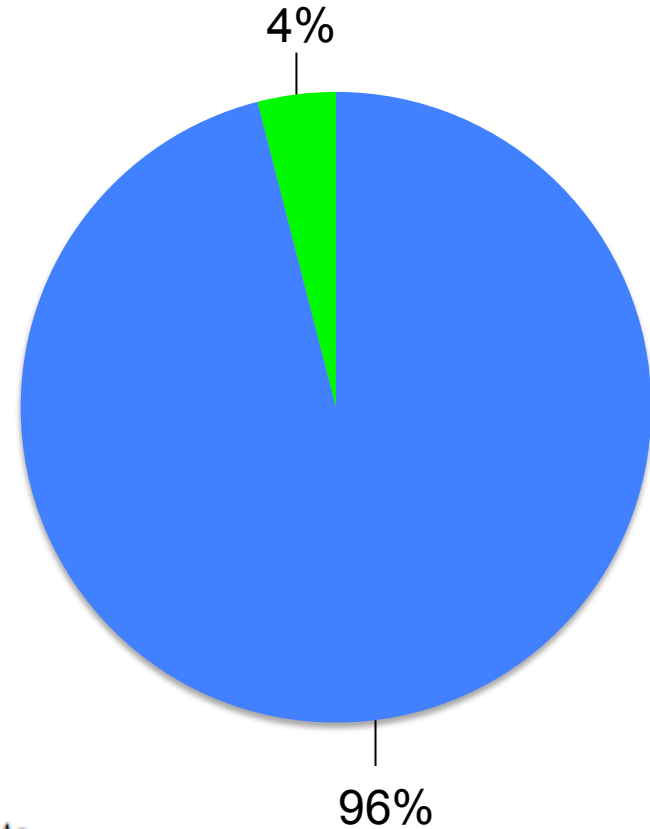
- Expenditure on healthcare
 - 3.4% GDP (US\$96.9 per capita), 58% private sources (mostly OOP)
 - Of all healthcare expenditures:
 - 30% for inpatient expenditures
 - 20% for outpatient expenditures

Utilization of healthcare services, 2003

Outpatient



Inpatient



■ Public ■ Private

Relative costs of inpatient admissions in 3 districts

Category	Hospitals	Beds	Admissions	Inpatient spending / admission (rupees)
All public hospitals	72	20,949	1,588,987	10,297
All private hospitals	64	2,395	190,083	94,790

Methodology

- Study design
- Tracer indicators & inclusion criteria
- Sampling
- Analysis

Study Design Overview

Inpatient care

- Study objects
 - **Process quality**, *i.e.*, *what providers actually do*
- Approach
 - Retrospective review of inpatient medical records
 - Analysis of care using tracer conditions

Outpatient care

- Study objects
 - **Process quality** and **Patient Satisfaction** with care
- Approach
 - Observation of patient consultations followed by exit interview of patient
 - Analysis of care using tracer conditions

Inpatient tracer conditions

Criteria for selection

- Conditions should be relatively frequent
- Feasible quality indicators should exist with support in literature
- Should be representative of a range of conditions and patient populations

Final conditions

1. Acute Myocardial Infarction (AMI) (1% of discharges)
2. Acute Asthma (4% of discharges)
3. Childbirth (6% of discharges)

Inpatient Tracer Conditions

Identification of quality indicators

Acute Asthma

- Clinical guidelines – UK BTS 2012, USA NHLBI 2007, UK NICE 2013 guidance, GINA
- Accreditation agencies – Joint Commission
- PubMed

AMI

- Clinical guidelines – UK BTS 2012, Europe ESC 2012, USA ACCF/AHA 2012
- Accreditation agencies – Joint Commission
- Performance measures – ACC/AHA 2006

Childbirth

- Clinical guidelines – WHO 1996, WHO Monitoring Emergency Obstetric Care 2009, WHO Reproductive Library
- Studies and surveillance systems – EURO-PERISTAT, Sandin-Bojo (2004)

Inpatient Tracer Conditions

Patient inclusion criteria

Acute Asthma

- Patients of any age, regardless of comorbidities, with diagnosis of acute asthma or status asthmaticus
- ICD-10 codes J45, J46

AMI

- Patients of any age, regardless of comorbidities, who had ECG changes diagnostic of STEMI, enzymes changes or LBBB
- ICD-10 codes I21, I22

Childbirth

- Any patients giving birth after 28 weeks gestation, including stillbirths
- ICD-10 codes O80 – O84

Inpatient Quality Indicators – Examples

Condition	Indicator	Type	Resource intensity
Acute asthma	Oxygen saturation measured	Diagnosis/Assessment	High
Acute asthma	Received inhaled bronchodilator on admission	Treatment	Medium
AMI	Smoking status assessed in males	Diagnosis/Assessment	Low
AMI	Live discharge	Outcome	-
Childbirth	Neonatal APGAR score recorded	Diagnosis/Assessment	Low
Childbirth	Prophylactic antibiotics given during LSCS	Treatment	Medium
All conditions	Patient prescribed macrolide not given statin	Drug indicator	Low

Outpatient tracer conditions

Criteria for selection

- Conditions should be relatively frequent
- Feasible quality indicators should exist with support in literature
- Should be representative of a range of conditions and patient populations

Final conditions

1. Cough (13.0% of patient reason for encounter)
2. Asthma (6.6% of physician diagnoses)
3. Hypertension (4.8% of physician diagnoses)
4. Diarrhoea (1.8% of patient reason for encounter)
5. Diabetes (1.7% of physician diagnoses)
6. Pregnancy (1.1% of physician diagnoses)

Outpatient Tracer Conditions

Identification of quality indicators

- Indicators listed in the US National Quality Measures Clearing House
- RAND's Quality Assessment Tools system
 - used in Asch et. al (2004) assessment of VHA system
- Indicators used in Das & Hammer (2004) for diarrhoea and cough
 - For comparisons with India
- Drug prescribing:
 - Beer's criteria, polypharmacy indicators

Outpatient Quality Indicators – Examples

Condition	Indicator	Type
Diarrhoea	Patient asked about fever	History
Cough	Physician performed a physical examination	Examination
Hypertension	Physician measured blood pressure	Examination
Diabetes	Physician gave dietary advice	Education
Asthma	Asthma-appropriate drug prescribed	Management
All conditions	Patients 65 years or older who are given no drugs, or less than 5 drugs	Management, Drug Indicator

Sampling Overview

Survey confined to three districts for reasons of cost and time. Districts selected to be representative of inner and outer economic core of country:

- Colombo, Gampaha, Galle

Hospitals

- Used for inpatient (public & private) and outpatient survey (public)
- Sampling frame from MoH listing and IHP Private Hospitals Database
- Random stratified sampling with districts (included paediatric and obstetric hospitals)

Private GP Clinics

- Used for private sector outpatient sample
- Sampling frame from PHSRC licensing database
- Random stratified sampling within districts

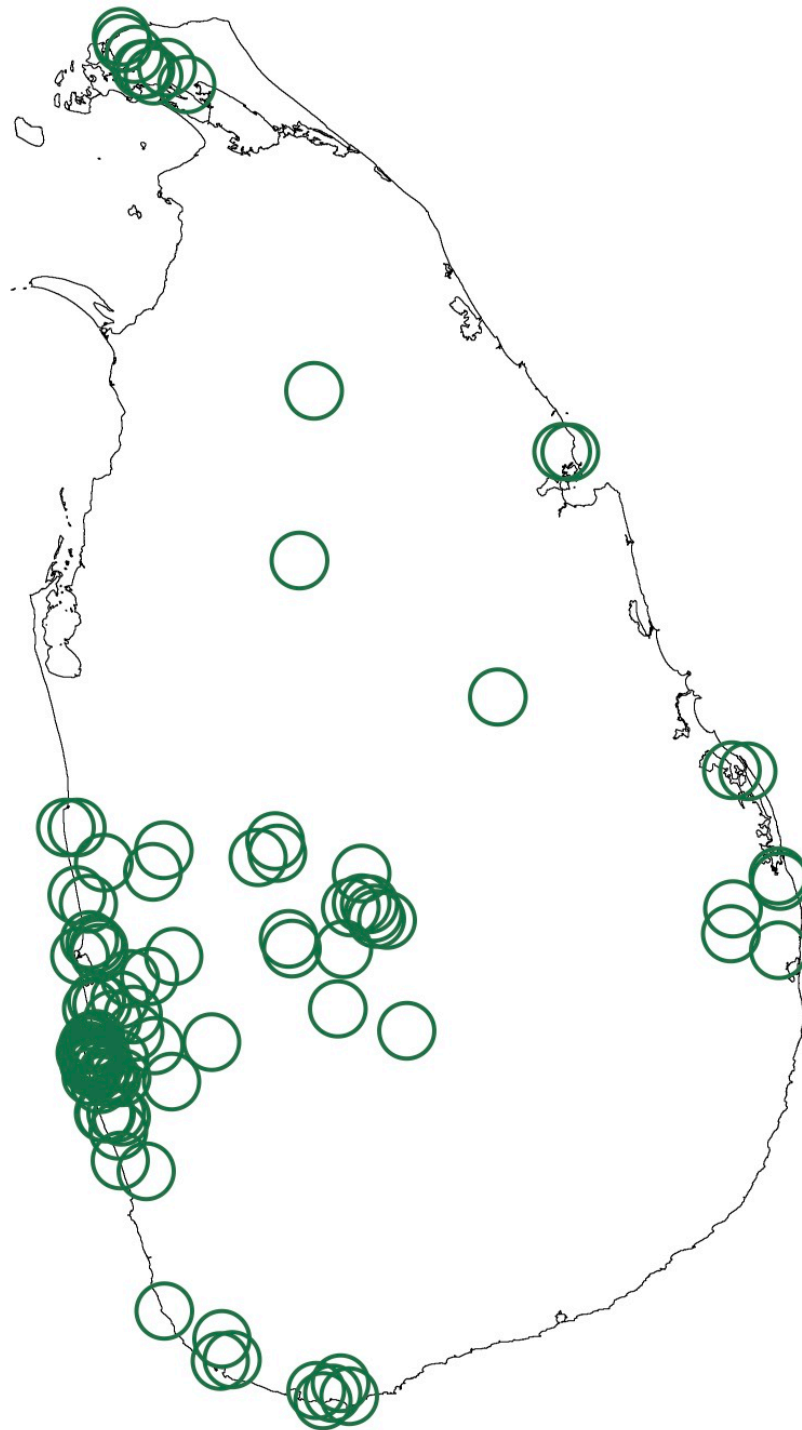
Sampling

Types of facilities sampled

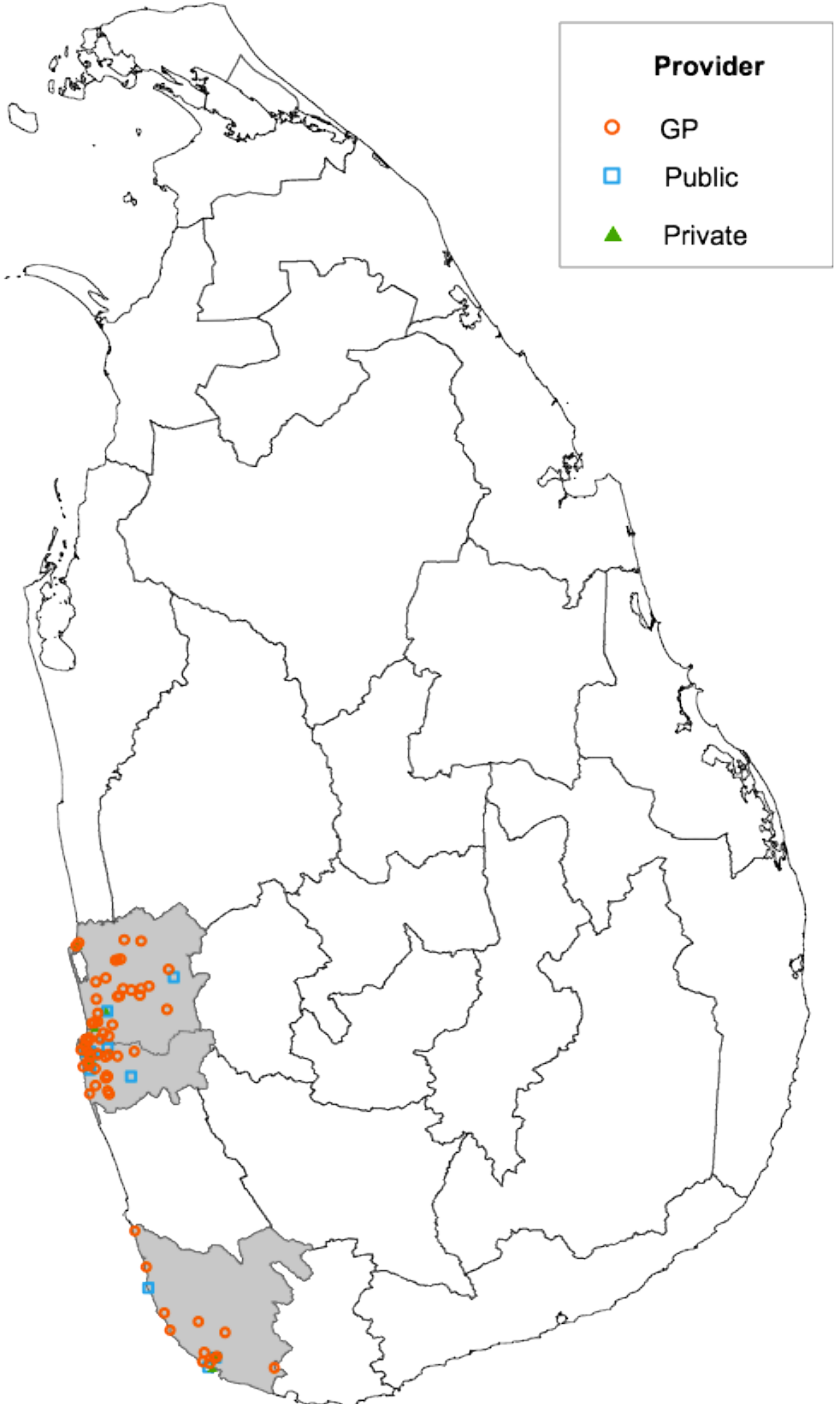
Facility type	Inpatient quality	Outpatient quality
Public hospitals	11	10
Private hospitals	10	-
Private general practitioners	-	66

- Hospitals – sampled large and intermediate-sized hospitals, obstetric and paediatric hospitals. Excluded specialist hospitals.

Distribution of Private Hospitals, Sri Lanka 2012



Distribution of Sampled Districts and Facilities



Data Collection and Processing

Patient sampling

- Inpatients
 - Systematic sample of patient records from 2011 discharges.
 - Supplementary samples of tracer conditions
- Outpatients
 - Systematic sampling of patients waiting for consultation
 - All patients asked to give consent

Data collection

- Data extraction and entry by pre-intern medical graduates using Apple iPads. Drug name entry using pre-coded listing of brand and generic names. Patient symptoms coded to ICPC RFEs in field where possible.

Data analysis

- Diagnoses coded to ICD-10 and ICPC-2 by physician.
- All analysis using Stata 12.0.

Data collection and Processing

Quality and satisfaction scores

Adapted method used by Asch et al. (2004)

- Quality instance = each opportunity a patient could potentially receive recommended care

$$\text{Aggregate score} = \frac{\text{total number of times recommended care was given for each quality instance}}{\text{number of quality instances}}$$

Data collection and Processing

Quality and satisfaction scores

Hypertension indicators	Public Sector		Private Sector	
	Number of times recommended care was given	Number of quality instances	Number of times recommended care was given	Number of quality instances
Measured blood pressure	68	70	62	62
Advice on compliance to medications	6	70	29	62
Advice on condition given	10	70	35	62
Totals	84	÷ 210	126	÷ 186
Score		40%		68%

Findings

- Inpatient quality of care

Inpatient Survey Sample

Final sample

Discharge diagnosis	Public	Private	Total
Tracer conditons	1,156	722	1,878
Asthma, n	442	205	647
AMI, n	307	81	388
Childbirth, n	407	436	843
Other	1,367	1,093	2,460
Total	2,523	1,815	4,338

Characteristic	Weighted, standardized		Standardized <i>p</i> value
	Public Sector (n = 2,523)	Private Sector (n = 1,815)	
Average age, <i>years</i>	36.8	37.0	1.0
Male sex, %	47.9	47.8	1.0
Discharge diagnoses			
Asthma, %	1.1	1.2	0.8
AMI, %	0.6	0.7	0.6
Childbirth, %	6.8	6.2	0.9
Other, %	91.5	91.8	0.9
Average length of stay, <i>days</i>	3.6	3.0	0.2

Findings

- Outpatient quality of care

Outpatient Survey Sample

Final sample

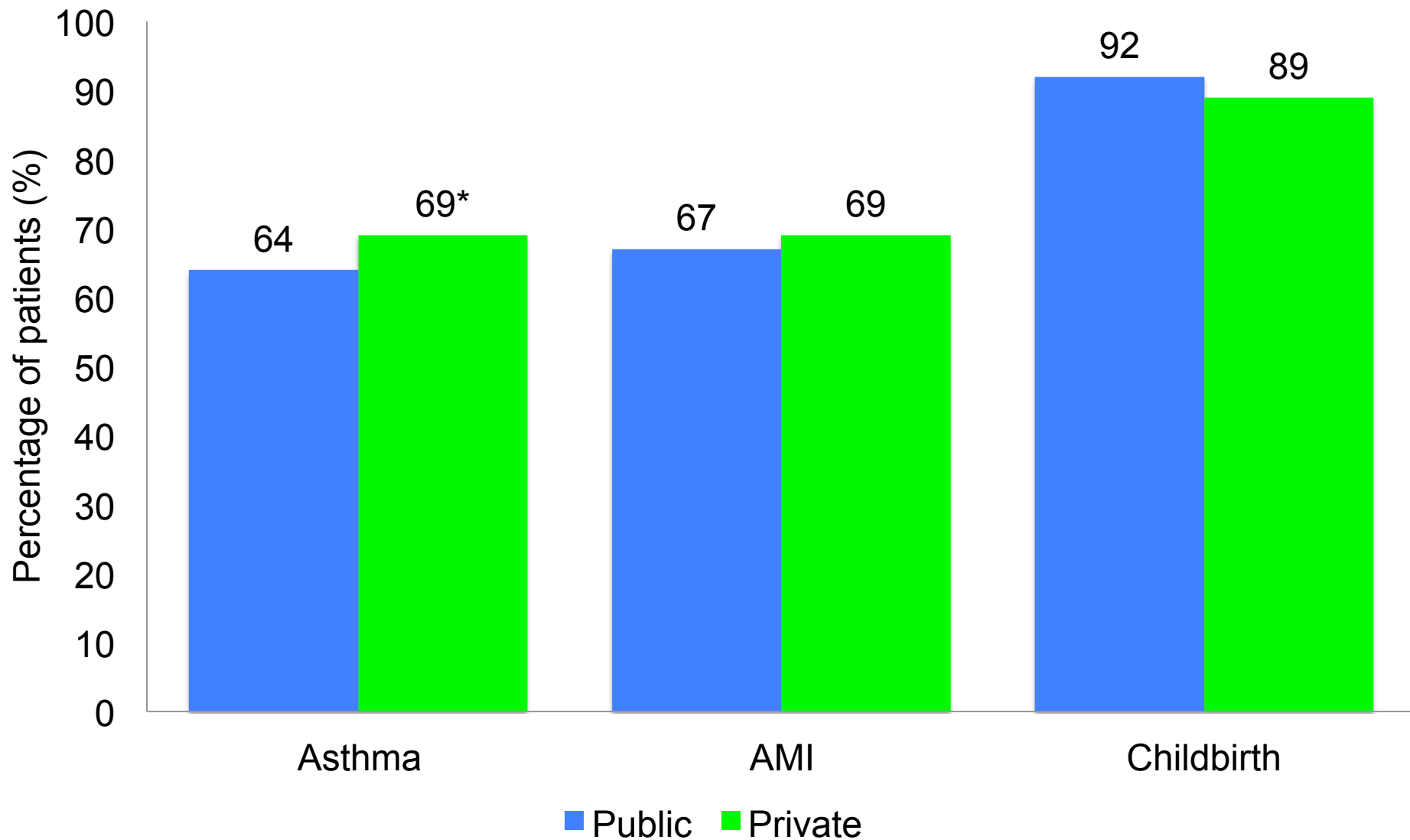
	Patients approached for observation of consultation (for PER)		Patients approached for exit survey of patient satisfaction	
	n	%	n	%
Total number of patients approached	1,971	100.0	1,948	100.0
Participation				
Participated	1,948	98.8	1,906	97.8
Refused	23	1.2	42	2.2

- Small number of refusals
- No significant differences in age and sex in participants vs. refusals

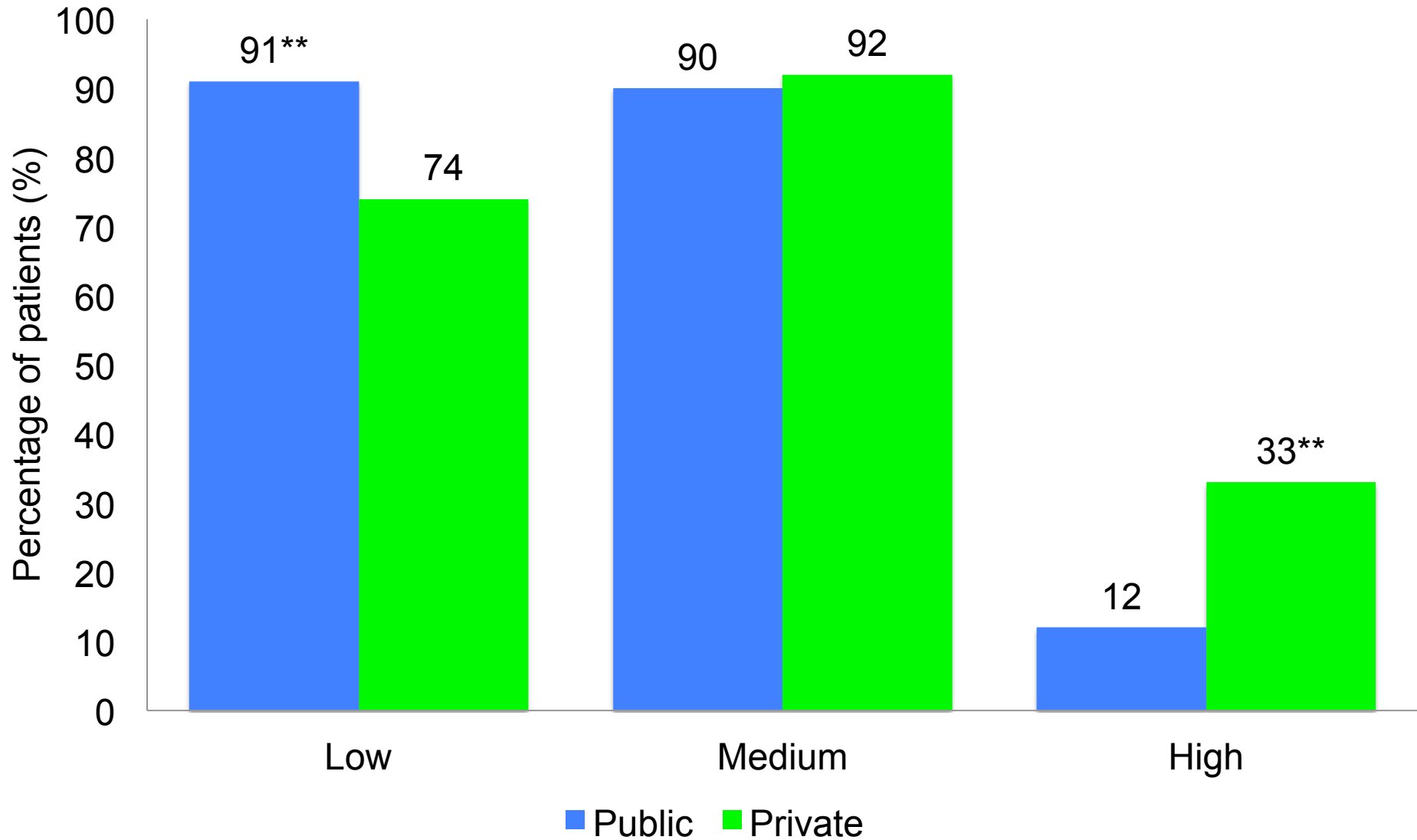
Patient characteristics after standardization

Characteristic	Weighted, unstandardized		Weighted, standardized		Standardized p value
	Public Sector (n = 1,027)	Private Sector (n = 944)	Public Sector (n = 1,027)	Private Sector (n = 944)	
Average age, years	32.2	35.3	32.2	32.1	1.0
Male sex, %	35.1	45.6	35.1	35.3	1.0
Socioeconomic status					
Lower third, %	29.0	14.2	29.0	14.0	0.1
Middle third, %	42.3	37.2	42.3	38.8	0.4
Upper third, %	28.7	48.6	28.7	47.2	0.1
Length of consultation, min	3.1	7.8	3.1	7.8	0.0

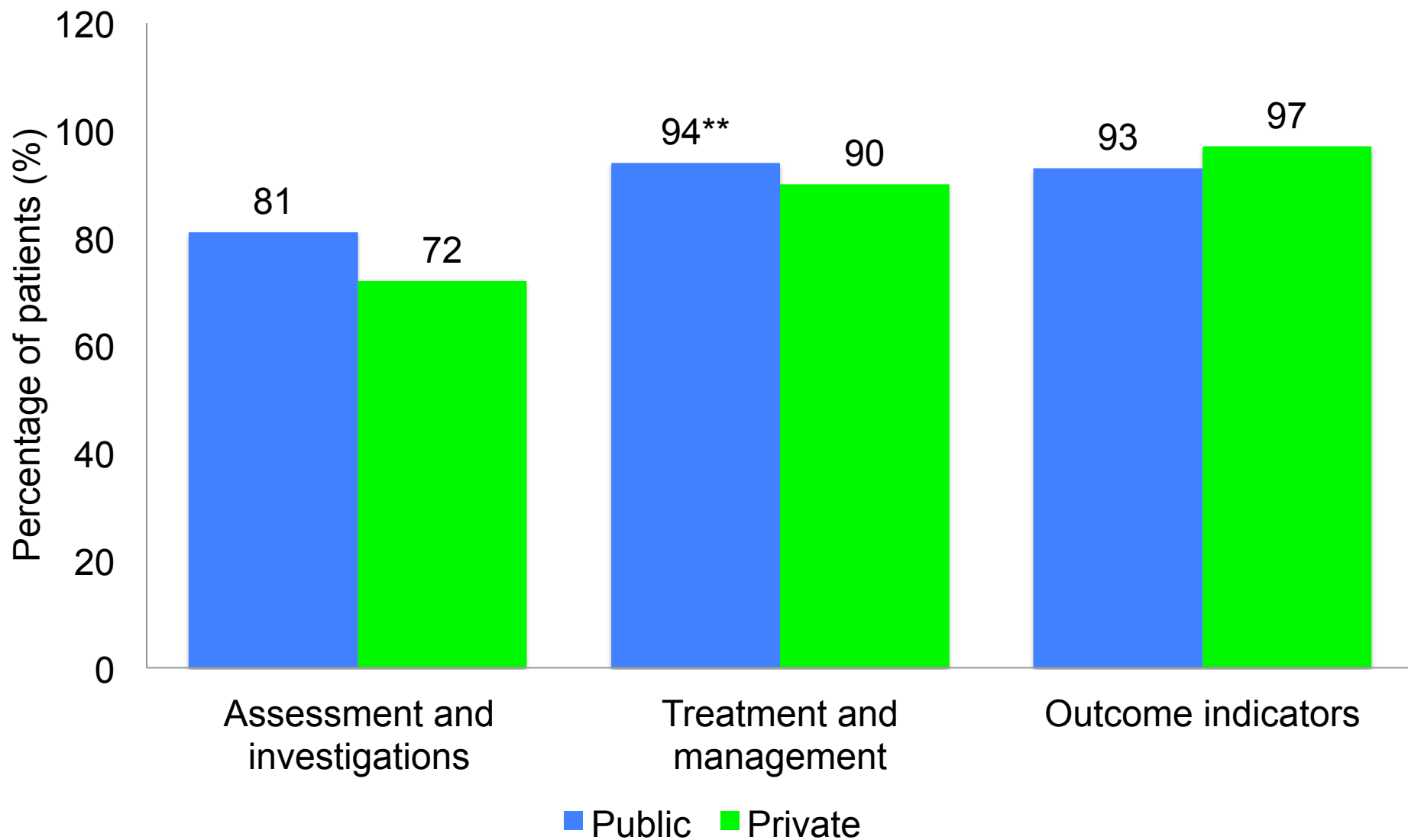
Inpatient Process Quality – Quality by Condition



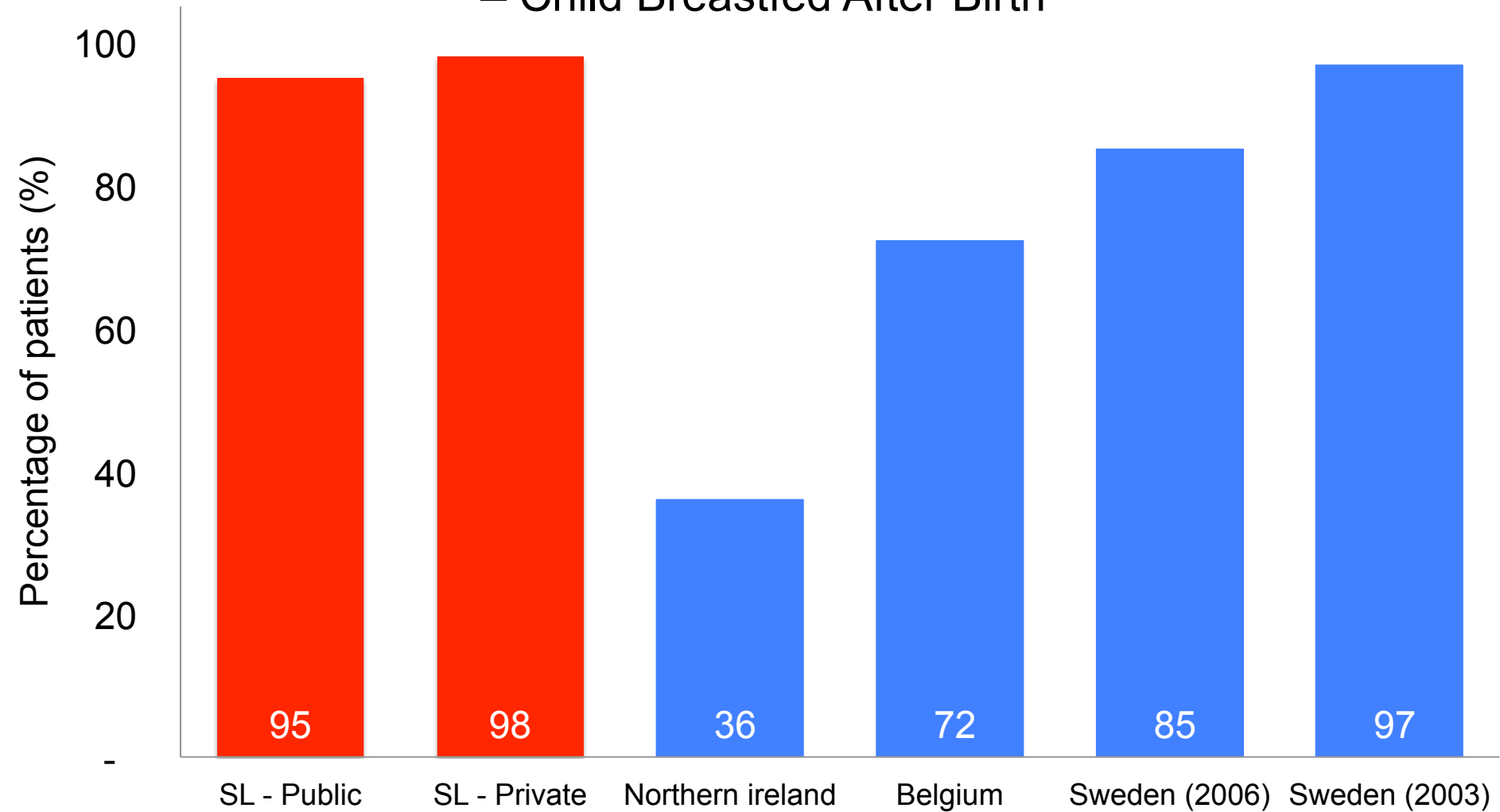
Inpatient Process Quality – Quality by Resource Limitation



Inpatient Process Quality – Quality by Clinical Area

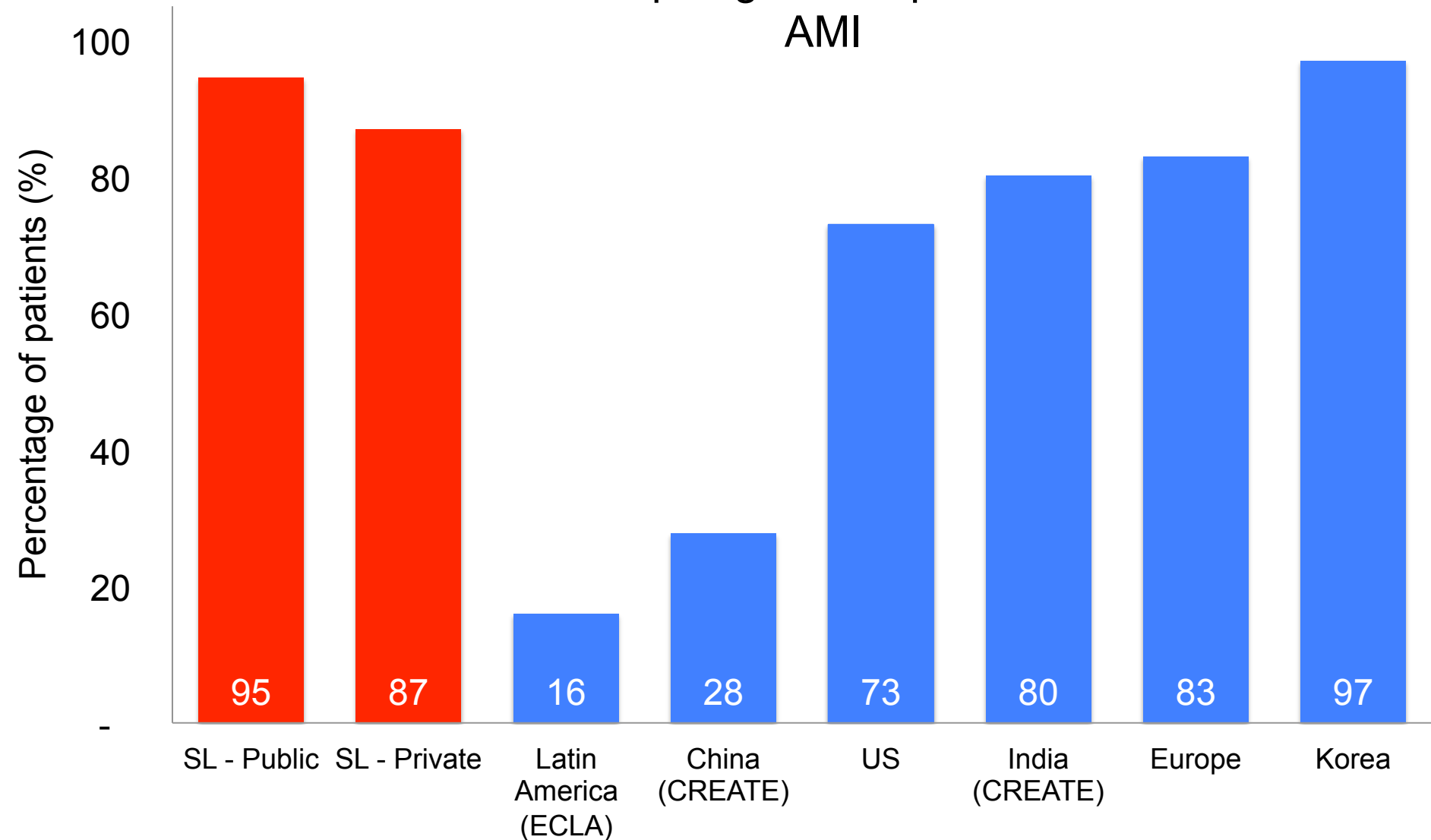


International Comparison: Low Resource Intensity – Child Breastfed After Birth

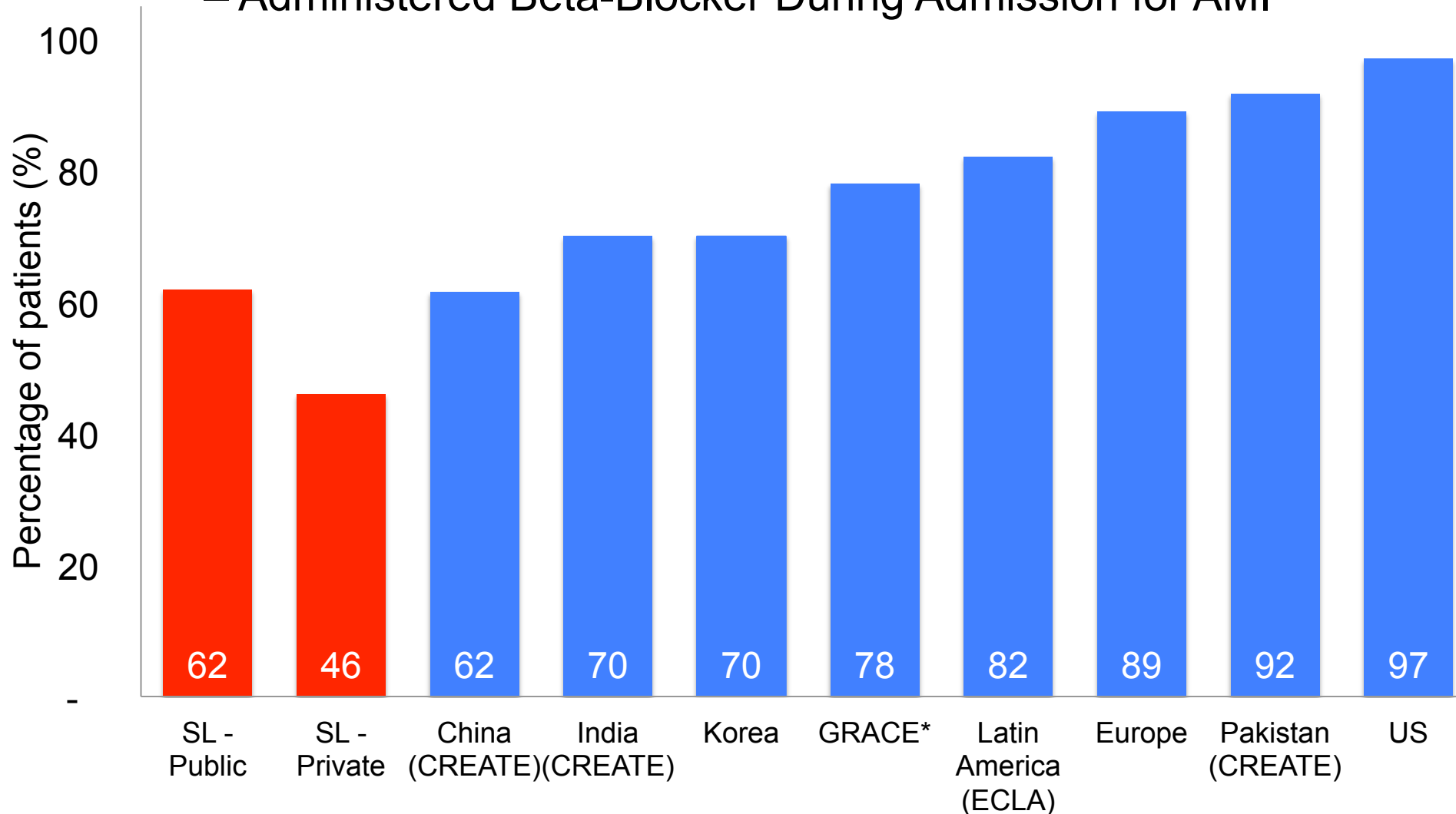


International Comparison: Medium Resource Intensity

– Administered Clopidogrel/Ticlopidine on Admission for AMI

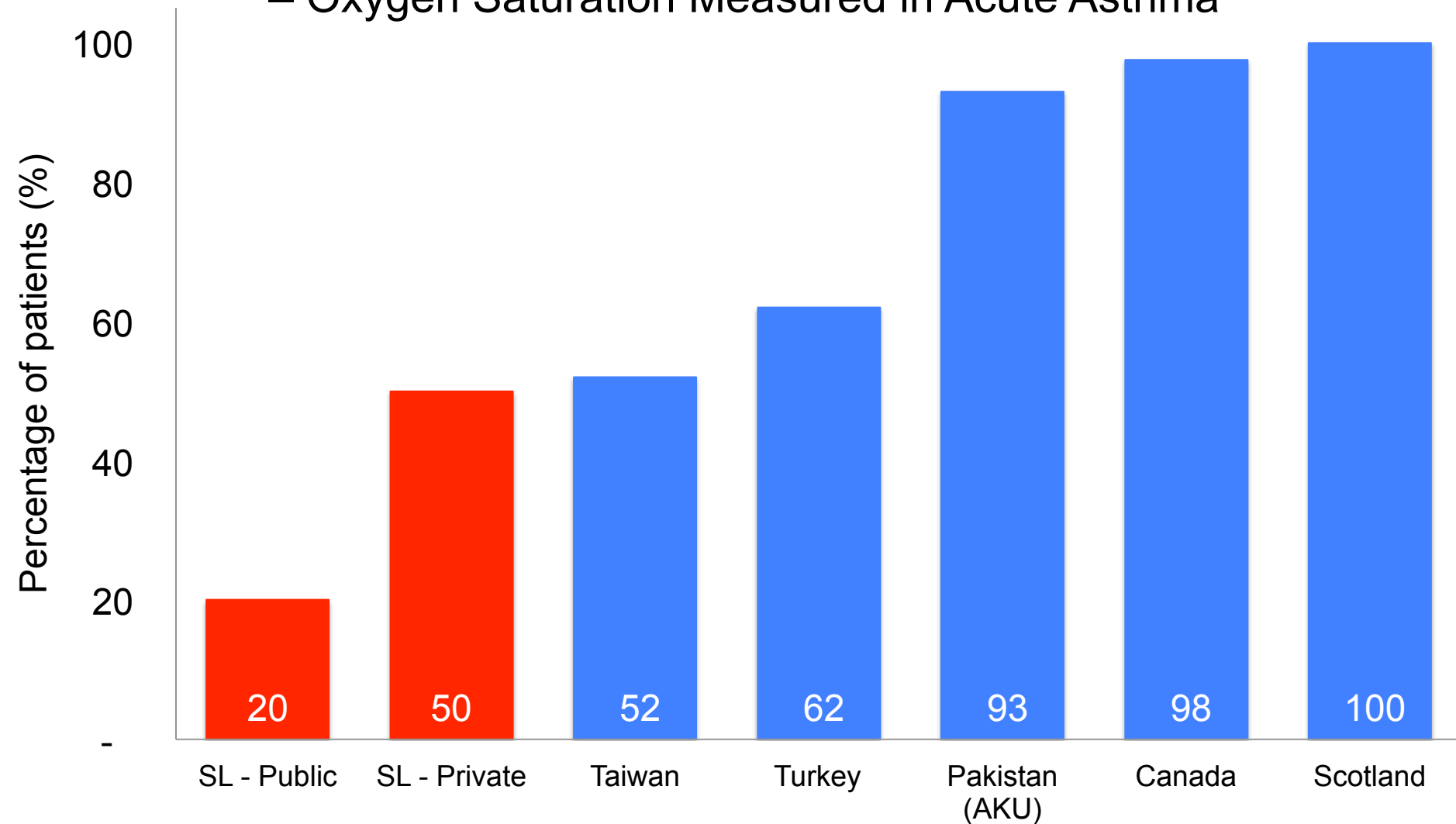


International Comparison: Medium Resource Intensity – Administered Beta-Blocker During Admission for AMI

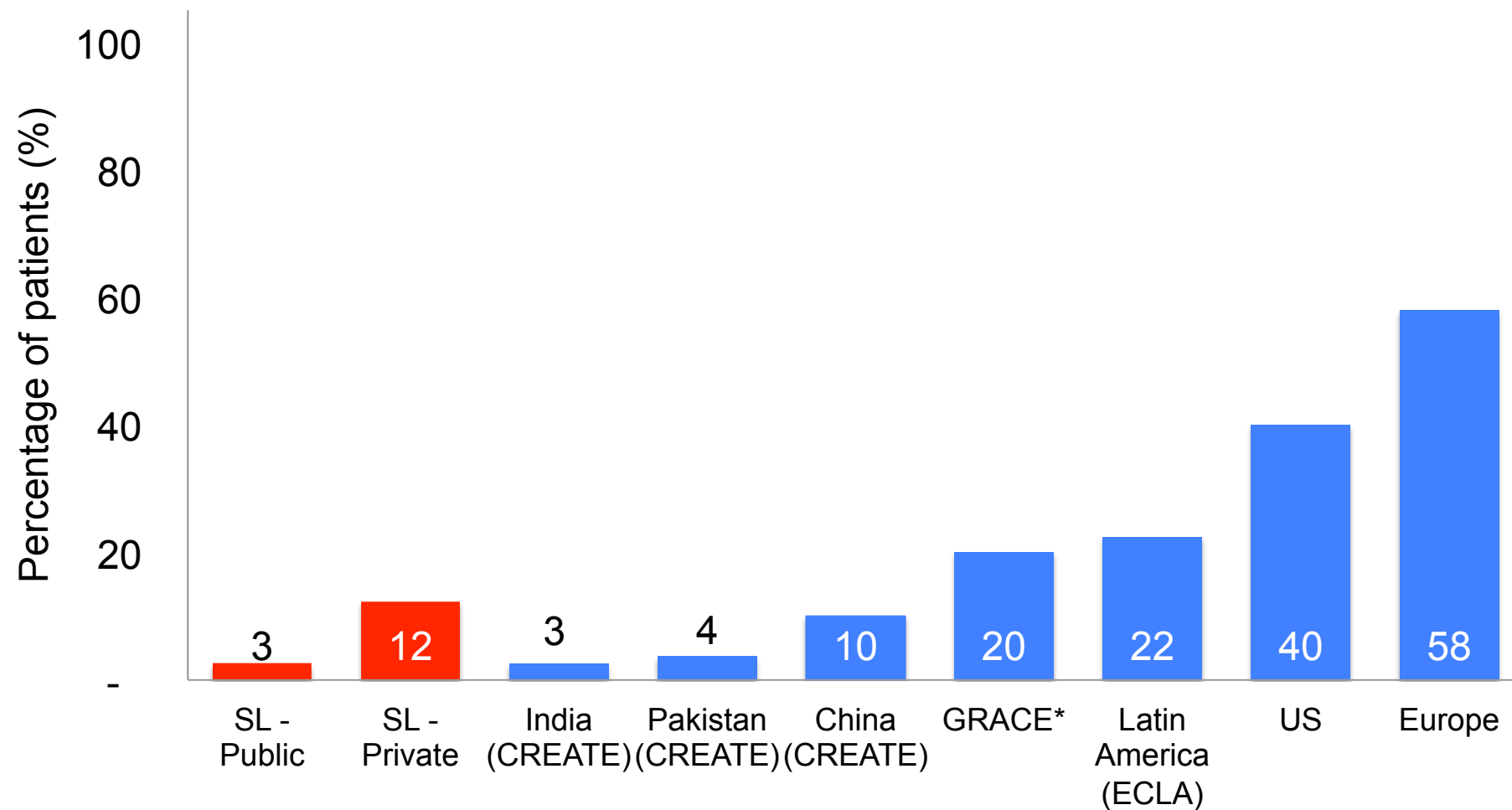


*GRACE – 14 countries from Europe, North and South America, Australasia

International Comparison: High Resource Intensity – Oxygen Saturation Measured in Acute Asthma

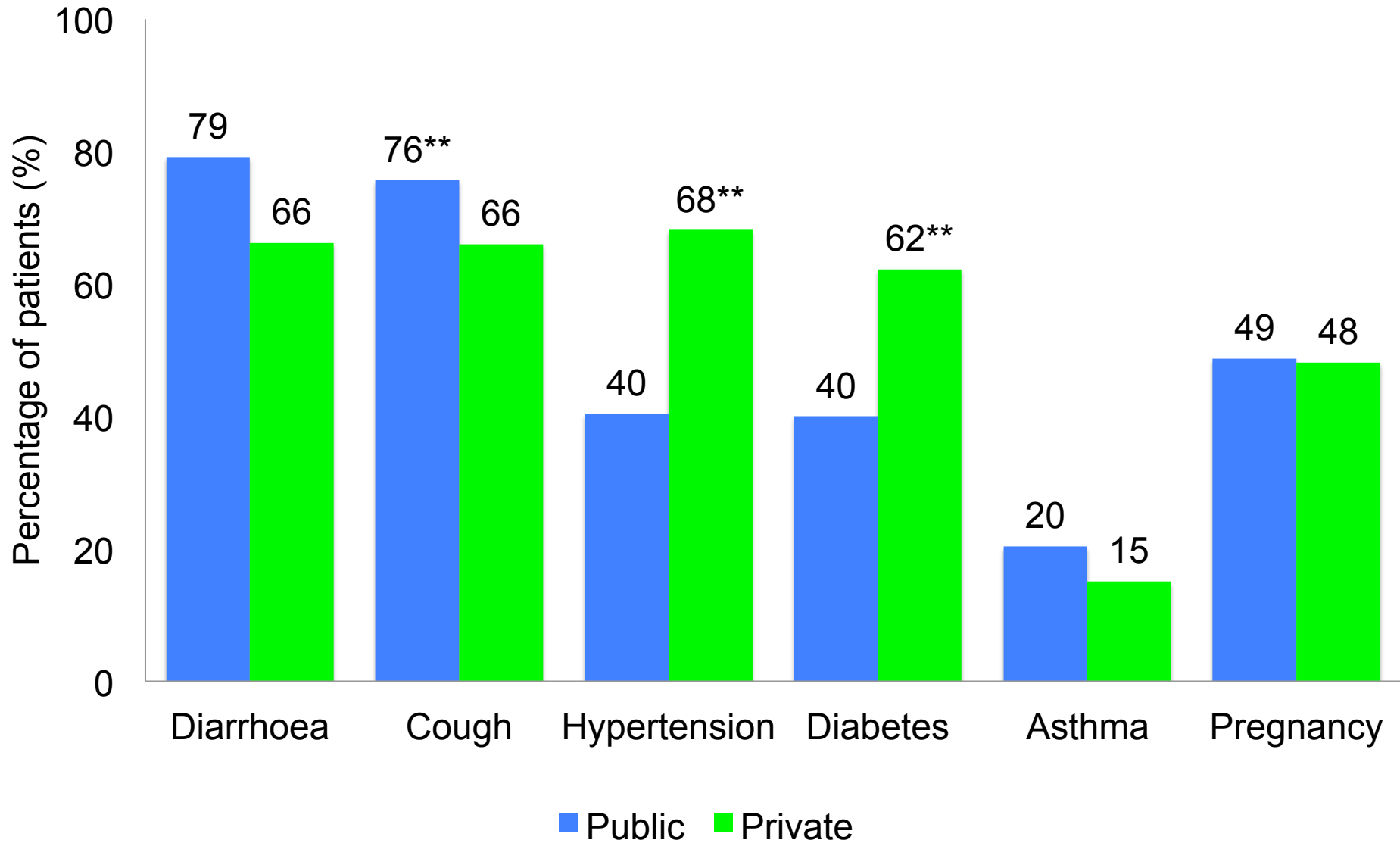


International Comparison: High Resource Intensity – PCI for AMI

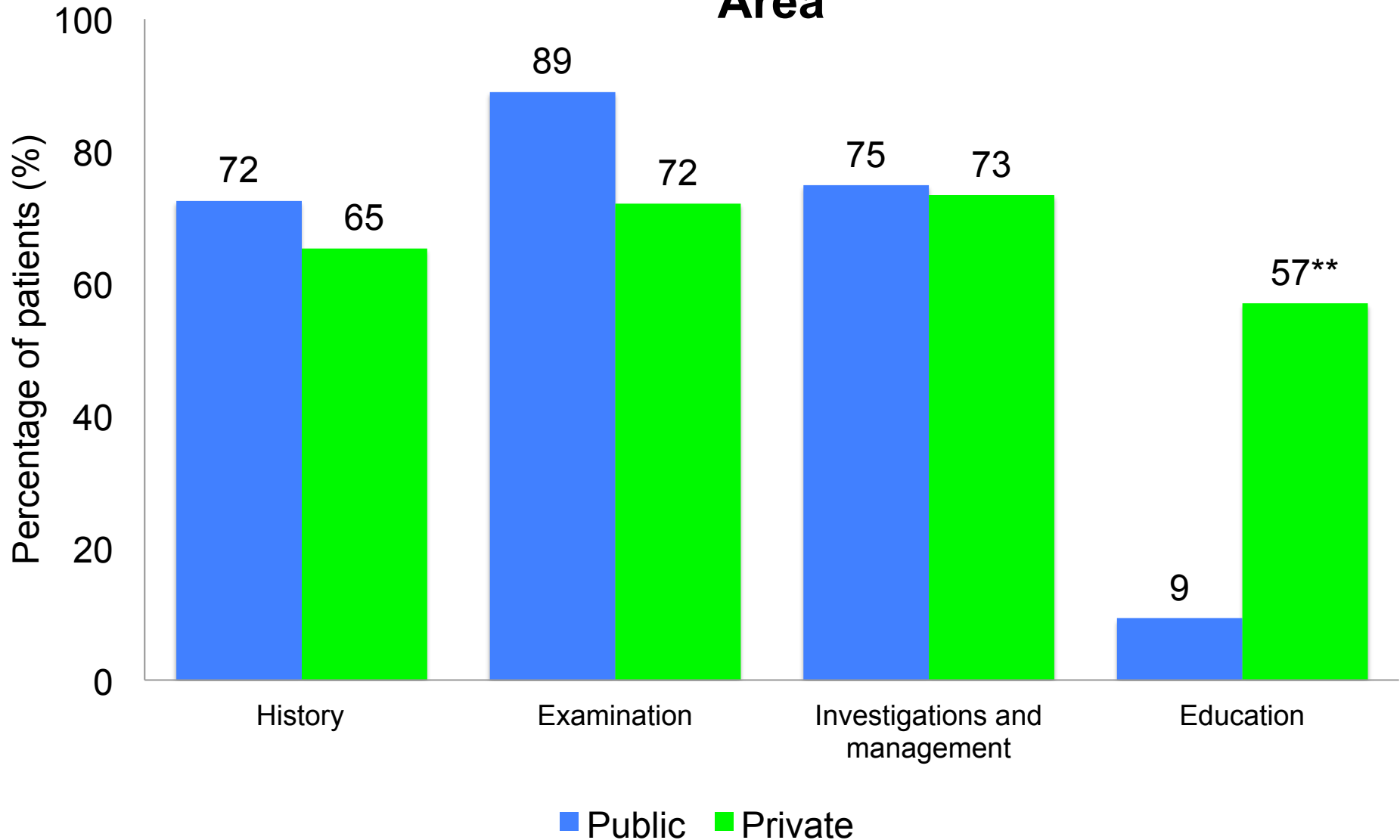


*GRACE – 14 countries from Europe, North and South America, Australasia

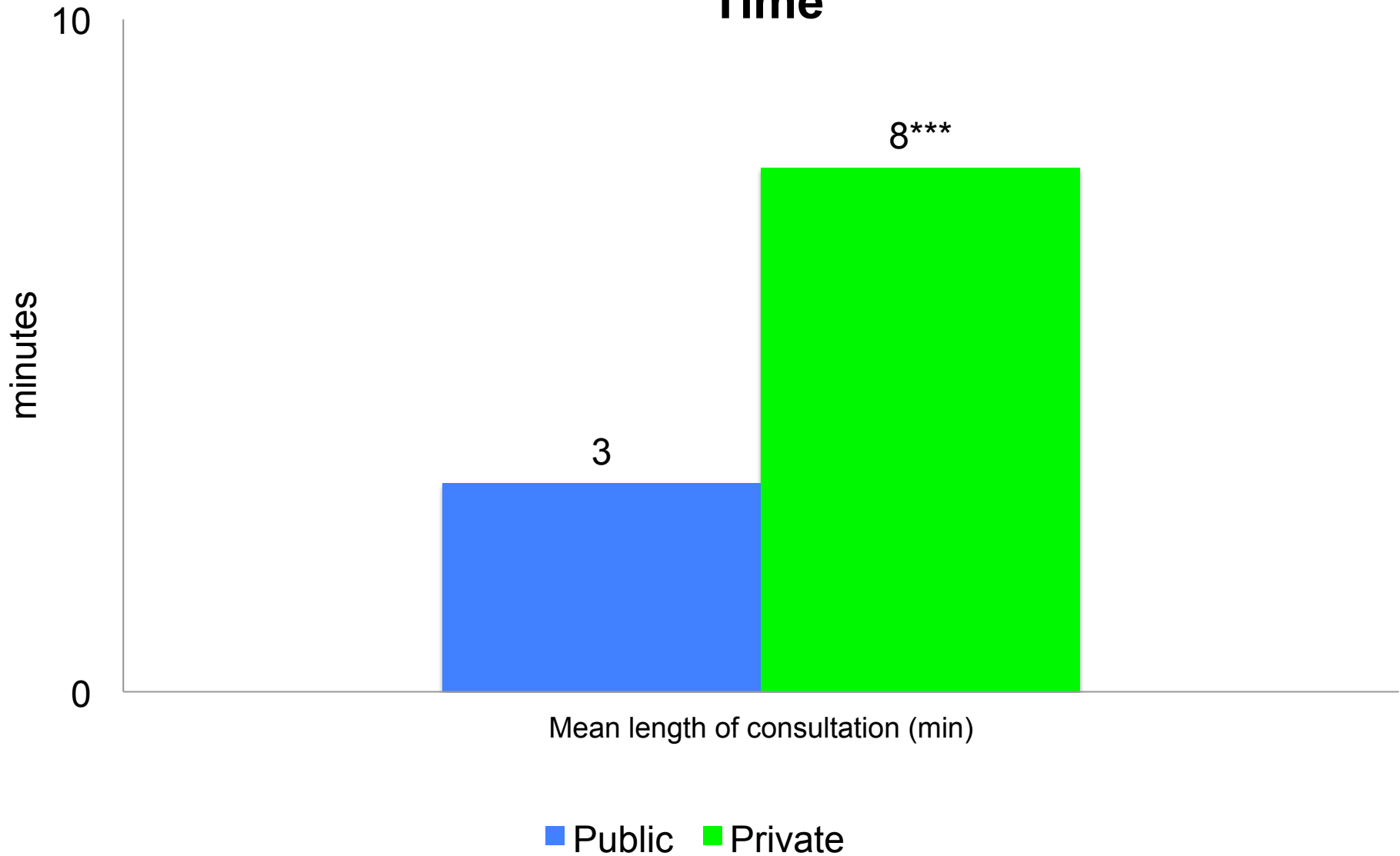
Outpatient Process Quality – Quality by Condition



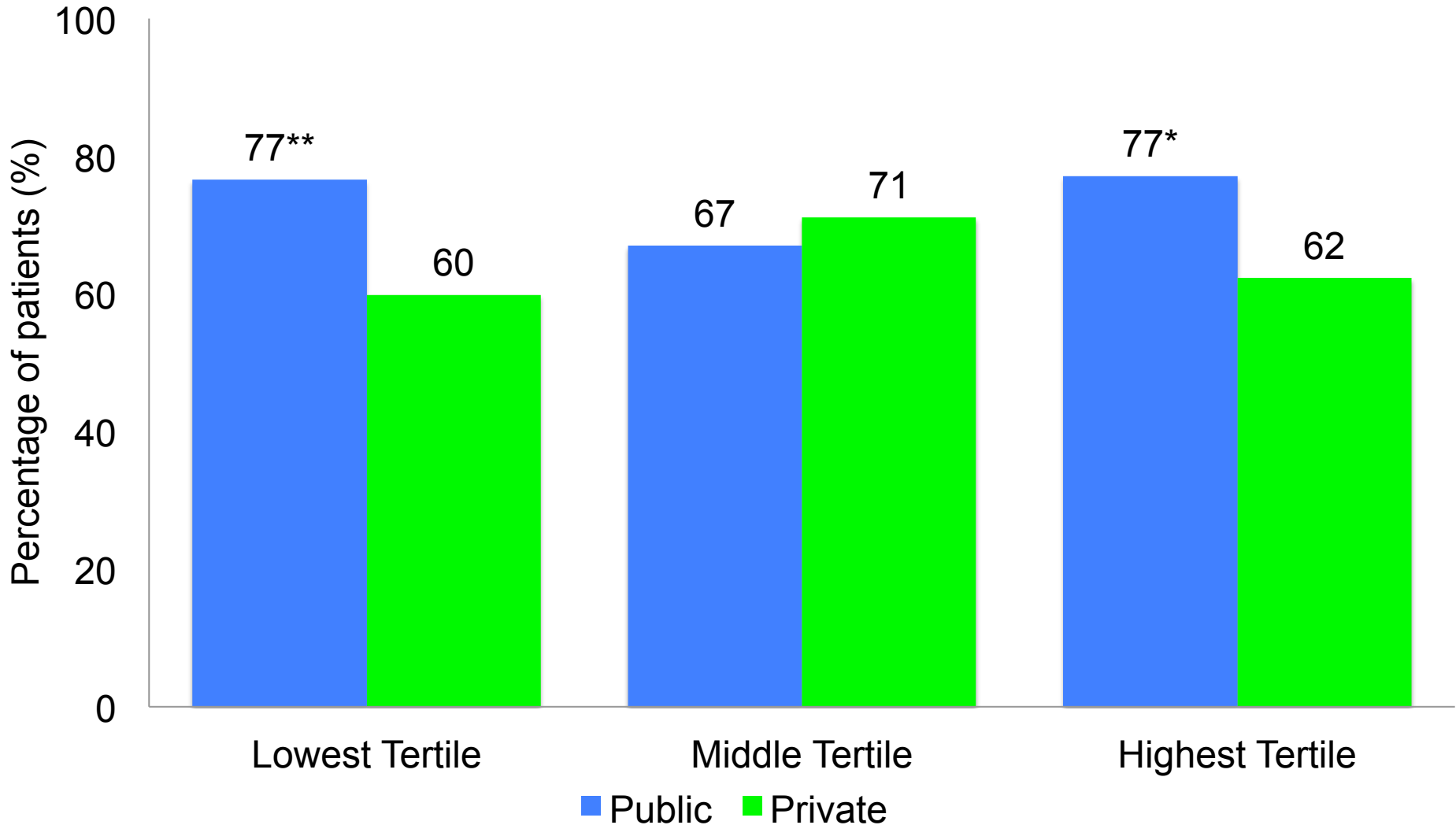
Outpatient Process Quality – Quality by Clinical Area



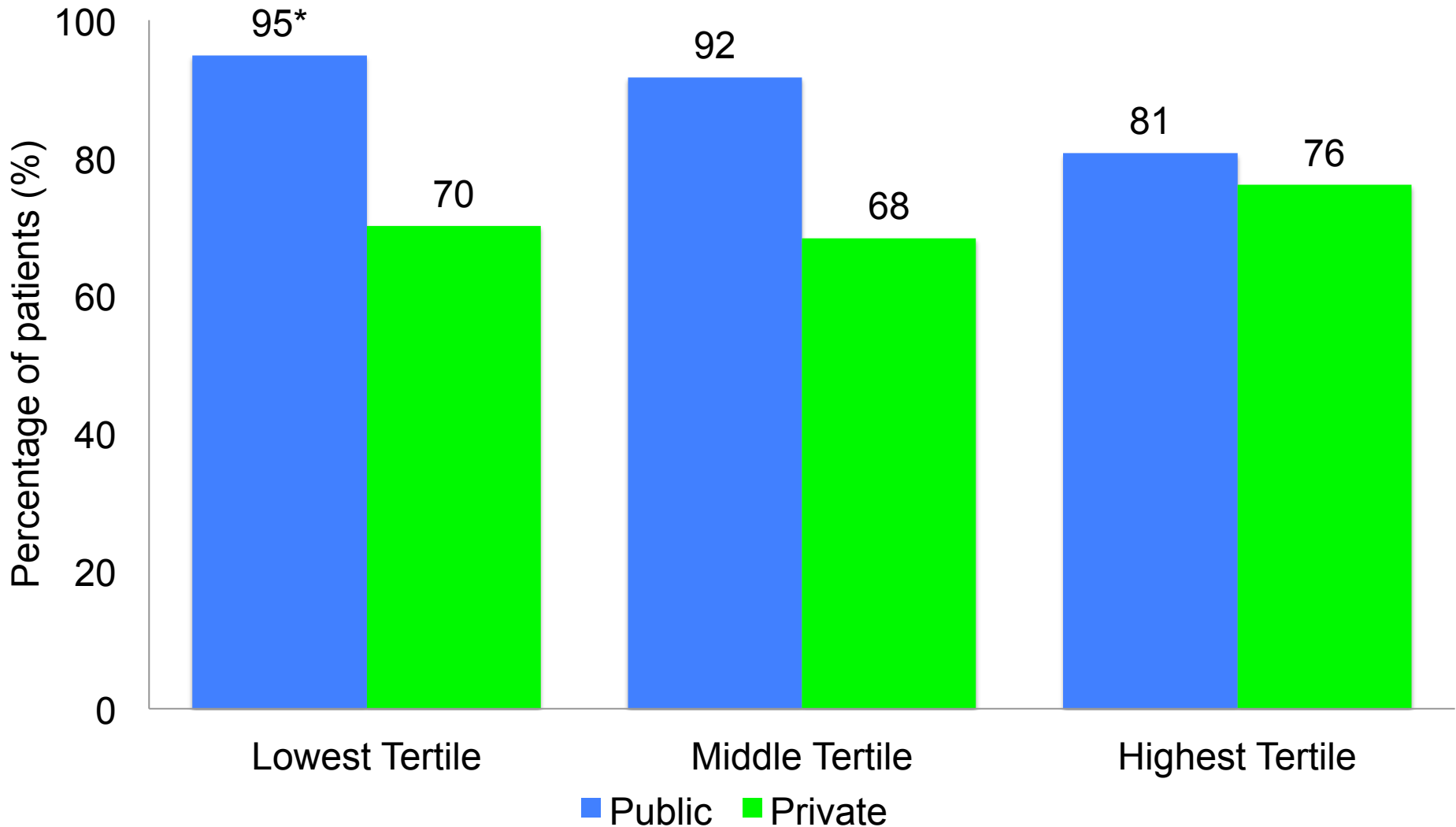
Outpatient Process Quality – Mean Consultation Time



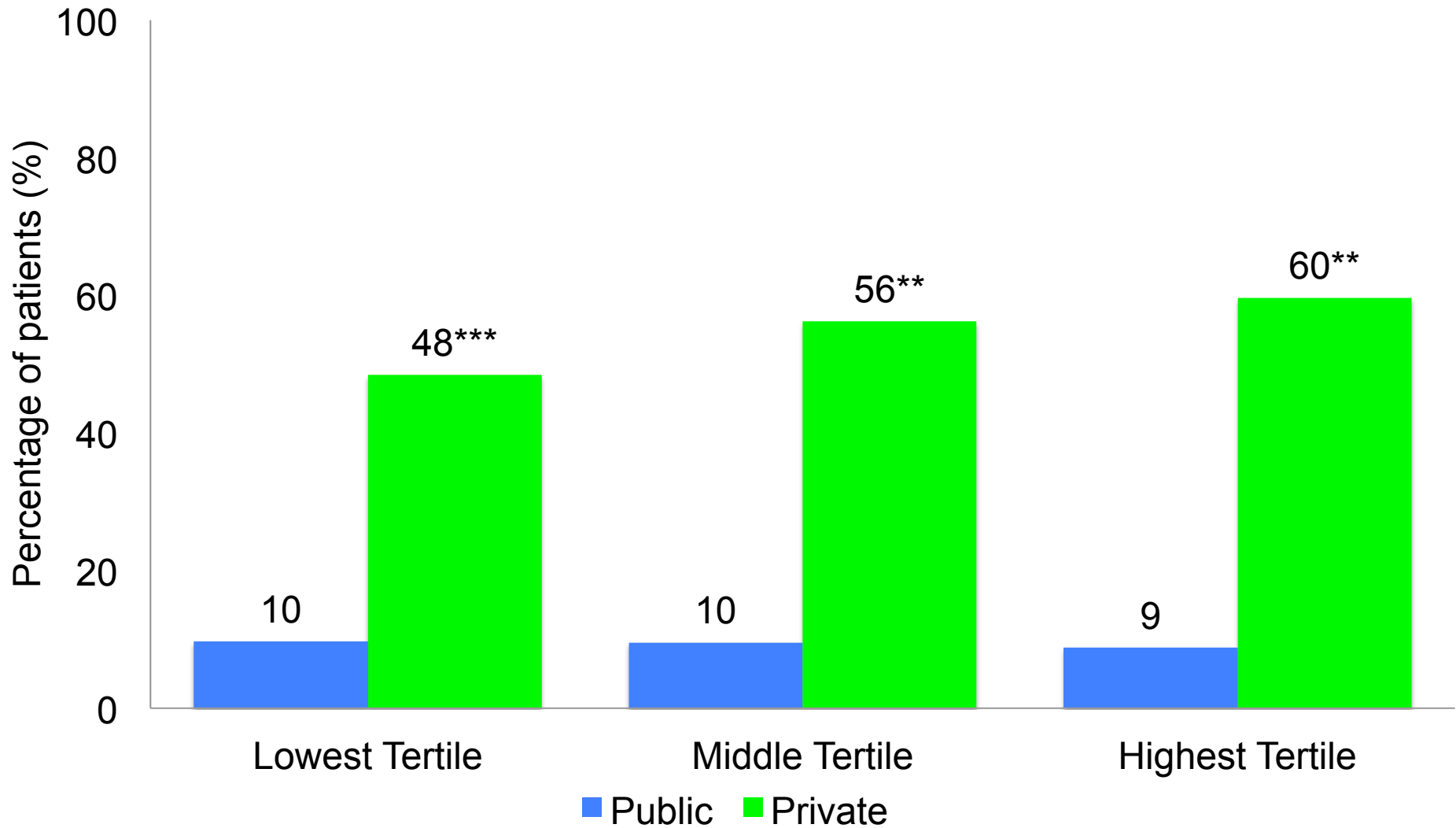
Outpatient Process Quality by Socio-Economic Status – History



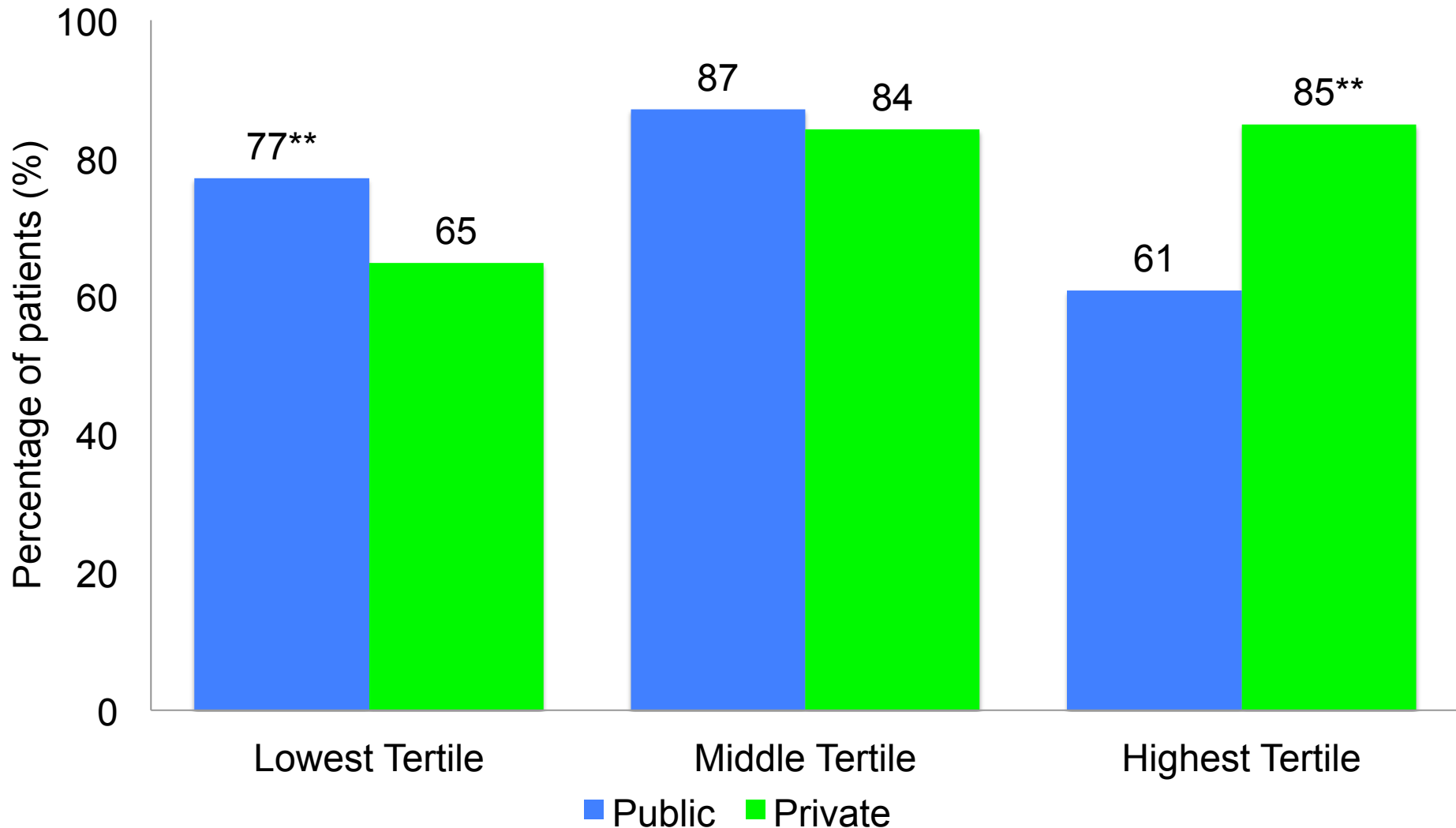
Outpatient Process Quality by Socio-Economic Status – Examination



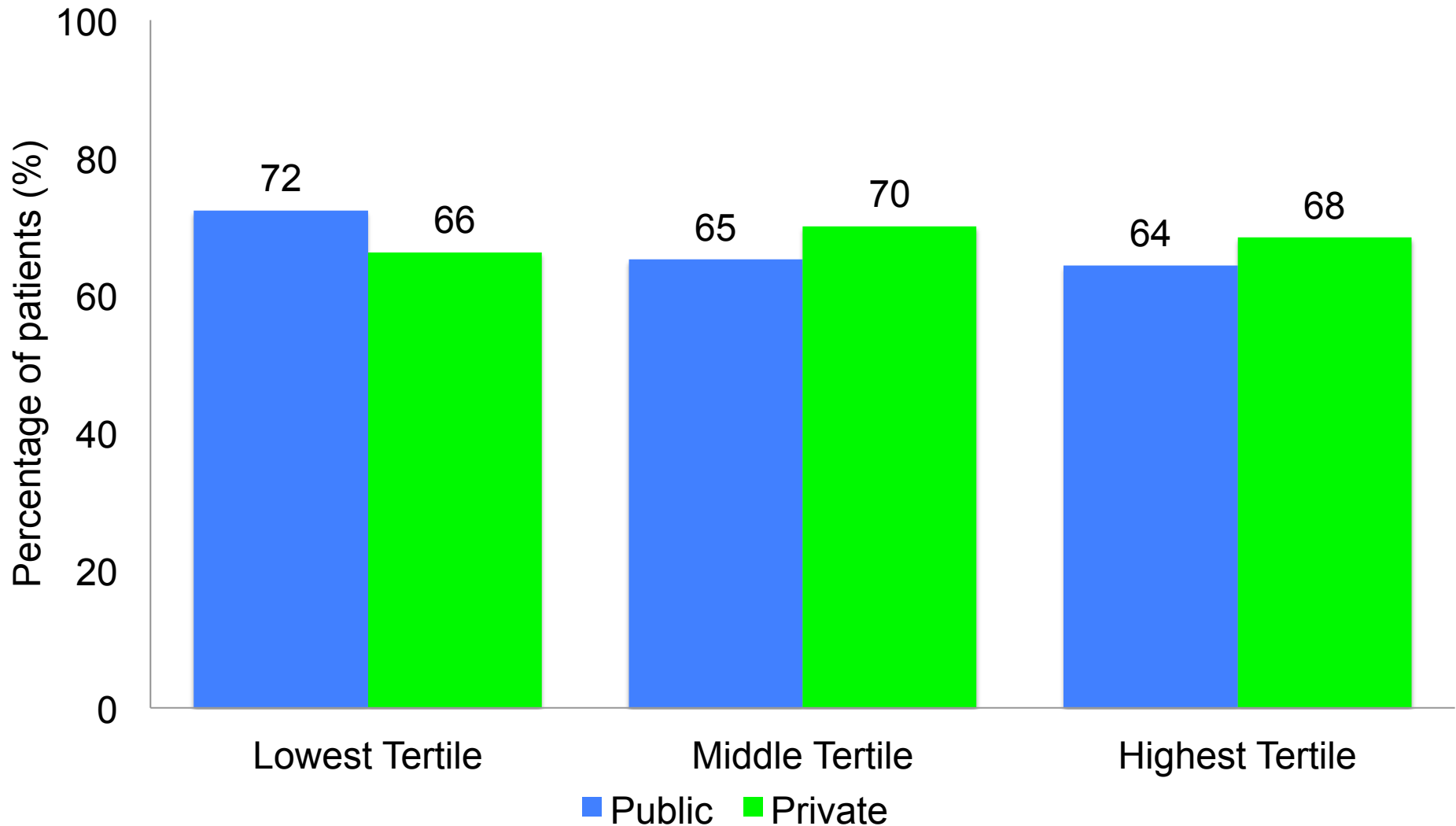
Outpatient Process Quality by Socio-Economic Status – Education



Outpatient Process Quality by Socio-Economic Status – Investigations and Management



Outpatient Process Quality by Socio-Economic Status – Overall

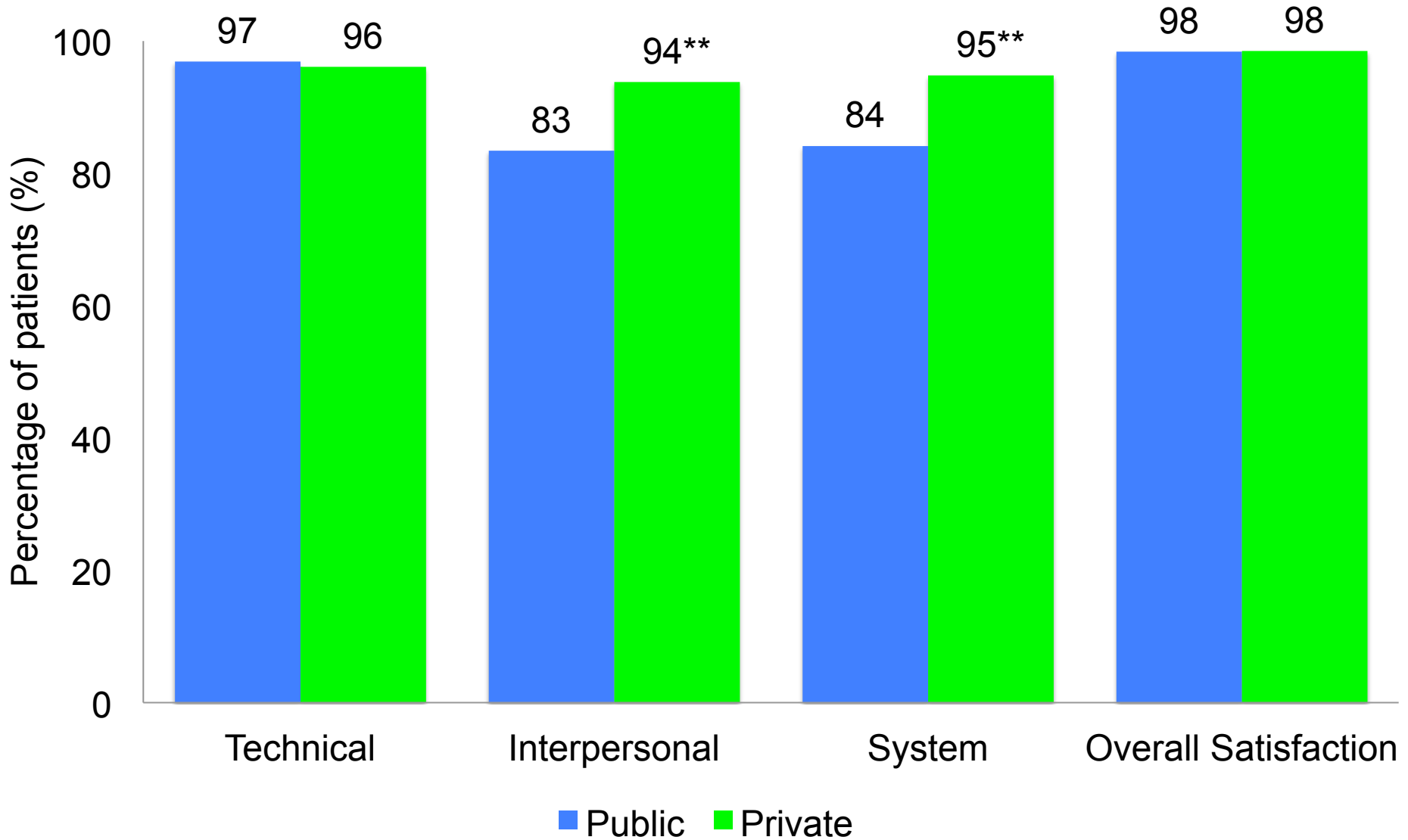


Patient education - regression

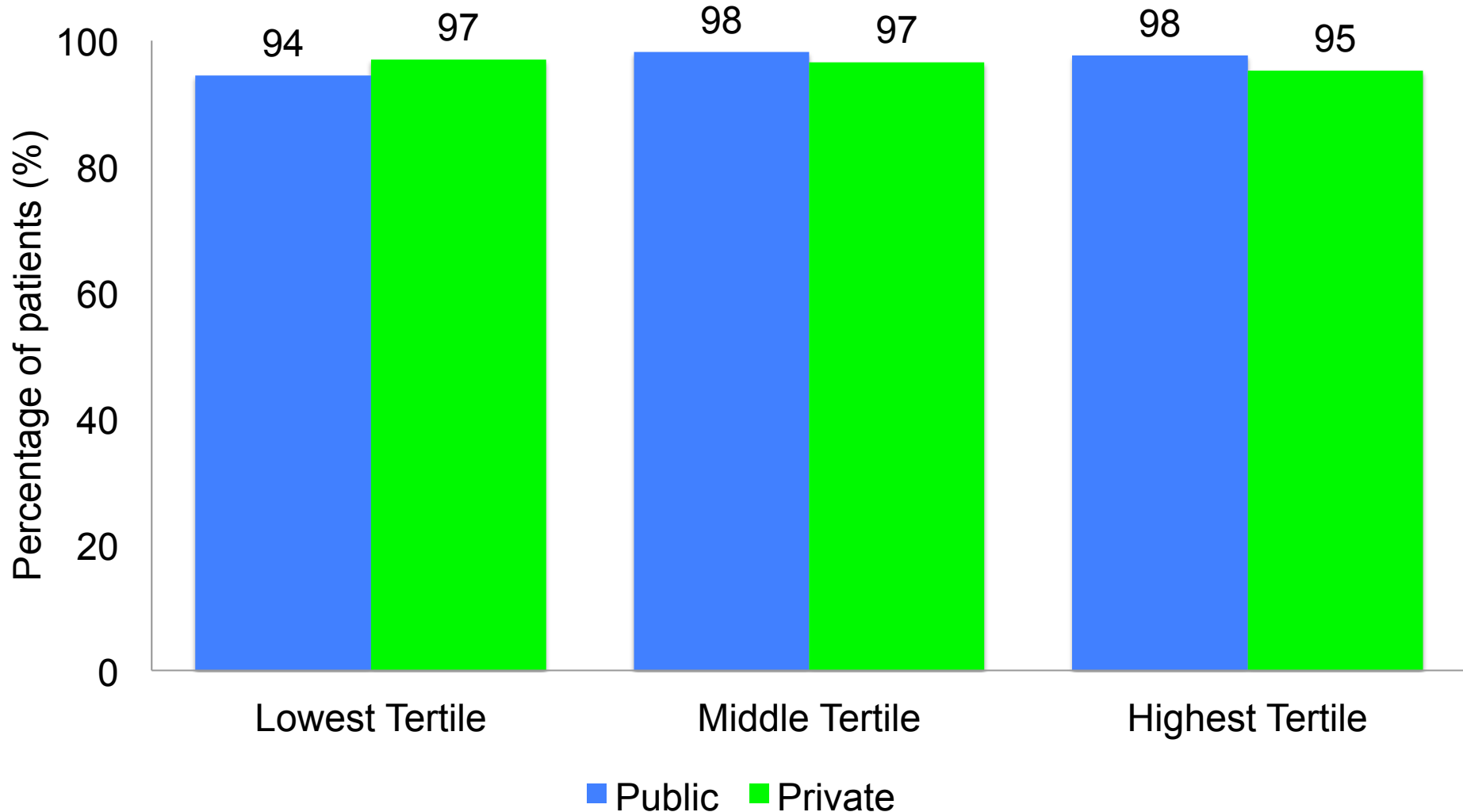
- OLS regression on patient education

Constant	50.211	27.308	*
Age group			
15-29 years	-55.000	27.439	**
30-44 years	-49.292	27.413	
45-49 years	-44.077	27.034	
60-74 years	-38.709	27.121	
>75 years	-48.505	27.595	
Sex (male)	7.963	4.510	*
Socioeconomic status (percentile)	0.085	0.063	
Education at ordinary level and above	-1.197	3.509	
Sector (private)	33.896	4.728	***
Consultation time (minutes)	0.260	0.565	

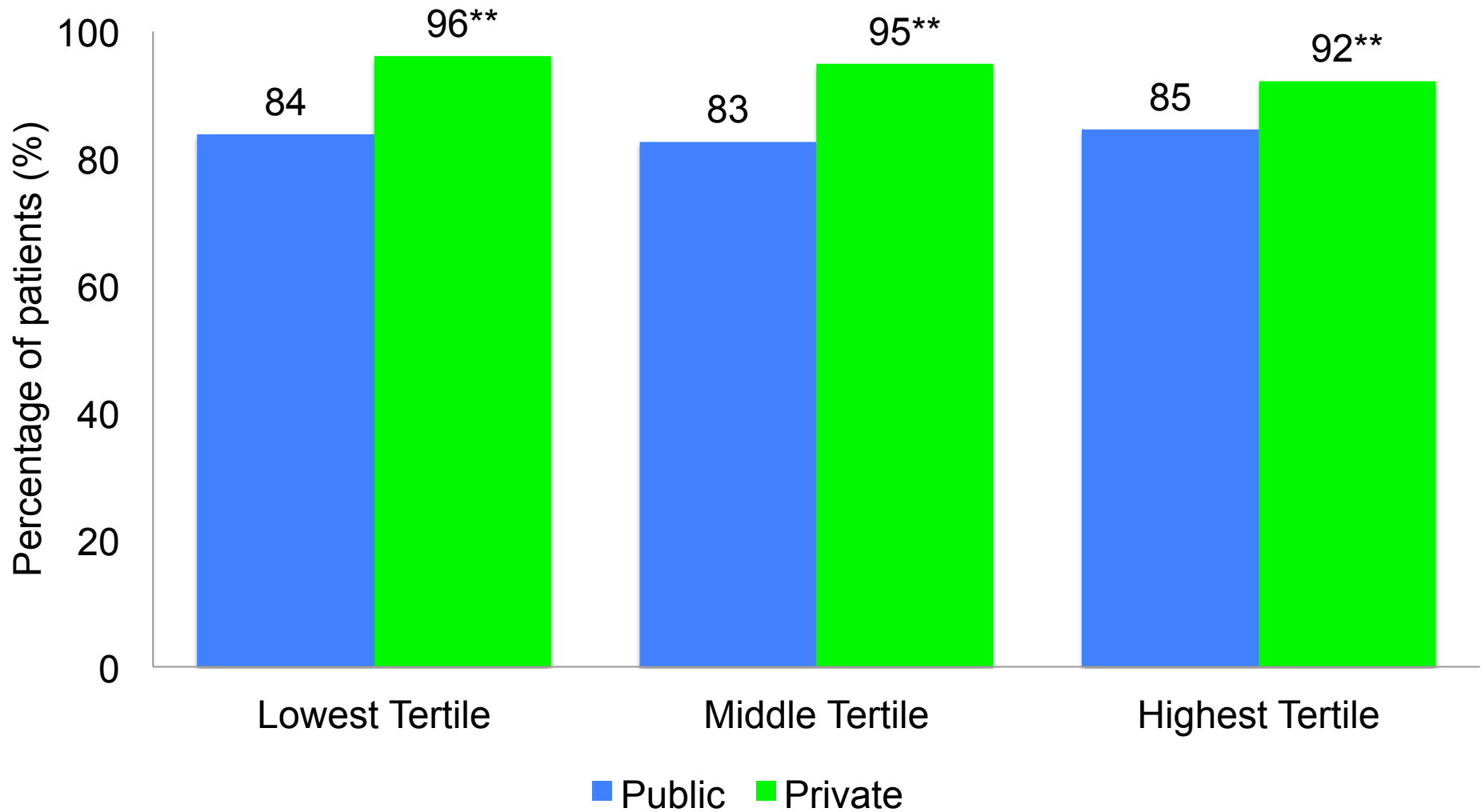
Outpatient - Patient Satisfaction



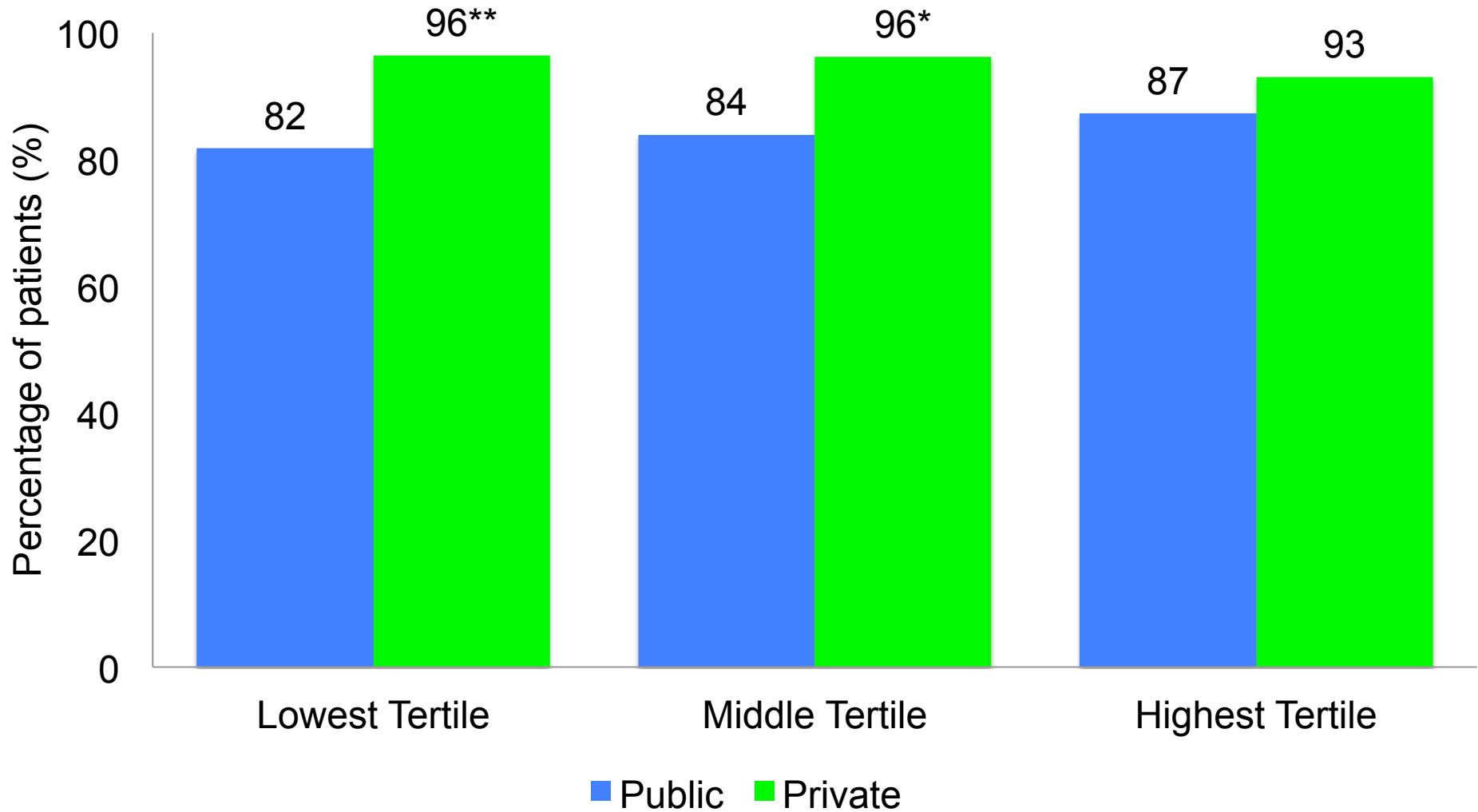
Outpatient - Patient Satisfaction by Socioeconomic Status – Technical Quality



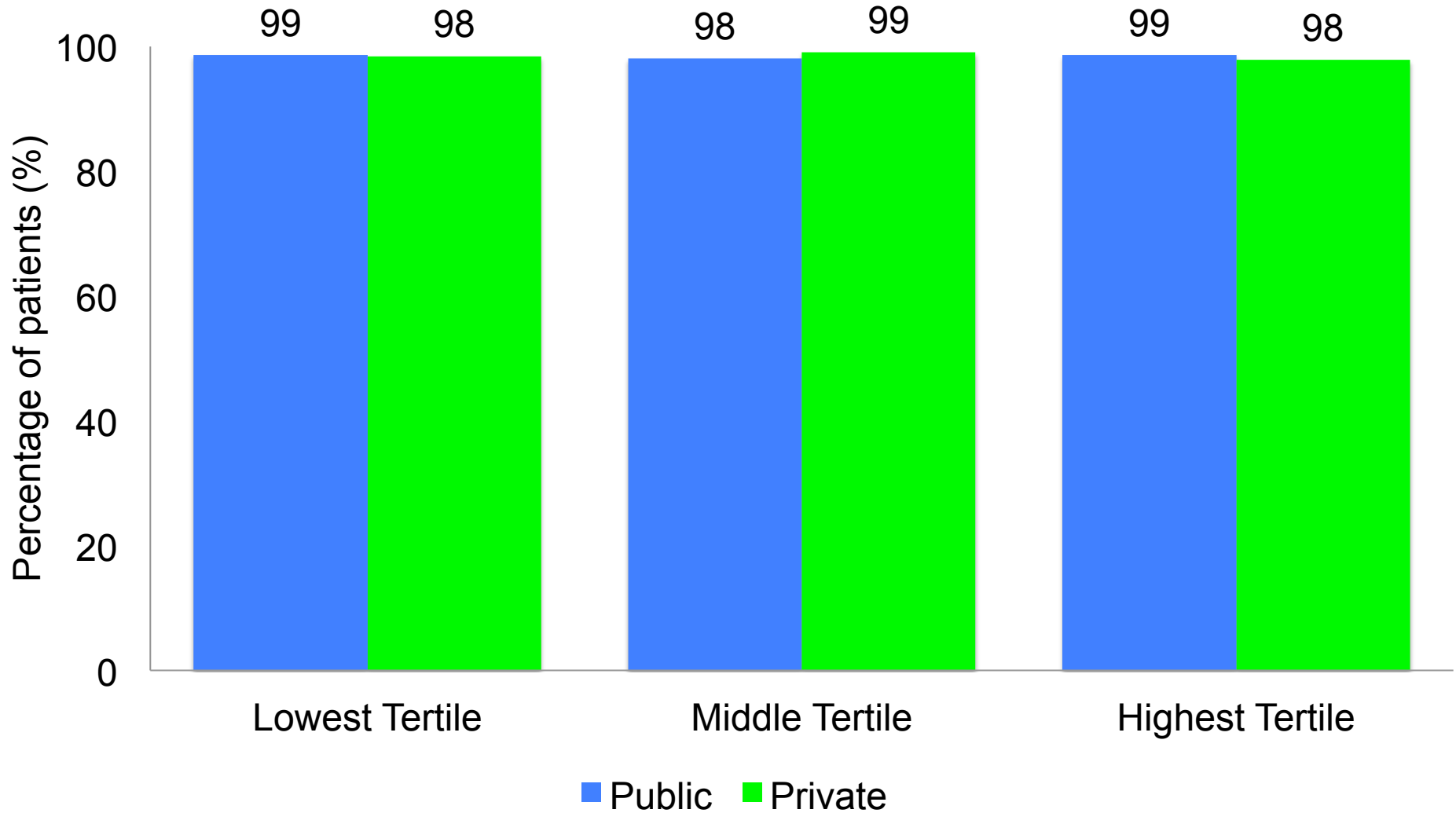
Patient Satisfaction by Socioeconomic Status – Interpersonal Quality



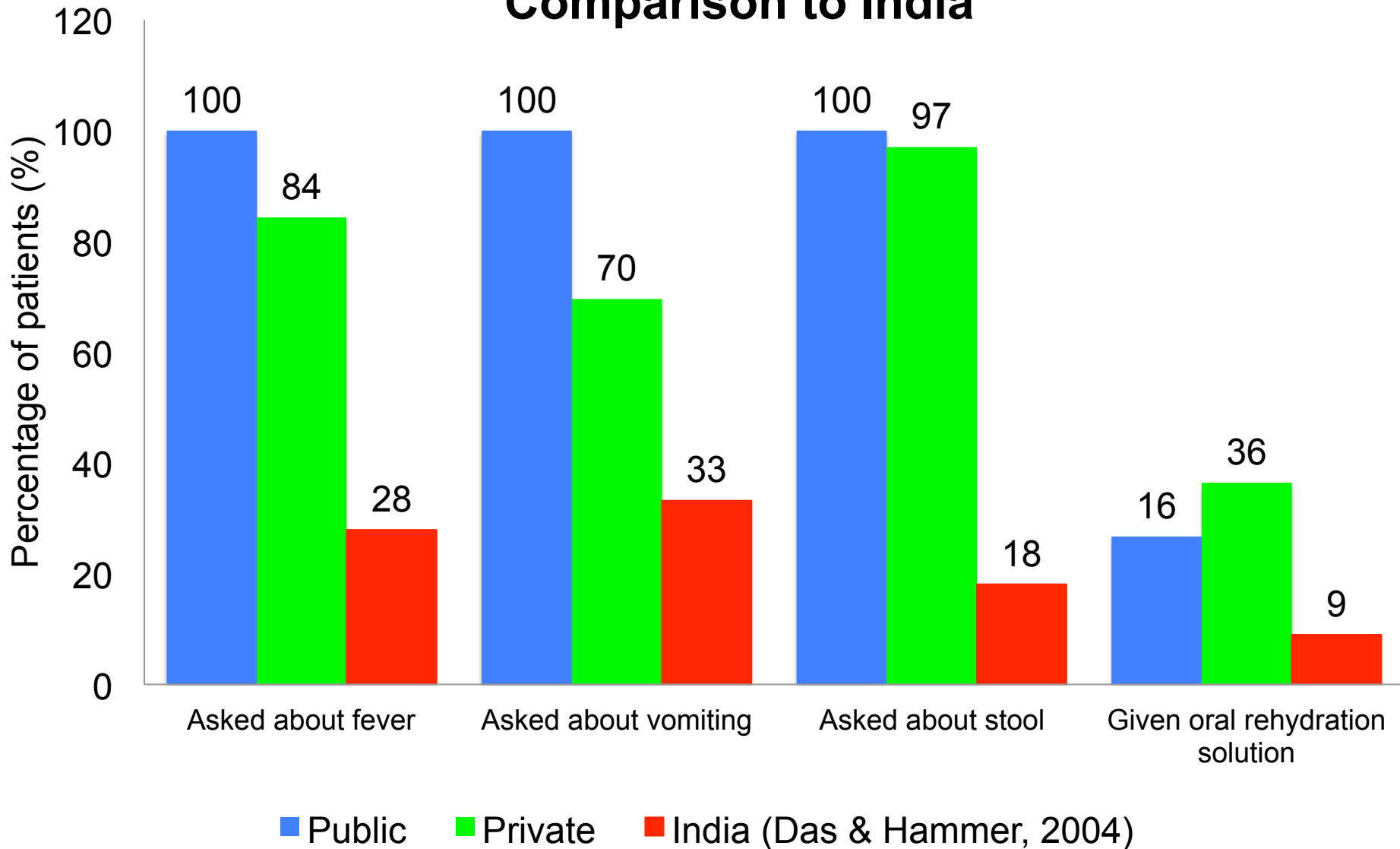
Patient Satisfaction by Socioeconomic Status – System Quality



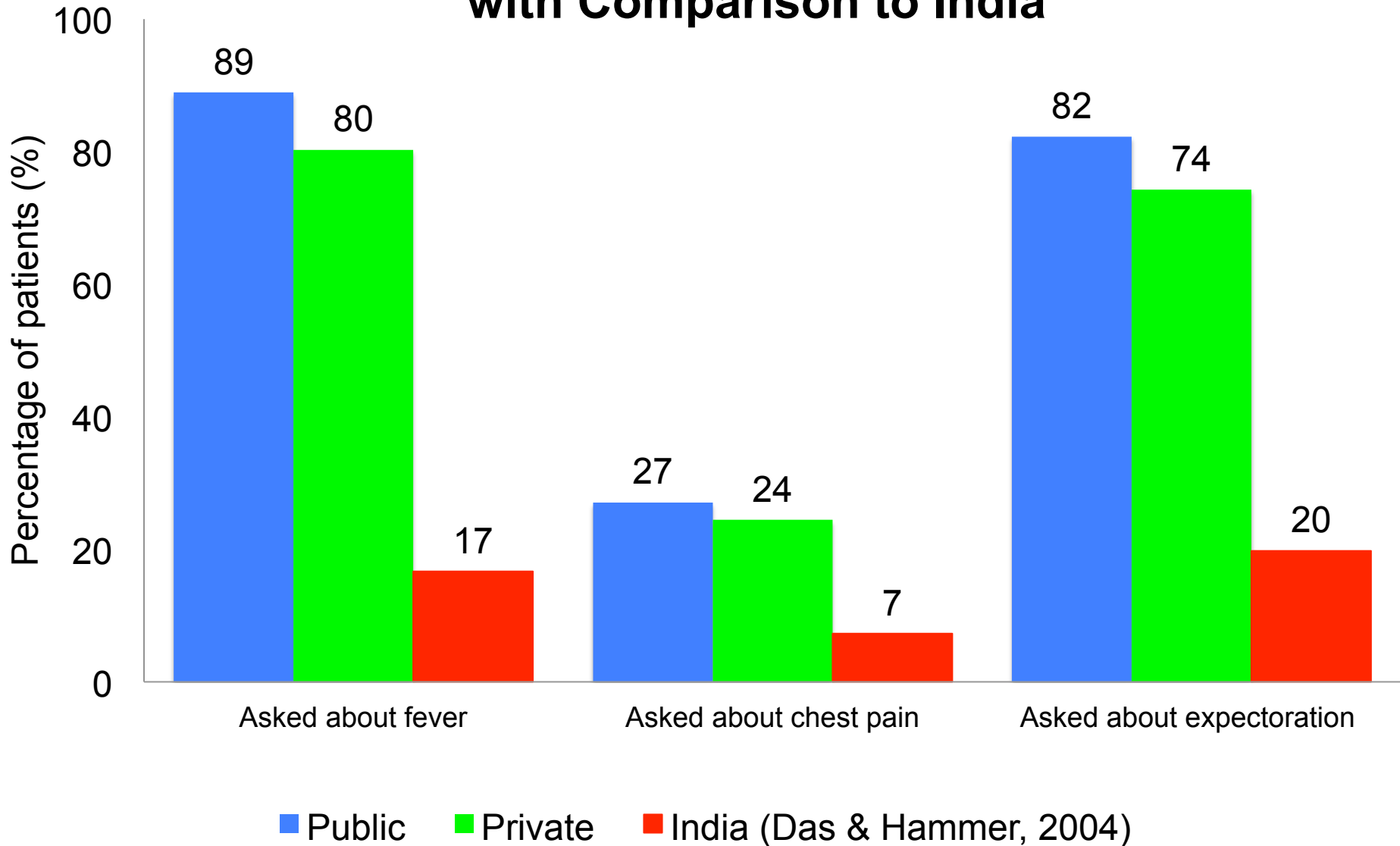
Patient Satisfaction by Socioeconomic Status – Overall Quality



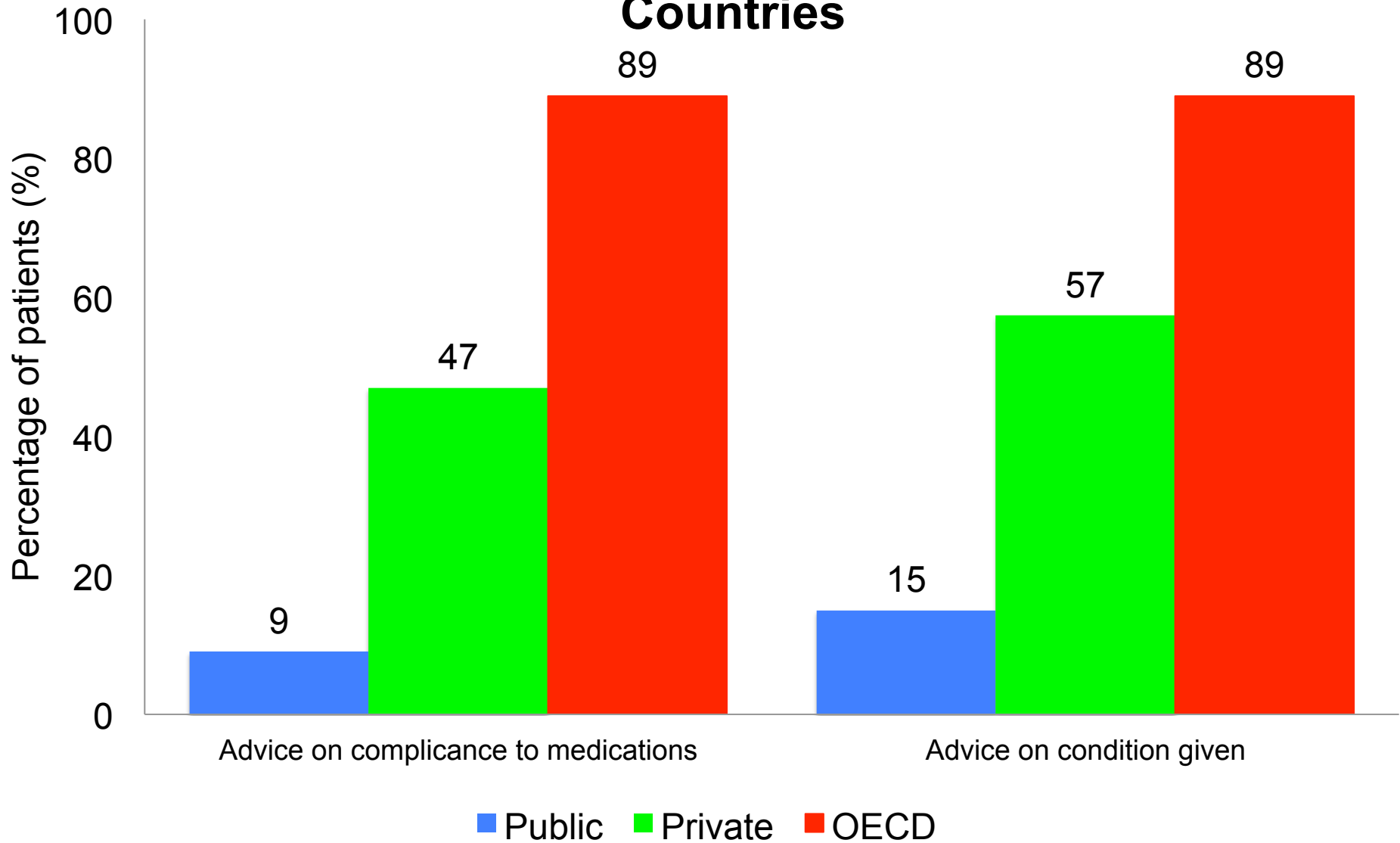
Outpatient Process Quality – Diarrhea with Comparison to India



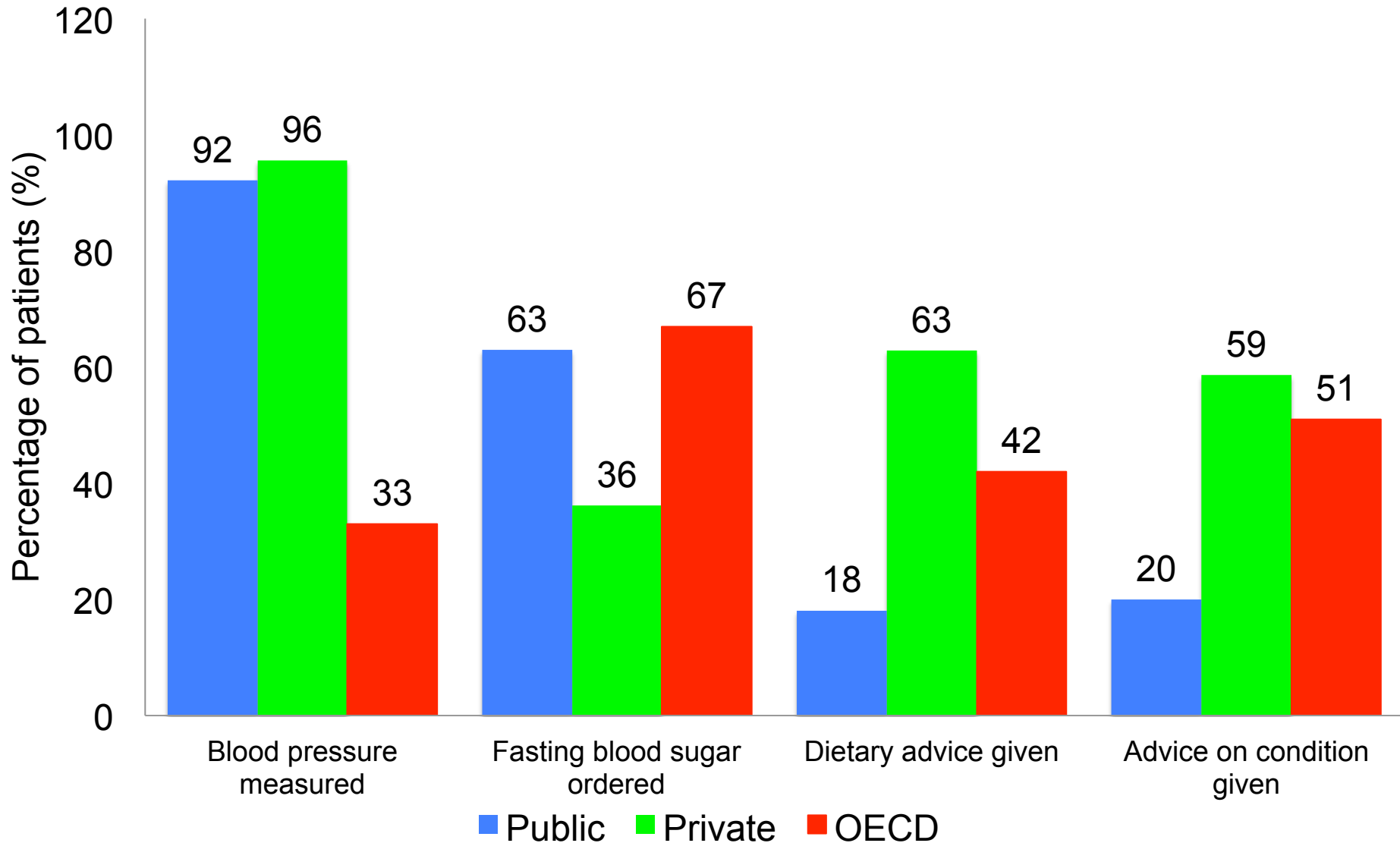
Outpatient Process Quality – Patients with Cough with Comparison to India



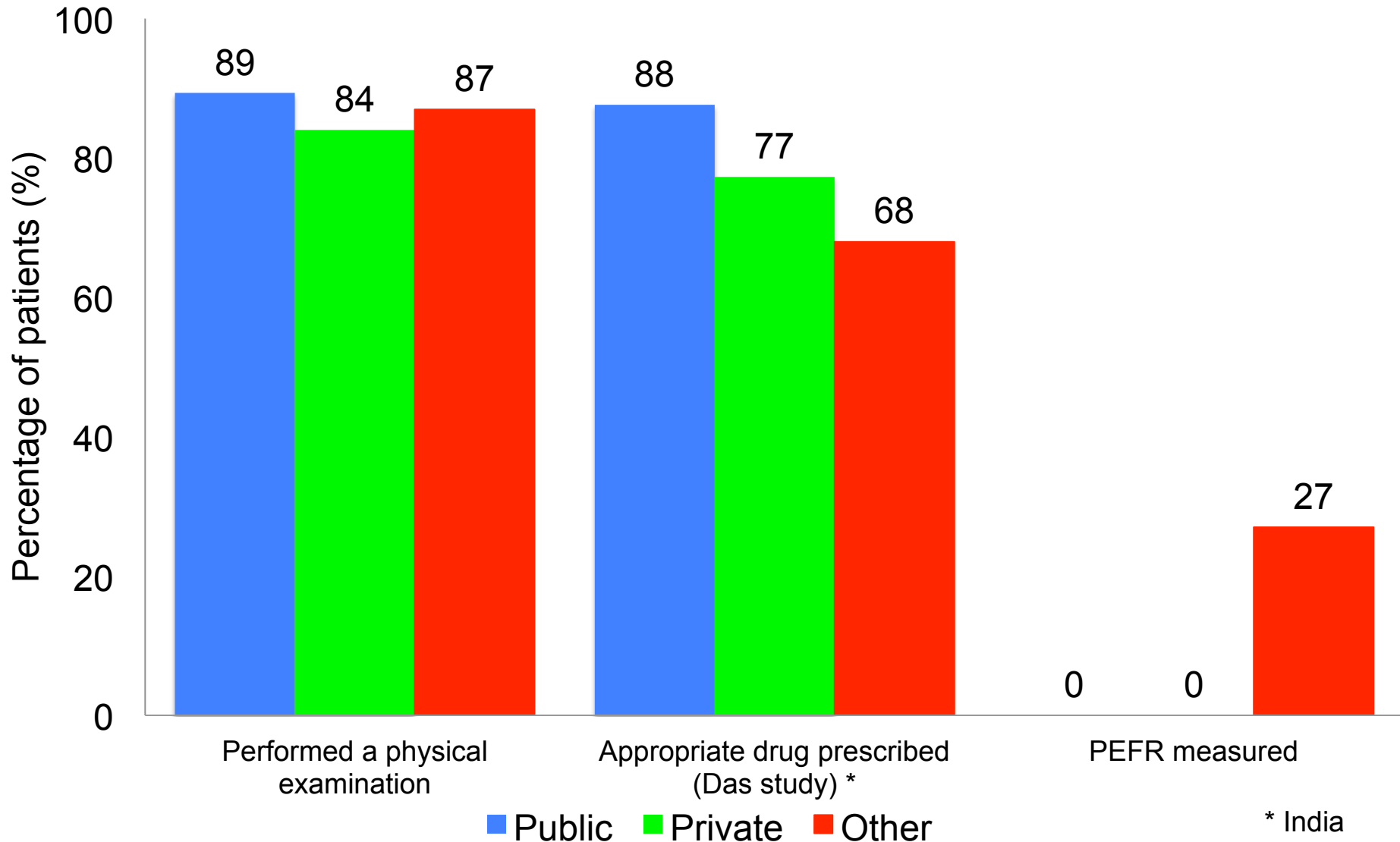
Outpatient Process Quality – Patients with Hypertension with Comparison to OECD Countries



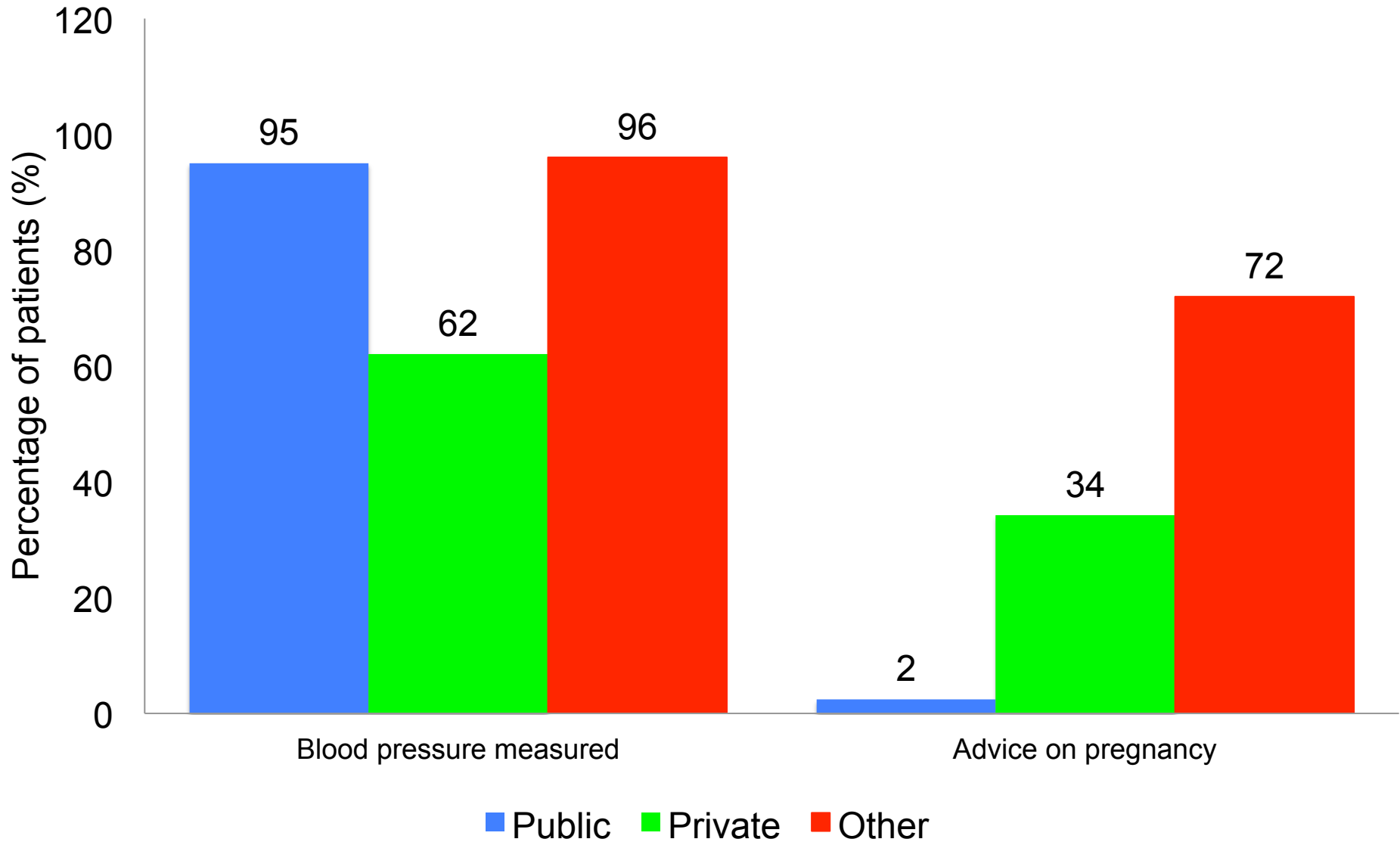
Outpatient Process Quality – Patients with Diabetes with Comparison to OECD Countries



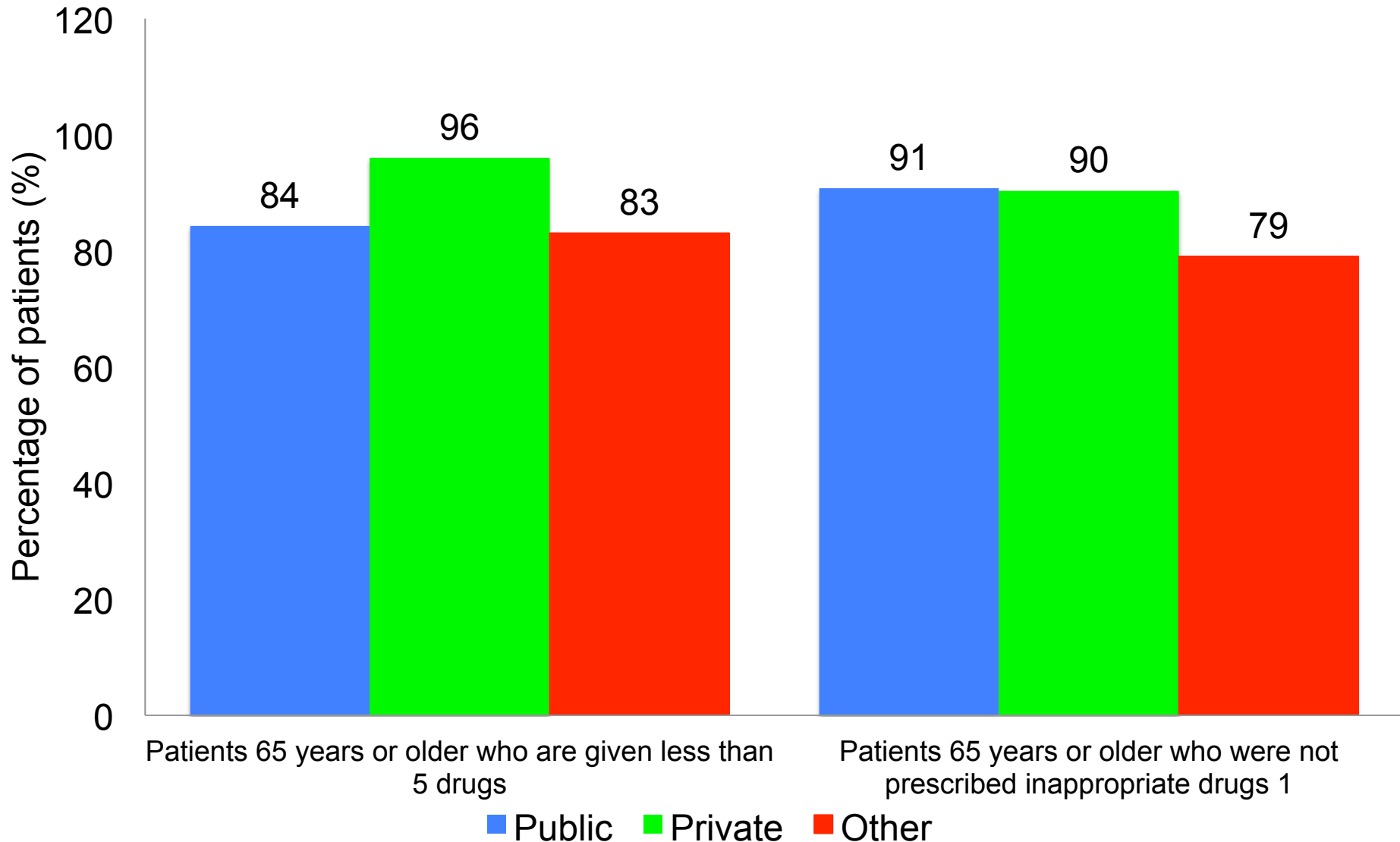
Outpatient Process Quality – Patients with Asthma with Comparison to Other Countries*



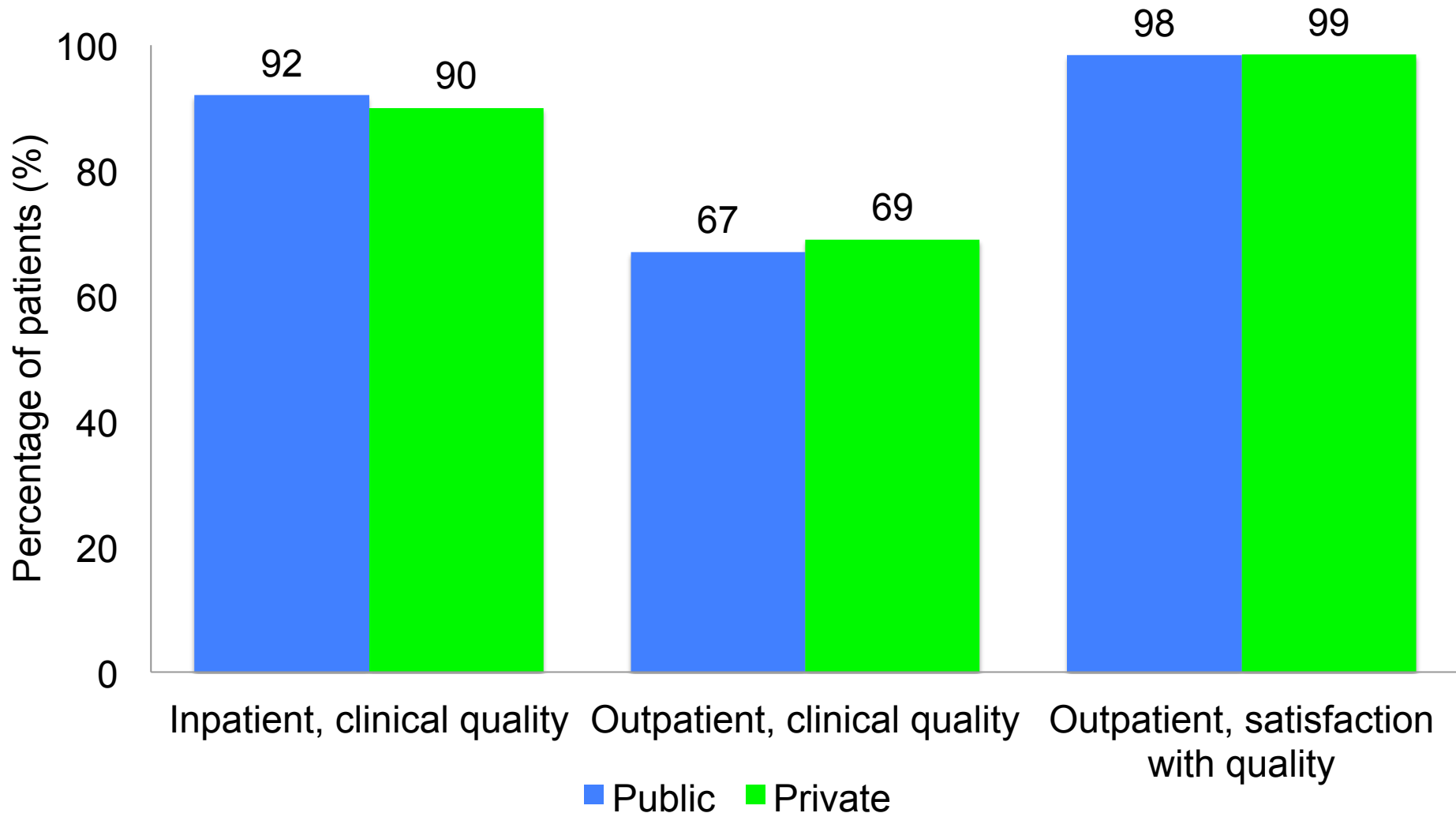
Outpatient Process Quality – Pregnant Patients with Comparison to OECD Countries



Outpatient Process Quality – Patients with Asthma with Comparison to OECD Countries



Overall scores, inpatient, outpatient and patient satisfaction



Conclusions

- Key Findings
- Conclusions

Key Findings

Inpatient treatment – Process quality

Public vs. Private Sector

- Quality is very similar between the two sectors – physicians are the same
- Public sector performs as well/better, than the private sector in many areas of quality, with much less money
 - Public performs significantly better in areas with low resource constraints.
 - Public sector performs worse in areas where resource constraints are likely, e.g. pulse oximeters, angiography.
 - Suggests that the public sector is inherently able to supply better quality (when resource constraints are equal)
 - Better able to enforce standard operating procedures, teamwork, academic affiliations
- To improve quality of care in a cost-effective manner would likely need investment in the public sector:
 - cheapest option
 - no evidence that the private sector is better able to deliver higher quality of care

Key Findings

Inpatient treatment – Process quality

Sri Lanka compared to other countries

- Comparable in many domains to other countries, particularly in management, patient outcomes
- Less good in assessment and investigations domain linked to the issue of resource constraints
- Worst performance where resource constraints likely
 1. Capital and skill intensive technologies
 2. Less costly devices that aren't available due to inadequate purchasing: *limited budget or inefficient purchasing*

Key Findings

Outpatient treatment – Process quality and patient satisfaction

Public vs. private

- Overall quality, diagnosis and treatment is similar between the two sectors
- Patients in the private sector receive more
 - time from the physician
 - education and advice (independent of time from physician)
- Patient satisfaction reflects this
 - Overall satisfaction & satisfaction with technical aspects similar
 - Satisfaction with interpersonal quality & systems quality better in private sector

General policy conclusions and implications for research

1. Benchmarking of quality is difficult and needs more research
 - Lack of studies on process qualities
 - Often focuses on structural and outcomes rather than process quality
 - Single conditions, by-products of clinical trials
 - Appears that developing country studies are not using methods used in developed countries
 - We have demonstrated the feasibility of applying methods used in developed countries in a LMIC

General policy conclusions and implications for research

2. Research Methods

- Outpatient study likely to be more representative of clinical quality than Das and Hammer (2004) study in India, as using more conditions, real patients
- Using tablet PCs can reduce barriers from health systems that don't use electronic medical records
- We have shown that it is feasible to collect data on quality by
 - Retrospective chart review for inpatients
 - Direct clinical observation for outpatients

General policy conclusions and implications for research

3. Physician training is important

- Overall quality between public and private sectors were the same, both inpatient, outpatient and patient satisfaction
- Likely because doctors in the private sector have trained in the public sector, and often work concurrently in the public sector

General policy conclusions and implications for research

4. Findings in Sri Lanka have implications for other countries
 - Sri Lankan patients are receiving generally high quality of care with low expenditures on health
 - Public and private patients generally receive the same clinical quality
 - By paying money, private patients are obtaining:
 - Better resource-intensive care in hospital
 - More time with the GP, more patient education, a better interpersonal relationship with the GP and structural organisation
 - Features of the Sri Lankan health system should be further studied as they may be applied to other developing countries