



# Comparative study of the economics of diabetes in Pacific-Rim cities: A Proposal

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# One possible addition to AWI's portfolio of research

Diabetes, especially type 2 DM, increasingly prevalent around the Pacific Rim

Providing access to timely, effective, and affordable care, coordinated across outpatient and inpatient settings to deliver quality, cost-effective diabetes management, is a daunting challenge.

## Value of economic studies

- \* quantify the value of prevention
- \* elucidate how policymakers can enhance “value for money” in caring for the growing number of patients with diabetes in these countries.



A recent example

**Inpatient treatment of diabetic patients in Asia: Evidence from India, China, Thailand, and Malaysia**

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Table 1. Population, health, and health spending in 2007 in India, China, Thailand, Malaysia, and the United States

	India	China	Thailand	Malaysia	United States
Population, total (millions)	1123	1320	64	27	302
Rural population (% of total population)	71%	58%	67%	31%	19%
Population ages 65 and above (% of total)	5%	8%	8%	5%	12%
Life expectancy at birth, female (years)	66	74	75	76	81
Life expectancy at birth, male (years)	63	70	66	72	75
Life expectancy at birth, total (years)	64	72	70	74	78
Prevalence of Diabetes Mellitus, 2003	6%	3%	7%	9%	8%
Estimated prevalence of Diabetes Mellitus, 2025	8%	4%	-	-	9%
GDP per capita, PPP (current international \$)	2753	5345	8138	13380	45790
Health expenditure per capita (current US\$)	36	81	98	222	6350
Health expenditure, total (% of GDP)	5%	5%	4%	4%	15%
Out-of-pocket (uninsured) health expenditure					
% of total health expenditure	75%	51%	19%	38%	13%
per capita (2005 US\$)	27	41	19	84	813



# Background and Methods

- **Background.** Type 2 diabetes mellitus (DM) prevalence has grown rapidly in low- and middle-income countries, but little is known about the magnitude and drivers of spending, particularly in inpatient settings.
- **Methods.** We analyze data on the health and inpatient medical expenditures of adult type 2 DM patients hospitalized in five select tertiary hospitals in four countries: India, China, Thailand, and Malaysia. We report hospitalization expenditures relative to national income per capita in 2007.



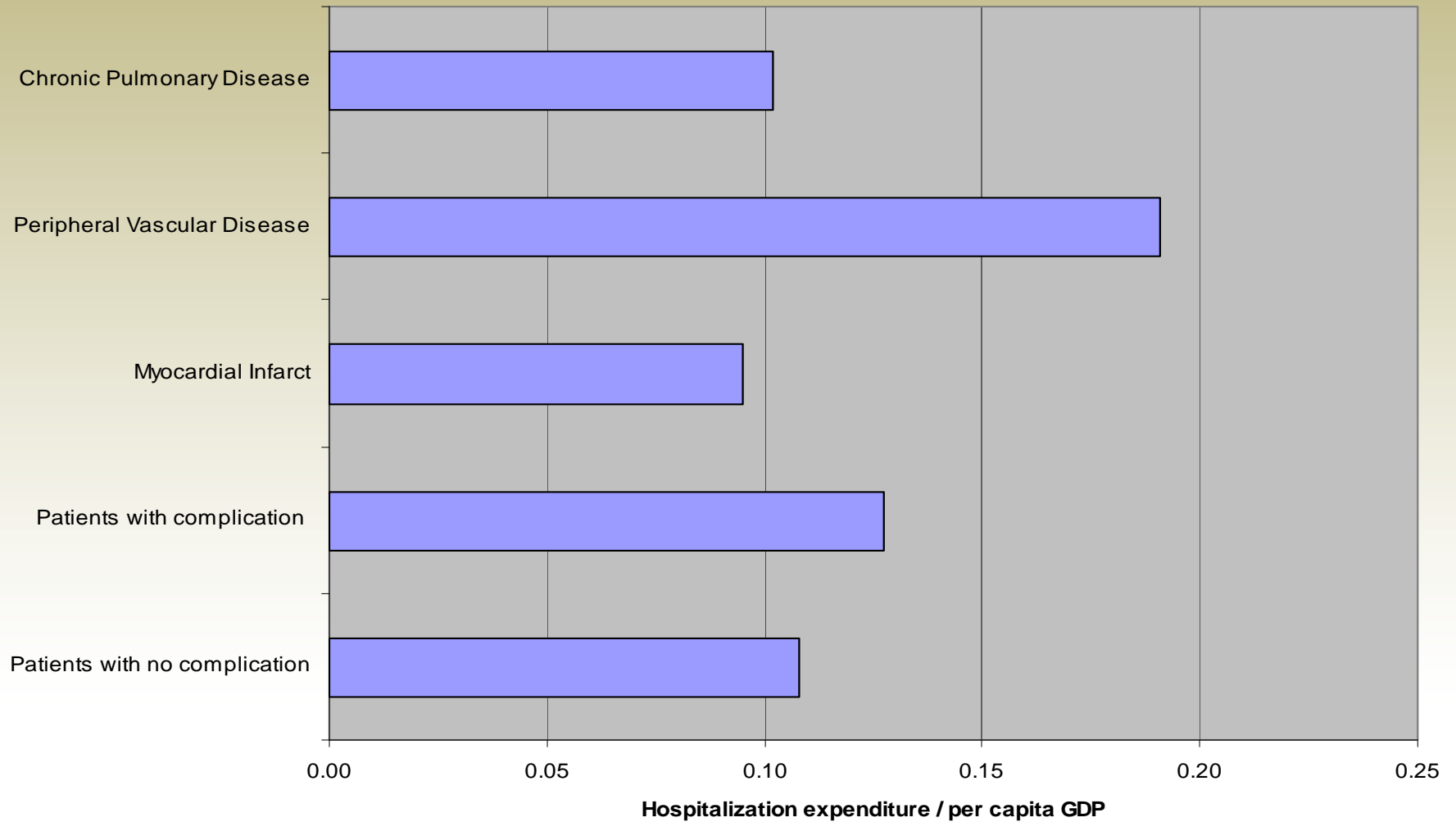
# Hospitalization spending

- Hospitalization spending for diabetic inpatients with no complications ranged from 11% to 84% of per capita income.
- Spending for patients with complications was from 18% to over 350% more than spending for patients without complications or co-morbidities treated at the same hospital.



# Malaysia: UKM

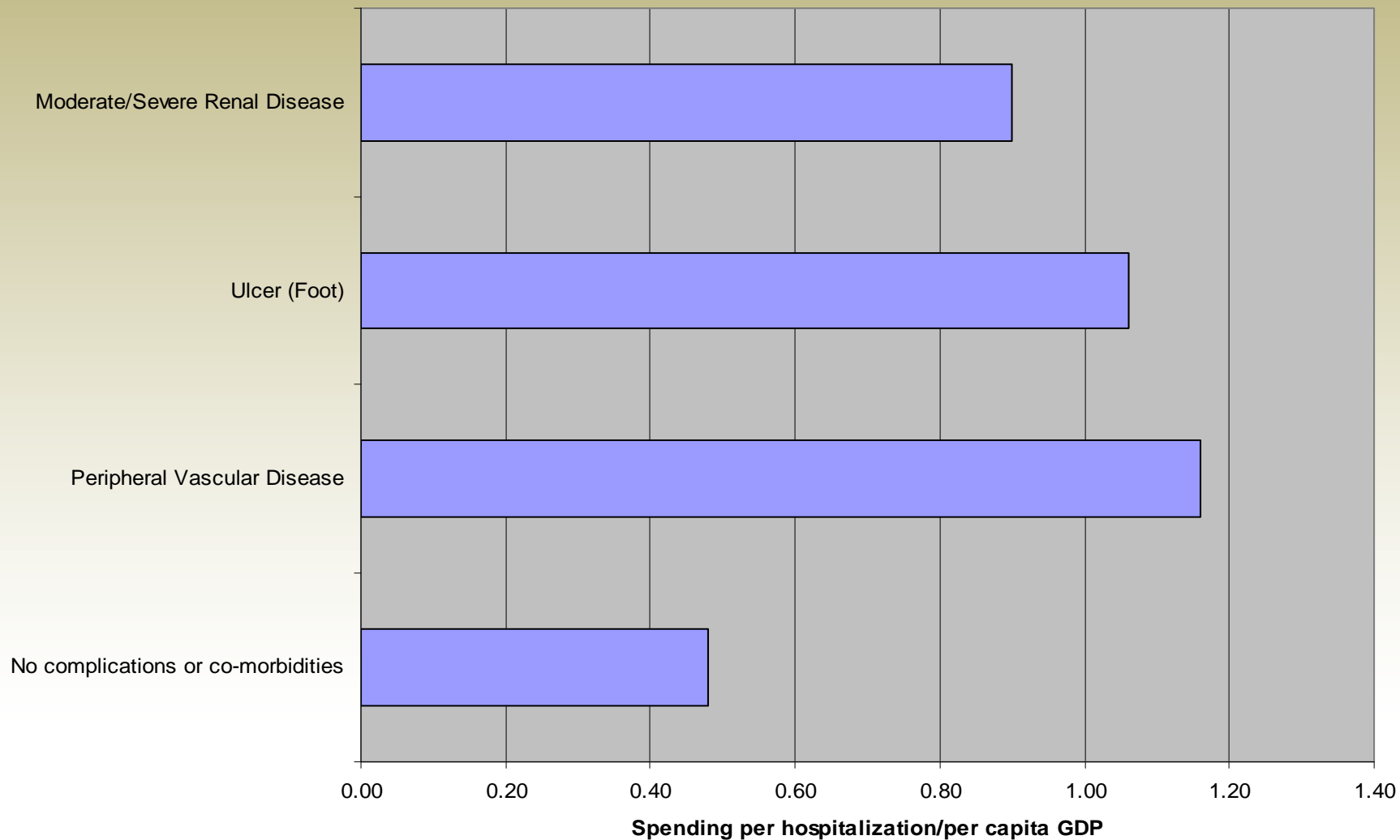
Malaysia: UKM





# Thailand: Bangkok

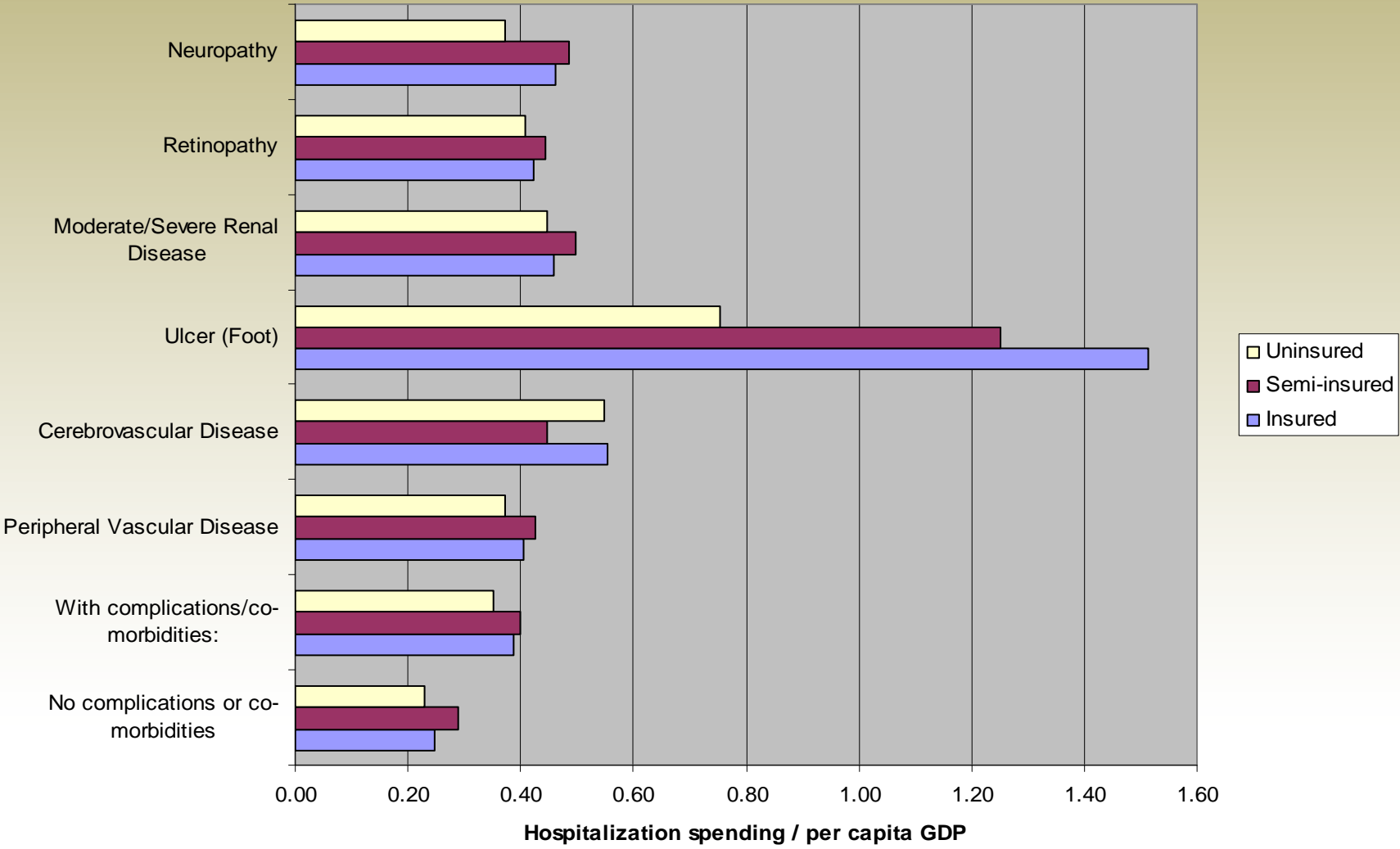
Thailand: Bangkok





# China: Hangzhou

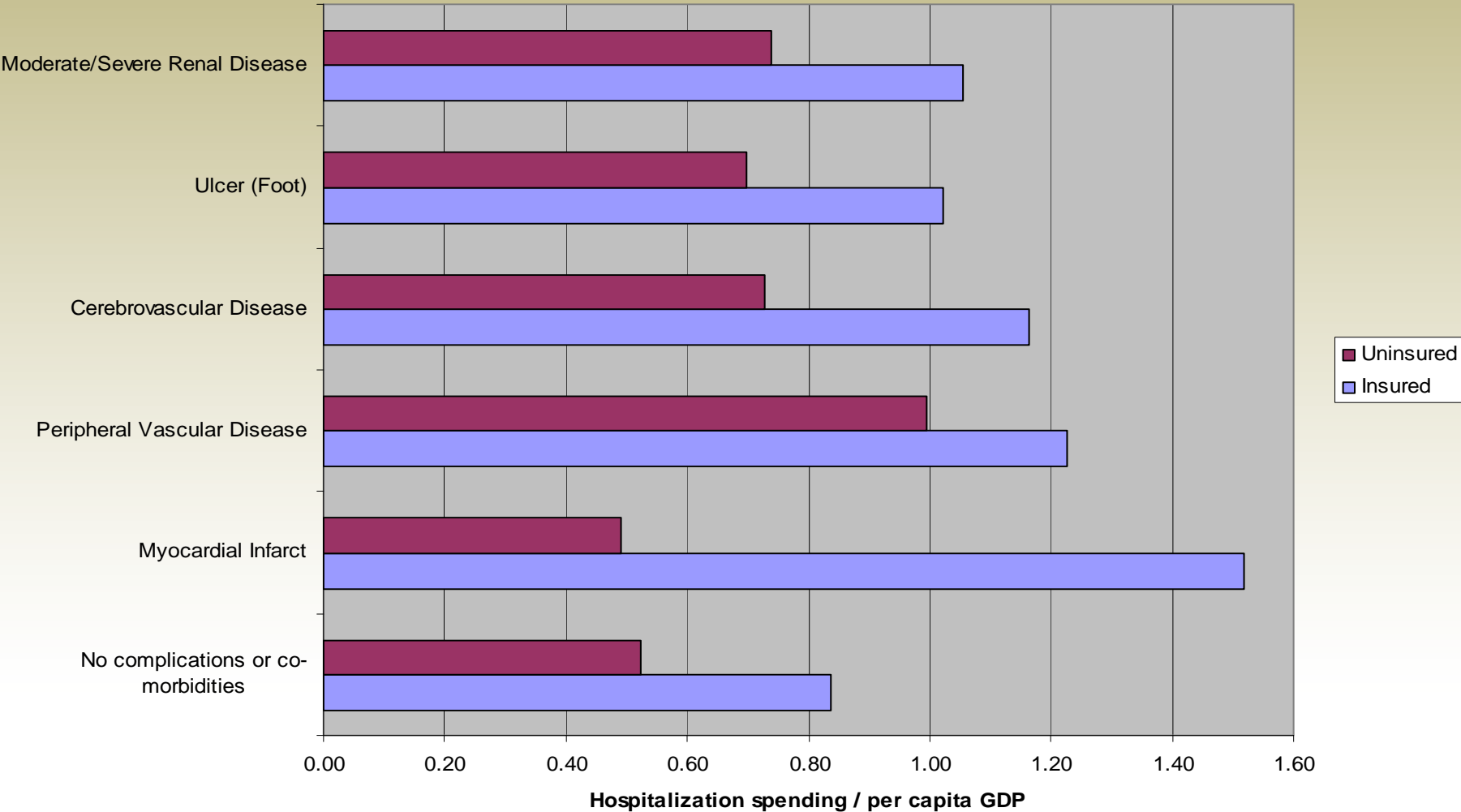
China: Hangzhou





# China: Shandong

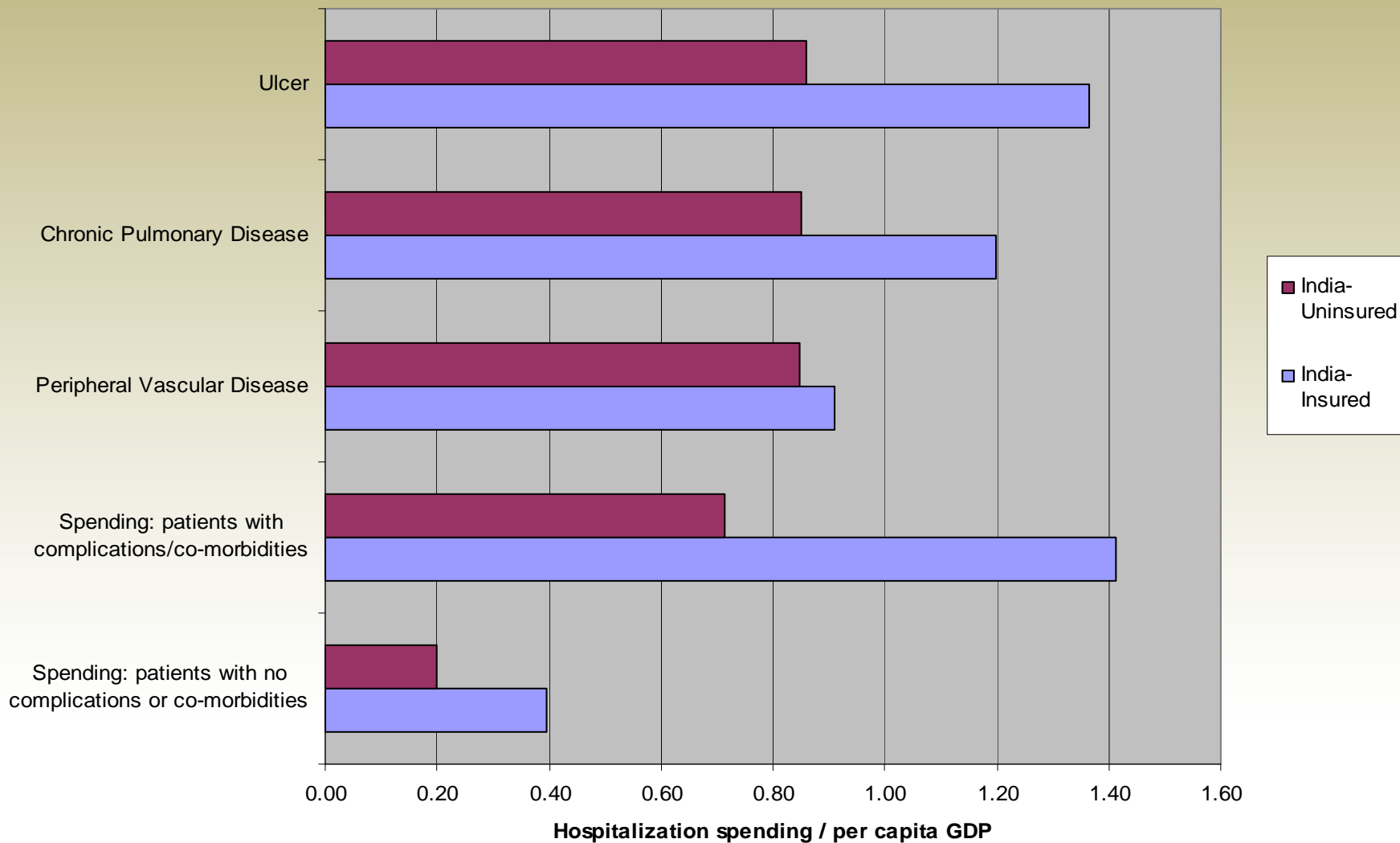
China: Shandong





# India: Kasturba

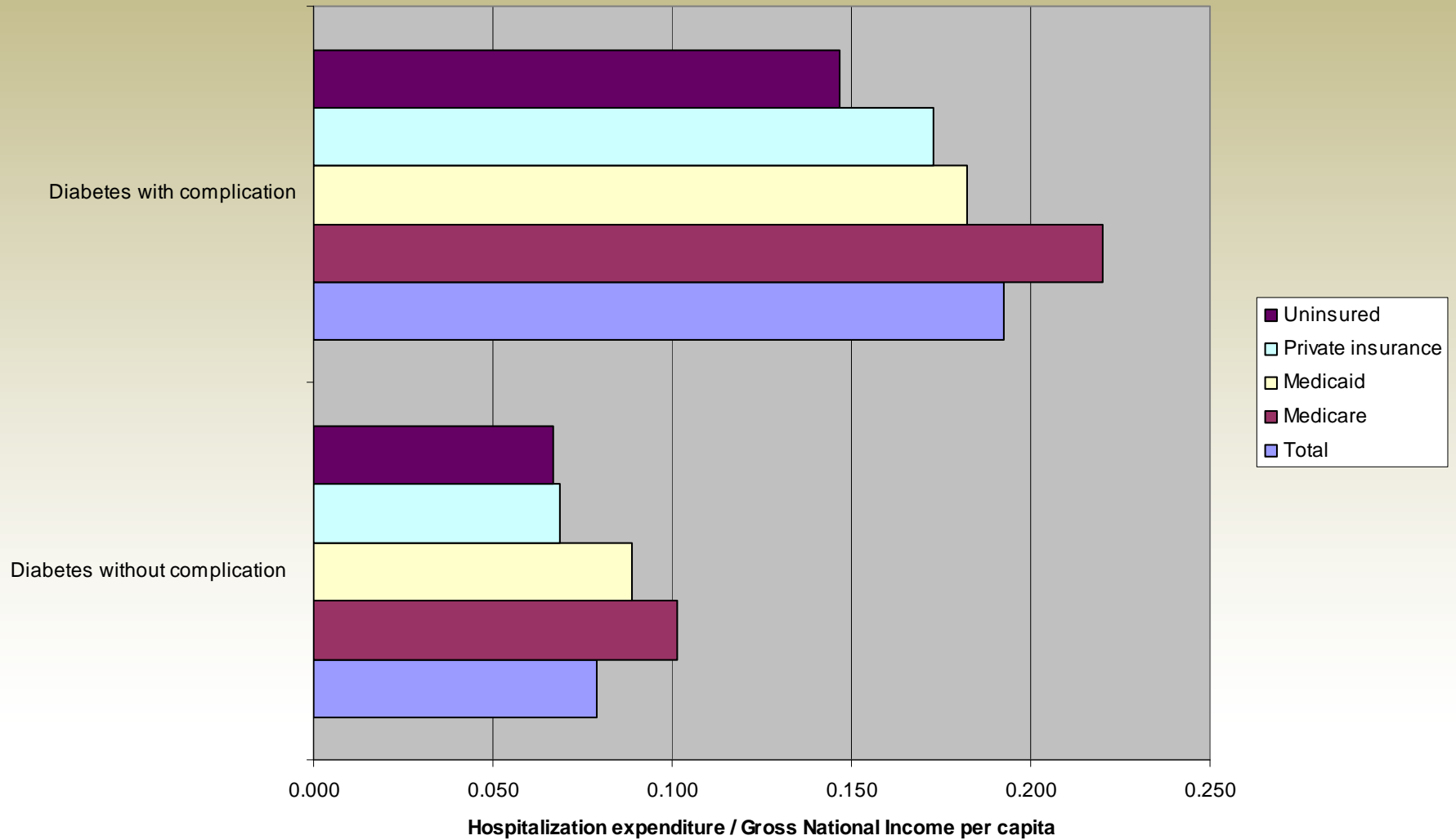
India: Kasturba





# United States

US (National Inpatient Sample 2006)





# Conclusions

- Our results underscore the large economic burden confronting households and health systems in low- and middle-income countries with escalating prevalence of DM.
- The return to investment in preventing diabetic complications appears substantial.
- Countries with large out-of-pocket financing burdens like India and China are associated with the widest gaps in resource use between insured and uninsured patients, which likely reflects both over-use by the insured and under-use by the uninsured.
- Further comparative studies would be useful.