

A Retrospective Cohort of All-Cause Mortality in the Thai Patients with Established Cardiovascular Diseases

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2005

2006 - 2010

1. acute coronary syndrome

I21 : AMI
I20 : Unstable angina

1st endpoint :
DEATH (all cause mortality)

2. Cerebrovascular disease

I 63 : Ischemic stroke

3. Peripheral artery disease

I73.9 or I 70.2

4. AF/Atrial Flutter

I 48

5. Congestive Heart Failure

I 50

2nd endpoint : Readmission from any of the following

1. Acute Coronary Syndrome [I21, I20, I22]
2. Ischemic stroke [I63]
3. Peripheral artery disease [I73.9, I 70.2]
4. AF [I48]
5. CHF [I50]

Definition

Rural hospital : ≤ 120 beds

Urban hospital : > 120 beds/ Medical School/ Specialist
hospital

All-Cause mortality

30-days mortality

Public Reporting of 30-Day Mortality for Patients Hospitalized With Acute Myocardial Infarction and Heart Failure

Harlan M. Krumholz, MD, SM; Sharon-Lise T. Normand, PhD

Why Use All-Cause 30-Day Mortality?

All-cause mortality, rather than mortality from cardiac causes, was selected because it is what matters most to patients. Moreover, noncardiac deaths may still be related to the quality of care provided during a cardiac hospitalization, eg, preventable infections related to hospitalization that could be the proximate cause of death.

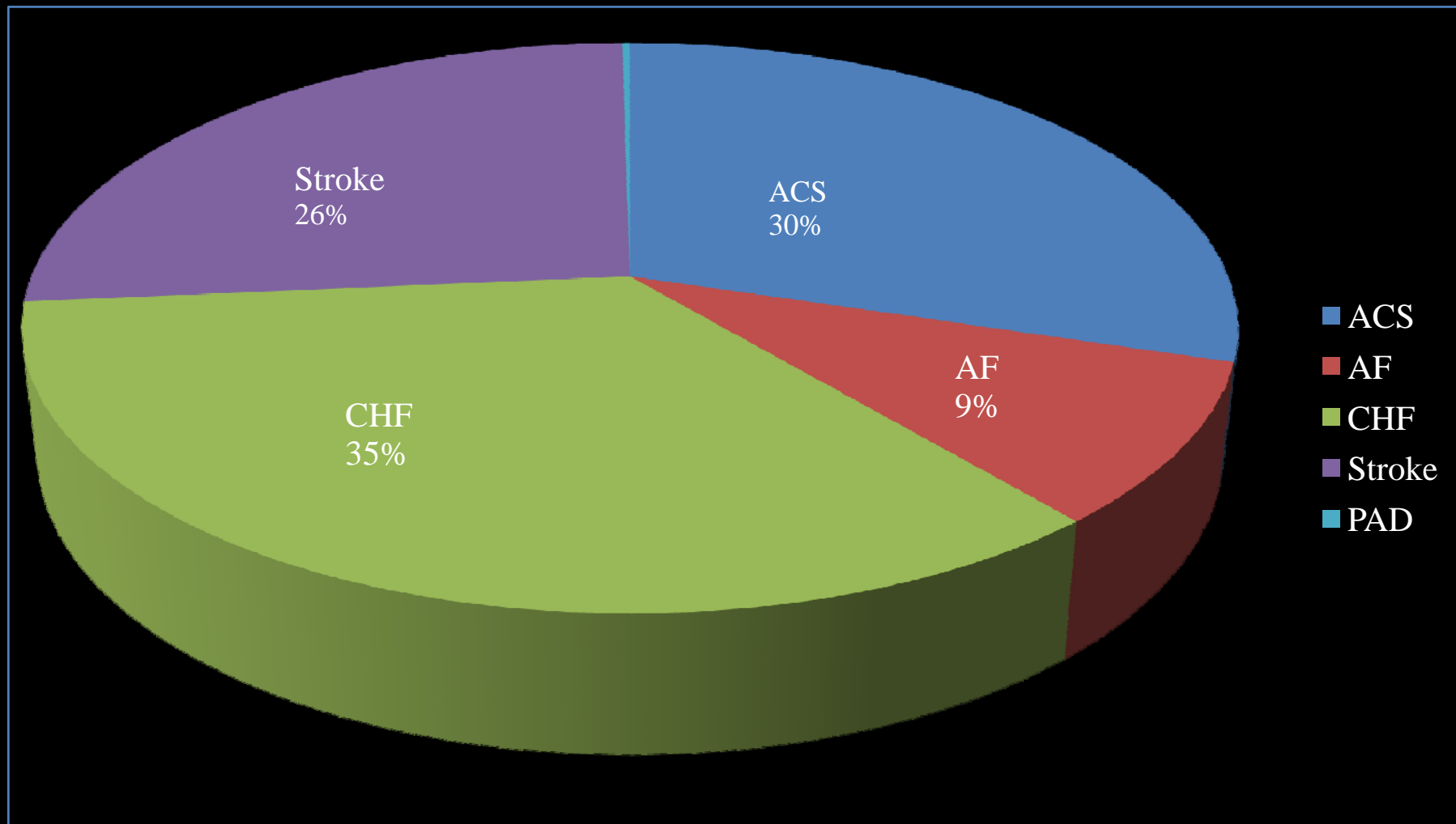
The measure assesses mortality within 30 days from admission. This standardized period was chosen to ensure a fair assessment of all hospitals and to prevent differences in transfer rates or variations in length of stay from affecting the measurement.

Circulation 2008; 118 : 1394 - 1397

Results

- Total admitted patients : 98,486 patients
- Mean age : 65 ± 14 years
- 48.5% Male
- 77.8% Universal coverage healthcare
- Hospital stay : 5 ± 9 days
- Conventional risk factors
 - Diabetes 28.2%
 - Hypertension 29.5%
 - Dyslipidemia 11.8%
 - Polyvascular disease 13.7%
 - End-stage renal disease requiring hemodialysis 0.5%

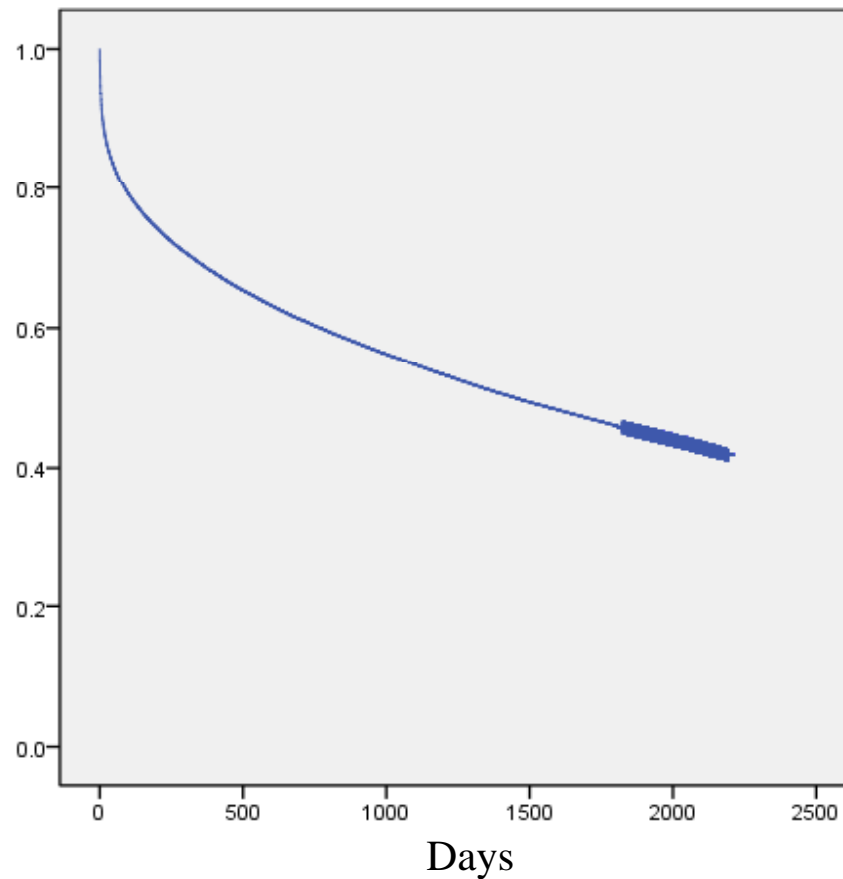
Results



	ACS (n = 29,299)	AF (n = 8,981)	CHF (n = 34,167)	Stroke (n = 25,813)	PAD (n = 226)
age (year)	65 ± 12	65 ± 14	65 ± 15	66 ± 13	65 ± 15
Male (%)	55.7%	41.9%	41.0%	52.5%	53.1%
admission duration	5 ± 7	3 ± 5	5 ± 7	7 ± 13	18 ± 21
DM (%)	30.3%	15%	26.3%	32.8%	37.2%
HT (%)	30.4%	18.2%	25.4%	37.9%	27.9%
DLP (%)	15.9%	3.1%	4.7%	19.7%	5.3%
ESRD with HD (%)	0.7%	0.1%	0.5%	0.2%	1.8%
Polyvascular disease (%)	16.9%	14.4%	15.6%	7.3%	4.4%

Long-term all-cause mortality

Event free survival



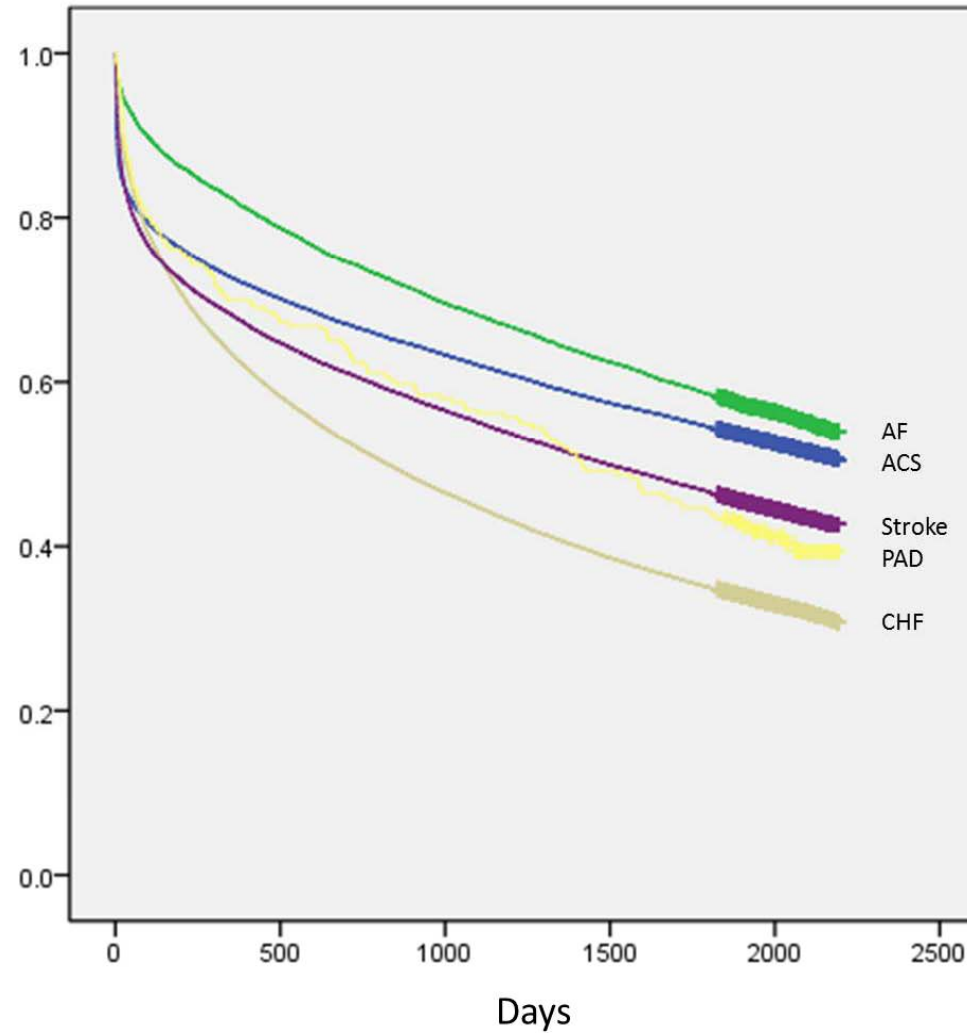
43.8% survived during 5 years follow-up

Mortality Results

	ACS (n = 29,299)	AF (n = 8,981)	CHF (n = 34,167)	Stroke (n = 25,813)	PAD (n = 226)
In-hospital mortality, n (%)	4,054 (13.8%)	268 (2.98%)	2,593 (7.6%)	3,071 (11.9%)	17 (7.5%)
30 days mortality, n (%)	5,084 (17%)	581 (6.5%)	4,866 (14%)	4,865 (19%)	35 (15%)
Long-term mortality, n (%)	8,856 (36.6%)	3,367 (40.1%)	18,092 (61.7%)	9,496 (45.3%)	99 (51.8%)

Long-term all-cause mortality

Events free survival

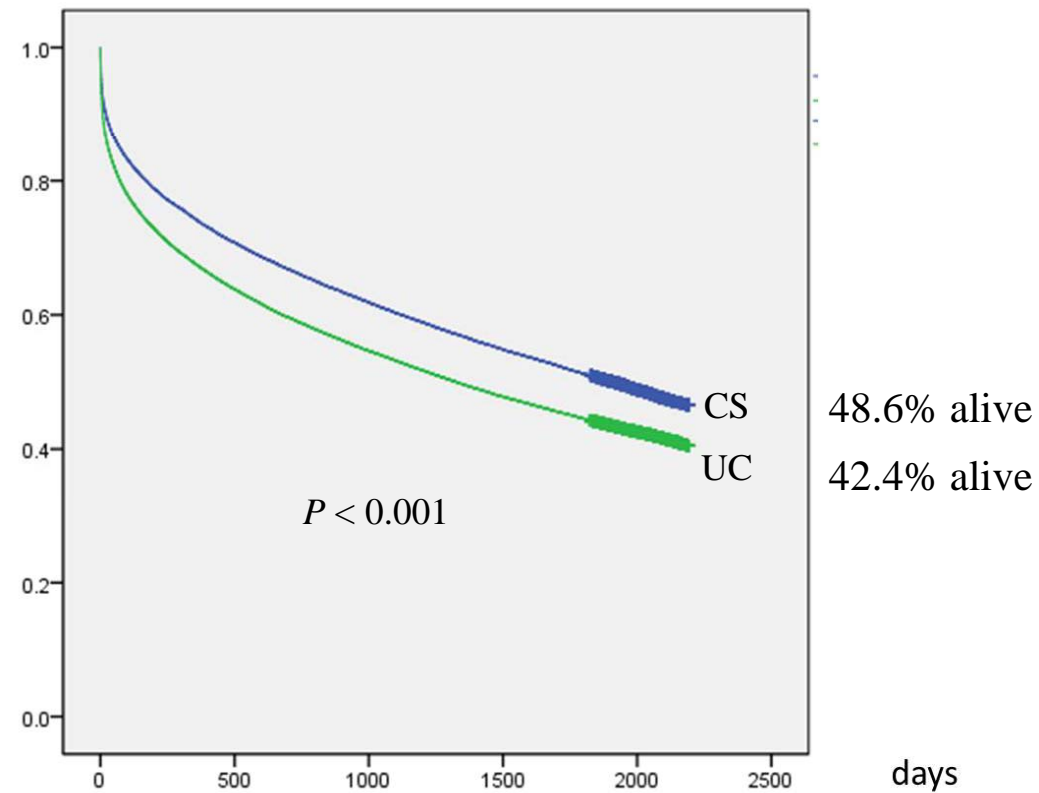


AF : 56% survive
ACS : 52% survive
Stroke : 44% survive
PAD : 40.7% survive
CHF : 32.8%

	30 days mortality			Long-term mortality		
	HR	95% CI	p	HR	95% CI	P
age (years)	1.02	1.019 – 1.022	<0.001	1.033	1.032 – 1.034	<0.001
male gender	0.98	0.95 – 1.01	0.224	1.04	1.02 – 1.06	<0.001
Universal coverage	1.52	1.45 – 1.58	<0.001	1.34	1.31 – 1.38	<0.001
urban hospital	1.71	1.65 – 1.77	<0.001	0.94	0.92 – 0.96	<0.001
admission duration (days)	1.005	1.004 – 1.007	<0.001	1.007	1.006 – 1.008	<0.001
Diabetes	0.98	0.93 – 1.02	0.26	1.19	1.16 - 1.22	<0.001
Hypertension	0.74	0.71 – 0.78	<0.001	0.88	0.85 – 0.90	<0.001
Dyslipidemia	0.37	0.34 – 0.40	<0.001	0.73	0.70 – 0.75	<0.001
ESRD with hemodialysis	2.34	2.02 – 2.73	<0.001	2.53	2.16 – 2.96	<0.001
Polyvascular disease	1.23	1.18 – 1.29	<0.001	1.28	1.24 – 1.31	<0.001

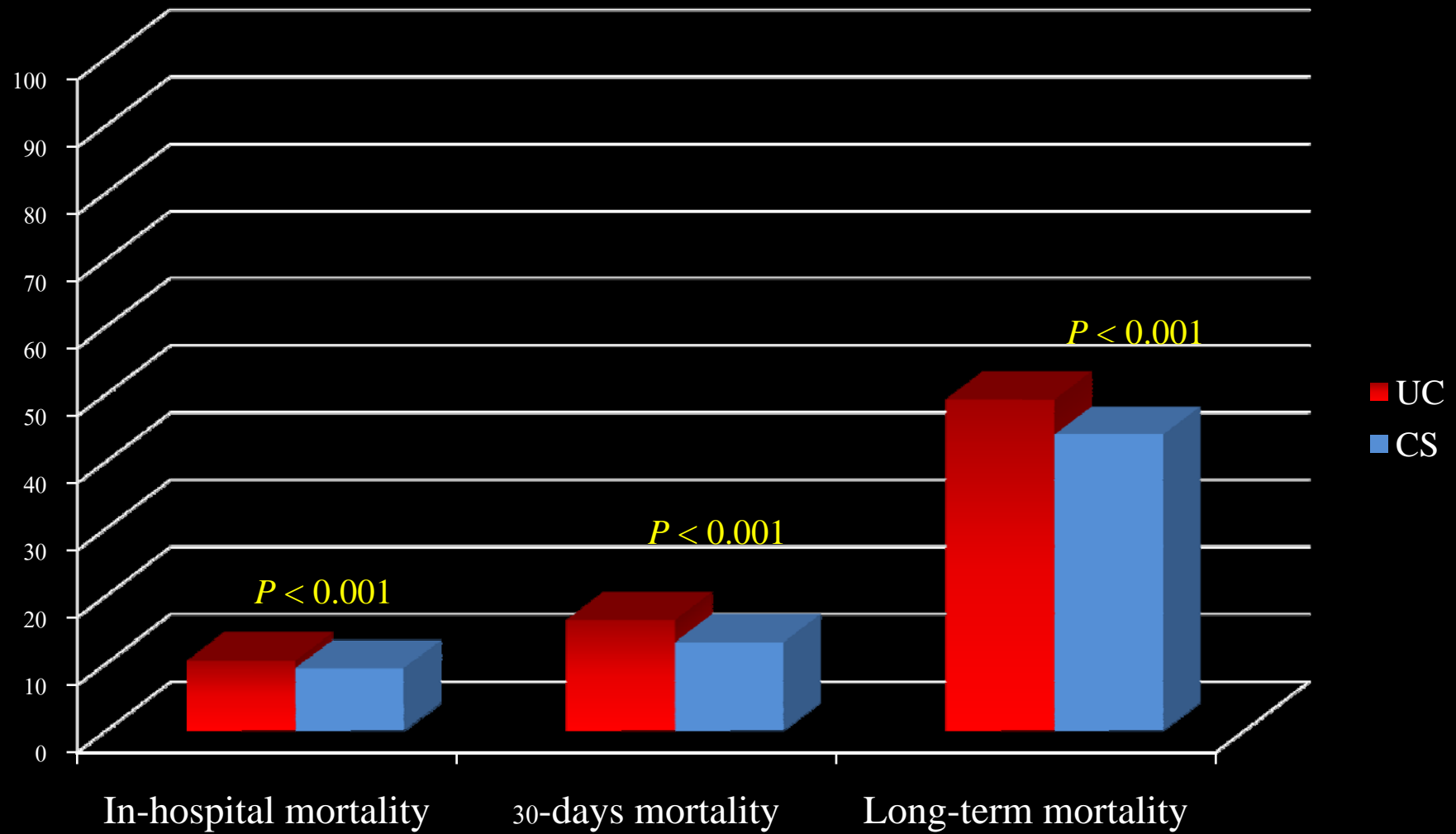
All-Cause mortality between universal coverage and civil servant

Event free survival



	Universal coverage healthcare (n = 76,615)	Civil Servant healthcare (n = 21,871)	p
age (year)	64.4 \pm 13.9	69.3 \pm 11.8	<0.001
Male (%)	47.6%	51.5%	0.001
admission duration	5 \pm 7	8 \pm 13	<0.001
DM (%)	29.3%	24.4%	0.001
HT (%)	27.4%	36.9%	<0.001
DLP (%)	10.6%	15.9%	<0.001
ESRD with HD (%)	0.17%	0.67%	<0.001
Polyvascular disease (%)	14.0%	12.5%	0.001

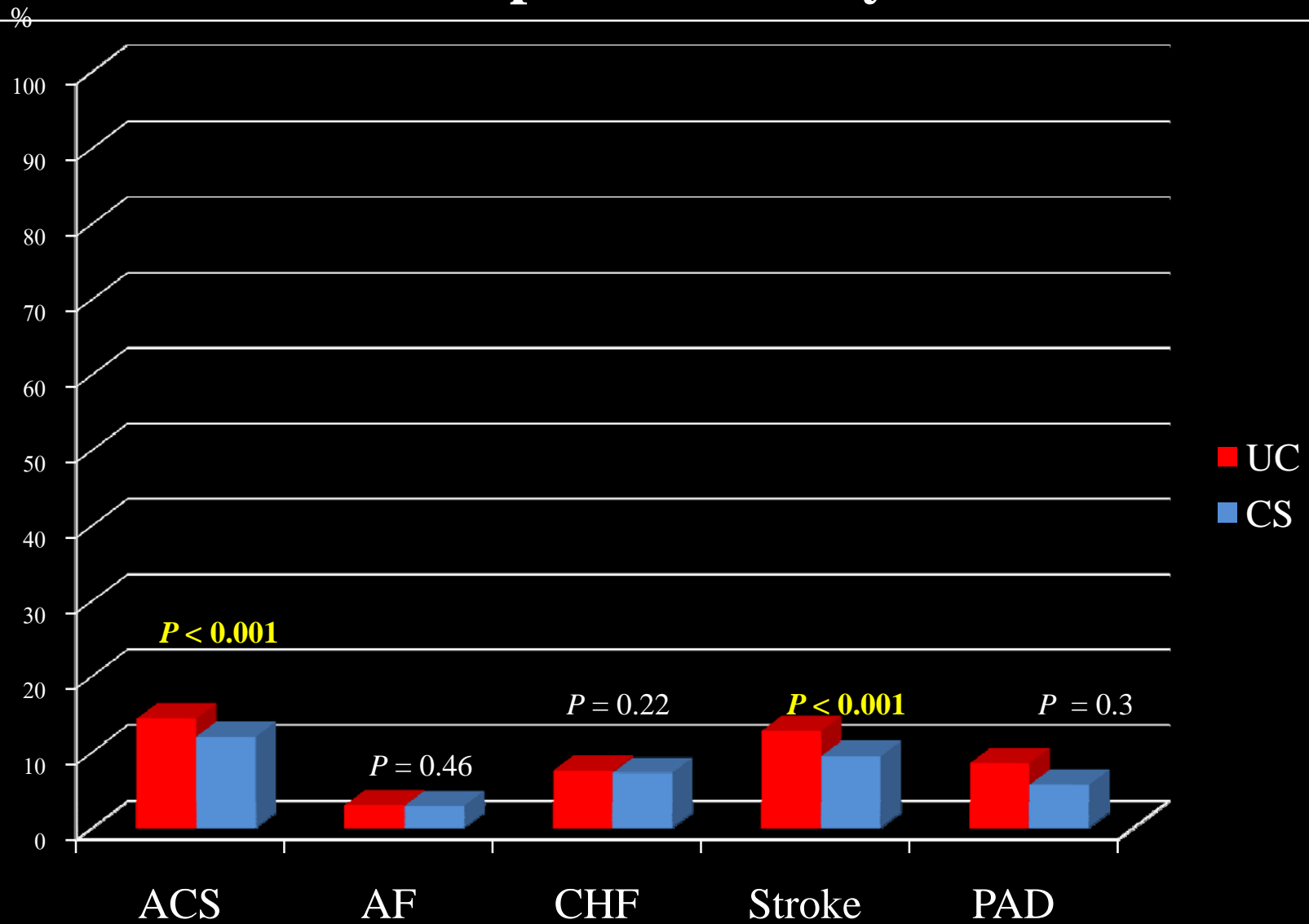
All-Cause Mortality : UC vs. CS



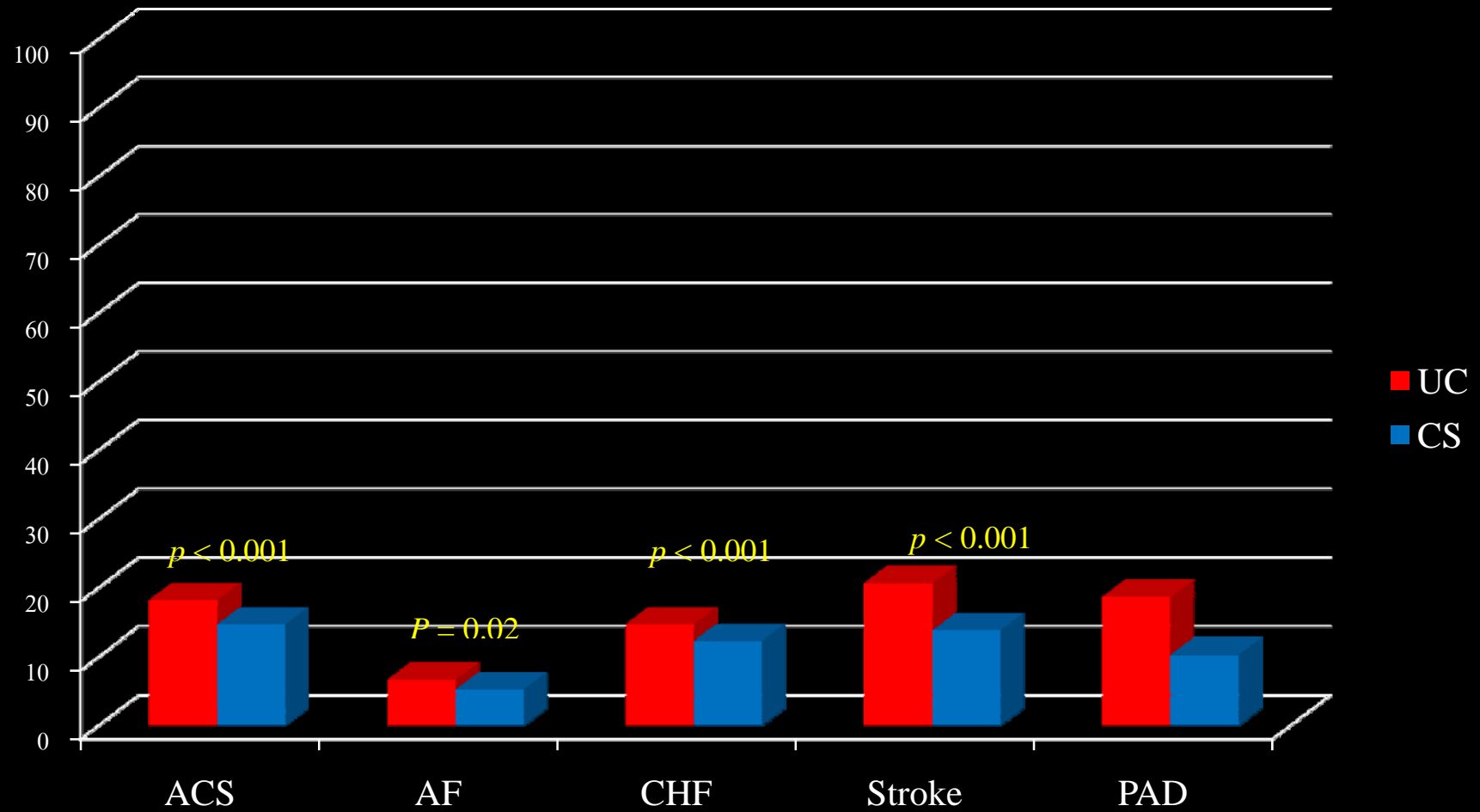
Mortality Results

	Universal Coverage	Civil servants	<i>p</i>
In-hospital mortality (%)	10.4%	9.3%	<0.001
30-days mortality (%)	16.4%	13.1%	<0.001
Long-term mortality (%)	49.2%	44%	<0.001

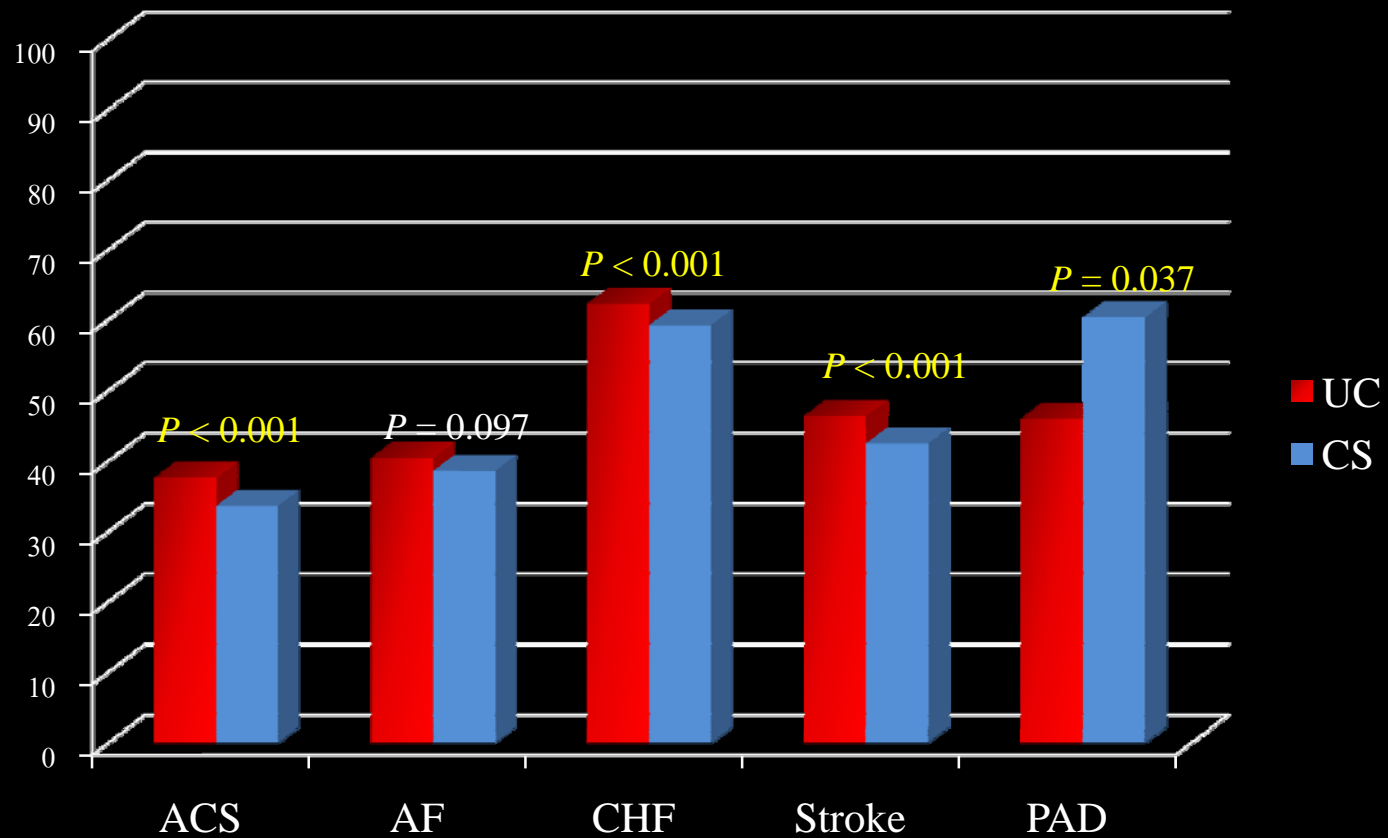
In-hospital Mortality



30-days Mortality



Long-term Mortality

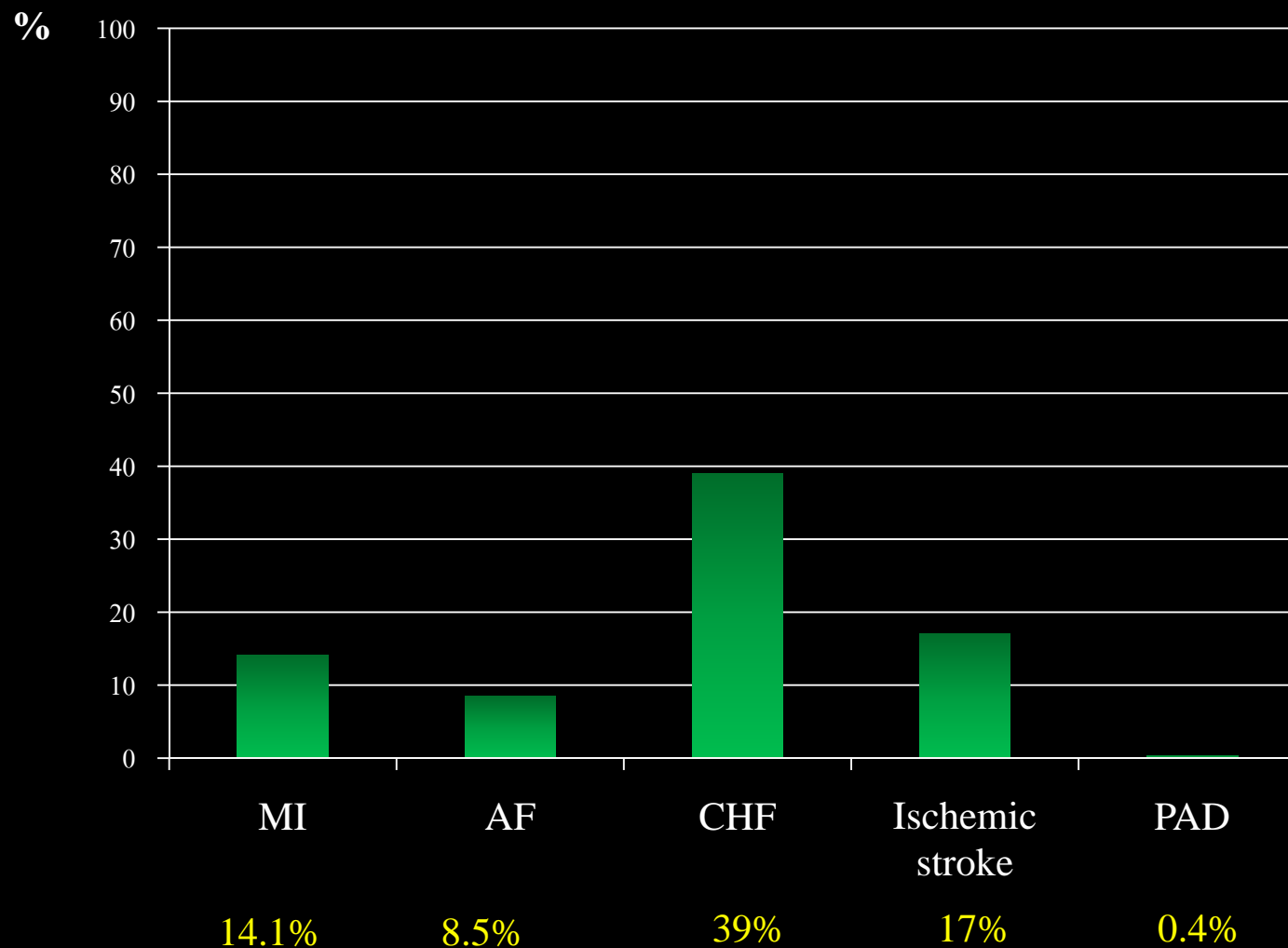


ACS		
	Universal coverage healthcare (n = 21,996)	Civil Servant healthcare (n = 7,303)
age (year)	64 ± 13	68 ± 12
Male (%)	55.2%	57 %
DM (%)	32%	25.4%
HT (%)	28.4%	36.4%
DLP (%)	14.7%	19.3%
CHF during admission(%)	14%	13%
Cardiogenic shock(%)	4.2%	3.4%
revascularizaiton (%)	3%	10%

Readmission

- Including only civil servants patients
- Total 21,871 patients admitted in 2005 from cardiovascular diseases
- 5,555 patients (25.4%) readmitted from cardiovascular disease during 5 years

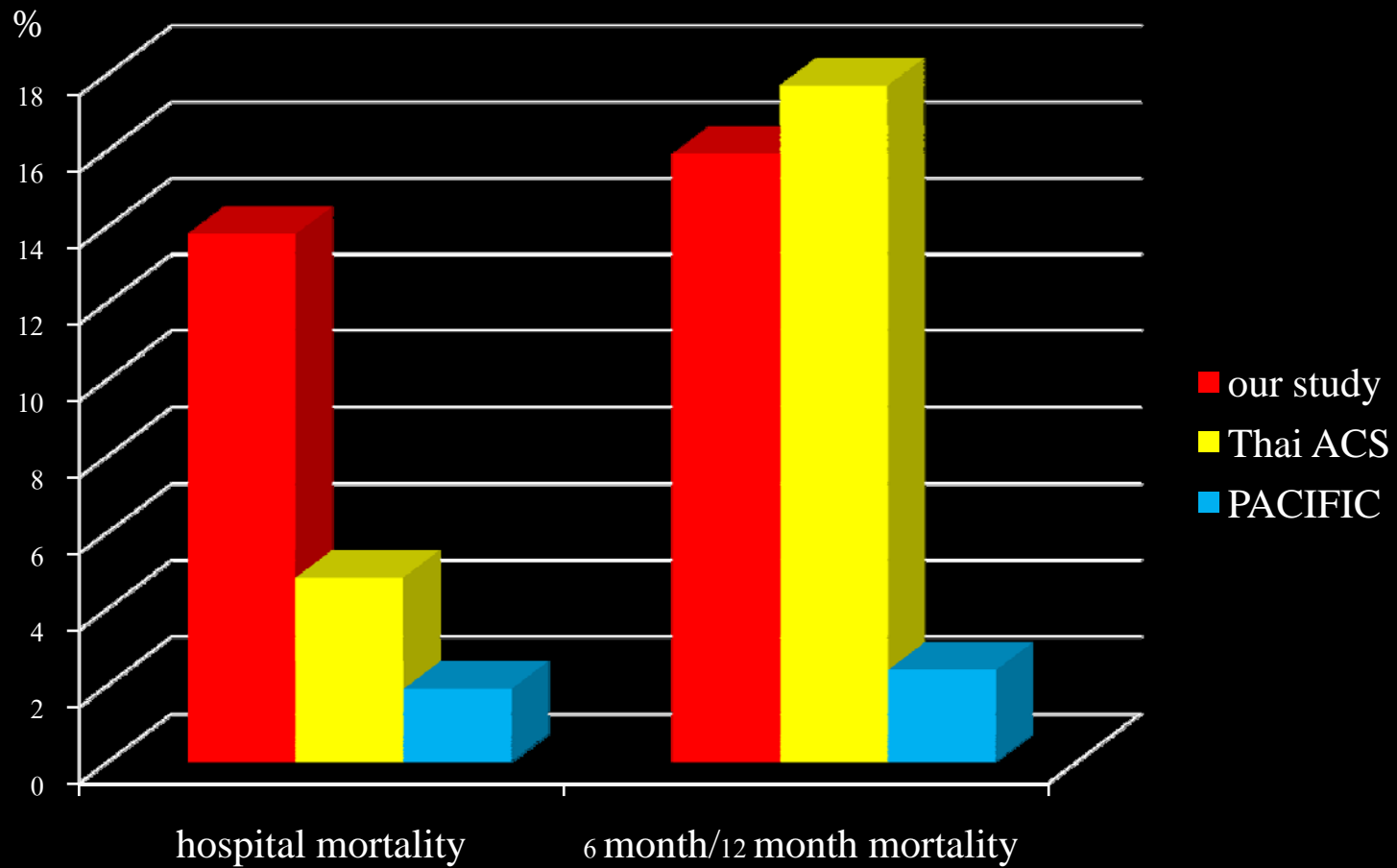
Readmission from cardiovascular diseases within 5 years (only civil servant healthcare)



Comparison with other studies

	ACS			
	Our study (n = 29,299)	Thai ACS (n =2,007)	PACIFIC (n = 3,597)	GRACE (n =46,829)
age (year)	65 \pm 12	63.5 \pm 12.8	67	66
Male (%)	55.7 %	67.5 %	77%	67%
STEMI : NSTEMI : UA	47% : 8% :45%	54.9% : 33.1% : 12 %	59% : 10% : 30%	34% : 29% : 31%
DM (%)	30%	50.7%	35%	25%
HT (%)	30%	59.5%	73%	60%
DLP (%)	16%	83.2%	67%	46%
CKD (%)	4.2%	N/A	34%	N/A
ESRD with HD (%)	0.7%	N/A	3%	N/A

ACS Mortality : Comparison between studies



	Our study (n = 29,299)	Thai ACS (n =2,007)	PACIFIC (n = 3,597)	GRACE (n =46,829)
Revascularization	5.3%	90.8%	98%	39%

	Stroke		
	Our study (n = 25,813)	J-TRACE (n = 3,351)	EROS (n = 2,034)
age (year)	66 ± 13	68 ± 10	73
Male (%)	52.5%	78 %	48.4%
DM (%)	32.8%	22.3%	16%
HT (%)	37.9%	74.5%	65.9%
DLP (%)	19.7%	35.4%	N/A
AF(%)	6%	15.1%	21.2%
CT/MRI (%)	7.8%	N/A	N/A

Limitation of study

1. No medication data
2. Low prevalence of hypertension and dyslipidemia (reimbursement depends on DRG)
3. Only public hospitals
4. Data accuracy ?

THANK YOU FOR YOUR ATTENTION