

# Prospective Urban Rural Epidemiologi

- 17 HIC, MIC and LIC countries, 628 urban and rural communities, 154,000 randomly selected, BP measured using an Omron with standard methods in 90%.
- Long term followup ongoing.
- Prevalence of hypertension, awareness, treatment & control. Info on types & costs of drugs used and distance from health facilities ( EPOCH substudy).

#### 153,996 individuals from 628 communities in 1 countries from 5 continents

143,830 (93.4%) had complete measures of BP and are included in these analyses



#### Hypertension prevalence, awareness, treatment & control

N = 143,830







#### **Prevalence of Hypertension**



#### Low education Middle education High education







#### Awareness, treatment and Control by urbanrural location



UMIC

HIC

LMIC

LIC





#### The gap in control of blood pressure

Treated among those aware of their HT



#### Controlled BP (<140/90) amongst those receiving treatment





### Treatment of hypertension – No. of BP lowering medications



PHR



#### **Barriers to HT control**

Health service			
Access, Availability, Affordability	Clinician		Ň
	Knowledge, attitudes and behaviours	Patient	
		Individual factors	



#### Adherence

Data from 4783 patients with HT in phase IV clinical studies monitored with a medication event monitor (MEMS), archived in database for 1989 – 2006



About half of the patients who were prescribed an antihypertensive drug had stopped taking it within 1 years. On any day, patients were still engaged with the drug dosing regiment omitted about 10% of the scheduled doses: 42% of these omissions were of a single day's dose, whereas 43% were part of a sequence of several days. About half of patients had at least one drug holiday a year.

Morning takers were more likely to take meds than evening takers (1.38, 1.36 – 1.41). Sunday morning was when morning takers missed most doses.

A decade of DISCOVERY · INNOVATION · IMPACT

#### **BP Control by category of medication adherence**



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#### **Cross-country differences in control and medication increases**

Data from 21,053 hypertensive patients visiting 291 cardiologists and 1284 primary care physicians, Cardiomonitor 2004



Medication increases were a dose escalation or an addition to or switch of drug therapy



Wang Arch Intern Med. 2007;167:141-147

#### Reasons for not Intensifying Antihypertensive Treatment (RIAT) survey

- Representative samples of physicians in 16 countries, 1596 centres in Latin America, Eastern Europe, Africa, Asia enrolled hypertensive patients
- 32,224 (91.4%) complete follow up to visit 4
- Mean interval between each visit ~1month
- Baseline BP 159/95
- Most physicians defined a target BP for their patients identical or lower than the one specified by national or international guidelines



#### Reasons for not Intensifying Antihypertensive Treatment (RIAT)



### Physician perceptions about BP targets and acceptable BP levels

- Survey of 2629 European physicians in 2009
- 95% of physicians felt that patients SBP needed to be higher than the guideline recommended goal levels before taking immediate action
- The mean levels of SBP/DBP that physicians reported they were satisfied with - 132/82, concerned about – 149/92, or would cause them to take immediate action was 168/100



# Access, Availability & Affordability of treatments



# Relation of per capita health expenditure to Treatment for HT



**Treatment for HT** 



### Adequate BP control and health insurance status

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Adjusted odds ratios of adequate hypertension control among 1999–2002 NHANES participants, by insurance status

Kenrik Am J HT 2007;20:348–353



### No. of <u>days</u> of income required to meet cost of 1 month medications

	<b>B-block</b>	Diur	ACE/ARB	CCB
Overall	4.9	4.1	7.8	9.4
HIC	2.2	1.1	3.1	3.2
UMIC	4.1	7.2	4.2	5.2
LMIC	6.4	1.1	14.3	22.2
LIC	9.4	0.3	17.6	14.3



\*Zimbabwe & Bangladesh not included in this analysis



# Types of treatments for HT by economic status of country







#### Distance to health services and Control

Control

% of those with HT with BP<140/90  $R^2 = 0,2103$ Distance to health services (km)

Unpublished, EPOCH & PURE 20



#### Conclusions

- Control of hypertension is poor globally
- Patient adherence and Physician inertia appear to be common barriers
- Health system level barriers are likely to be more complex and vary across settings



## Approaches to reduce the Gap in Hypertension.

- <u>Large screening gap</u>: Systematic measurements of BP & risk factors in adults every 5 yrs by NPHW.
- <u>Control gap</u>: Use combo therapy initially ( 2 or 3 drugs at half doses).
- <u>Controlling key risk factors</u>: Prescribe low dose statins to all irrespective of lipid levels.( perhaps the polypill)
- Lifestyle modifications: On top of drugs , instead of initial attempt.
- Ensuring low cost: Cheapest combinations
- Maintaining adherence : NPHW reinforecments.