

# **Cost-effective Interventions for Preventing and Treating Diabetes and its Complications in Low Resource and Emerging Economies**

**K.M.Venkat Narayan**

**Ruth and O.C. Hubert Professor**

**Emory University, Atlanta**

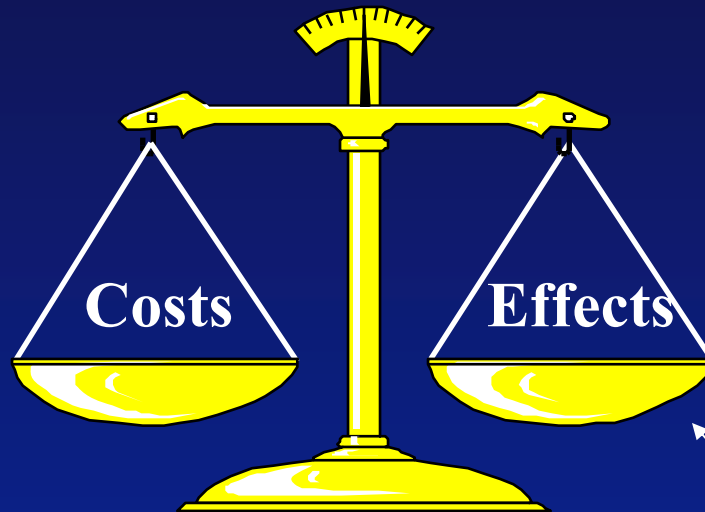
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# Why set priorities?

- ◆ Increases in health care costs due to aging, modern medicine, technology, growing expectations
- ◆ Limited health care resources, especially in developing countries
- ◆ Interventions are not equal in terms of “value”
- ◆ Resources should be invested in programs that yield the most “value”
- ◆ Concept of “Opportunity Cost”

# How to measure the “value”



- **Costs of the intervention**
  - **Costs induced**
  - **Costs saved**
- Net cost of the intervention**

**Years of quality-adjusted life  
years saved**

# Setting intervention priorities in developing countries - Challenges

- ◆ Little direct evidence on the effectiveness or cost-effectiveness of interventions in developed countries
- ◆ Translating evidence in the developed countries to the context of developing countries

# Assessing Priorities for Implementation

## Disease Control Priorities-2 Chapter 30

<http://www.dcp2.org/pubs/DCP>

1. Burden
2. Intervention effectiveness & cost-effectiveness
3. Level of implementation or quality of care

Program Priorities

R&D Priorities



# Methods for setting intervention priorities in developing countries

- ◆ Translating the cost-effectiveness evidence from developed countries to the context of developing countries by assuming
  - Same effectiveness
  - **Different costs for the intervention and medical care**
- ◆ Feasibility of interventions
  - Reach
  - Technical complexity
  - Capital intensity
  - Cultural acceptability
- ◆ Ranking interventions to set implementation priority

# Levels of Intervention Priorities

- ◆ One

  - Cost saving and highly feasible

- ◆ Two

  - Cost saving or cost  $<1,500/\text{QALY}$  and pose some feasibility challenges

- ◆ Three

  - Cost  $1,500-8,550/\text{QALY}$  and pose considerable feasible challenges

# Priority One Interventions

Intervention	Cost/QALY (2001 \$)	Feasibility
	Latin America	
Control HbA1c <9%	Cost saving	++++
BP <160/95	Cost saving	++++
Foot care	Cost saving	++++

# Priority Two Interventions

Intervention	Cost/QALY (2001 \$)	Feasibility
	Latin America	
Preconp care	Cost saving	++
Prev (L/S)	130	++
Fluvac	360	++++
Eye exam	700	++
Smoking cessation	1,450	++
ACE-I for all	1,020	+++

# Priority Three Interventions

Intervention	Cost/QALY (2001 \$)	Feasibility
	<b>Latin America</b>	
Prev (Metformin)	3,630	++
TC <200 mg/dl	7,350	+++
HbA1c<8%	4,000	++
Screening DM	8,550	++
Microab test	5,510	++

# Need direct evidence from developing countries

## Two examples

1. Primary prevention translation trial in Chennai, India
2. Secondary prevention translation trial in eight centers in India/Pakistan

# Intervention Studies: 1° Prevention

## IDF BRiDGES Translation Trial (D-CLIP)

Evaluate effectiveness, cost-effectiveness, sustainability of culturally-congruent , low-cost 1° prevention strategies

- Screening 12-15,000 people; n=700 Pre-diabetes (IFG, IGT, both) randomized
- Lifestyle delivered by lay educators / community ambassadors + Peer support groups
- Metformin after 4 m, if needed (ADA guidelines)



# Program Evaluation

1. Effectiveness
2. Cost-effectiveness
3. Sustainability
4. Scalability under discussion

# Intervention Studies: 2° Prevention

## Ovations/NHLBI Translation Trial (CARRS)

Evaluate effectiveness, cost-effectiveness, sustainability of low-cost, multi-factorial 2° prevention strategies

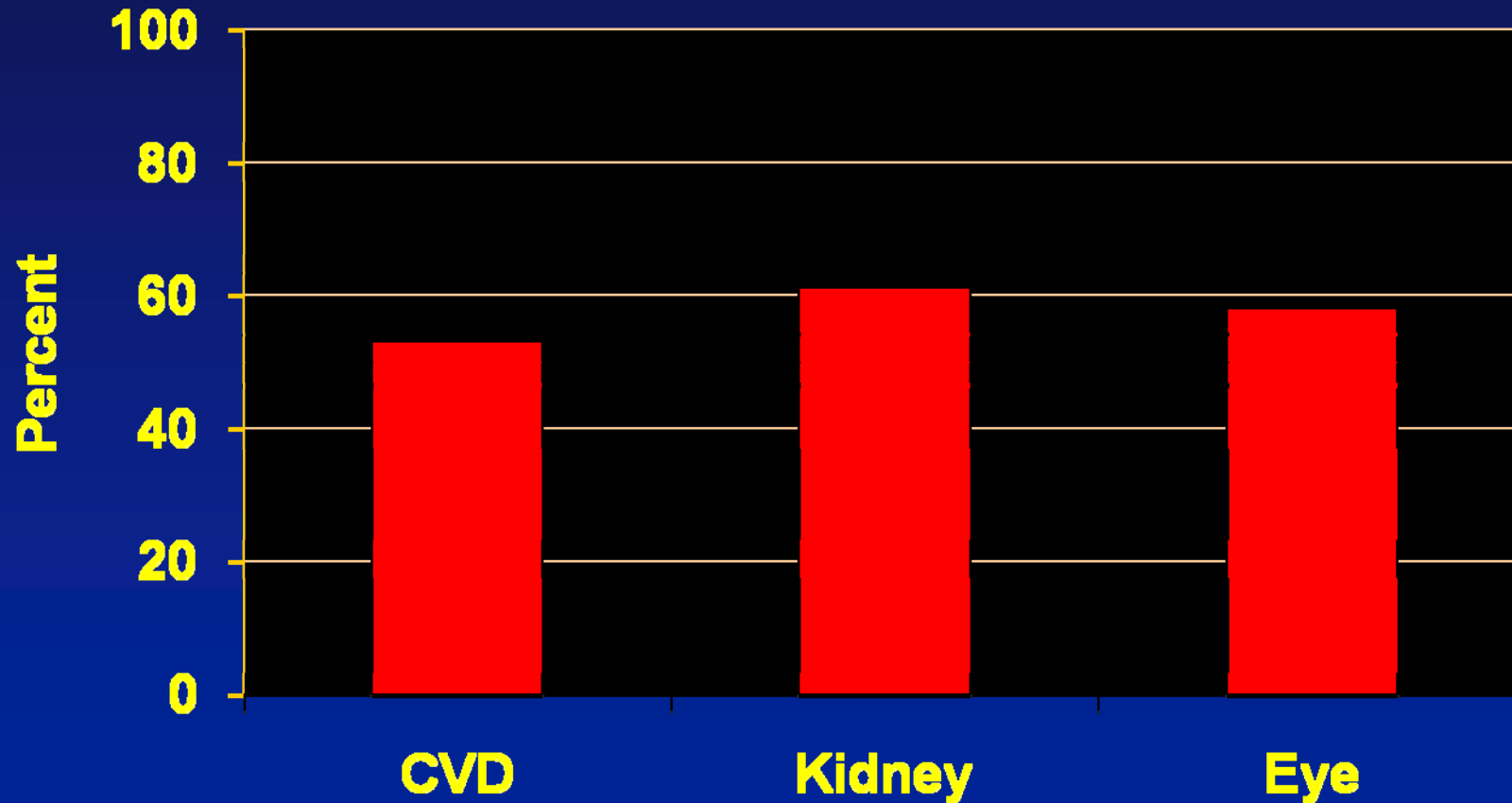
- n=1,120 people with diabetes
- Care coordinator
- Decision support software
- Guidelines driven comprehensive management

# Strategies for Reducing CVD Risk in Diabetes

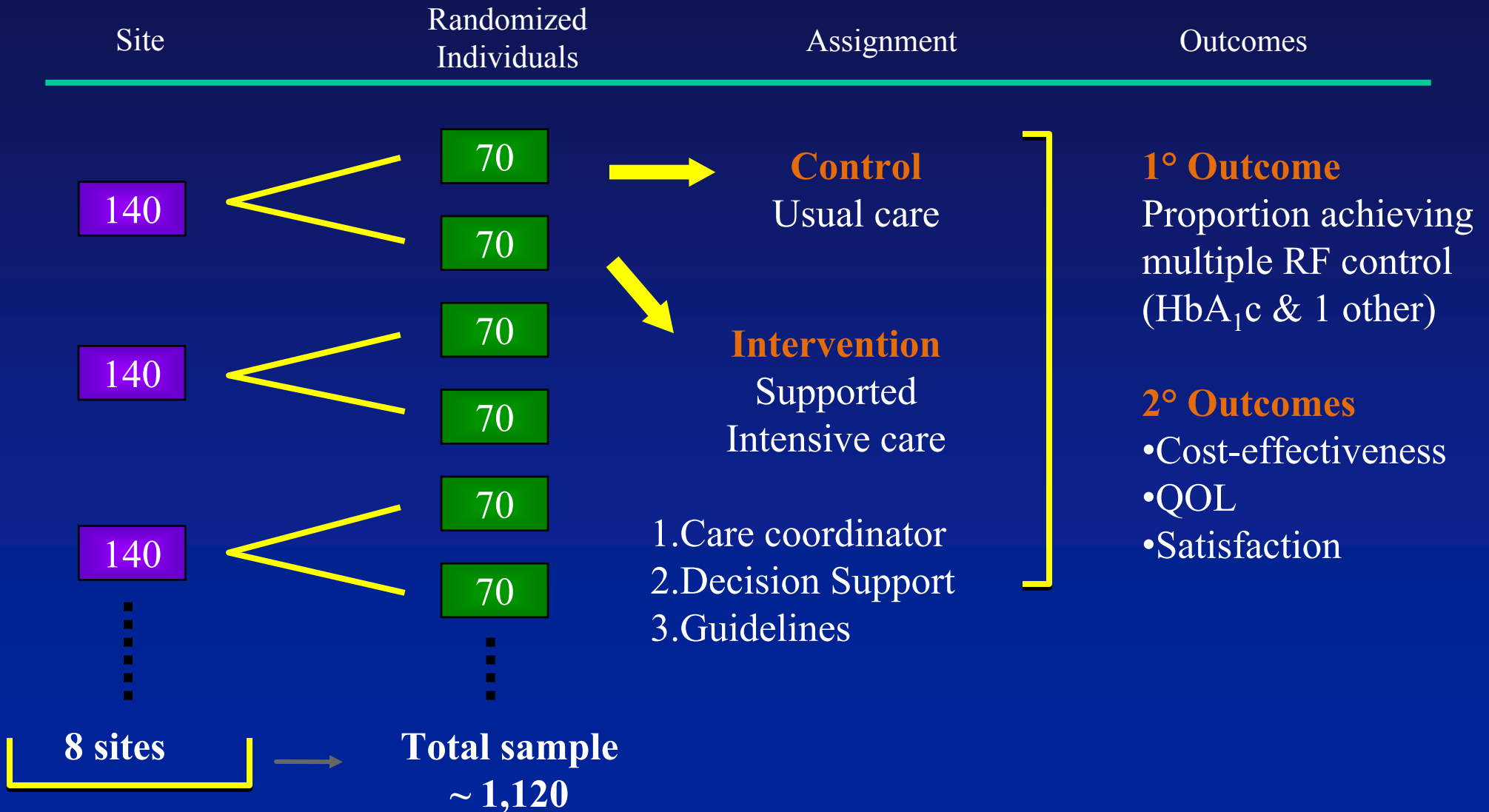
- ◆ Testing for eye, kidney, foot complications
- ◆ Use of ACE-I/ARB
- ◆ Lowering glucose
- ◆ Lowering blood pressure
- ◆ Lipid management
- ◆ Aspirin
- ◆ Life style changes

Tobacco/smoking cessation/Activity/Nutrition

# Percent reduction in clinical outcomes: Intensive policy group in Denmark



# CARRS Translation Trial



# Conclusions

- ◆ By systematically implementing known cost-effective interventions
  - Diabetes incidence can be halved
  - Diabetes complications can be halved
- ◆ Better data on effectiveness and cost-effectiveness in developing country settings are needed
- ◆ Investing in programs of unproven effectiveness or cost-ineffectiveness is a waste of limited resources