

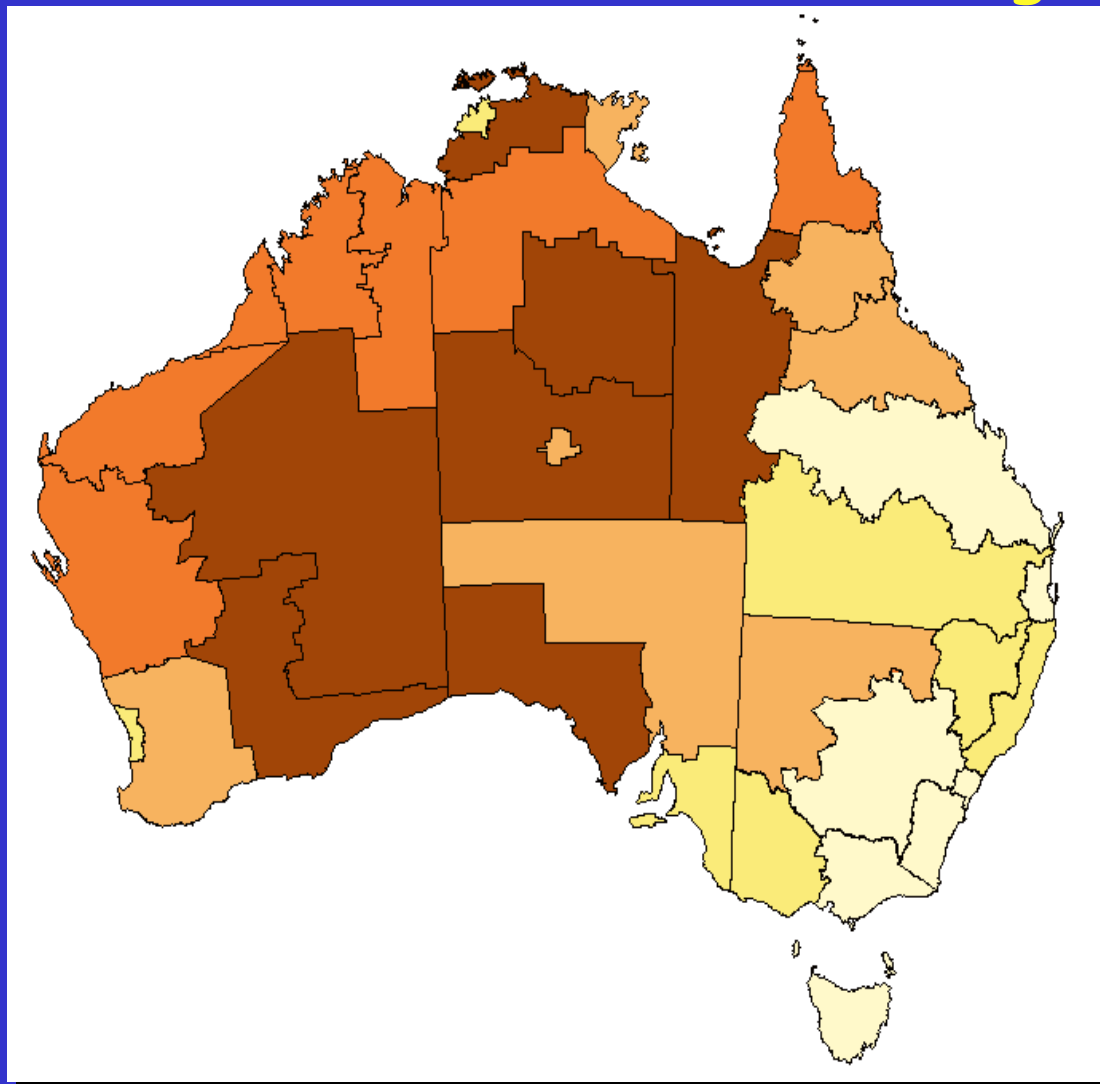
The Australian Aboriginal Chronic Disease Outreach Programme.

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and the Centre for Chronic Disease,
University of Queensland, Australia

Funded by
the Office of Aboriginal and Torres Strait Islander Health,
Rio Tinto, Janssen Cilag, Helen Hayes,
the Colonial Foundation of Australia,
and the Australian Kidney Foundation

Incidence of ESRD in Aboriginal Australians, 1993-1998

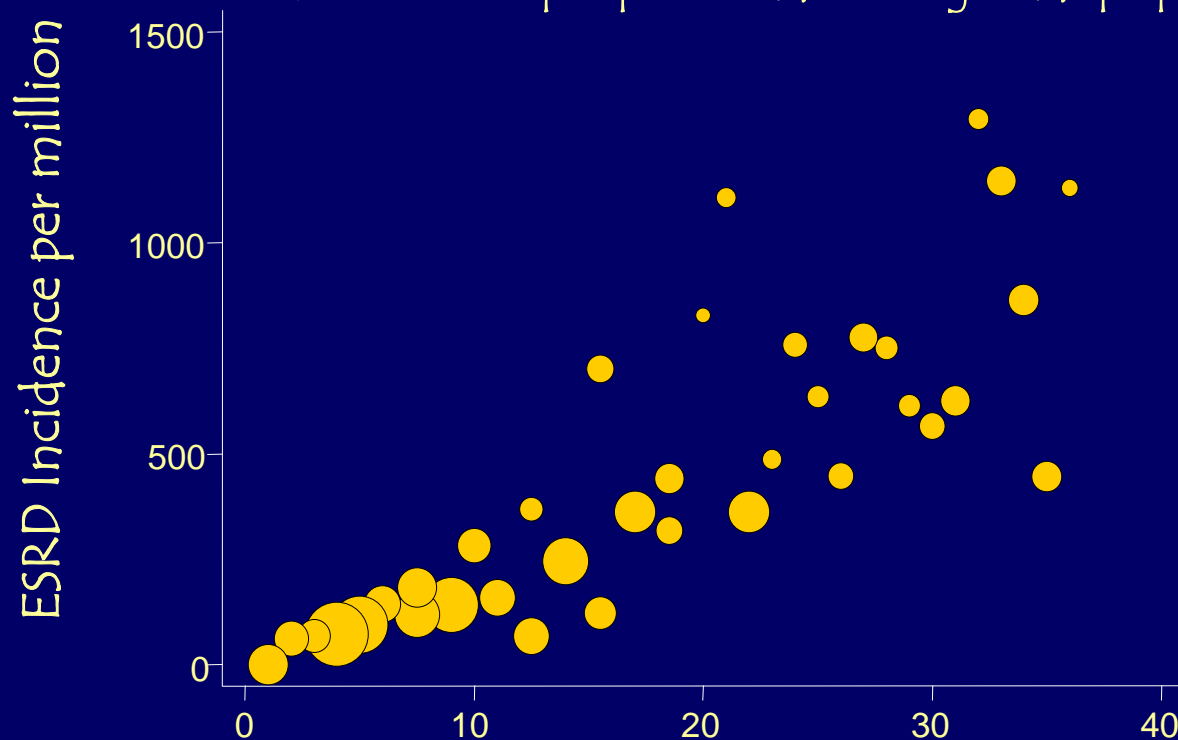


Incidence (per million)

- 0 to 119
- 120 to 299
- 300 to 469
- 470 to 769
- 770 to 1300

ESRD Incidence and Socioeconomic Disadvantage

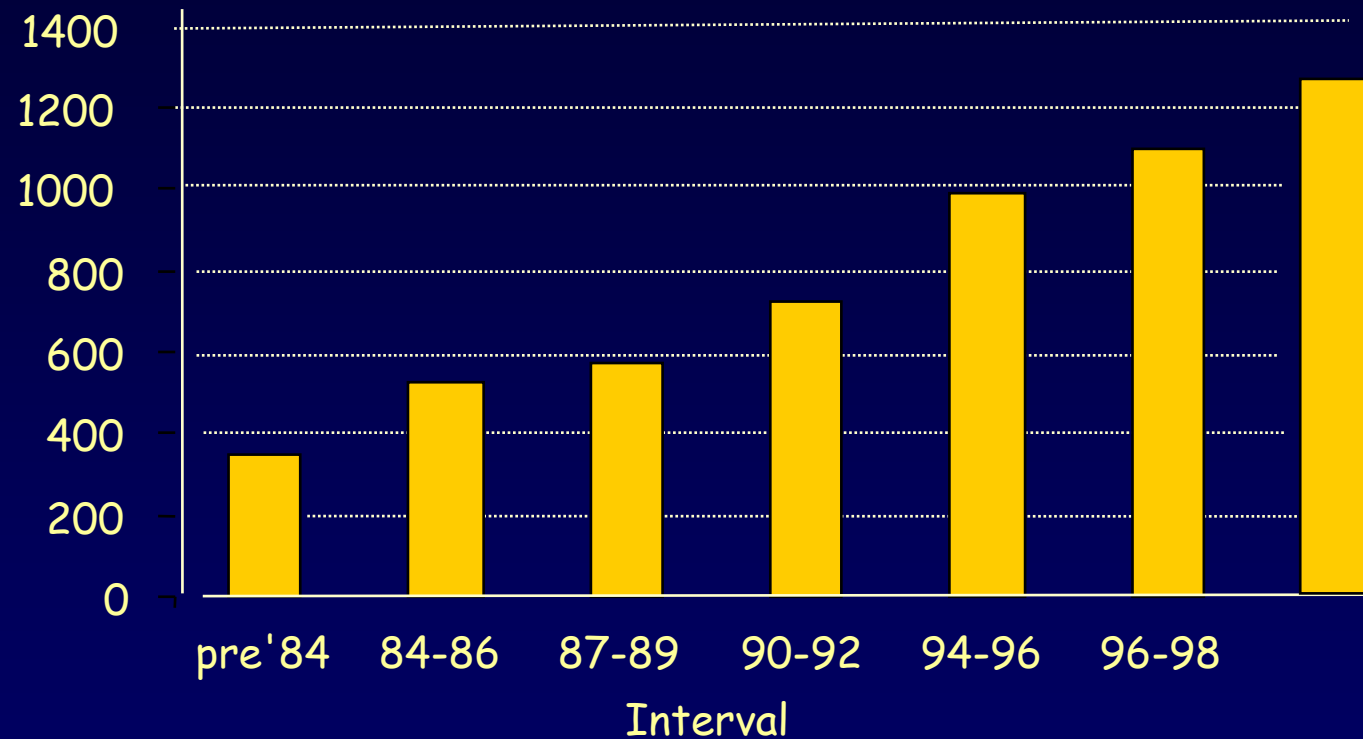
(Circle size proportional to regional population)



Summary rank of indigenous socioeconomic disadvantage
(rank from 1 = least to 36 = most disadvantaged region)

Burden of renal failure and related chronic disease

Incidence, per million, of Treated ESRD in Aboriginal People in the NT



Accompanied by rising death rates from chronic disease,
SMR 3-6 times that of nonAboriginals

Chronic disease accounts for more than half
the hospitalisations of Aboriginal adults

Costs of Treating Hemodialysis Patients
in Top End of NT, 96-97,
Jiqiong You et al (MJA, May 2002)

\$112,149 to maintain an Aboriginal person on hemodialysis per yr:

- \$71,000 for treatment
- \$41,149 for intercurrent hospitalisations.

Mean survival on treatment was/is only 3.3 years!
(Spencer et al, MJA, 1998)

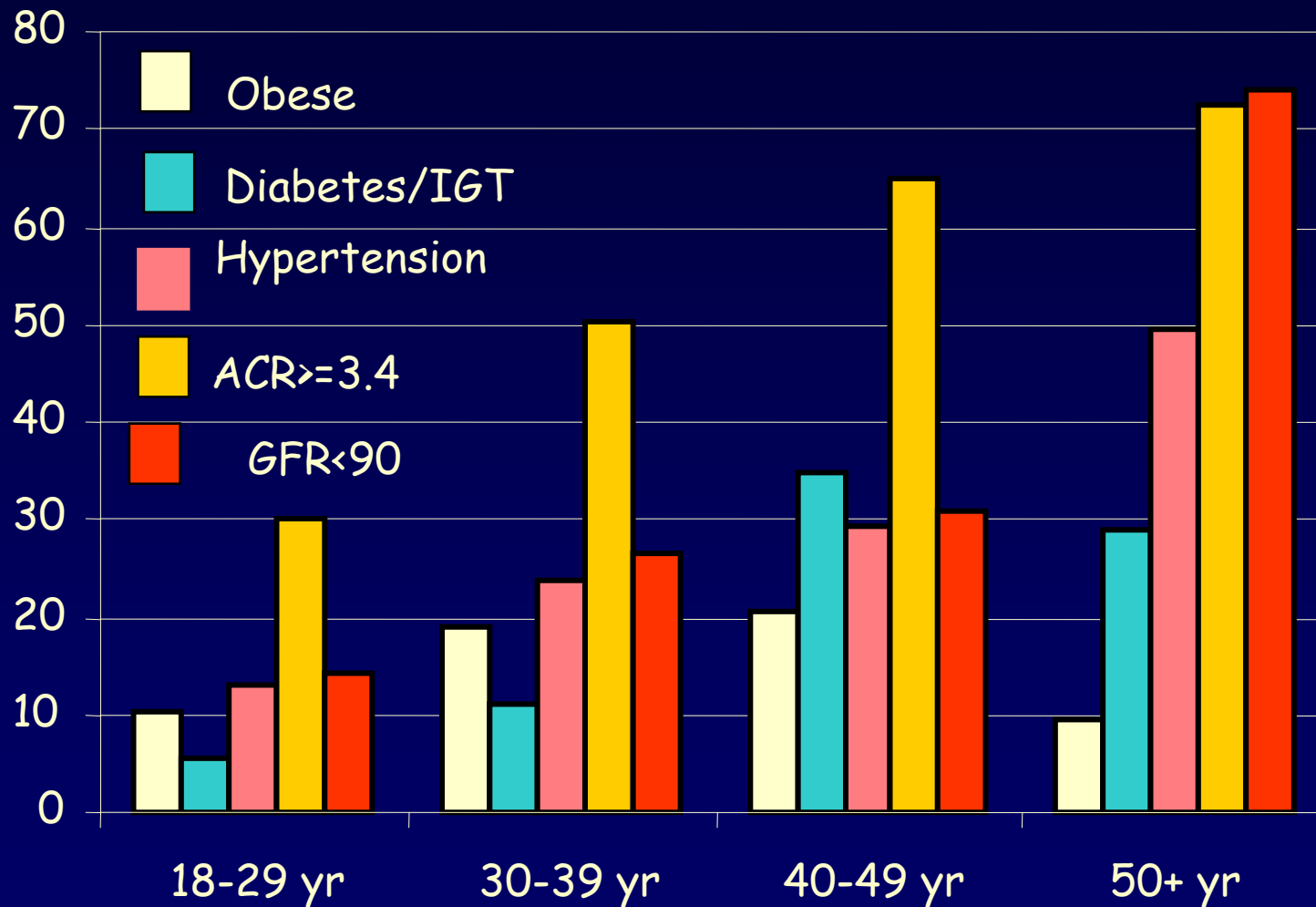
This is money that could otherwise be used for prevention and
primary care.

It seems obvious that....

Hospital costs can't be contained if the volume and severity of morbidity presenting cannot be controlled and if service is not denied.

The burden of morbidity can only be controlled at the community level, by programs of primary and secondary prevention.

Prevalence of Chronic Conditions by Age in Aboriginal Community W Adults



Urine ACR, gm/mol, marks renal disease

<1.1 normal

1.1-3.3 suspicious

3.4-33 microalbuminuria

34+ overt albuminuria

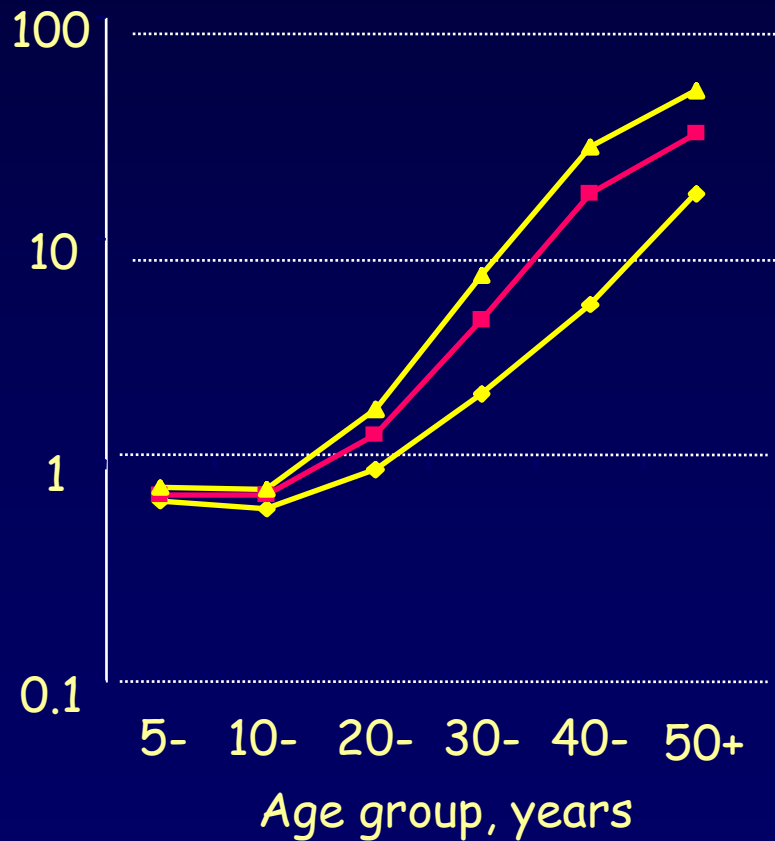
- 34-99: moderate

- 100-199: heavy

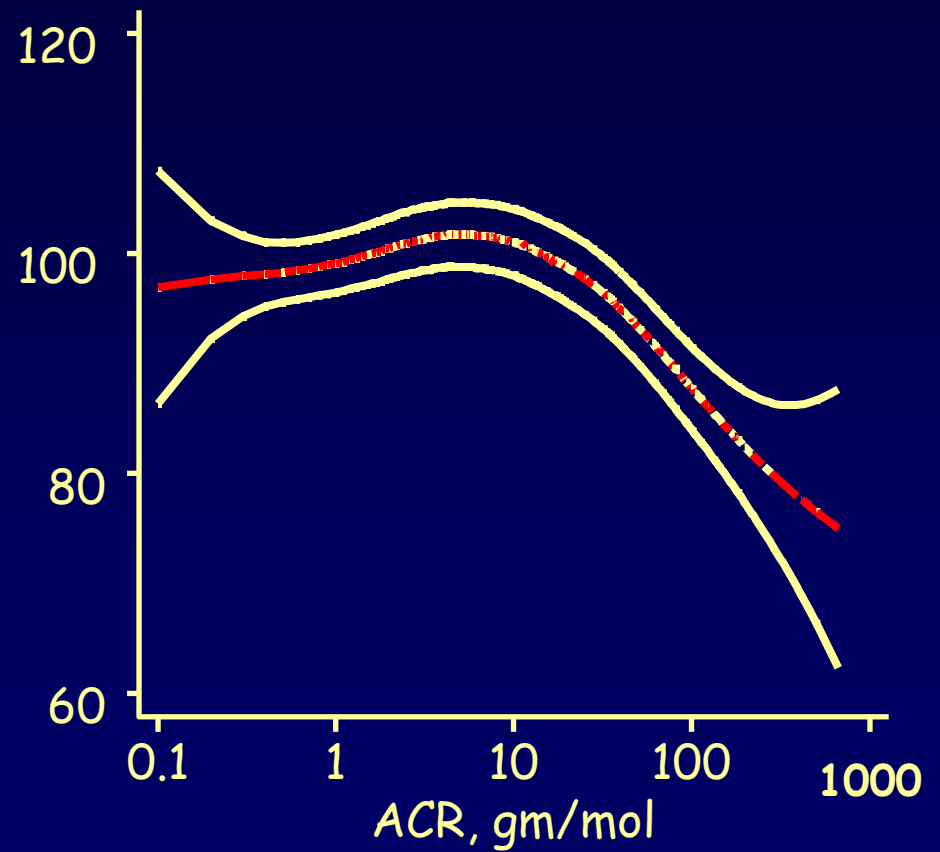
- 200+: intense

ACR, g/mol and GFR, ml/min/1.73 m², in Aboriginal Community W Population.

ACR, median (CI), and Age



GFR, mean (CI) by ACR



Renal Disease is Multideterminant.

Risk factors include:

Increasing age

Low birth weight

Syndrome X features:

higher waist, BP, insulin resistance, lipids,
glucose levels, IGT and diabetes

Skin sores and scabies

Remote episodes of PSGN

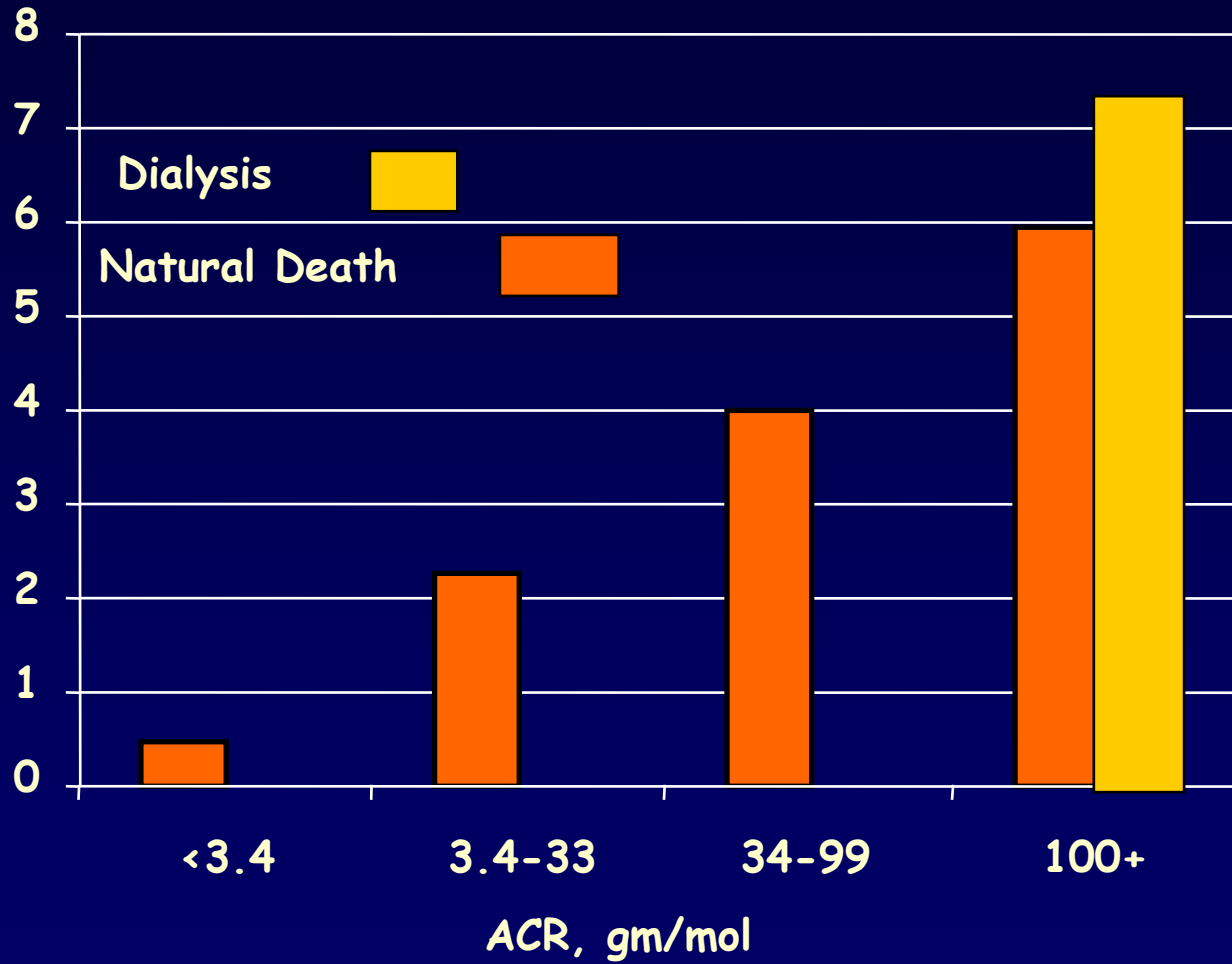
High titre H pylori serpositivity

Heavy drinking

Multiparity

Family history

Rates of Natural Death and Dialysis
by Baseline ACR Category
(events per 100 person yr)



W Treatment Program, (starts Nov 1995)

Objective: Renal and cardiovascular protection

Eligible: Overt albuminuria (ACR 34+)
Diabetics with microalbuminuria
Hypertensives: BP \geq 140/90

Ineligible: Pregnant /breast feeding/ACEi sensitive

Agents: Perindopril (Coversyl, Servier)
 \pm CCB, diuretics for BP control
 \pm hypoglycemics, lipid lowering

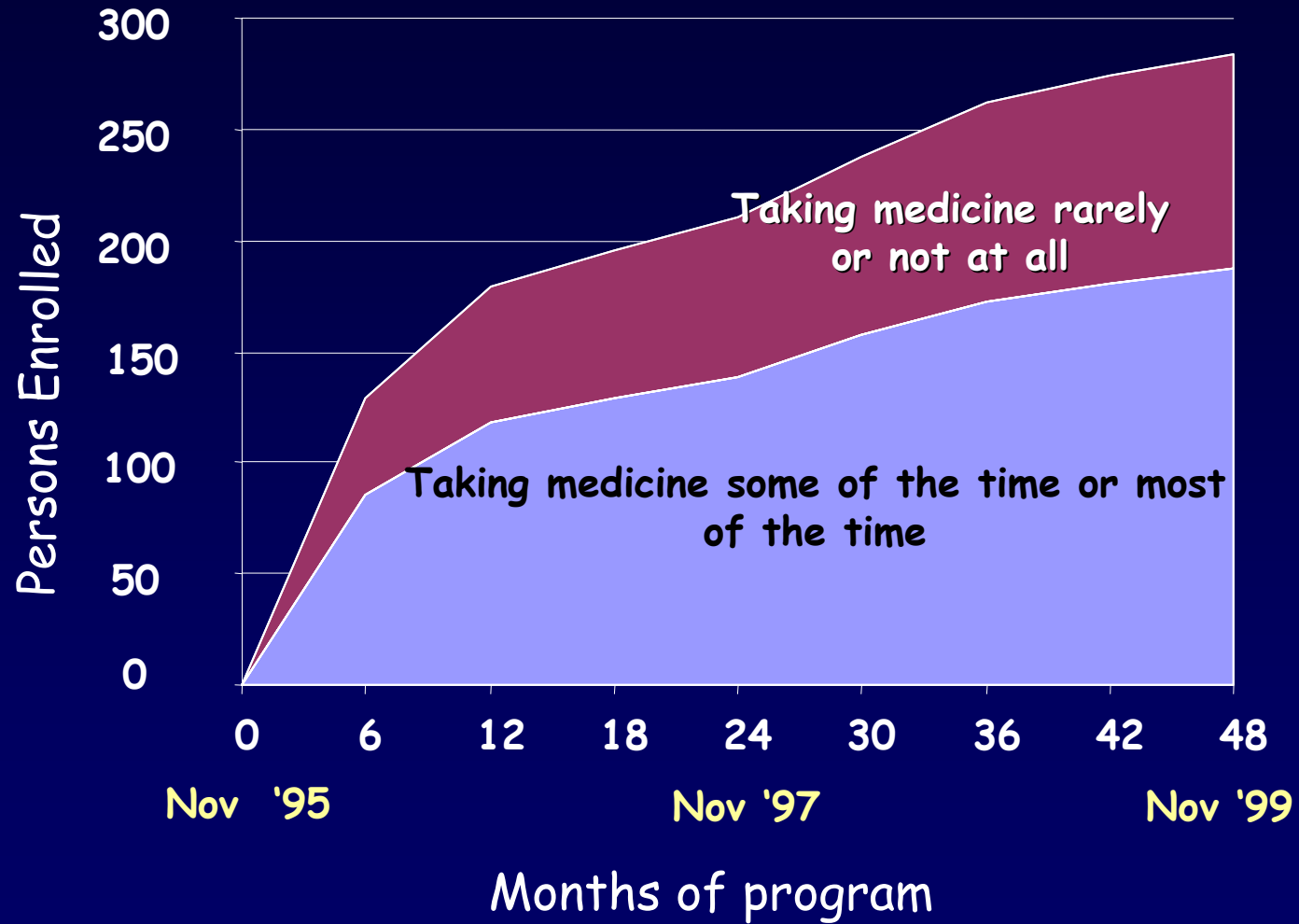
Goals: BP $<$ 125/75
Coversyl to 8 mg (more recently)
Add ARB if needed (for BP or ACR)

Evaluation: Clinical parameters and terminal endpoints
Comparison endpoints w/historical control group

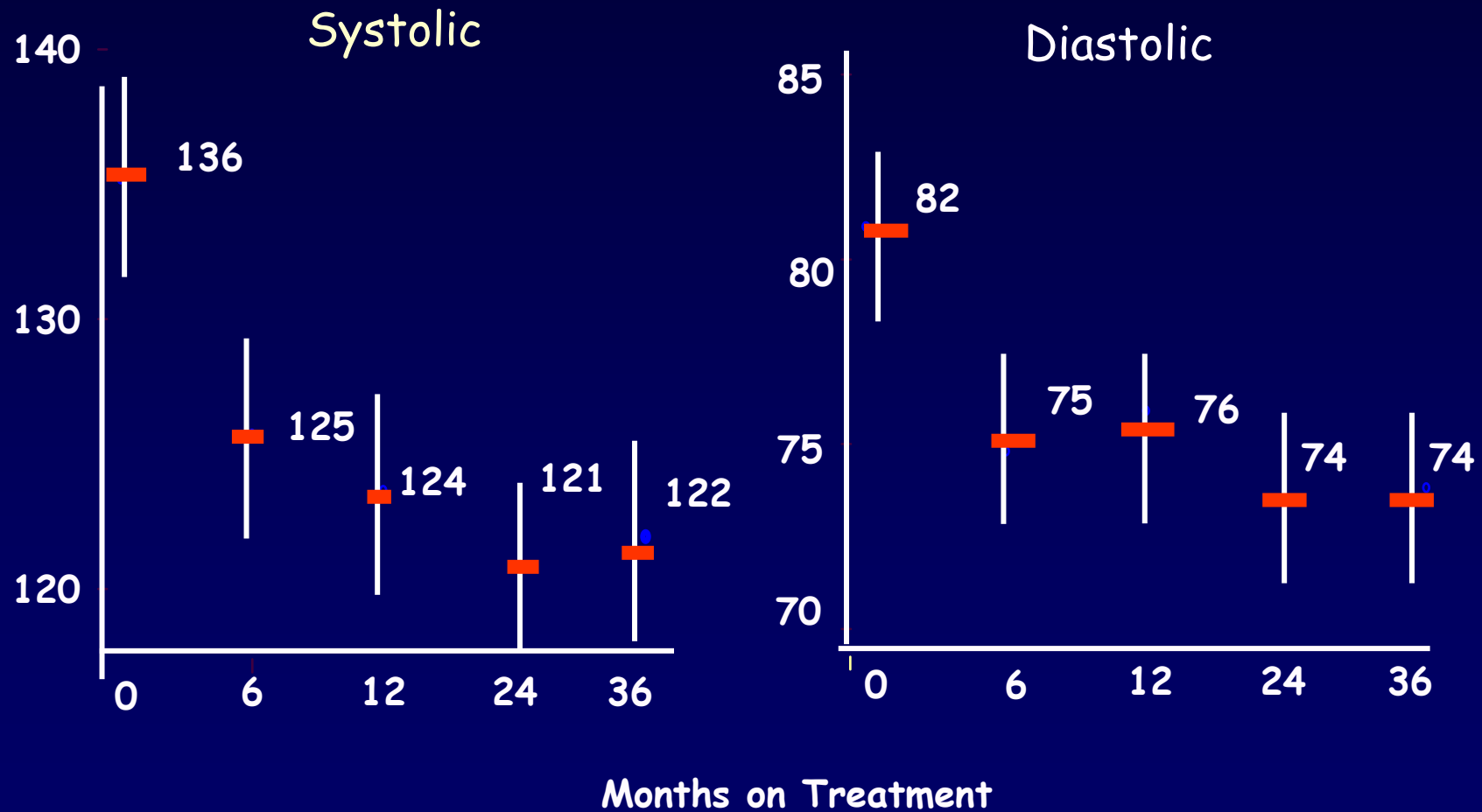
Characteristics of Treatment Cohort vs Controls

	Treatment n=257	Controls n=317
Mean age	44 yr	42 yr
Female	54 %	54 %
Diabetic	41 %	30 %
Hypertensive	61 %	55 %
ACR: < 3.4	5 %	5 %
3.4-33	30 %	27 %
34 +	65 %	39 %
High creatinine	17 %	14 %
Previous ACEi	22 %	(12%)

Cumulative Enrollment in Treatment Program

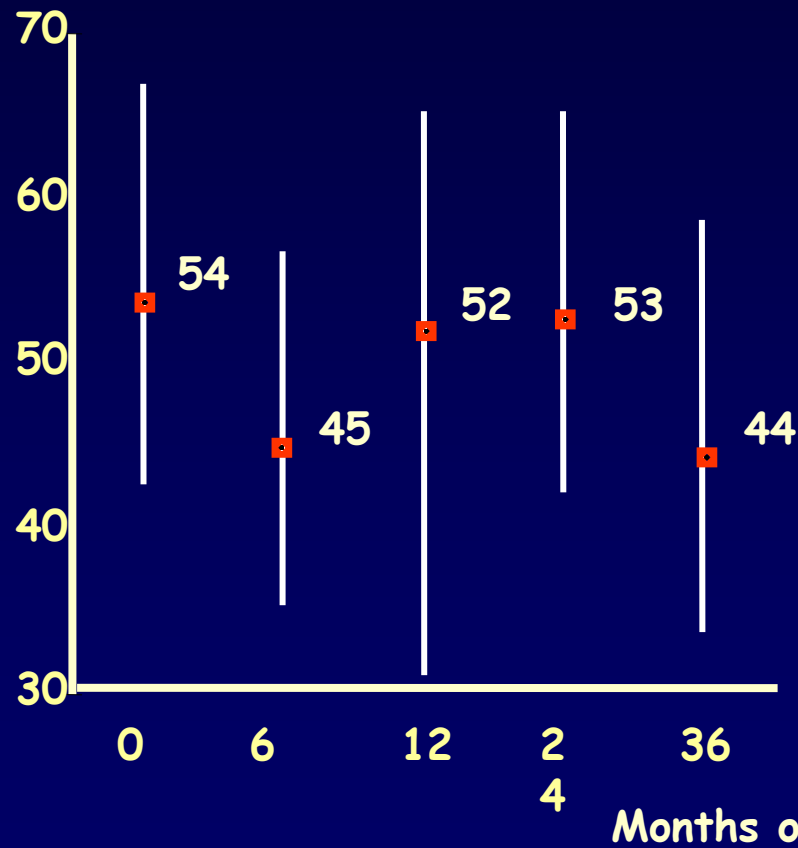


Blood Pressure in People Reaching 3+ Years of Treatment, mean (95% CI)

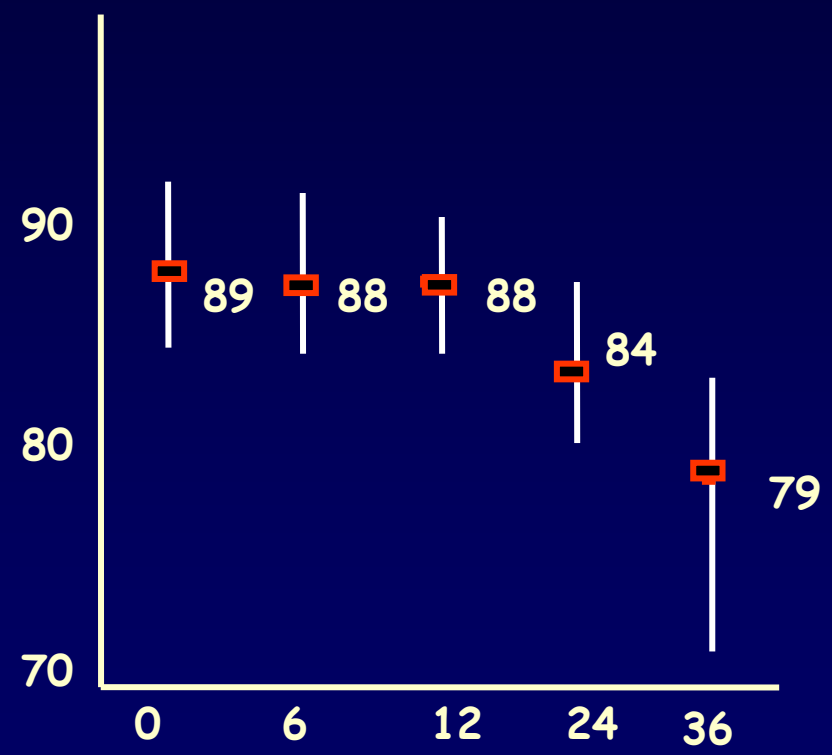


ACR and GFR in People Reaching 3+ Years of Treatment

ACR, gm/mol, mean(CI)

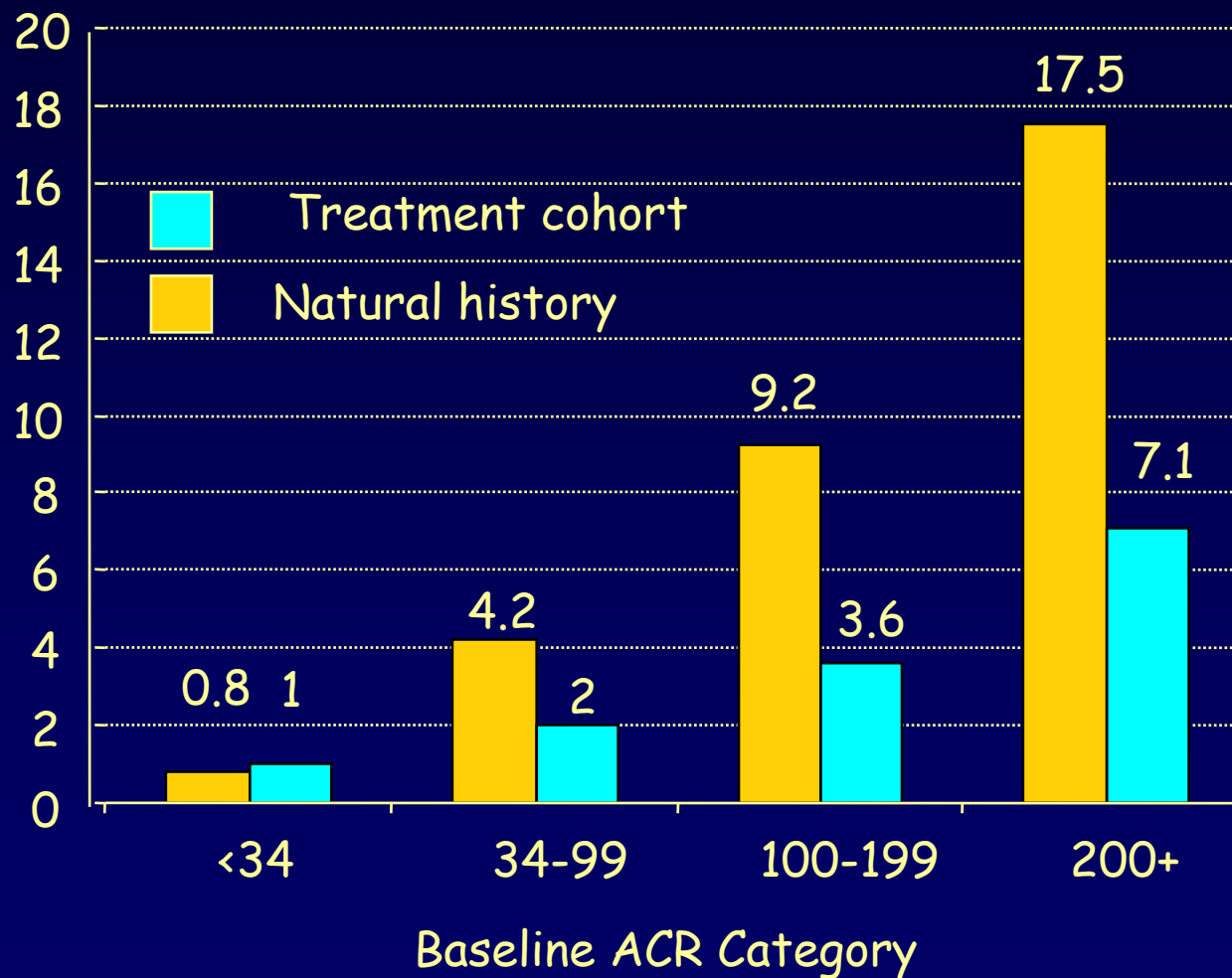


Serum creatinine, gmean (CI)

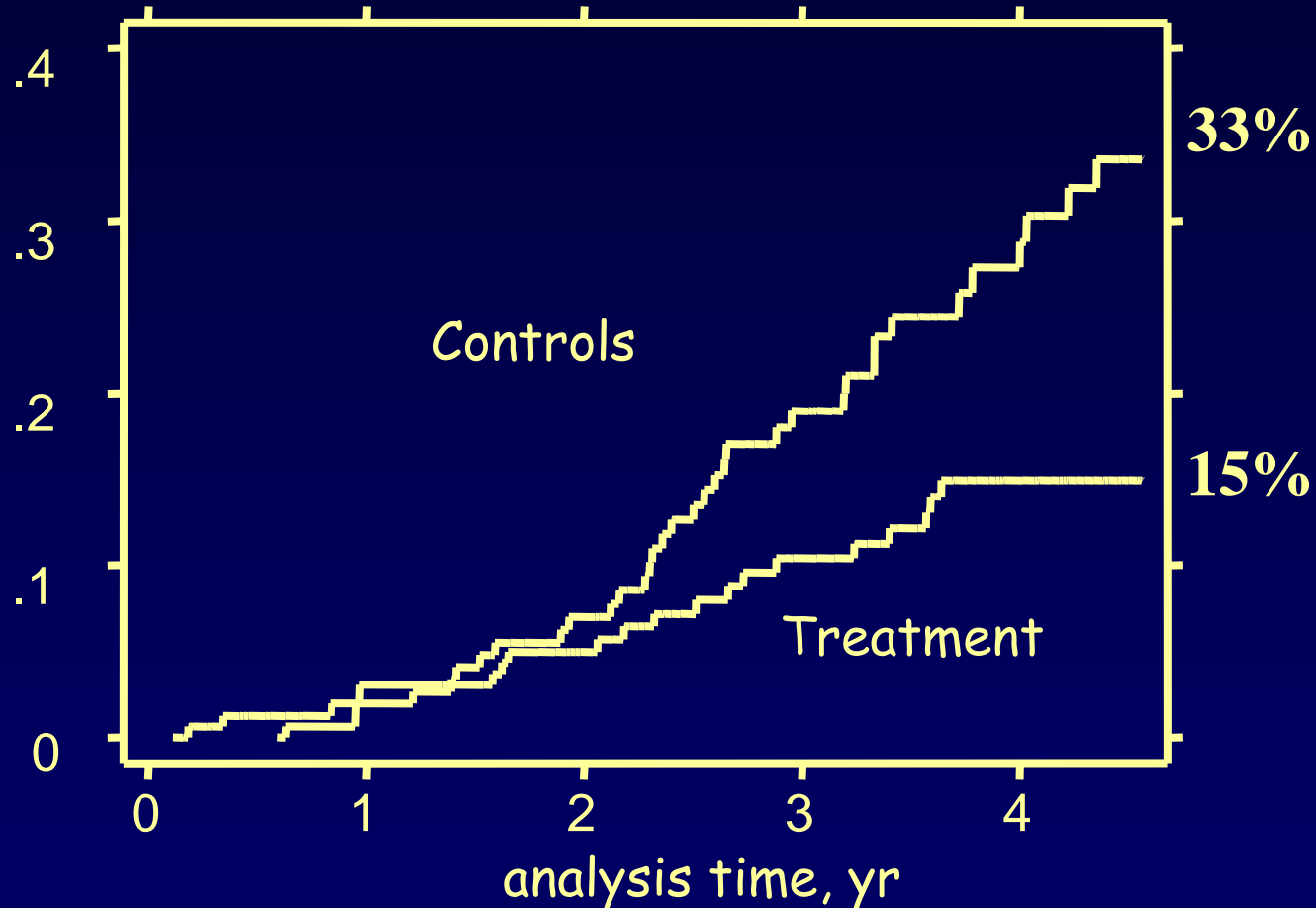


W Treatment Program

All Cause Natural Death, Rates/100 person years,
Historical Controls (n=316) vs Treatment Cohort (N=267)



Cumulative Mortality, Controls vs Treatment Cohort in People with Established Renal Disease (ACR 34+)



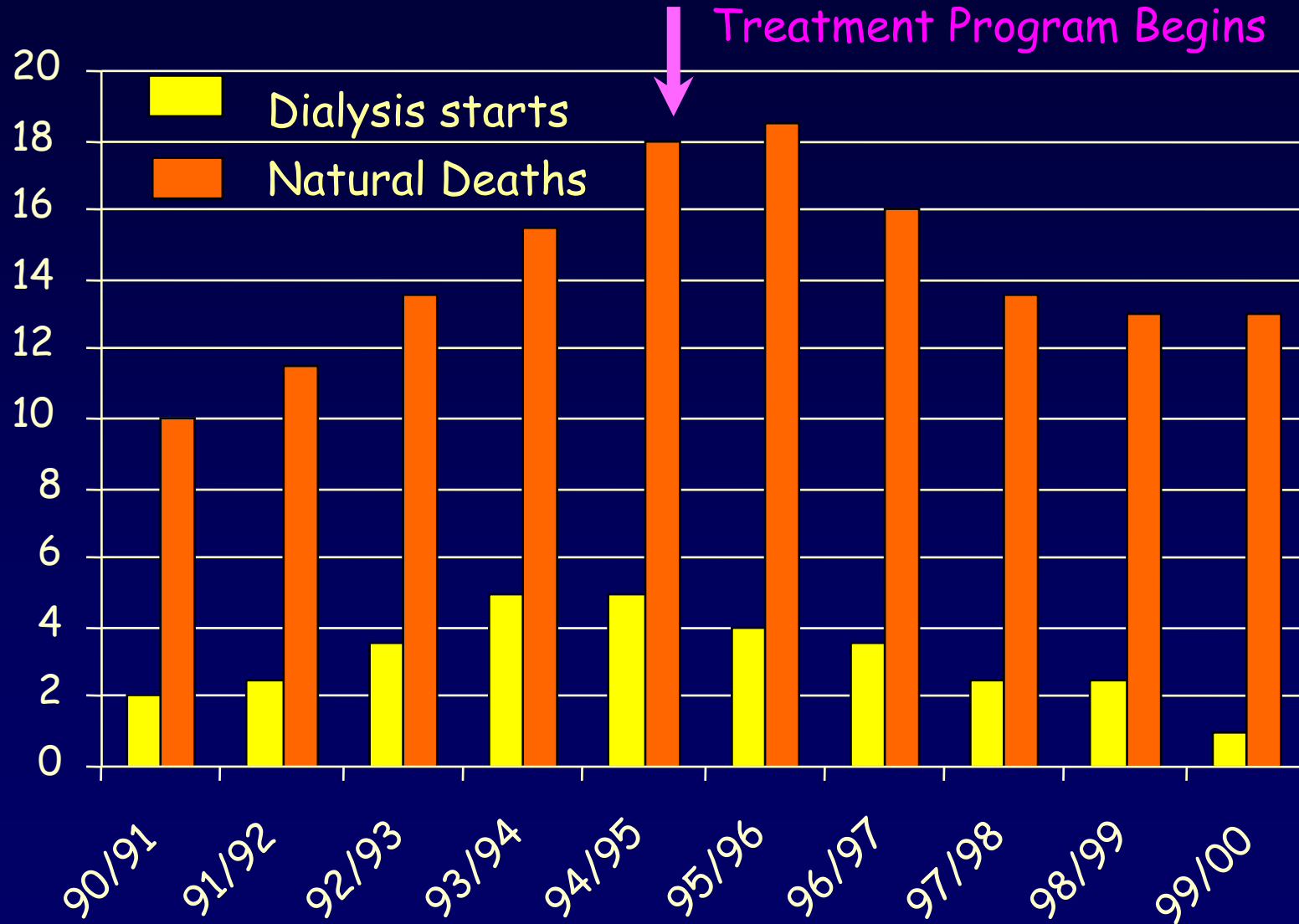
Survival benefit in nondiabetics, diabetics,
normotensives, hypertensives, prior ACEI, no prior ACEI

Avoided Terminal Events

The number need to treat (NNT) over a mean of 3.4 years was

- ONLY 9.5 to avoid any endpoint
- 16 to avoid one renal death
- 25 to avoid one nonrenal death
- 32 to avoid one CV death

Community Based Numbers of People Starting Dialysis and Natural Deaths, Annual Rolling Average, end 2000.



Cost Effectiveness Estimates of Treatment Program (Philip Baker)

Cost per patient per year for first 2 years : < \$ 1,200

Savings in dialysis avoided, through 1998,
(mean treatment time 2.1 years)
\$700,000 to \$3.1 million.

Range depends of what renal failure rates would have done in
absence of intervention

Add reduced hospitalisations

Add value of a year of death postponed in prime of life

W Treatment Program Handover

Handover throughout 1999 to Community's Health Board under a Coordinated Care Trial funding.

Less vigorous surveillance

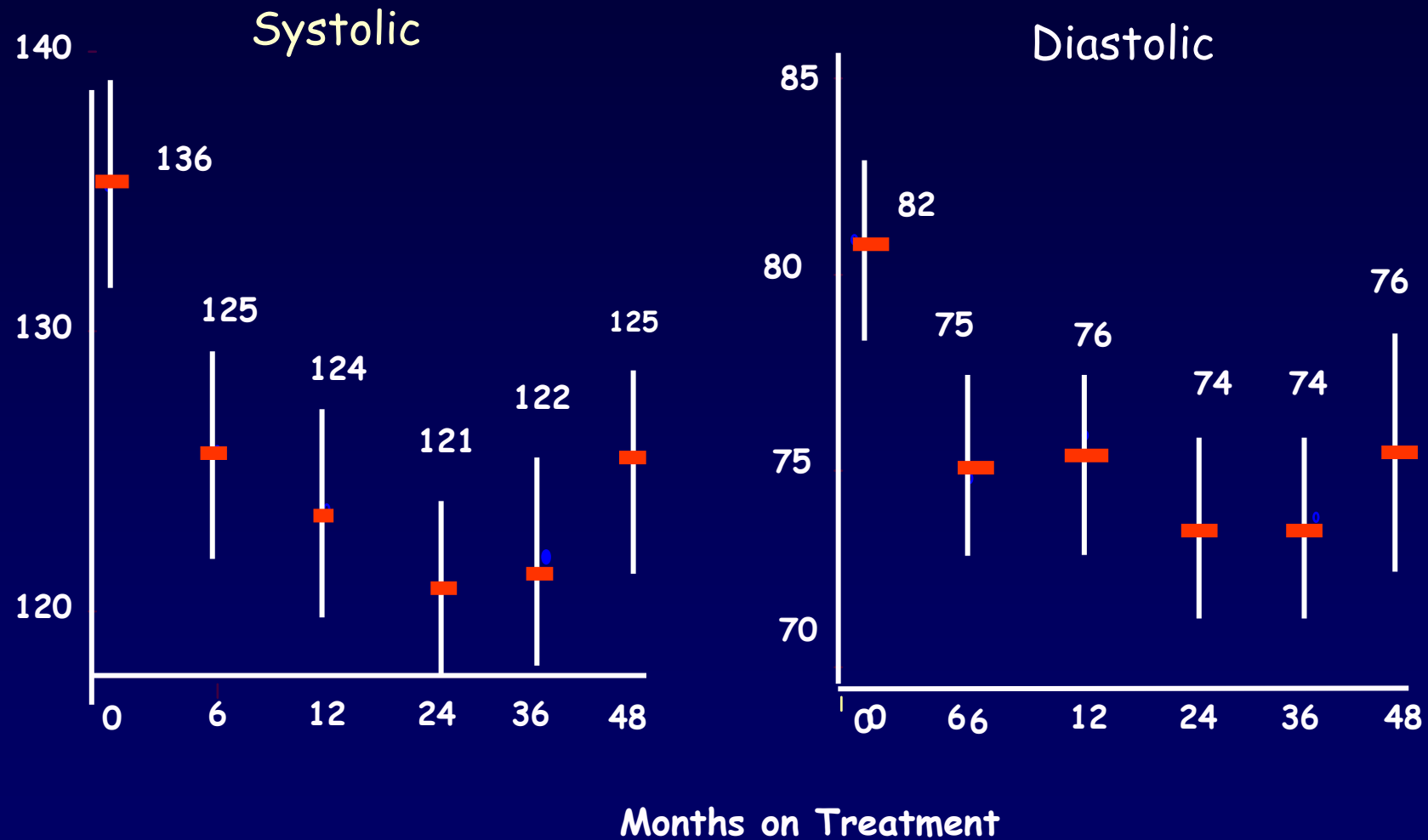
Computer system inadequate for lists and recall

Due to funding deficit, needs of competing programs and personnel rivalries the dedicated program was finally disbanded and responsibilities were incorporated into general clinic activities

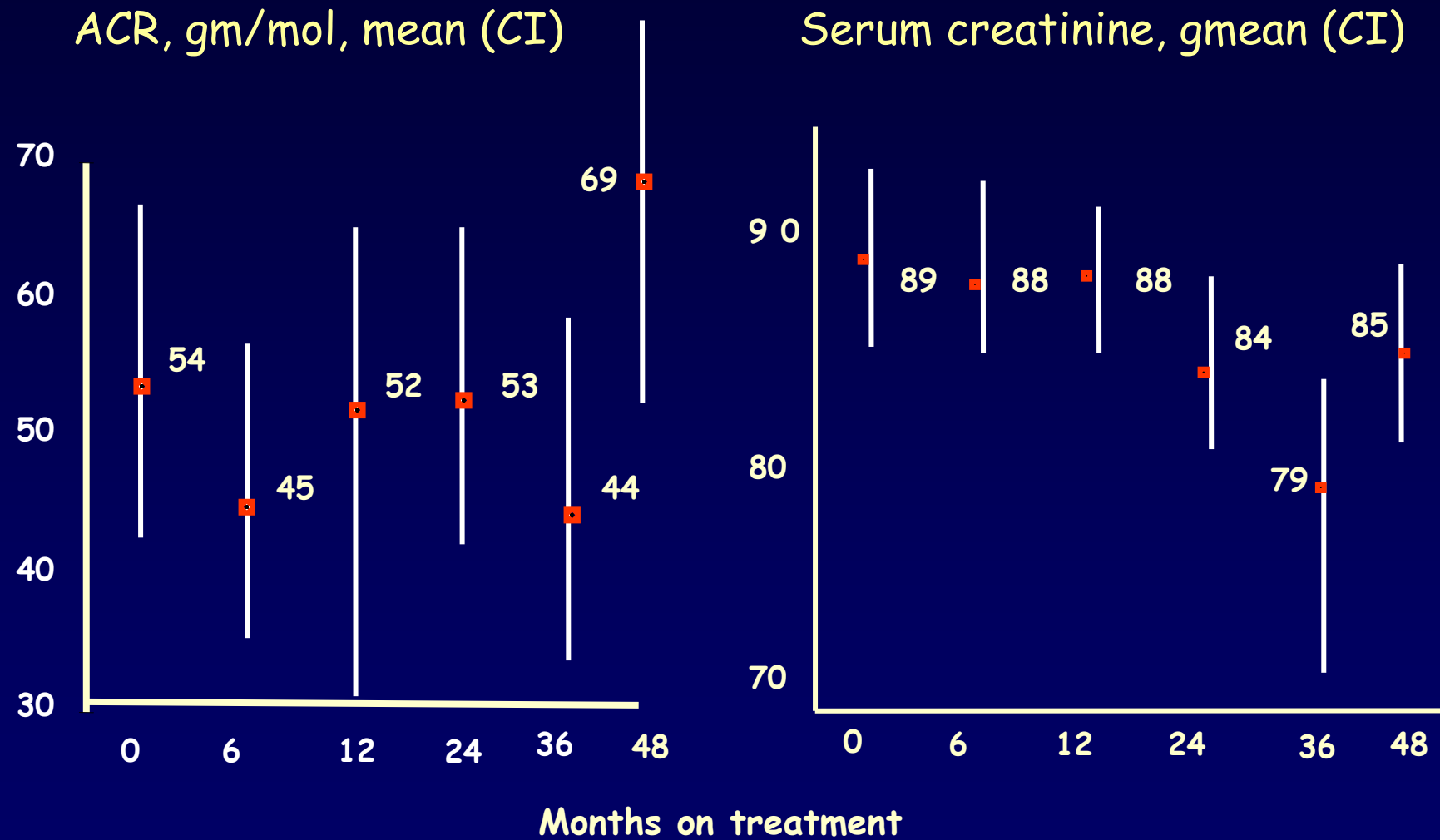
Progressively reduced follow up of enrolled people and reduced enrollment of new people

Poor compliance: 30% in 2001, 8% August 2002

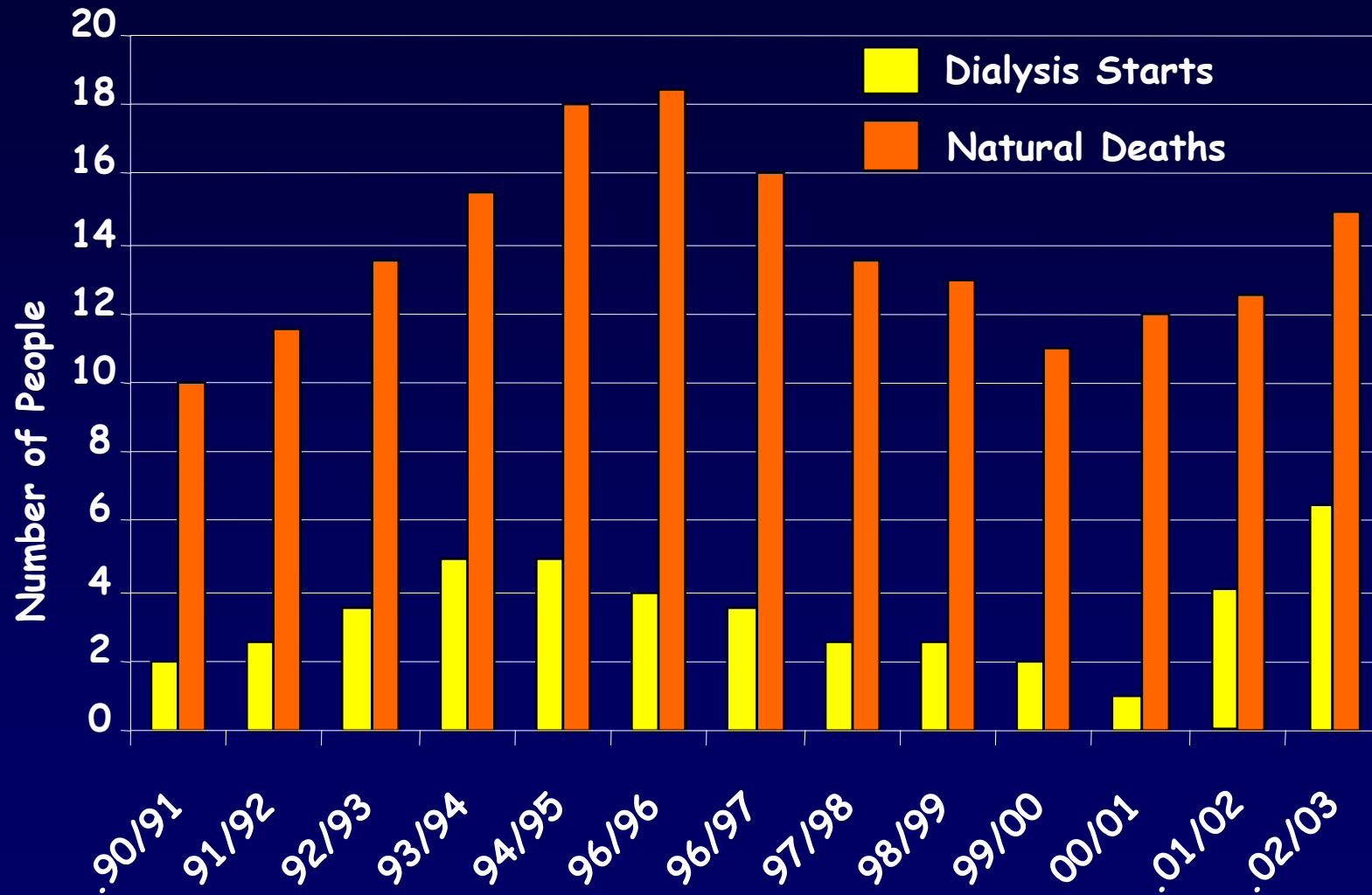
Blood Pressure in People Reaching 4 Years of Treatment, mean (95% CI), analysed in the year 2000.



ACR and GFR in People Reaching 4 Years of Treatment, analysed in the year 2000.



Community-Base Dialysis Starts and Natural Deaths in Adults (18+ yr), Annual Rolling Average, mid 2003



Aboriginal Chronic Disease Outreach Program

Conducted by
Kidney Disease Research and Prevention,
Centre for Chronic Disease, University of Queensland.

Funded by the Australian Kidney Foundation,
Rio Tinto,
Office of Aboriginal & Torres Strait Islander Health and
Janssen Cilag of Australia

Outreach Program Principles 1.

- Chronic disease surveillance & treatment must be an integral part of adult health care.
- Program must be community-owned or endorsed
- Run by local Health Worker (s) who is..
- Supported at a distance by nurse through phone, e-mail & fax
- Treatment decisions endorsed by doctor at a distance.
- Testing and treatment rely heavily on algorithms
- Web-based database for distance evaluation and health profiling.
- Constant evaluation:
 - of individual and community health profiles
 - of program uptake
 - of evolution of clinical parameters
 - of outcomes, (deaths, renal failure, hospitalisations)
 - of cost effectiveness

Outreach Program Principles 2.

Chronic Disease Programs have at least three streams

1. Regular integrated health checks for everyone throughout adult life, for risk factors for, and presence of, all the common chronic diseases.
2. Follow-up & treatment of people with problems.
3. Continuing community and individual education

Outreach Program Principles 3.

- Test..... only what is a problem
..... only what you will act on
- Maximise on-site testing
- Combine with other elements of routine adult health care, where feasible eg immunizations, STD checks, cancer surveillance
- For the participant:
 - Maximise their involvement
 - Give immediate feedback
 - Find the positive message
 - Personalise their health goals
- Start and titrate treatment according to algorithms, using a limited menu of medicines, and titrating quickly towards set goals

Minimal Elements of Regular Check Up

All done on site

History: smoking, drinking, other substances, parity,
hypertension, diabetes, renal disease

Height, weight

Waist, hips

Blood pressure

Skin exam (sores, scabies, fungal infections)

Loose cough, rales, rhonci

Urine dipstick (protein, blood, infection)

Random glucose on fingerstick blood

Further tests if positive history or abnormal results on basic screen

Urine culture

Urine ACR

HbA1c (or fasting glucose or 2 hr glucose)

Serum creatinine

Lipids

Three Other Remote Top End NT communities

Since 1999, design, advocacy, funding, consultation,
consensus, ethics approval

Clinical activity began...

Dec 2000, Community **D**, adult population 783
465 tested by April 30, 2002, or 59%

April 2000, Community **I**, adult population 233
220 tested by April 30, 2003, or 94%

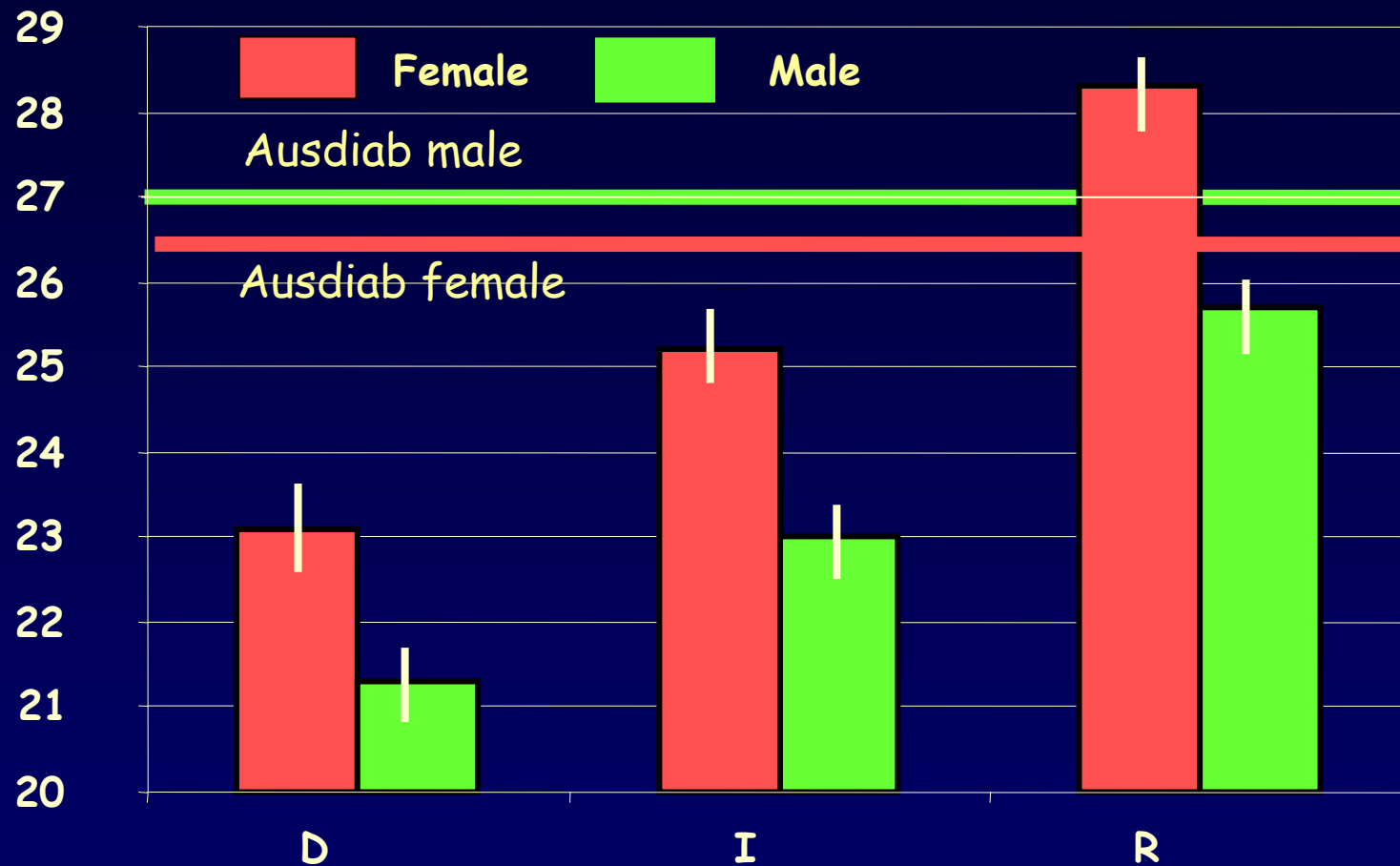
Nov 2000, Community **R**, adult population 535
415 tested by April 30, 2003, or 78%

Percent of People who Smoked or Drank by Community and Gender



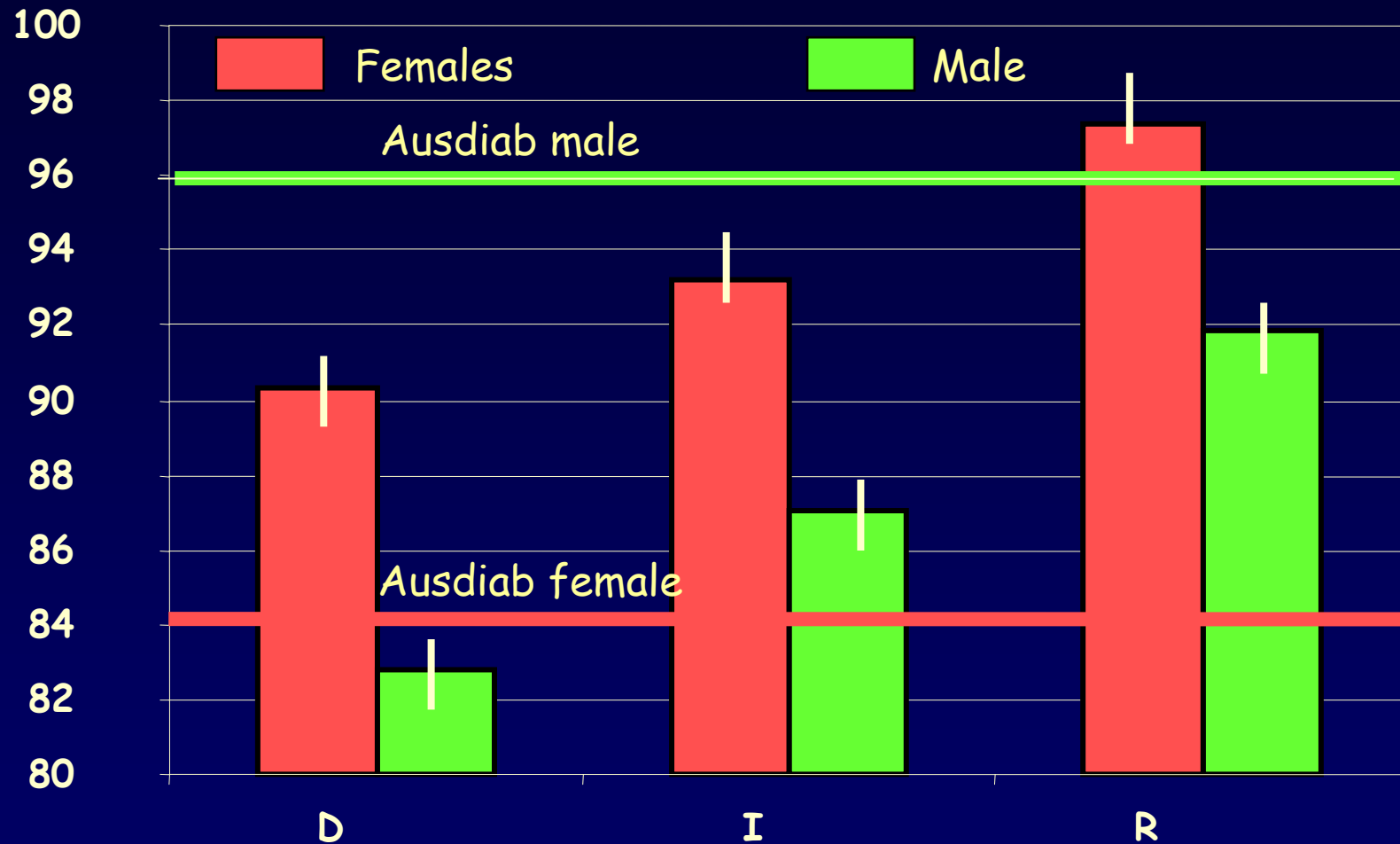
* Don't generalise or stereotype by health behaviors

Mean (CI) BMI, by Community



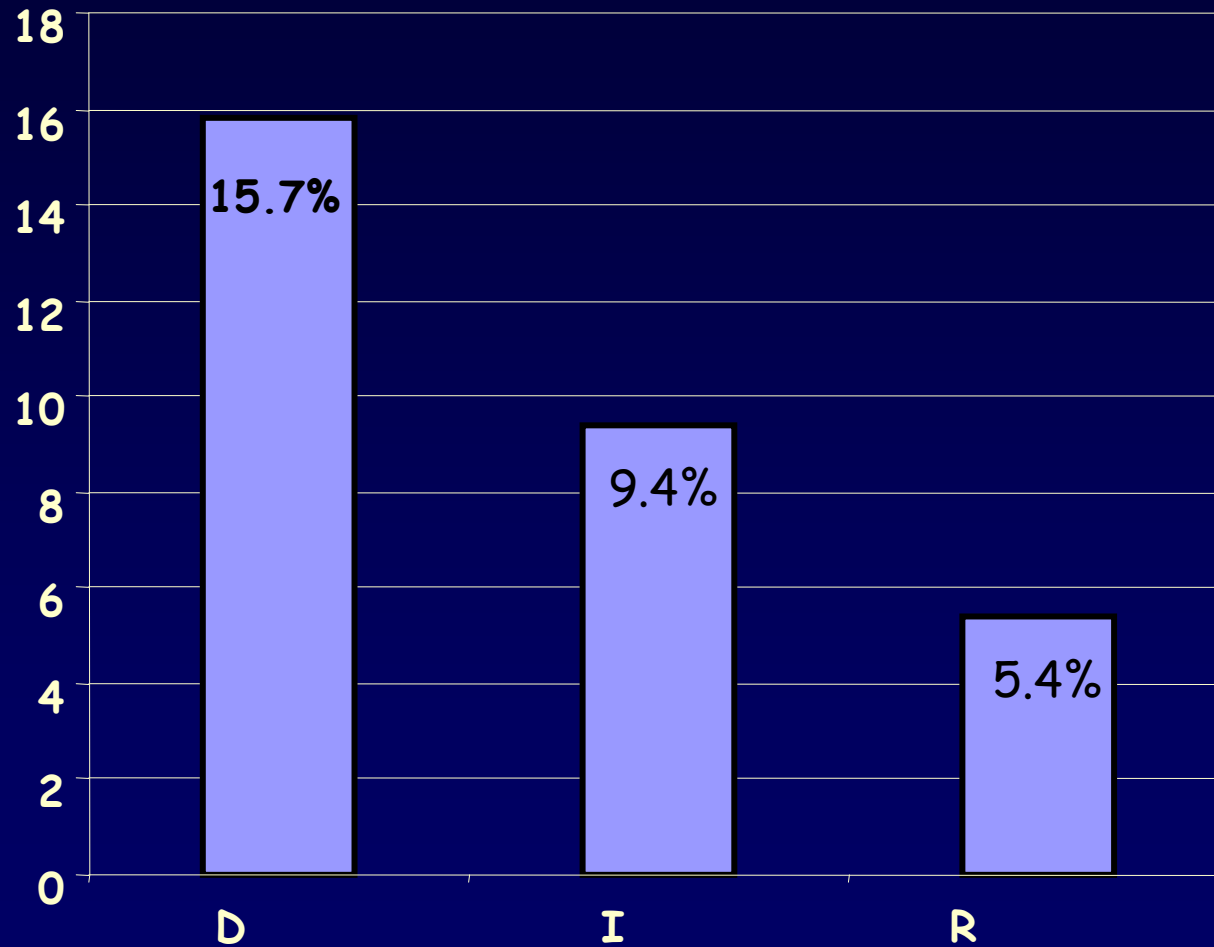
- * BMI not always excessive cf Ausdiab
- * Don't generalise or stereotype about weight and BMI

Mean Waist, (CI), cm, by Community

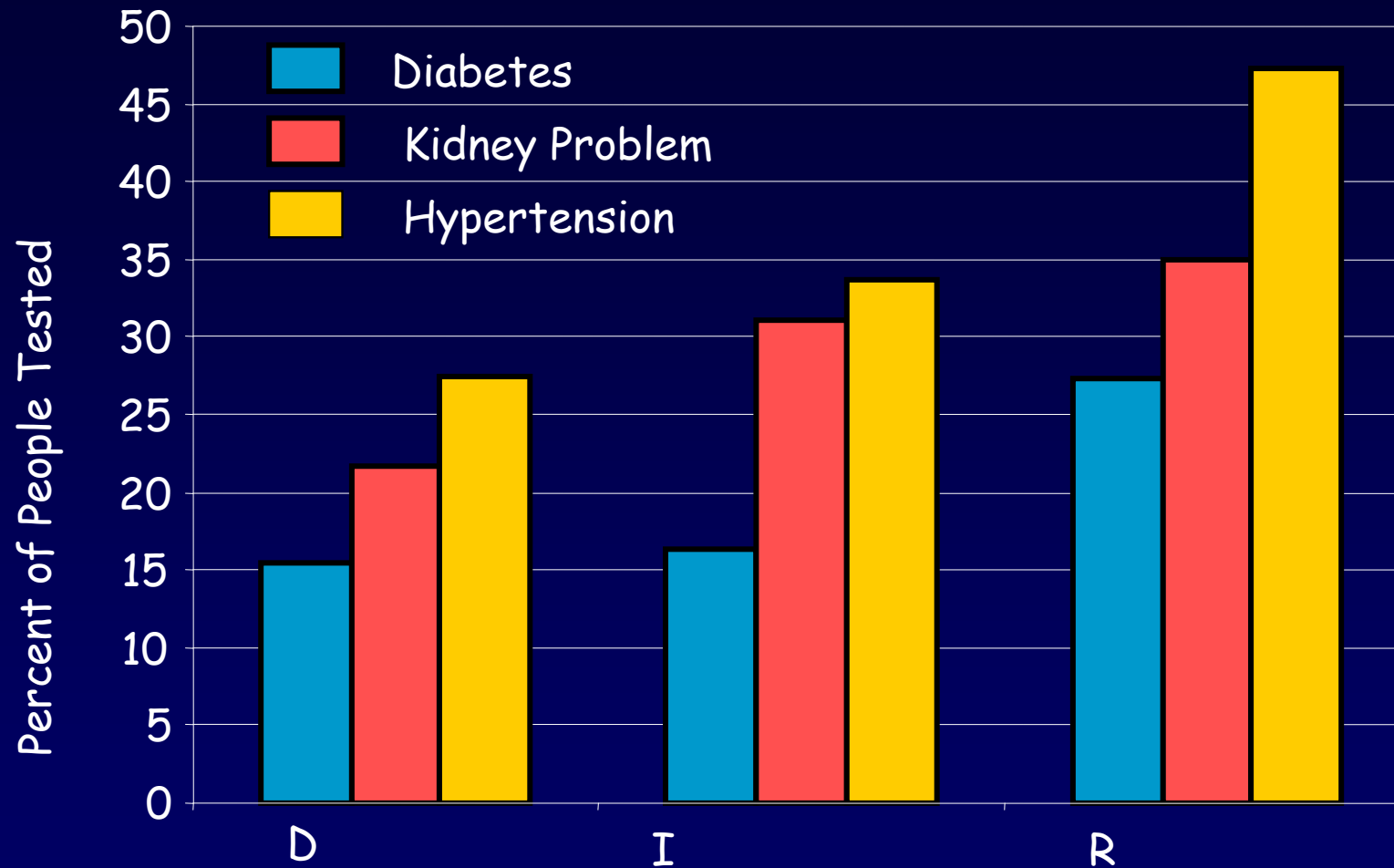


* Waist is much much higher than Ausdiab for females in all communities, but is smaller than Ausdiab in males in all communities .

Percent of Participants Low Birth Weight (<2.5 kg),
n=382, average age 25.5 yr *Fix this.*

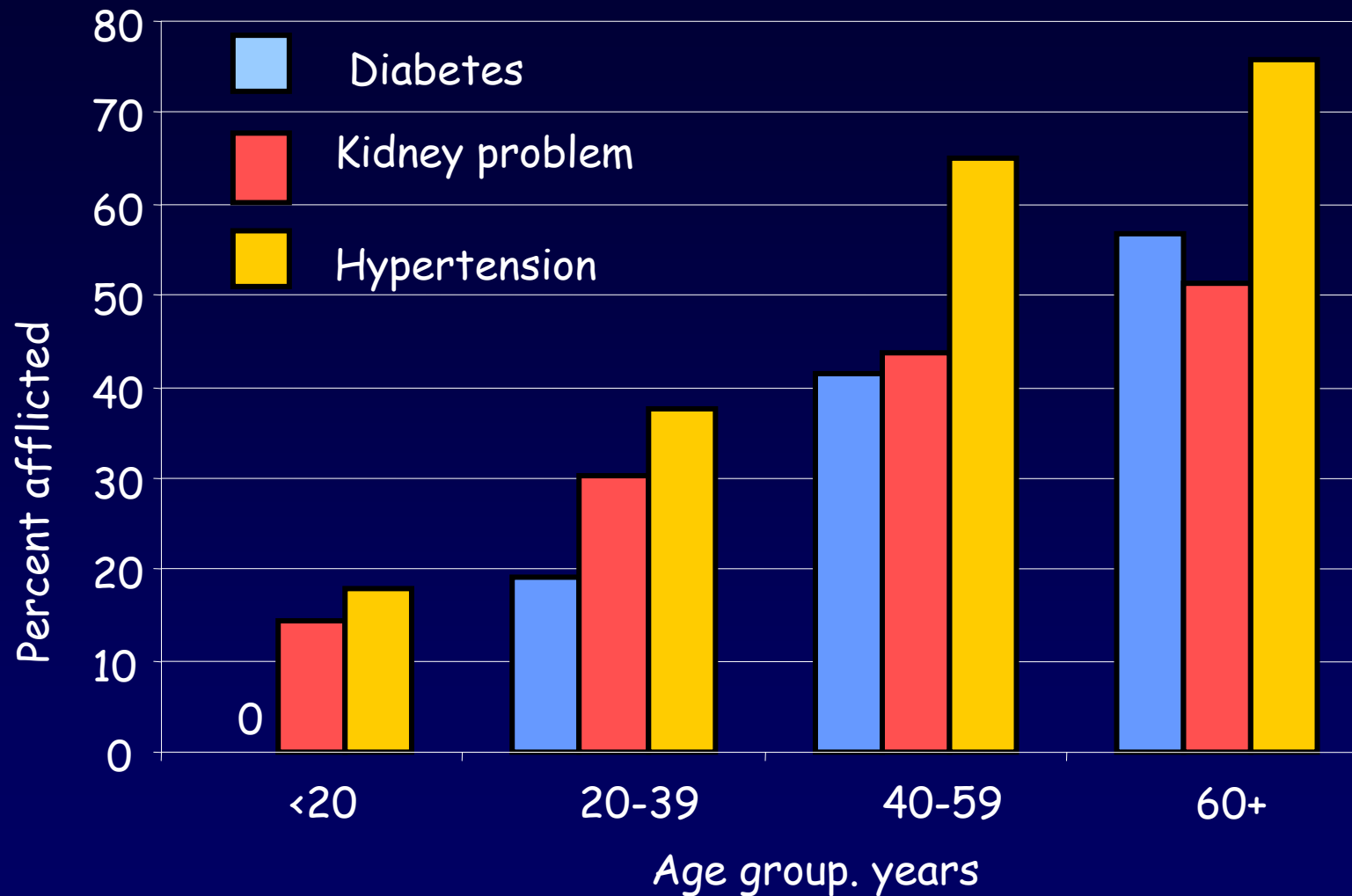


Estimated Rates of Morbidities By Community



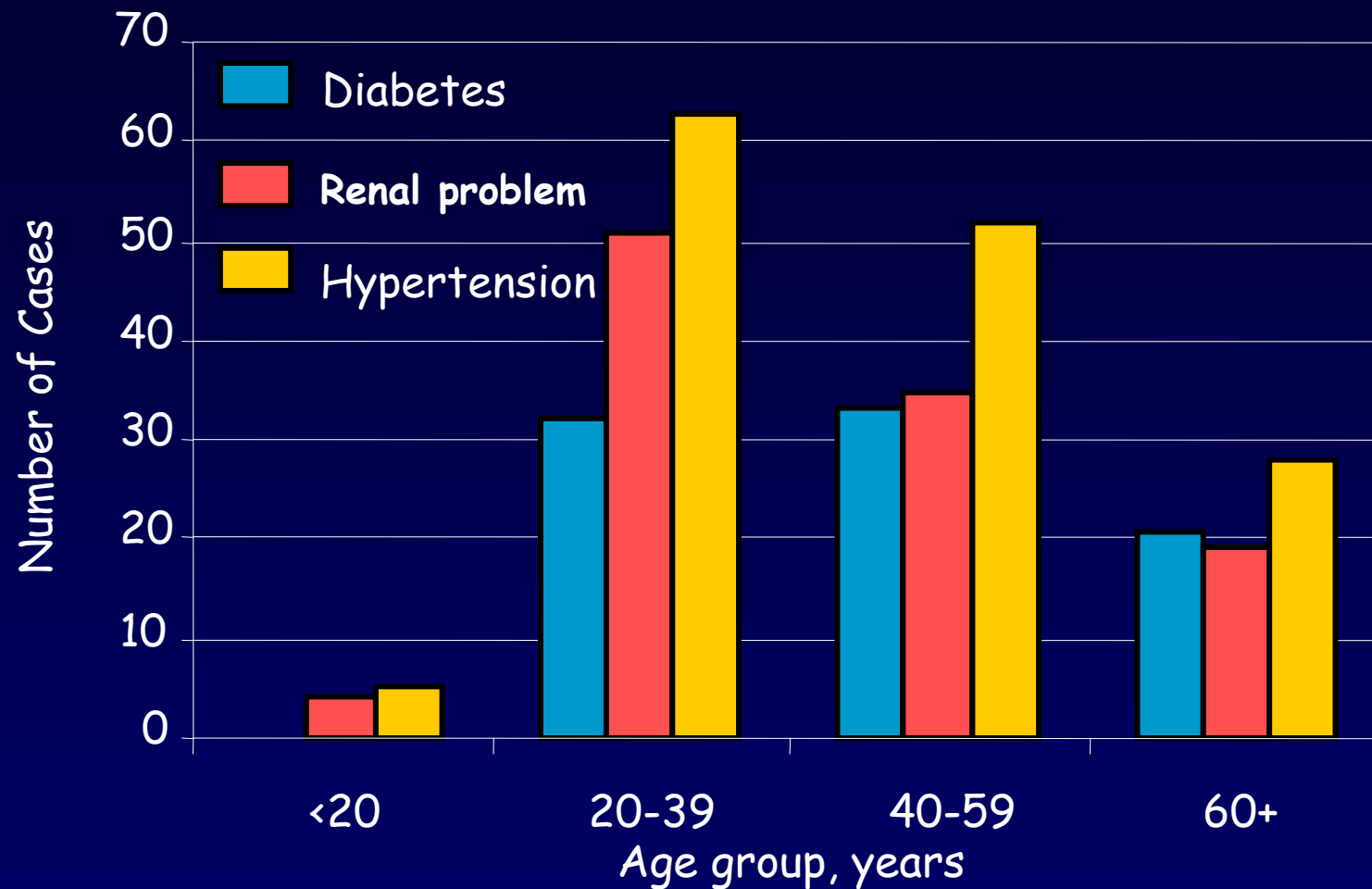
- * Rates of morbidities differ by community
- * Pilot studies are needed to anticipate required services

Prevalence of Conditions by Age Group (R)



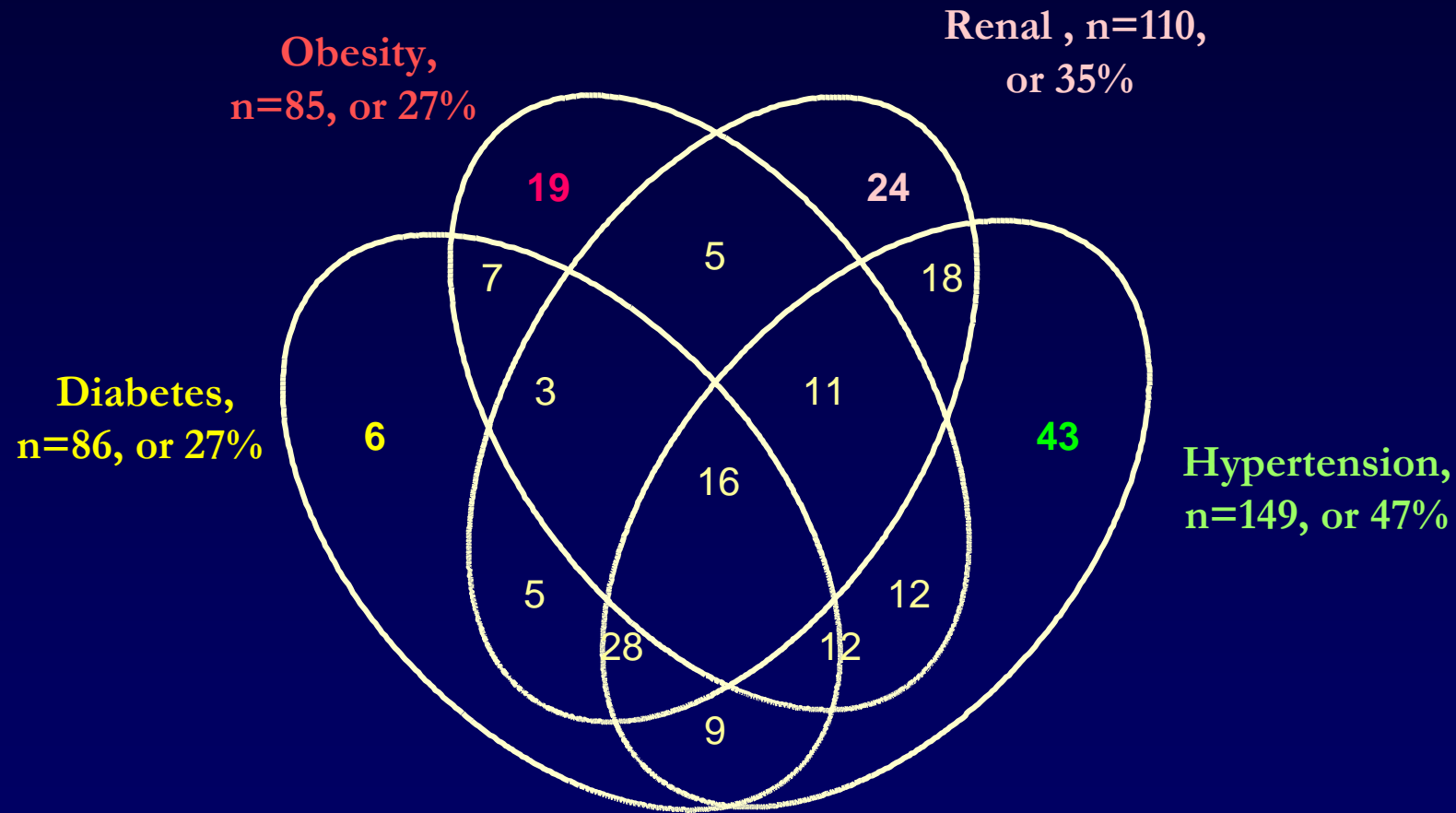
- * Rates increase with age
- * Tells us something about pathophysiology
- * Provides the case for repeated testing throughout adult life

Number of People with Conditions by Age Group (R).



- * Most people with problems are young and middle age adults
- * This anticipates many years of treatment for many people
- * Informs health services planning.

The Case for Integrated Chronic Disease Screening: Coexistence of Morbidities in Adults in Community R (n=315).



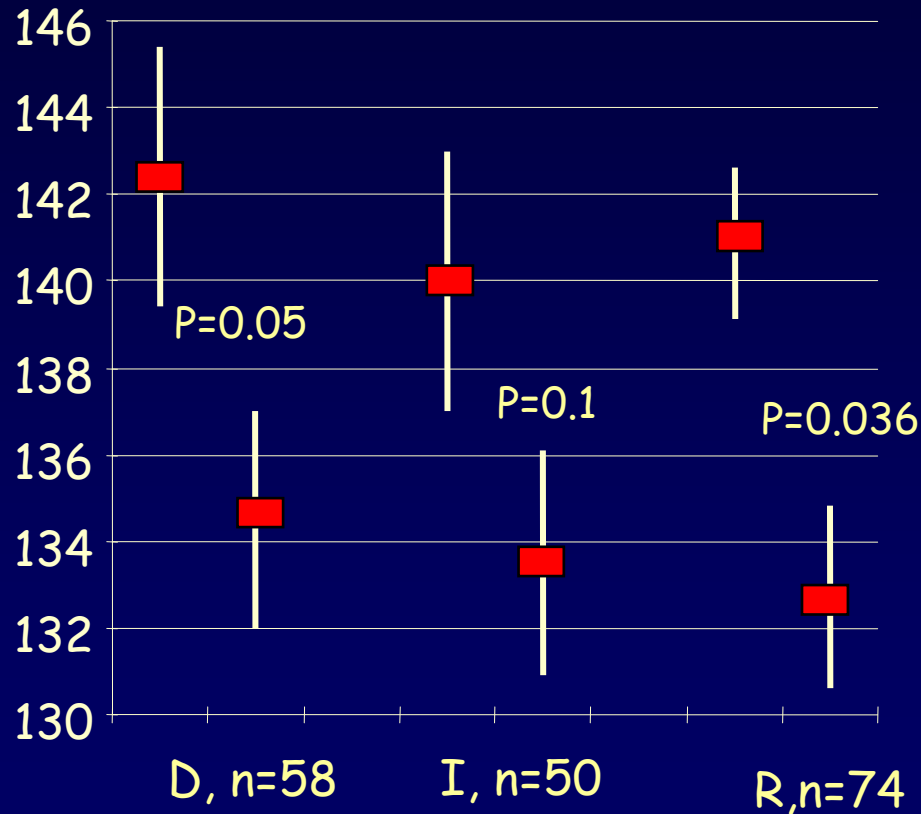
Percent with one or more conditions including obesity

D 30%; I 57%; R 70%

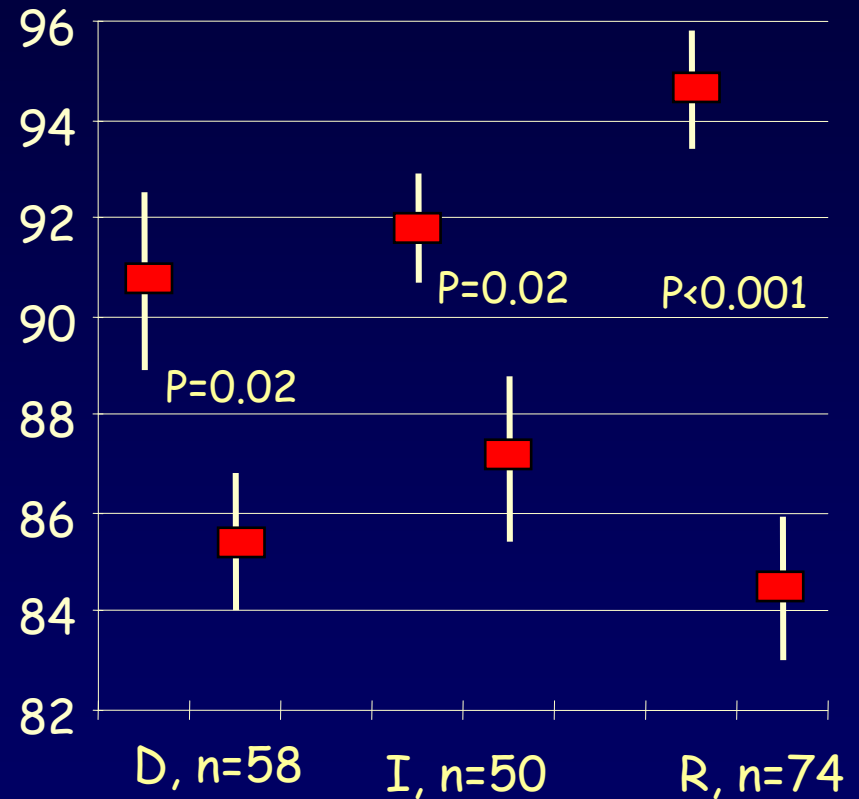
Most recent vs first BP in those w $BP_{\geq 140/90}$ at Baseline.

I have concerns about these data,, please do not use yet

SBP, mean (SE)



DBP, mean (SE)



Challenges/Obstacles

Lack of resources: Staff, equipment, facilities

Competing demands of urgent/emergent care

Ignorance of integrated nature of chronic disease

Unempowered health workers

Absenteeism from work

High turnover of nonAboriginal staff

Treatment requirements overwhelm the system
where the disease burden is high.

What is needed.

1. A commitment to chronic disease surveillance and management, as an integral ongoing core element (the major element) of adult health care.
2. Adequate and sustained core funding....
starting levels could be dictated by pilot data.
3. Community health profiles from testing data can be used to project future disease burden and health care needs and to advocate with funding agencies for further increases.
4. Constant evaluation and program modification.

The minimal justification is cost-effectiveness: due to reduced hospitalisations, deaths and kidney failure