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# **Benefit: Risk Assessment**

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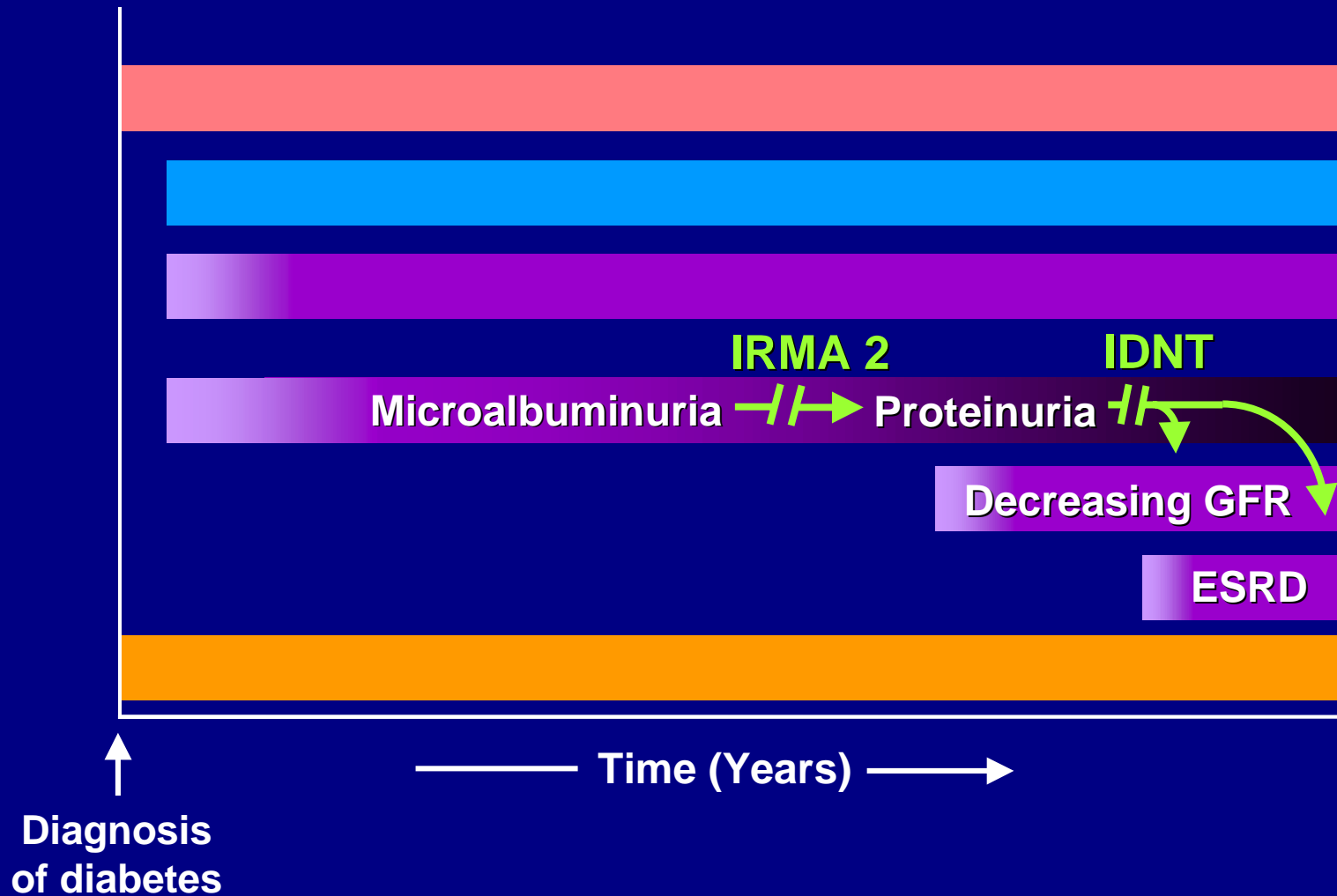
**Muehrcke Professor of Nephrology  
and Director of the Section of Nephrology  
Rush Medical College, Chicago, IL**

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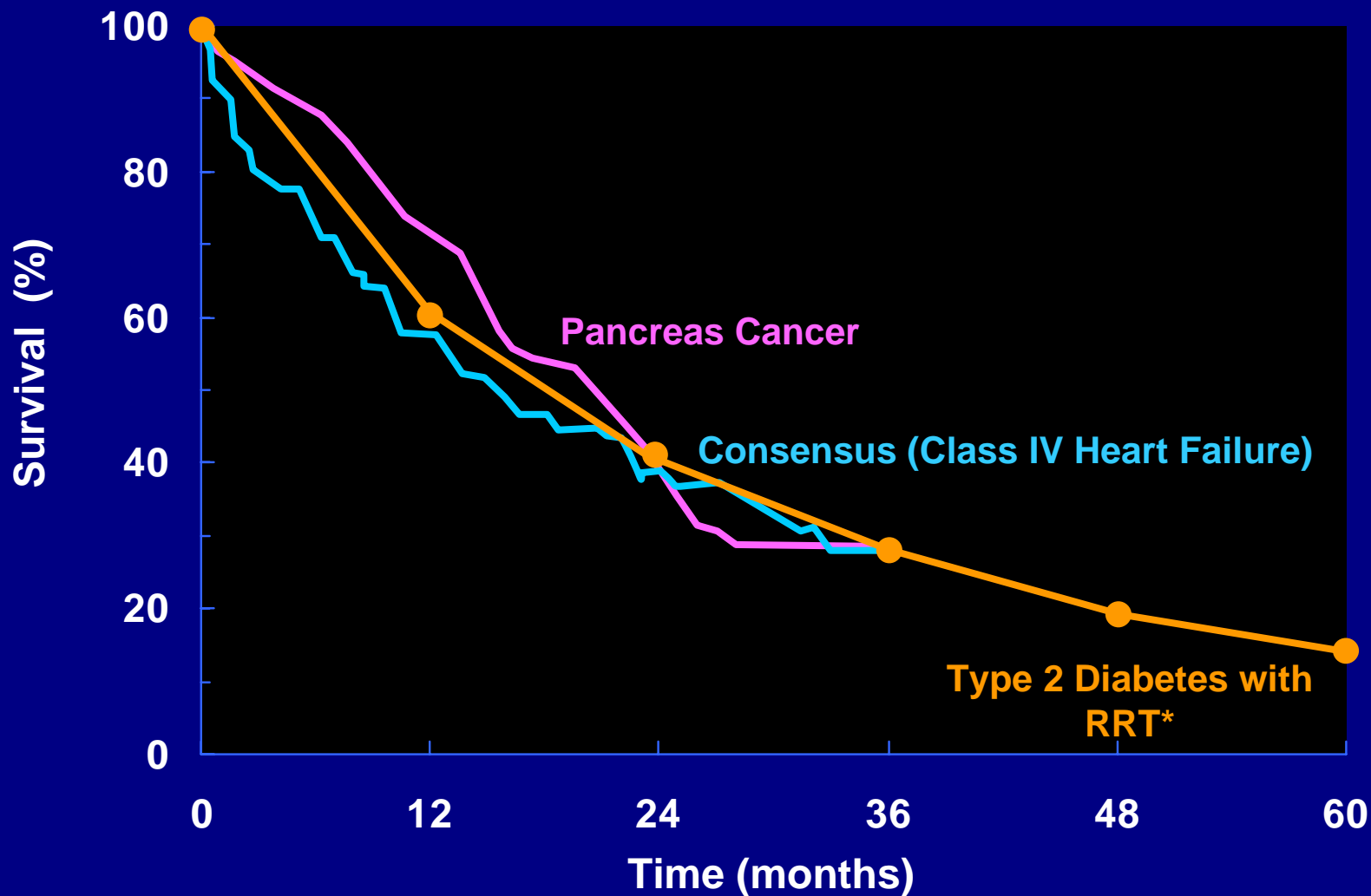
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# Natural History of Type 2 Diabetic Nephropathy

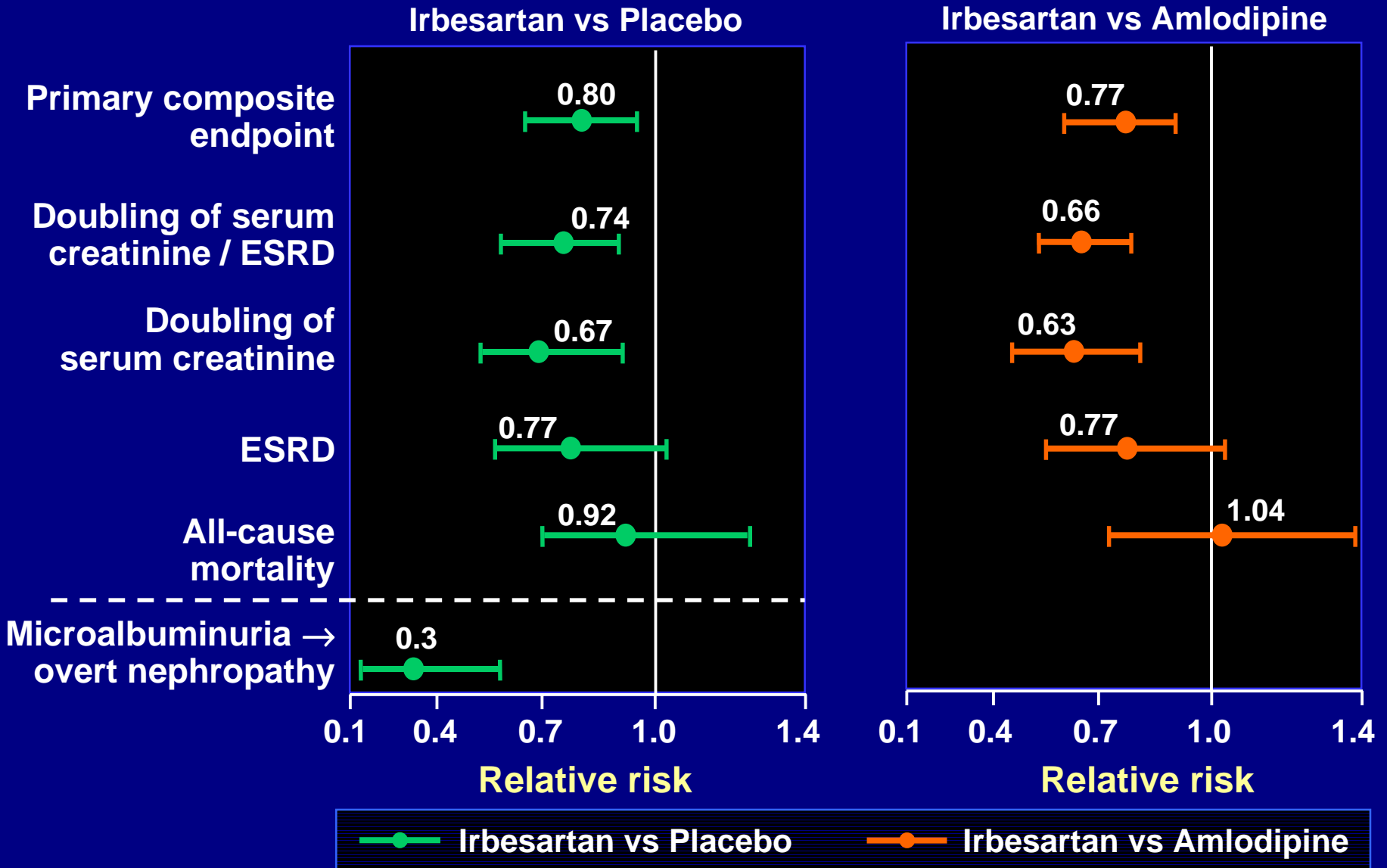


# Survival of Patients With Type 2 Diabetes Receiving Renal Replacement Therapy (RRT)



\* Hirschl, MM et. al., Am. J. Kidney Dis. 1992; 20: 564-568

# Summary of Efficacy of Irbesartan in Type 2 Diabetic Nephropathy



# IDNT: Occurrence of ESRD or Death Based Upon Doubling of Serum Creatinine

| Endpoints <sup>a</sup> | Number (%) of Subjects                              |  |                    |
|------------------------|---|--|--------------------|
|                        | Serum Creatinine<br>Doubled <sup>b</sup><br>N = 377 | Serum Creatinine<br>Not Doubled<br>N = 1,338 | Total<br>N = 1,715 |
| ESRD <sup>c</sup>      | 202 (53.6)  | 85 (6.4)                                     | 287 (16.7)         |
| Death                  | 50 (13.3)   | 213 (15.9)                                   | 263 (15.3)         |

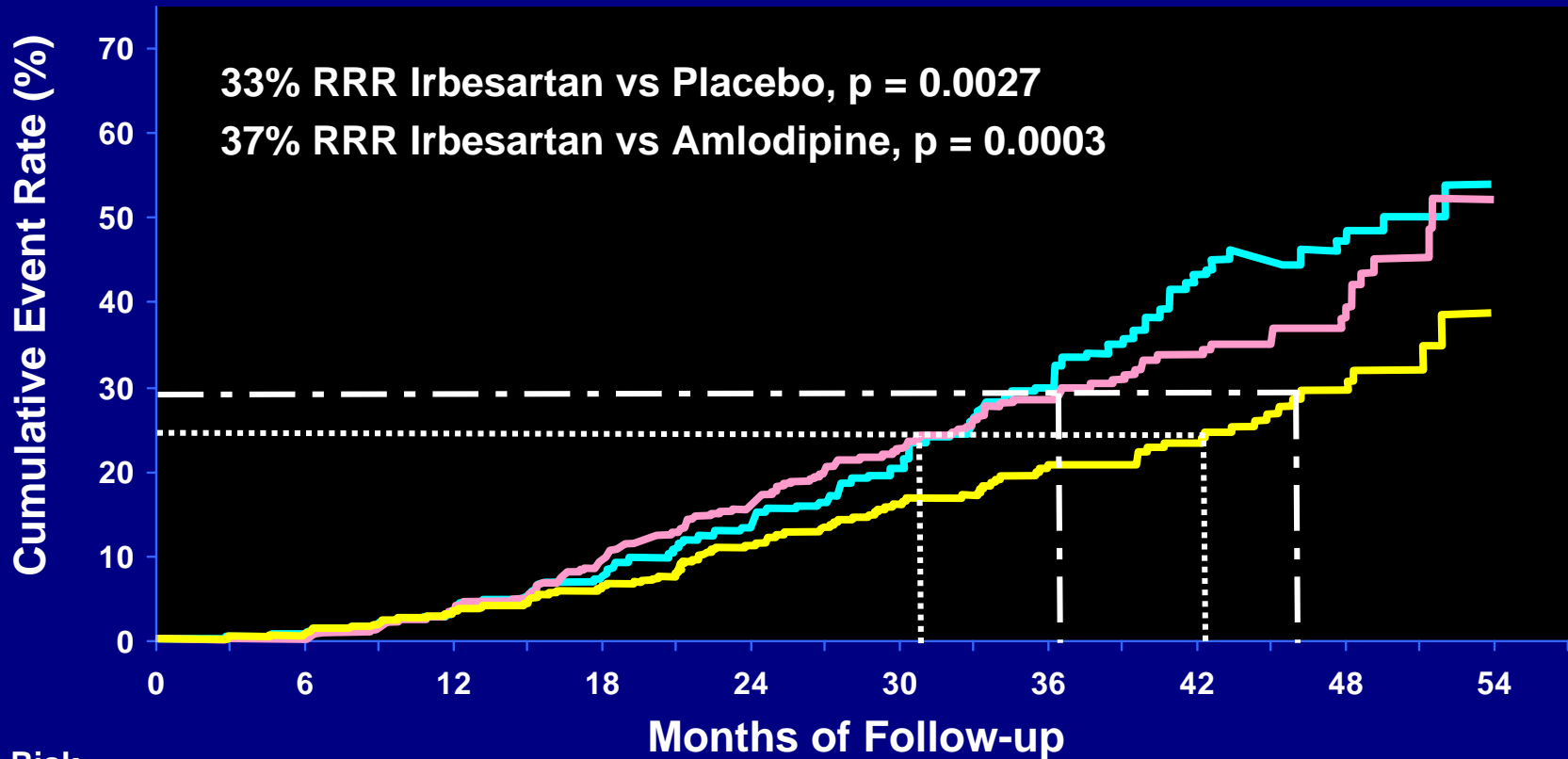
<sup>a</sup> The endpoints are not mutually exclusive

<sup>b</sup> Includes 55 subjects who had simultaneous doubling of SCr and  $Scr \geq 6.0$

<sup>c</sup> Includes  $Scr \geq 6.0$ , dialysis, or transplant

# IDNT: Time to Doubling of Serum Creatinine

Figure S.10.1B

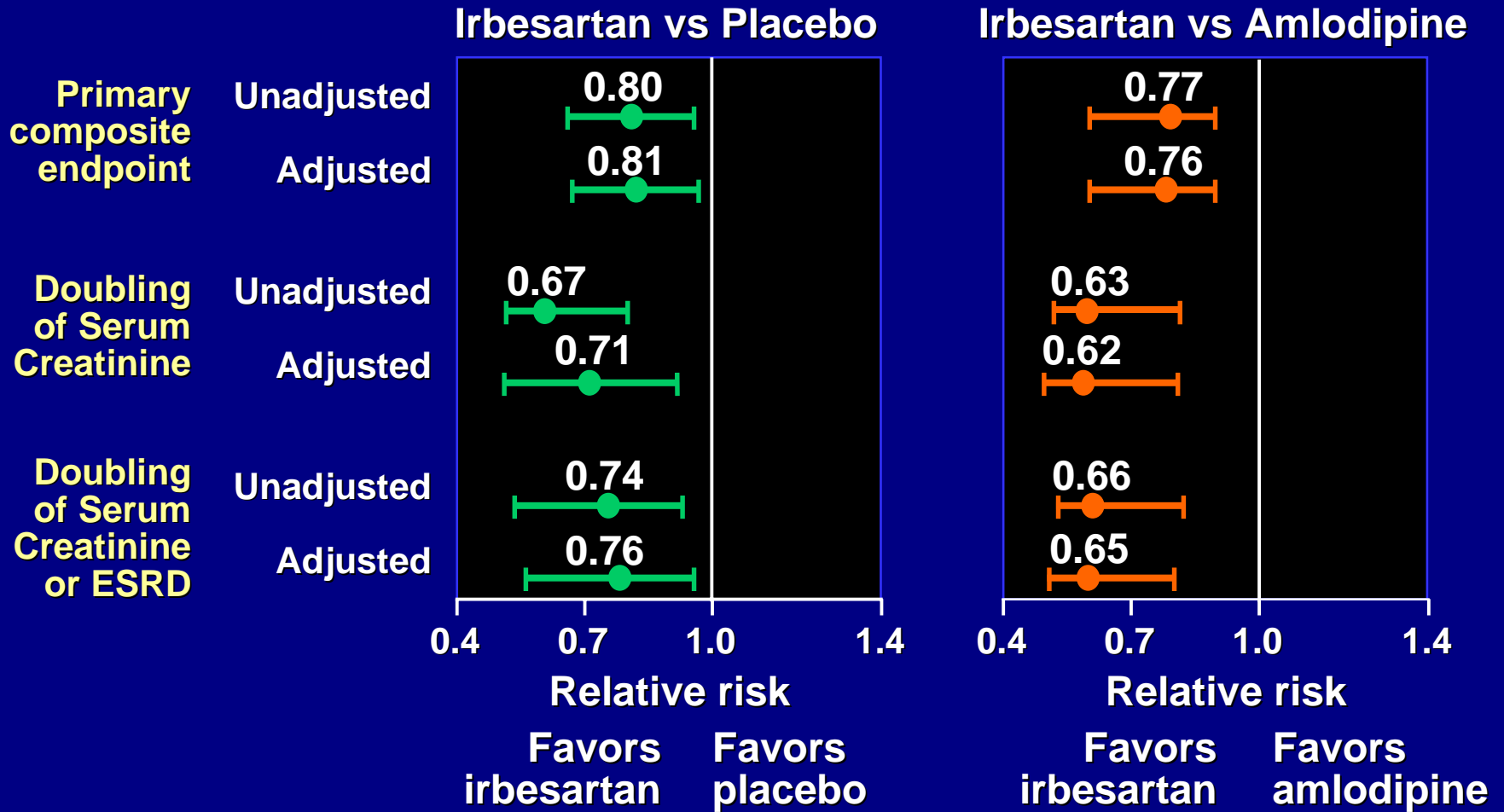


No. at Risk

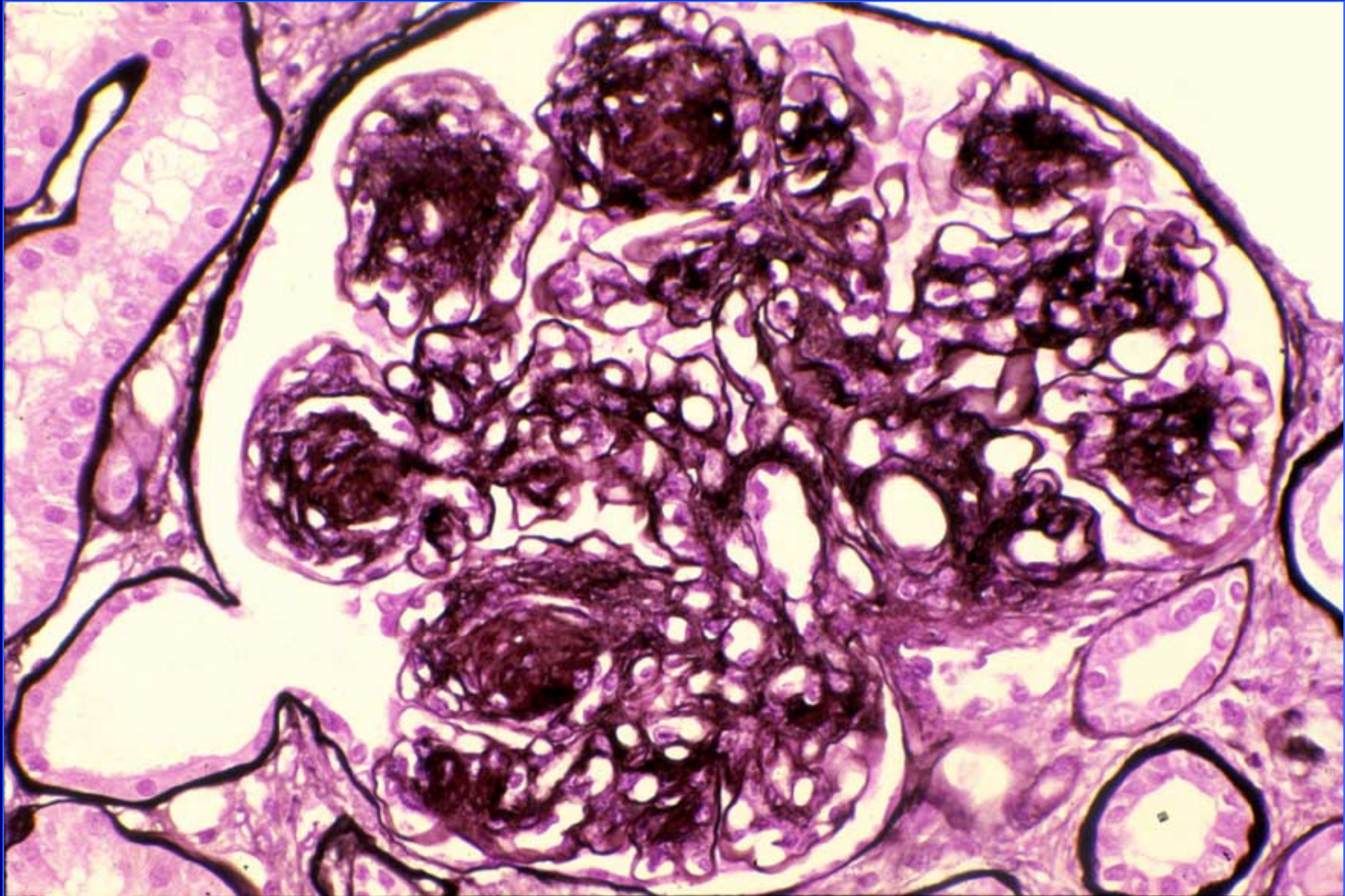
|            |     |     |     |     |     |     |     |     |    |   |
|------------|-----|-----|-----|-----|-----|-----|-----|-----|----|---|
| Placebo    | 569 | 529 | 485 | 438 | 366 | 260 | 177 | 111 | 51 | 2 |
| Irbesartan | 579 | 536 | 496 | 457 | 371 | 275 | 194 | 137 | 62 | 5 |
| Amlodipine | 567 | 516 | 477 | 440 | 362 | 265 | 171 | 109 | 42 | 6 |

Dataset: Randomized Subjects, ITT analysis

# IDNT: Primary Endpoint – Adjustment for Blood Pressure

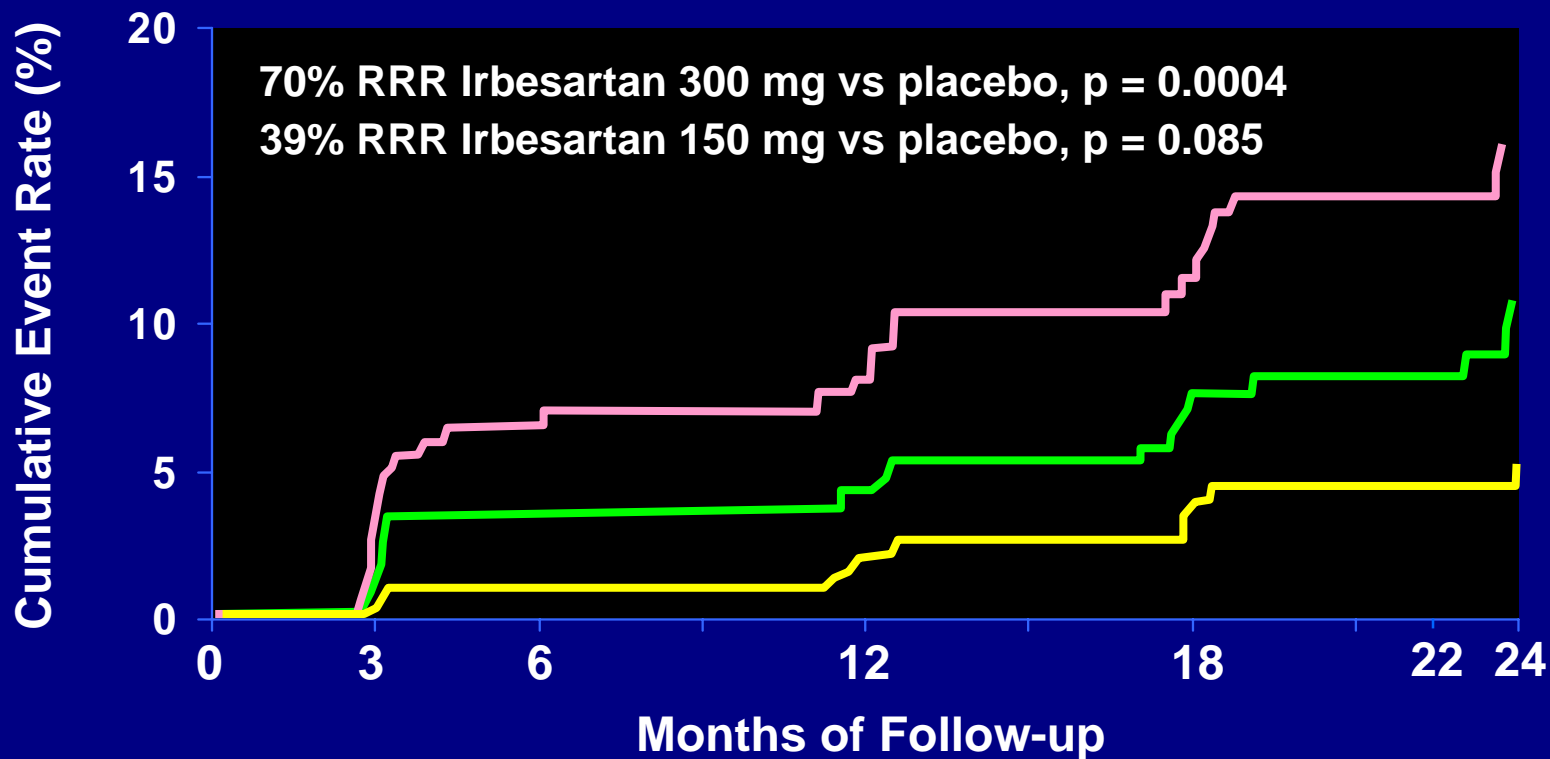


# Glomerular Histopathology in Type 2 Diabetic Nephropathy





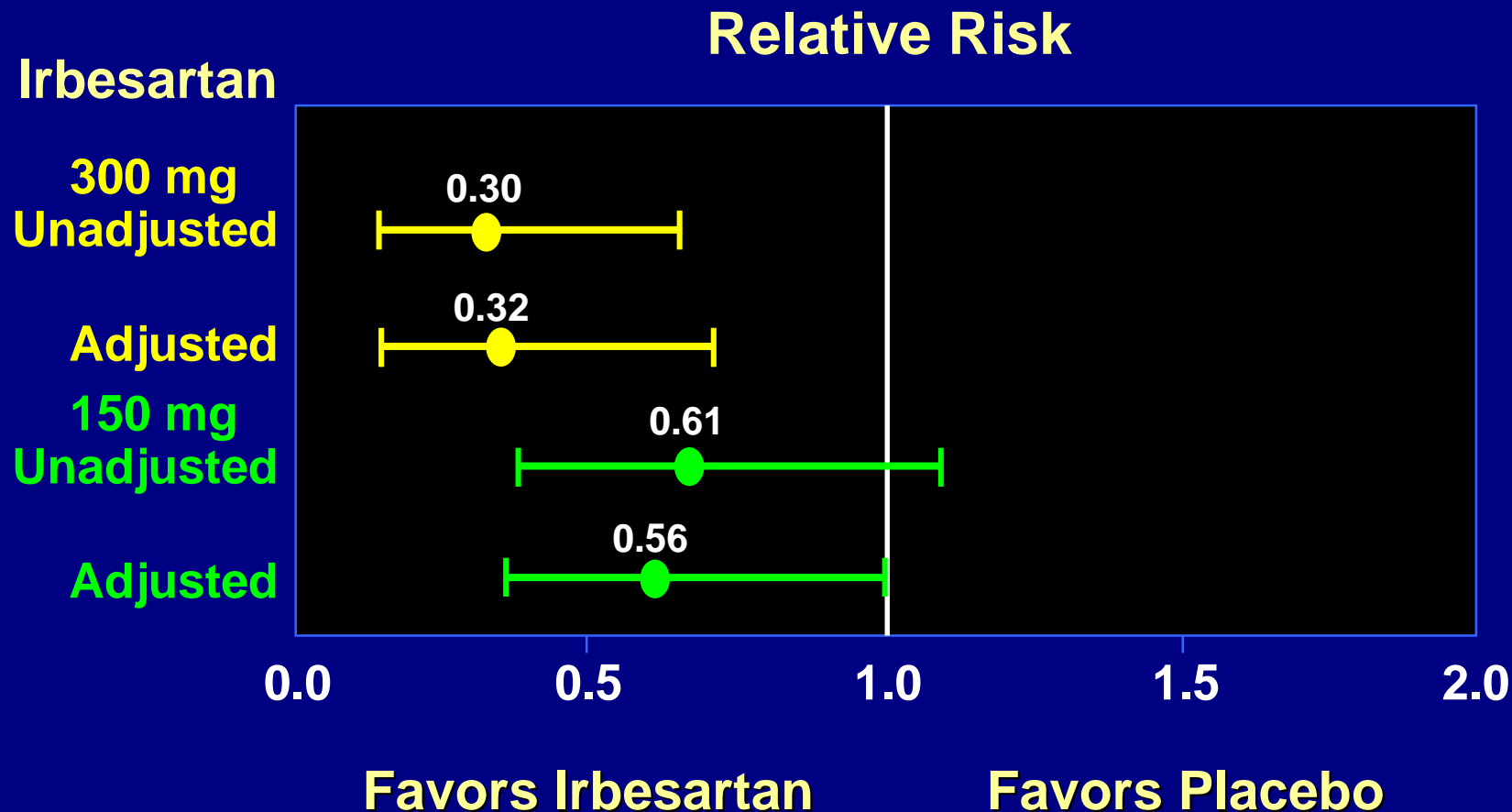
# IRMA 2: Primary End Point – Time to Development of Overt Nephropathy



## No. at Risk

|                   |     |     |     |     |     |     |    |
|-------------------|-----|-----|-----|-----|-----|-----|----|
| Placebo           | 201 | 201 | 164 | 154 | 139 | 129 | 36 |
| Irbesartan 150 mg | 195 | 195 | 167 | 161 | 148 | 142 | 45 |
| Irbesartan 300 mg | 194 | 194 | 180 | 172 | 159 | 150 | 49 |

# IRMA 2: Primary Endpoint – Adjustment for Blood Pressure



# Conclusion Regarding the Renoprotection Hypothesis

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**Irbesartan retards the progression of both early and overt nephropathy in type 2 diabetes mellitus by a mechanism which is independent of blood pressure control**

# Numbers Needed to Treat

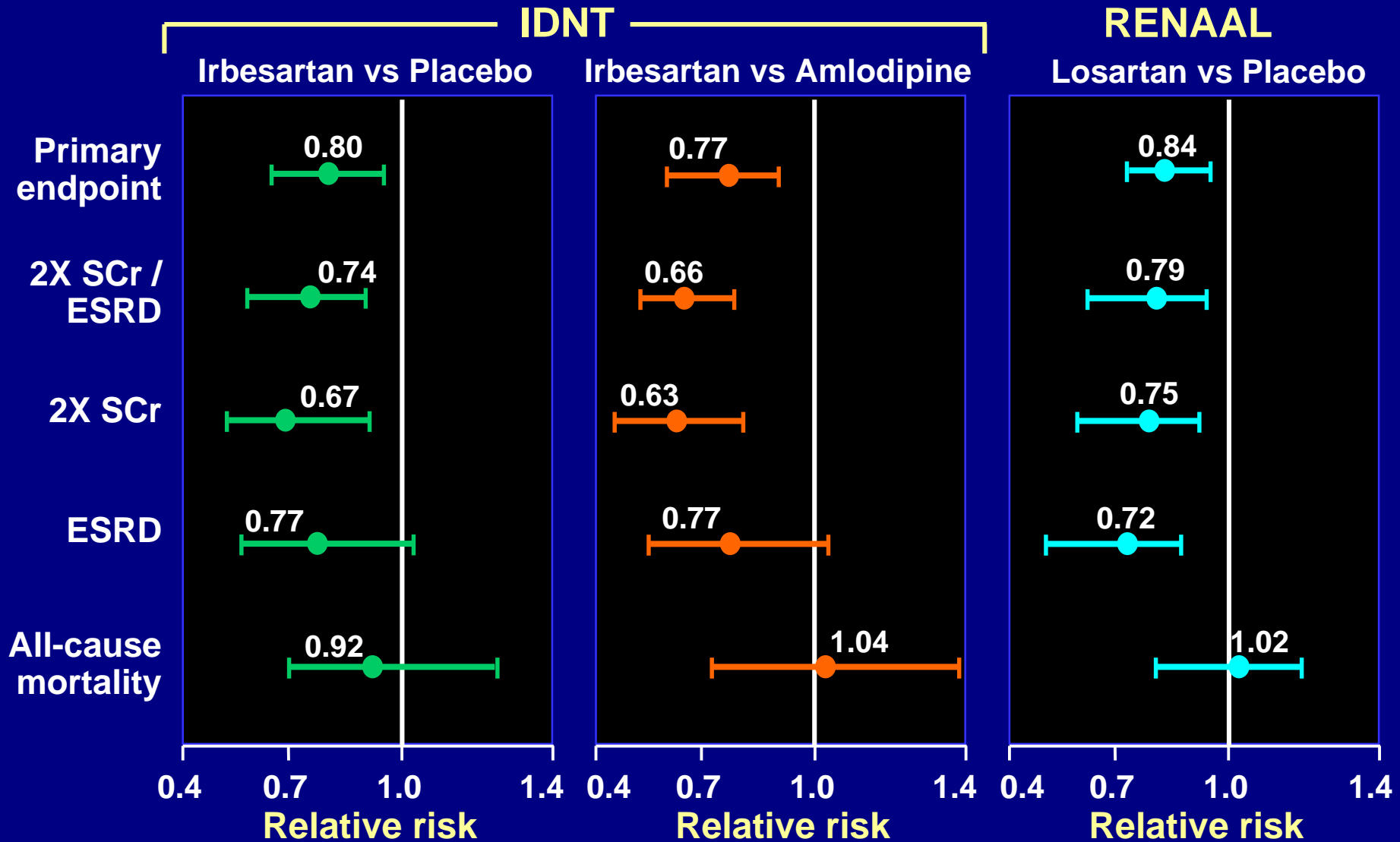
| <b>Drug</b>       | <b>Population</b>        | <b>Event</b>                             | <b>Duration of Treatment</b> | <b>NNT*</b> |
|-------------------|--------------------------|--|------------------------------|-------------|
| <b>Irbesartan</b> | <b>Overt nephropathy</b> | <b>Doubling of serum creatinine-ESRD</b> | <b>3 years</b>               | <b>15</b>   |
| <b>Irbesartan</b> | <b>Microalbuminuria</b>  | <b>Overt nephropathy</b>                 | <b>2 years</b>               | <b>10</b>   |

\* Defined as the number of patients that need to be treated to prevent one event.

# Recent Clinical Trials Demonstrating Renoprotection of ARBs in Type 2 Diabetic Renal Disease

- Lewis, E.J., *et. al.*, Renoprotective Effect of the Angiotensin-Receptor Antagonist Irbesartan in Patients with Nephropathy due to Type 2 Diabetes. *NEJM* 2001; 345: 851-860. - **(IDNT)**
- Parving, H-H, *et. al.*, The Effect of Irbesartan on the Development of Diabetic Nephropathy in Patients with Type 2 Diabetes. *NEJM* 2001; 345: 870-878. - **(IRMA2)**
- Brenner, B.M. *et. al.*, Effect of Losartan on Renal and Cardiovascular Outcomes in Patients with Type 2 Diabetes and Nephropathy. *NEJM* 2001; 345: 861-869. - **(RENAAL)**

# Comparison of Clinical Studies in Overt Type 2 Diabetic Nephropathy



SCr = Serum Creatinine

# Benefit: Risk Assessment

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- **Collectively, these results demonstrate the renoprotective benefits of irbesartan across the continuum of diabetic renal disease**
- **The benefit: risk assessment favors the use of irbesartan across the continuum of diabetic renal disease**