



# The Effect of BMI on PD Outcomes

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## Introduction

- ? Obesity is a significant risk factor for morbidity and mortality in the general population
- ? This association is often assumed to equally apply equally to other patient groups, including ESRF



## Obesity in ESRF

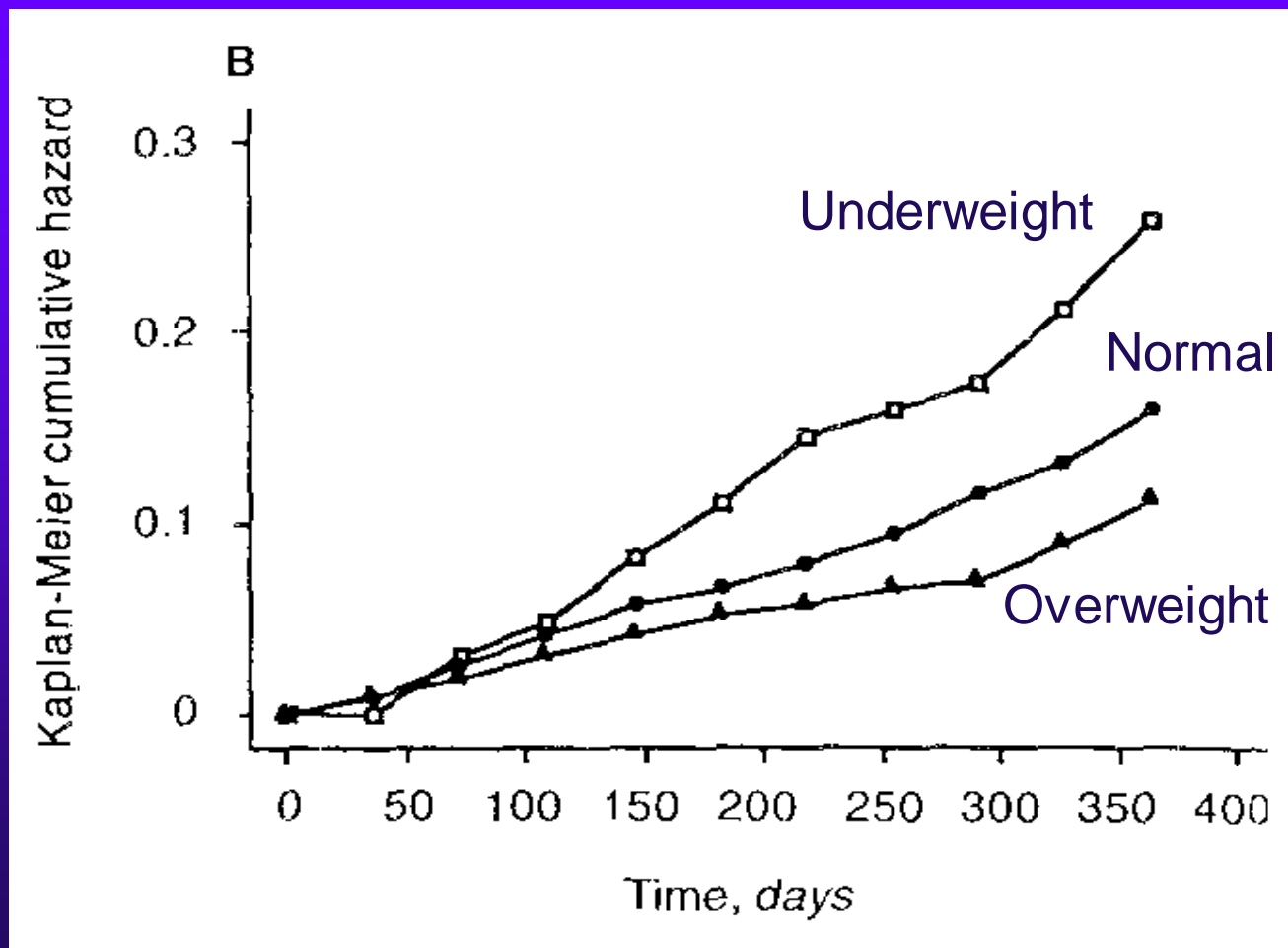
? Studies in HD pts have shown a reduction in death risk with ? BMI

- Degoulet et al Nephron 1982
- Leavey et al Am J Kid Dis 1998
- Fleischmann et al Kidney Int 1999



# Obesity in Haemodialysis

N=1346



Fleischmann et al *Kidney Int* 55:1560-7, 1999

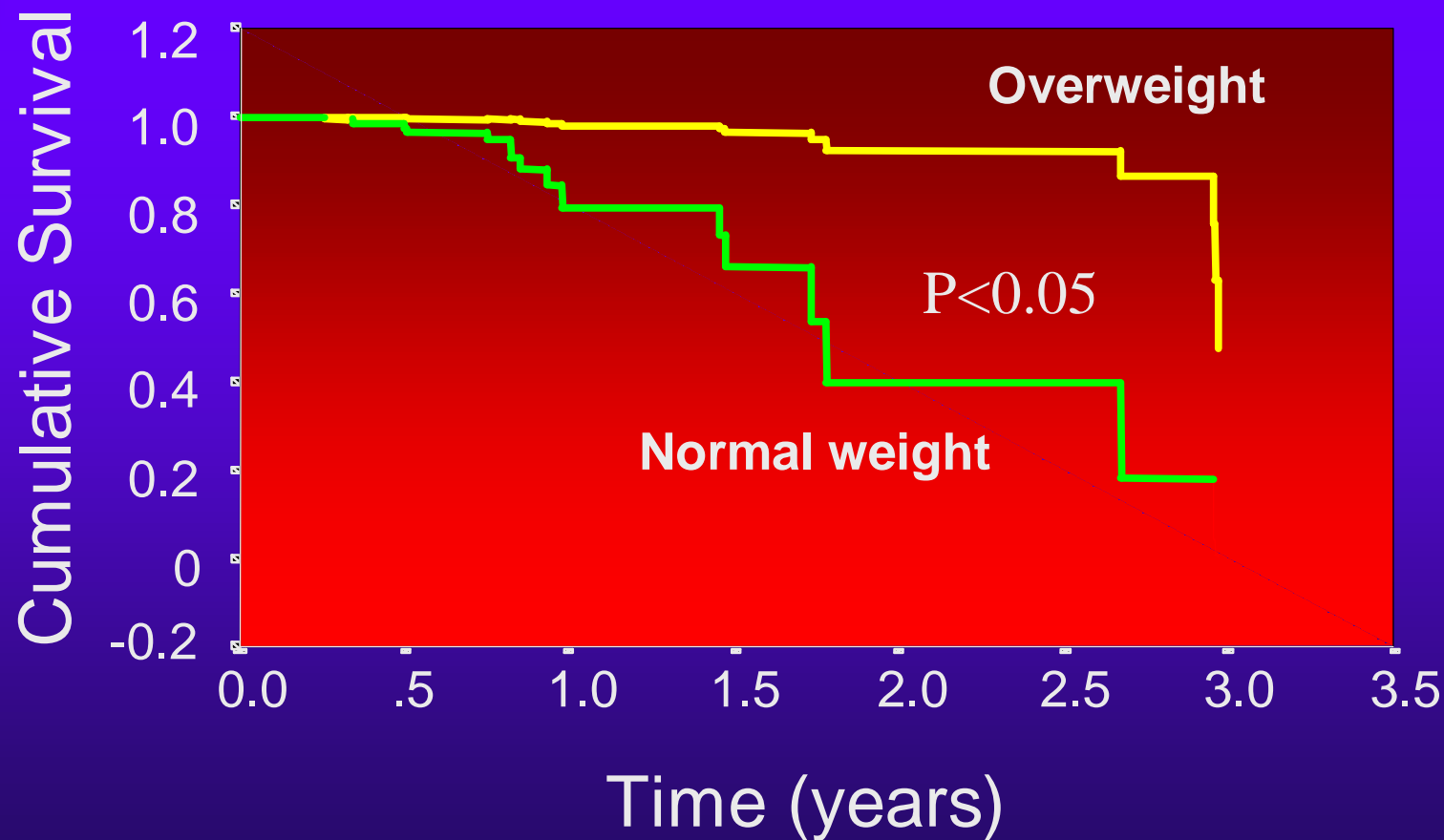


# Obesity in PD

- ? Several single-centre studies
- ? Obesity generally associated with improved or neutral outcomes
  - Survival ?
  - Technique survival ?
  - Peritonitis & ESI ?
  - Hospitalization ?

# Cox Regression Adjusted Survival

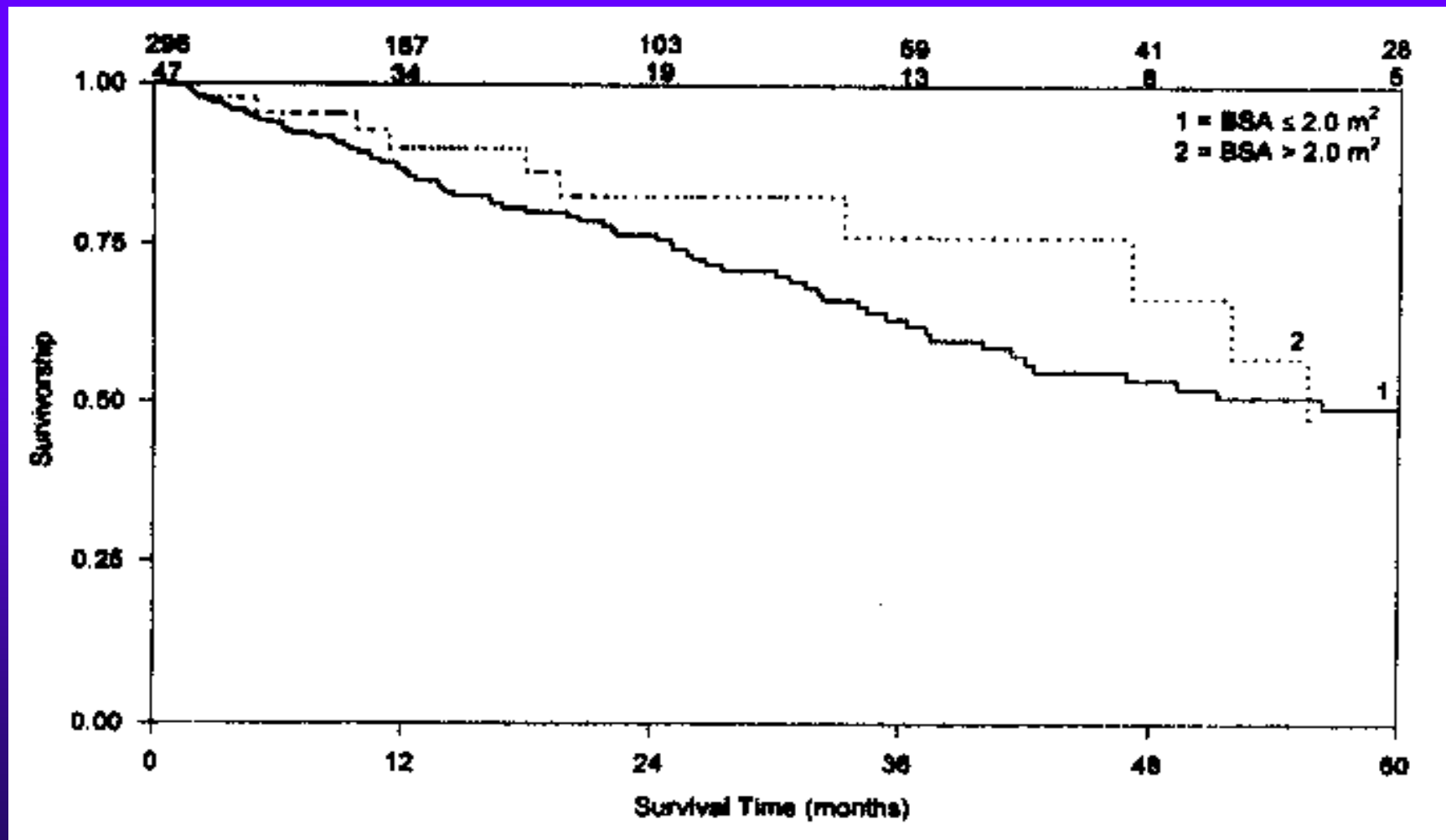
Hazard Ratio 0.09 (0.01-0.97)



Johnson et al Perit Dial Int 20(6):715-21, 2000



# Patient Survival



Fried et al Perit Dial Int 16:357-61, 1996



## Aim

To evaluate the impact of BMI on clinical outcomes in incident PD patients registered on ANZDATA





# Methods

- ? All incident PD patients 1/4/1994 - 30/9/2001 (ANZDATA Registry)
- ? BMI analysed as categorical and continuous variable
- ? Covariates at ESRD onset
  - Age, gender, race
  - DM
  - Comorbidities (IHD,PVD,CVD,Lung,HTN)
  - Current smoking
  - Transport status (PET)
  - Australia vs NZ



# Outcome measures

- ? Technique survival
- ? Death-censored technique survival
- ? Patient survival
- ? Peritonitis-free survival
- ? Peritonitis rate



# Statistical Analysis

- ? Multivariate Cox regression analysis with time-varying covariate
- ? Poisson regression
- ? Data censored at
  - End of study (30/9/2001)
  - Transfer to HD
  - Renal transplantation

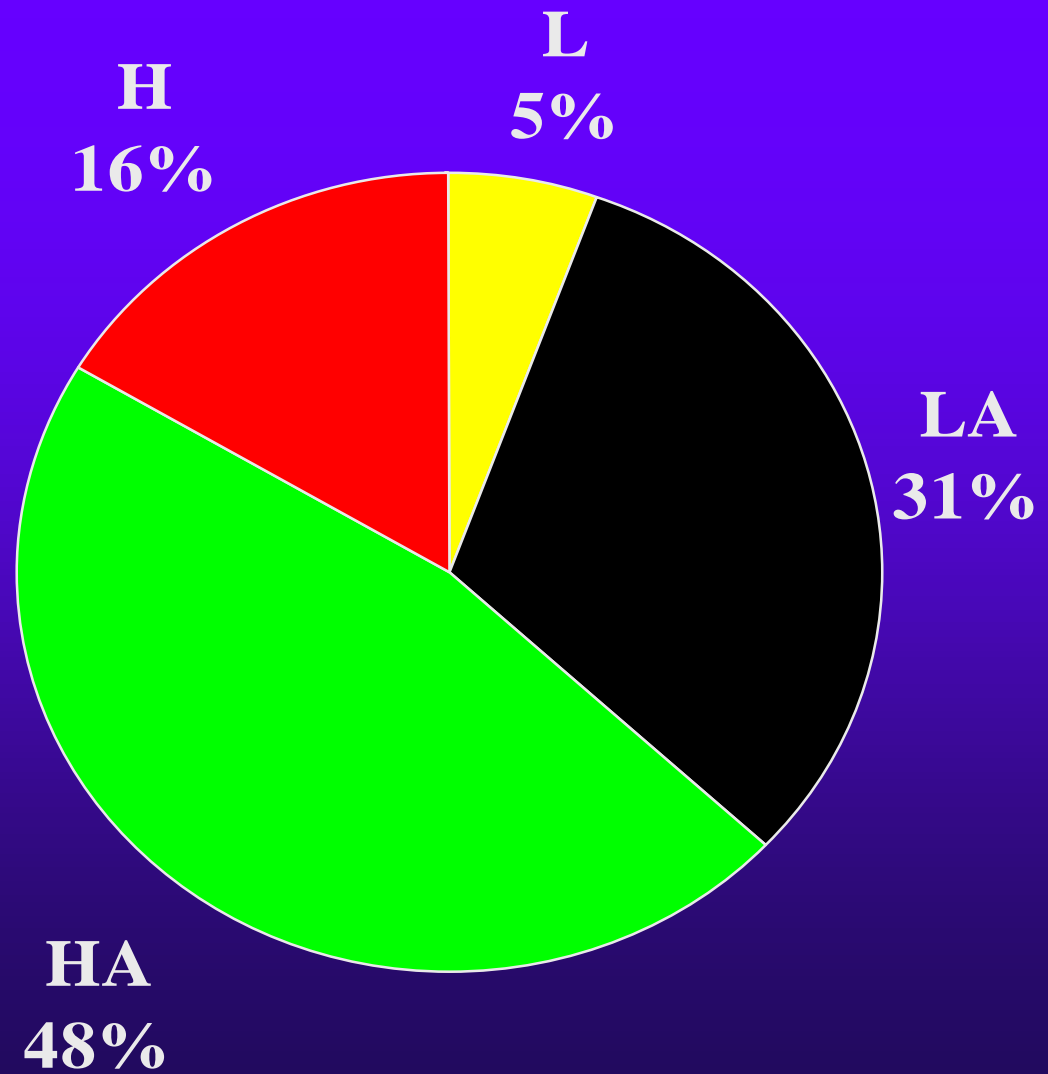


# Baseline characteristics

<i>Variable</i>	<i>Number</i>
<i>Total</i>	7081
<i>Age (median [IQR])</i>	61 [46-69]
<i>Male</i>	3719 (53%)
<i>New Zealand</i>	1757 (25%)
<i>Aboriginal/Torres Strait Isl.</i>	447 (6%)
<i>Maori</i>	925 (13%)
<i>Type 1 Diabetes</i>	410 (6%)
<i>Type 2 Diabetes</i>	2233 (32%)
<i>Coronary Artery Disease</i>	2961 (42%)
<i>Cerebrovascular Disease</i>	1177 (17%)
<i>Peripheral Vascular Disease</i>	2187 (31%)
<i>Obese (BMI &gt; 27.5)</i>	2155 (31%)
<i>Hypertension at RRT start</i>	6096 (86%)
<i>Current Smoking</i>	854 (12%)

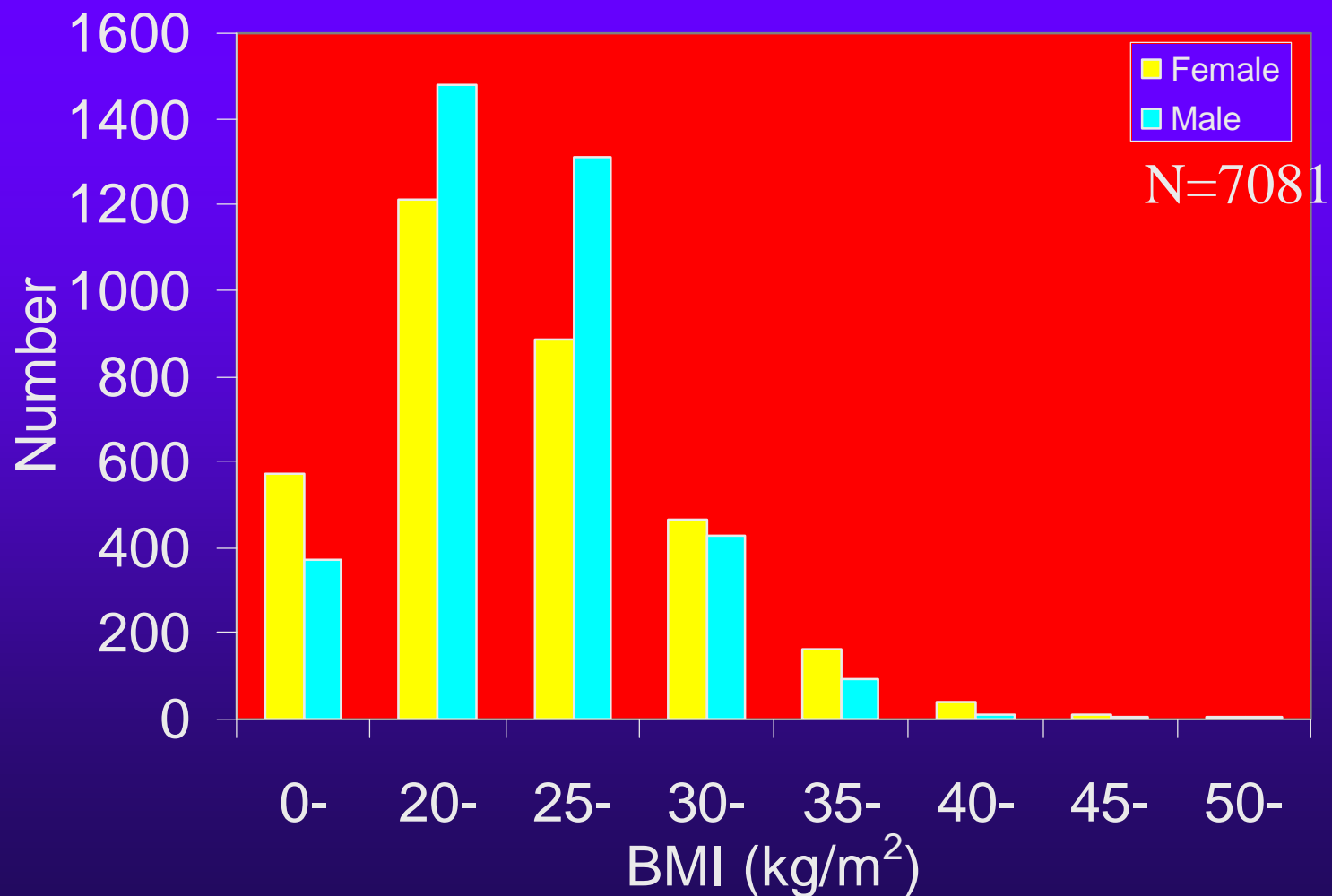


# Transport Status





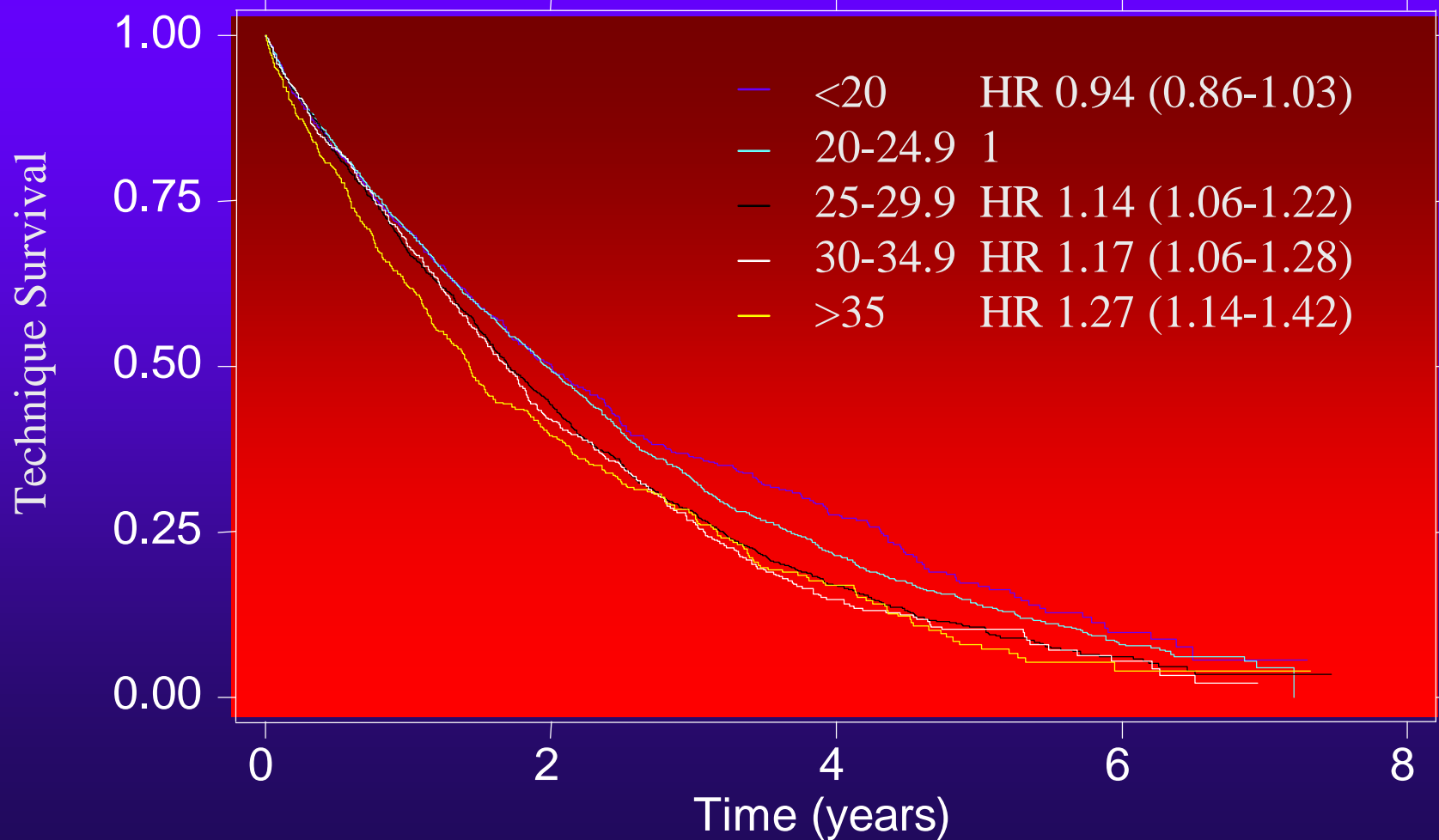
# BMI Histogram





# Effect of BMI on Technique Survival

N=7081





# Technique Survival: Multivariate Cox Regression

? Obese (BMI >30)

– HR 1.39 (95% CI 1.22 - 1.59,  $p < 0.001$ )

? Other significant predictors

– Age category

– Australian indigenous status

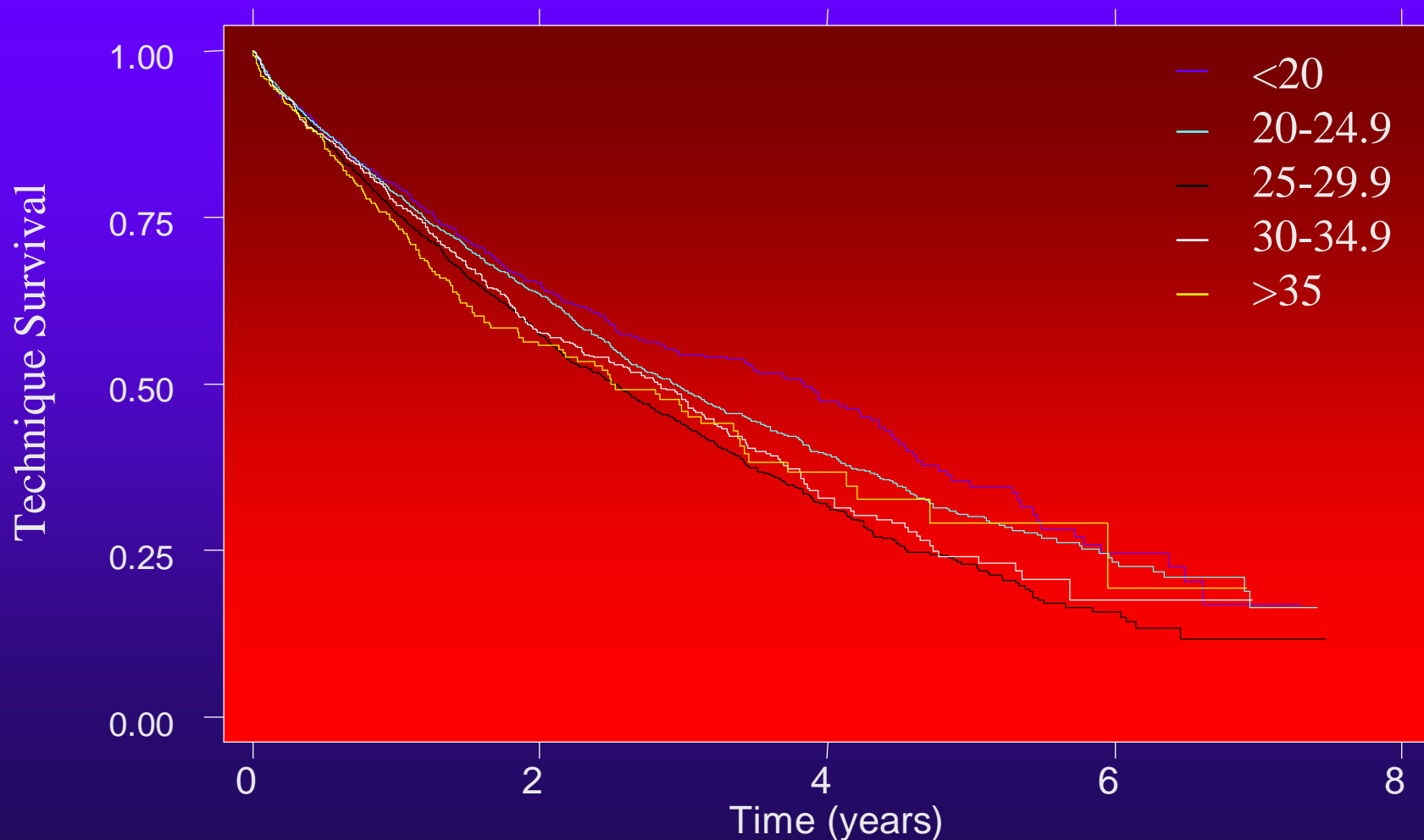
– Type 2 DM

– CAD

? Non-significant predictors (Sex, CLD, Type 1 DM, Maori, PET category)

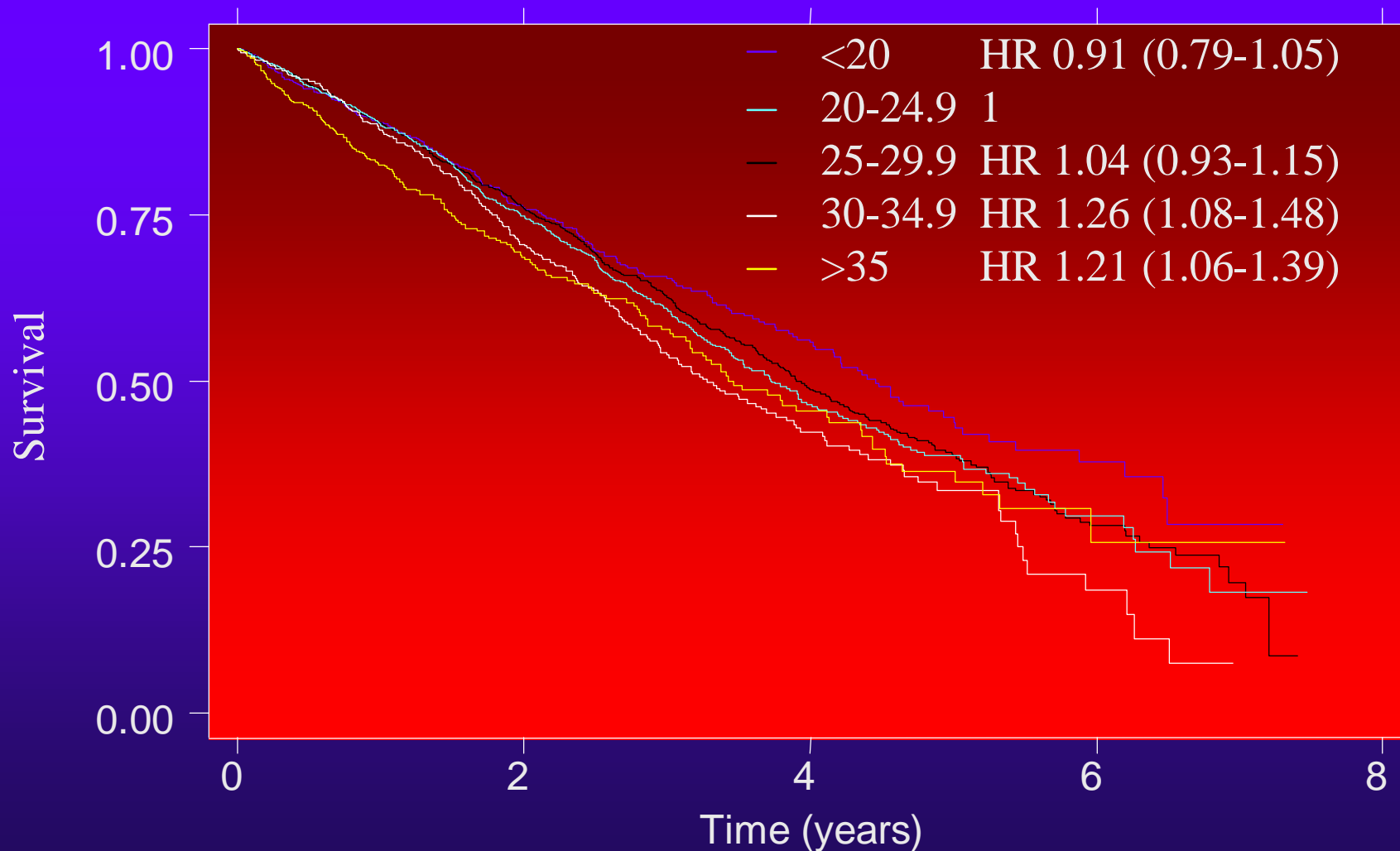


# Effect of BMI on Death-Censored Technique Survival





# Effect of BMI on Patient Survival



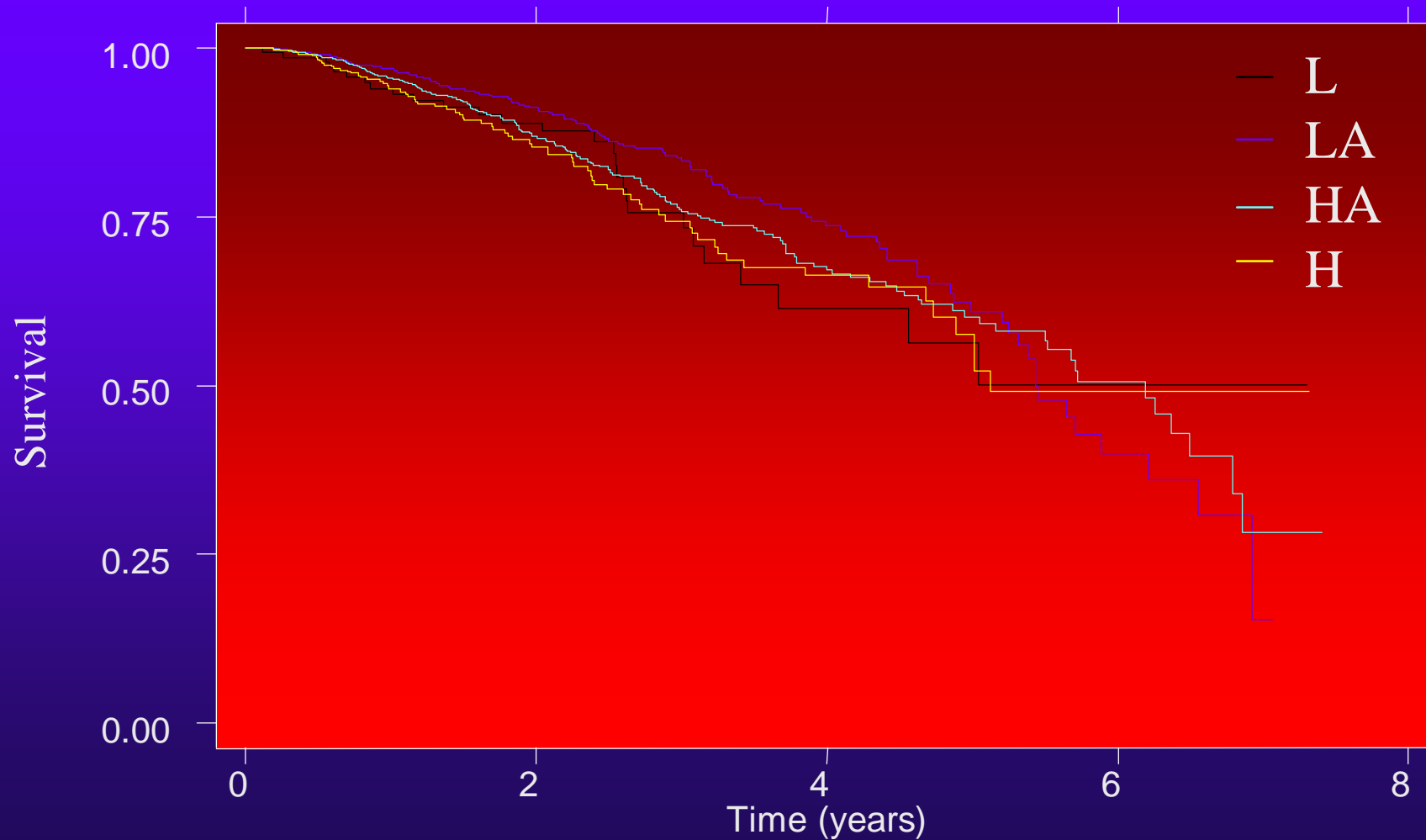


# Patient Survival: Multivariate Cox Regression

- ? Obese (BMI >30)
  - HR 1.66 (95% CI 1.33 - 2.08,  $p < 0.001$ )
- ? Other significant predictors
  - Age category
  - Australian indigenous status
  - Type 1 & 2 DM
  - CAD
- ? Non-significant predictors (Sex, CLD, Maori, PET category)

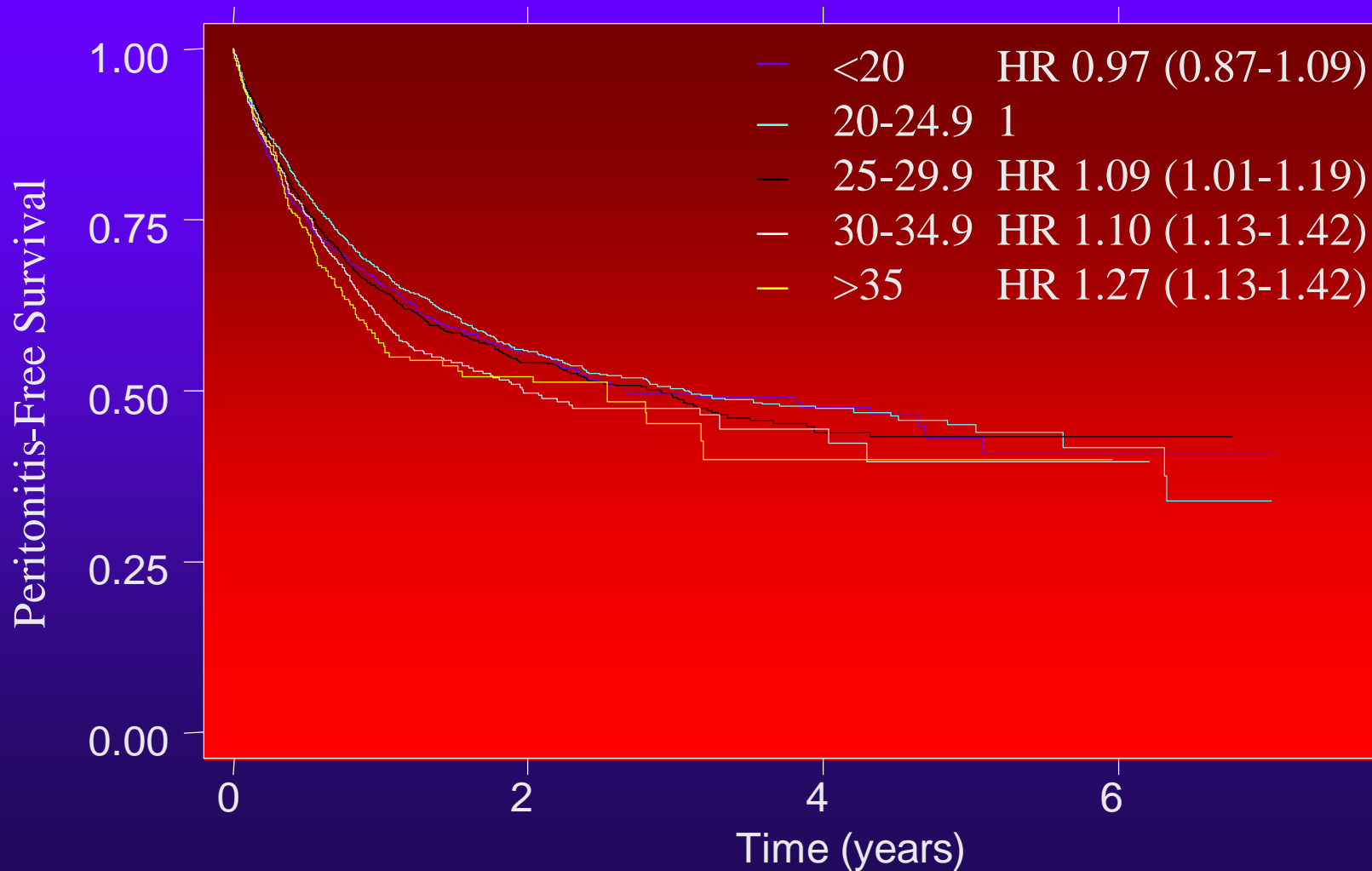


# Effect of Transport Status on Patient Survival





# Effect of BMI on Peritonitis-Free Survival





# Peritonitis-Free Survival: Multivariate Cox Regression

- ? Obese (BMI >30)
  - HR 1.25 (95% CI 1.09 - 1.43,  $p < 0.01$ )
- ? Other significant predictors
  - Age category (young)
  - Australian or NZ indigenous status
  - Type 2 DM
- ? Non-significant predictors (Sex, CAD, CLD, Type 1 DM, PET category)



# Effect of BMI on Peritonitis Rate

