

# GENETICS VS ENVIRONMENT

## METABOLIC SYNDROME IN FIRST NATIONS

Prepared for :

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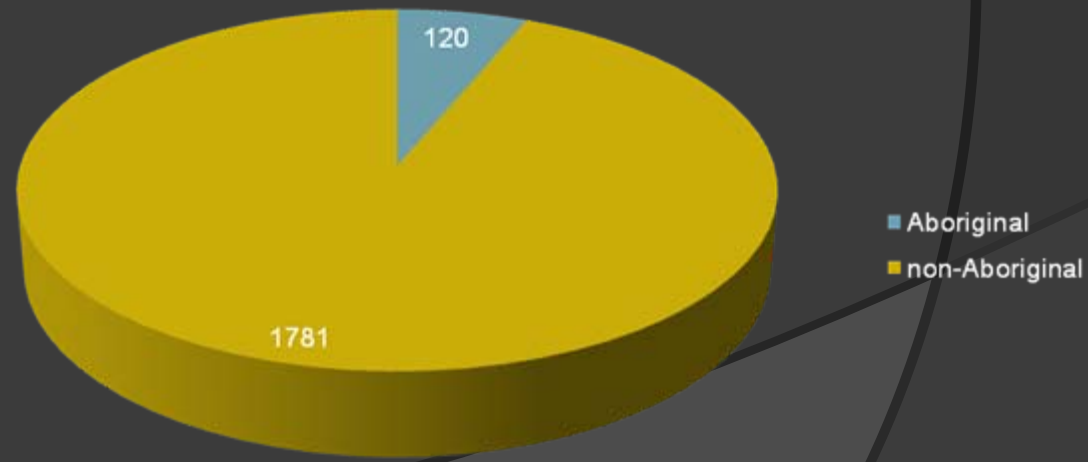
# The Hypothesis

- The purpose of the study is to determine if a trend exists in Aboriginal patients that shows a lower prevalence of Coronary Artery Disease despite the risk factor of Metabolic Syndrome.



# The Study

- A total of 2,016 cases were used in data collection
- 115 were excluded from the study due to incomplete data collection
- The population studied were categorized as follows:
  - 120 Aboriginal
  - 1781 Non-Aboriginal



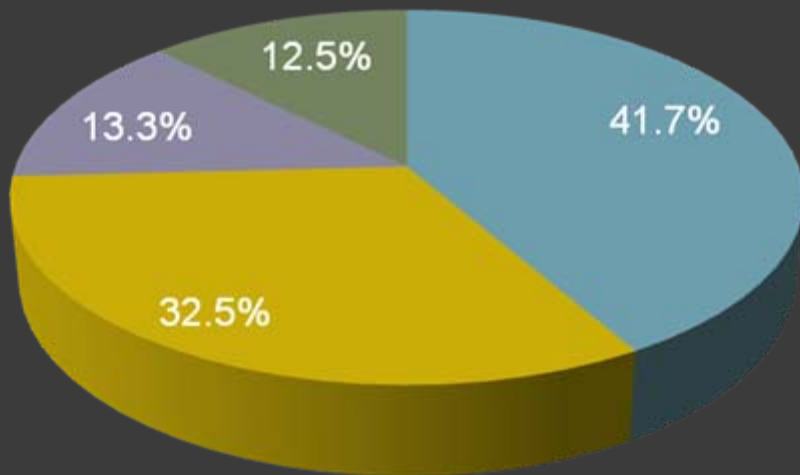
# The Data

- For each population category, the following demographic characteristics were tracked:
  - Gender
  - Age
  - Diabetes
    - Oral, Insulin, Diet
  - Smoker
  - Family History
  - Hypertension
  - Hyperlipidemia
  - Peripheral Vascular Disease
  - Stroke
  - History of MI or CHF
  - CRP Values
  - HDL, LDL, Triglycerides, Total Cholesterol Values
  - BMI

# Coronary Angiogram Outcomes

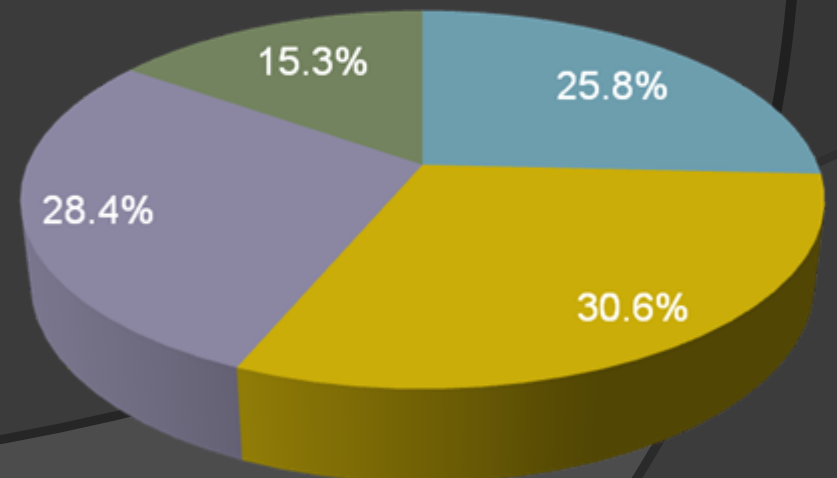
## Aboriginal

■ Normal Study ■ Med Rx ■ PCI ■ Sx/Cabg



## Non-Aboriginal

■ Normal Study ■ Med Rx ■ PCI ■ Sx/Cabg

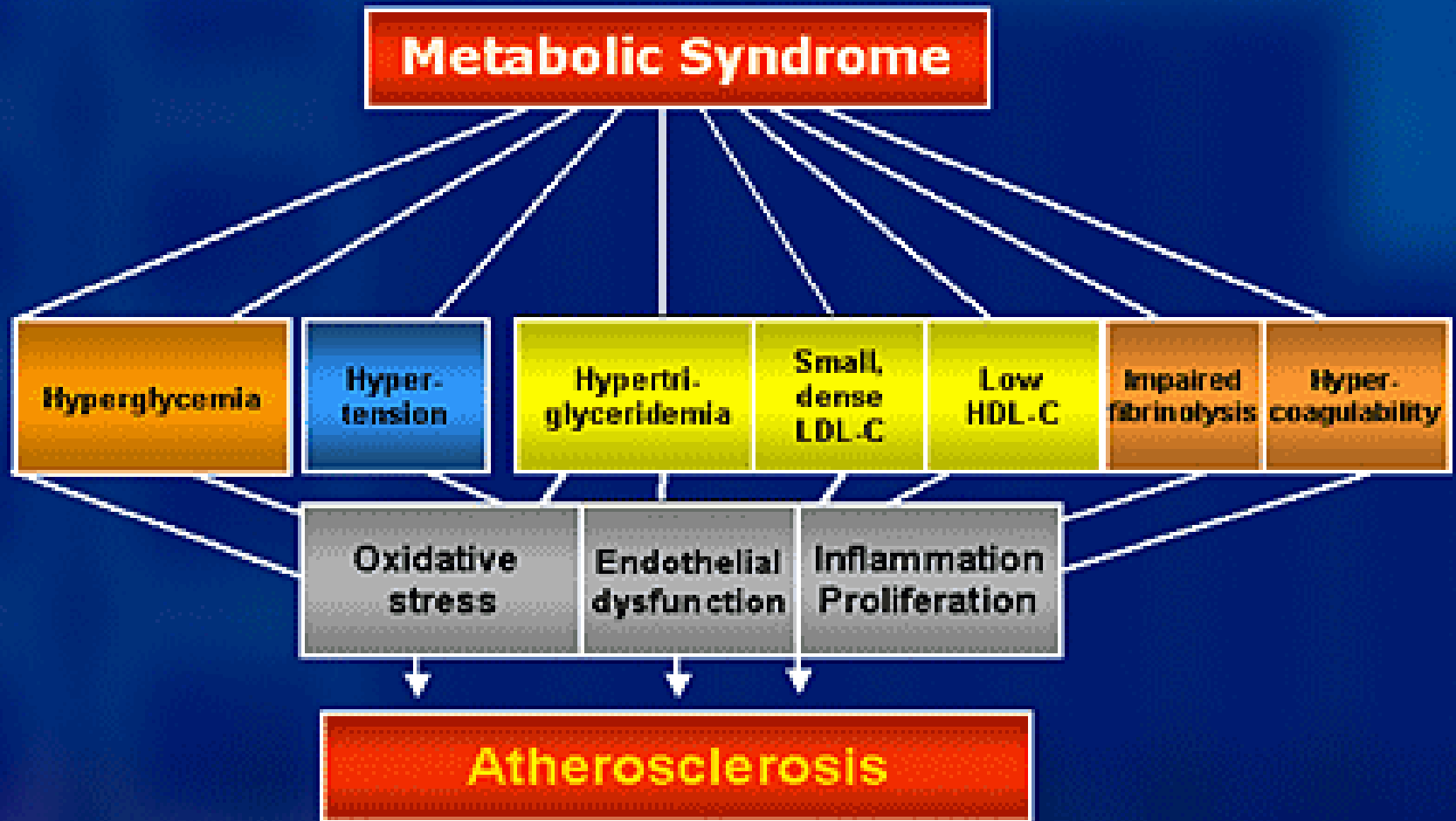


# Metabolic Syndrome

- Metabolic Syndrome is determined by the following criteria \*
  - Diabetes Mellitus and/or Insulin Resistance
  - Elevated BMI (>30)
  - Hypertension
  - Elevated Triglycerides
    - Greater than 1.81 mmol/L in males and greater than 1.52 mmol/L in females



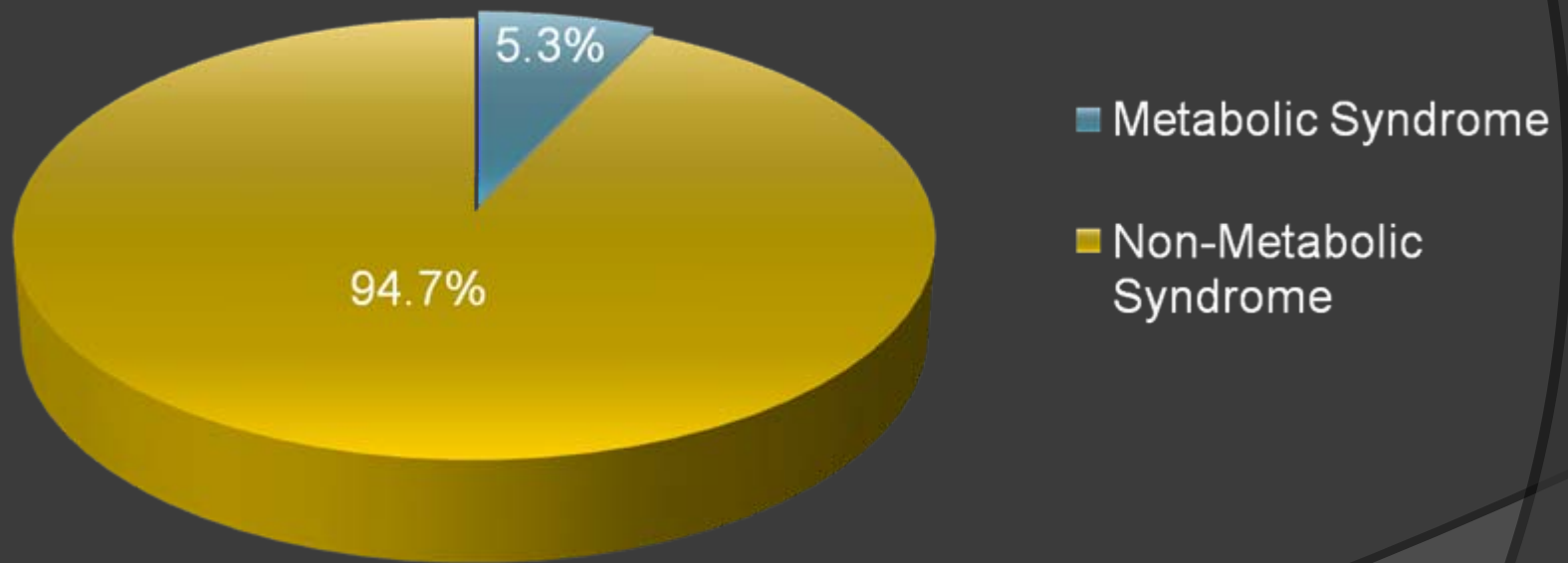
# Metabolic Syndrome and Atherosclerosis Interrelationship



# Canadian Prevalence of Metabolic Syndrome

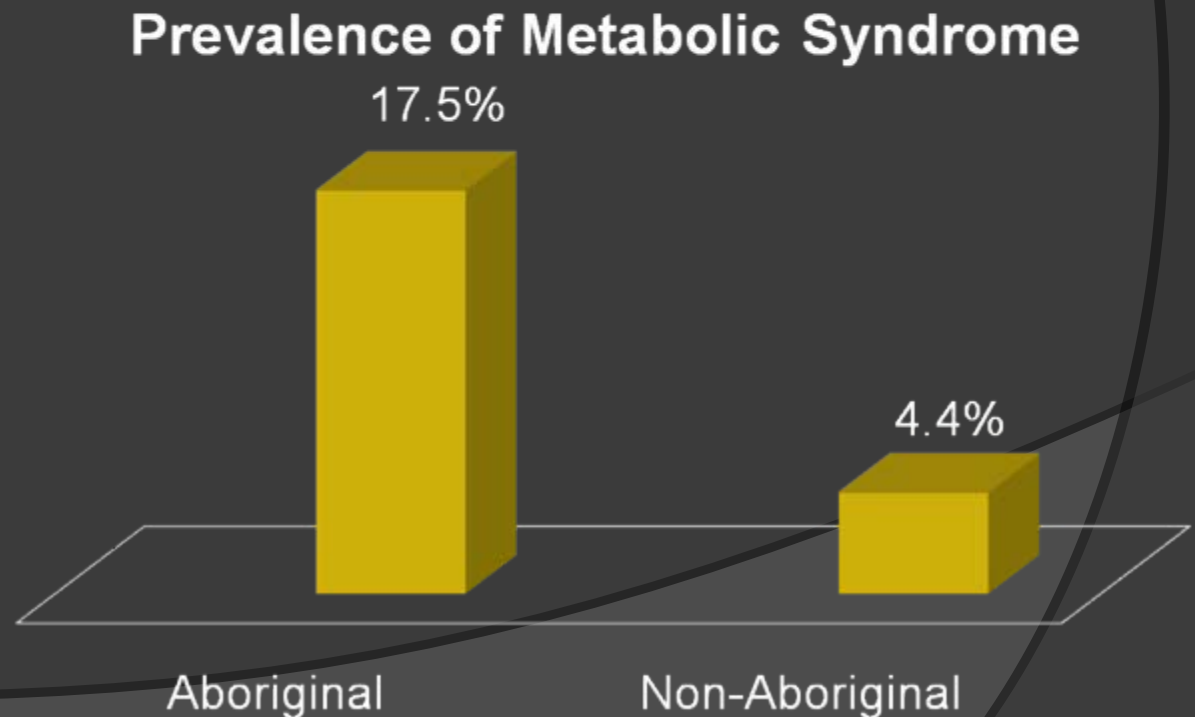
- ⦿ Canadian overall age-adjusted prevalence of metabolic syndrome is:
  - 25.2% for females
  - 26.8% for males
- ⦿ *Canadian Aboriginal population overall age-adjusted prevalence of Metabolic Syndrome is:*
  - *45.4% for females*
  - *41.3% for males. \**

# Metabolic Syndrome Results

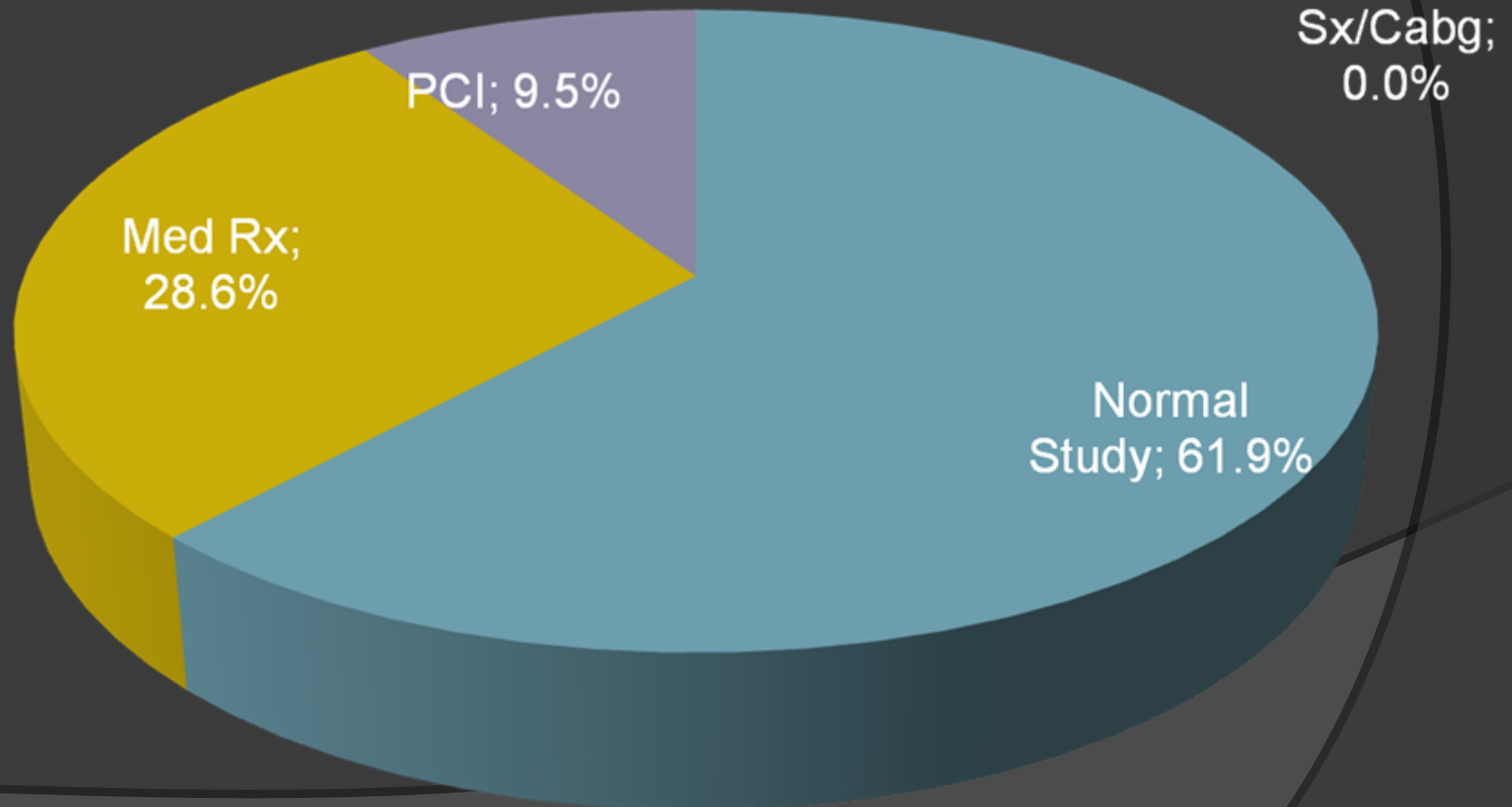


# Results

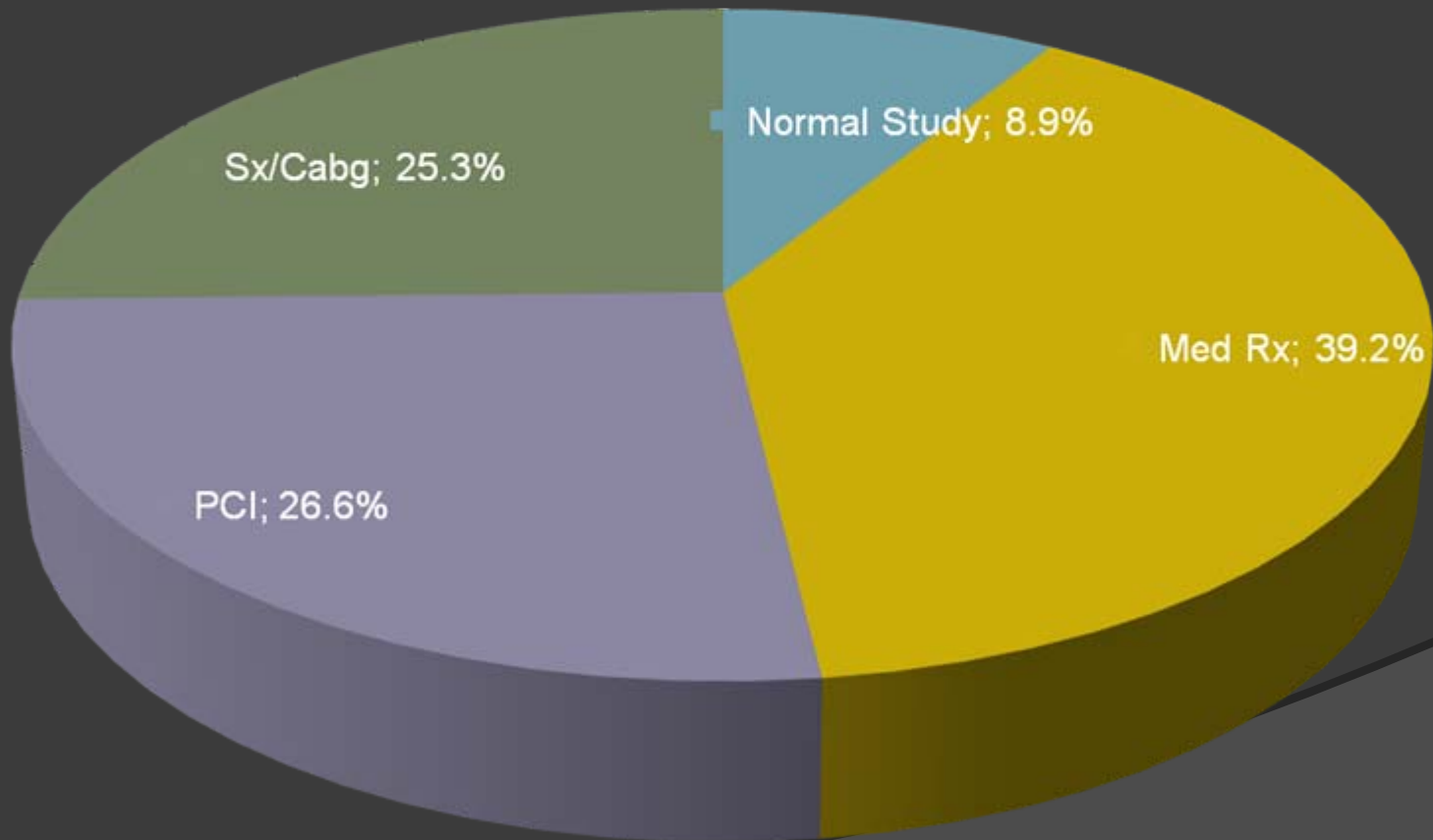
- The Aboriginal population studied shows the *highest* percentage of Metabolic Syndrome



# Coronary Angiogram Outcomes for Aboriginal Patients with Metabolic Syndrome

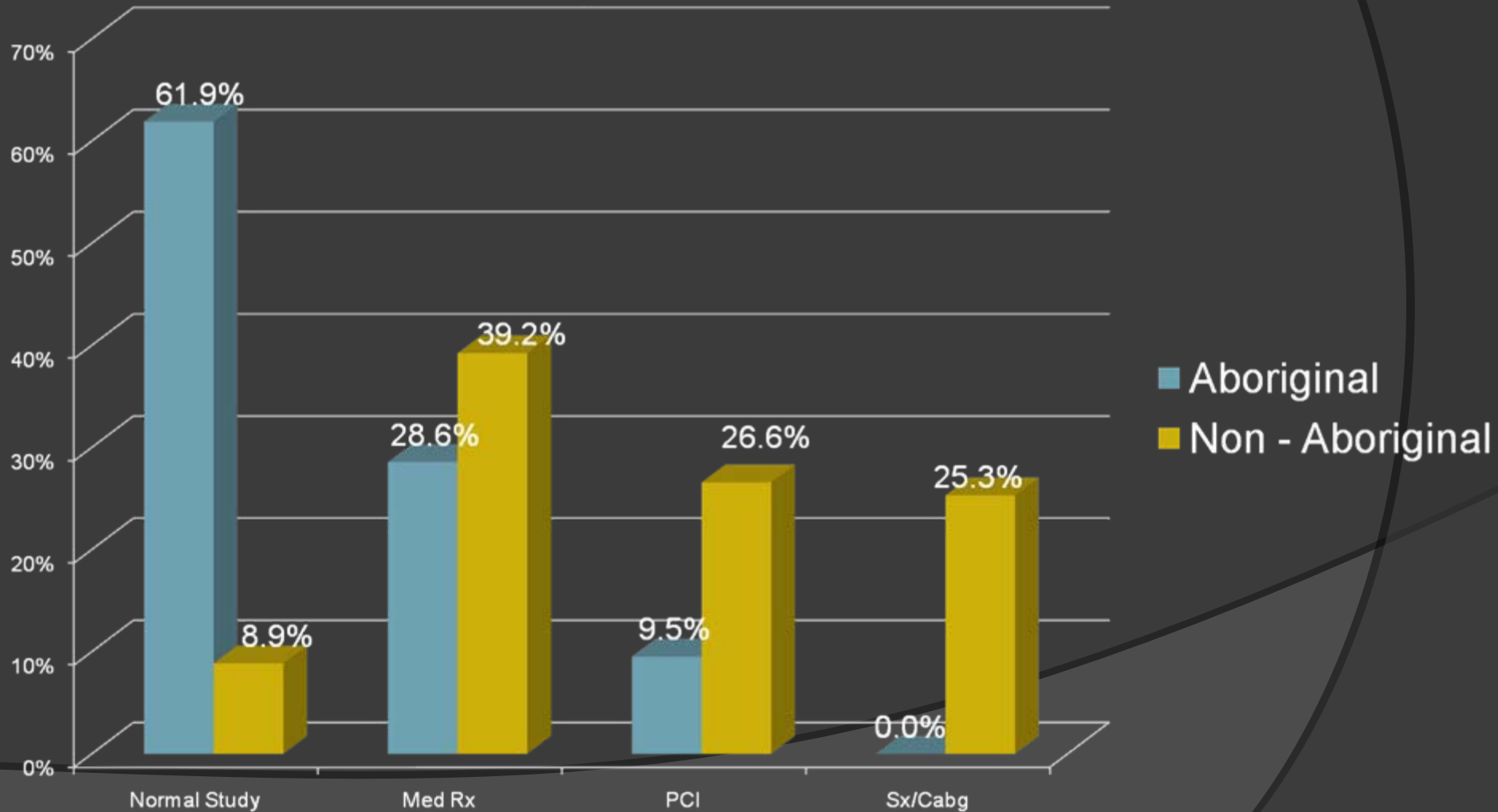


# Coronary Angiogram Outcomes for Non-Aboriginal Patients with Metabolic Syndrome

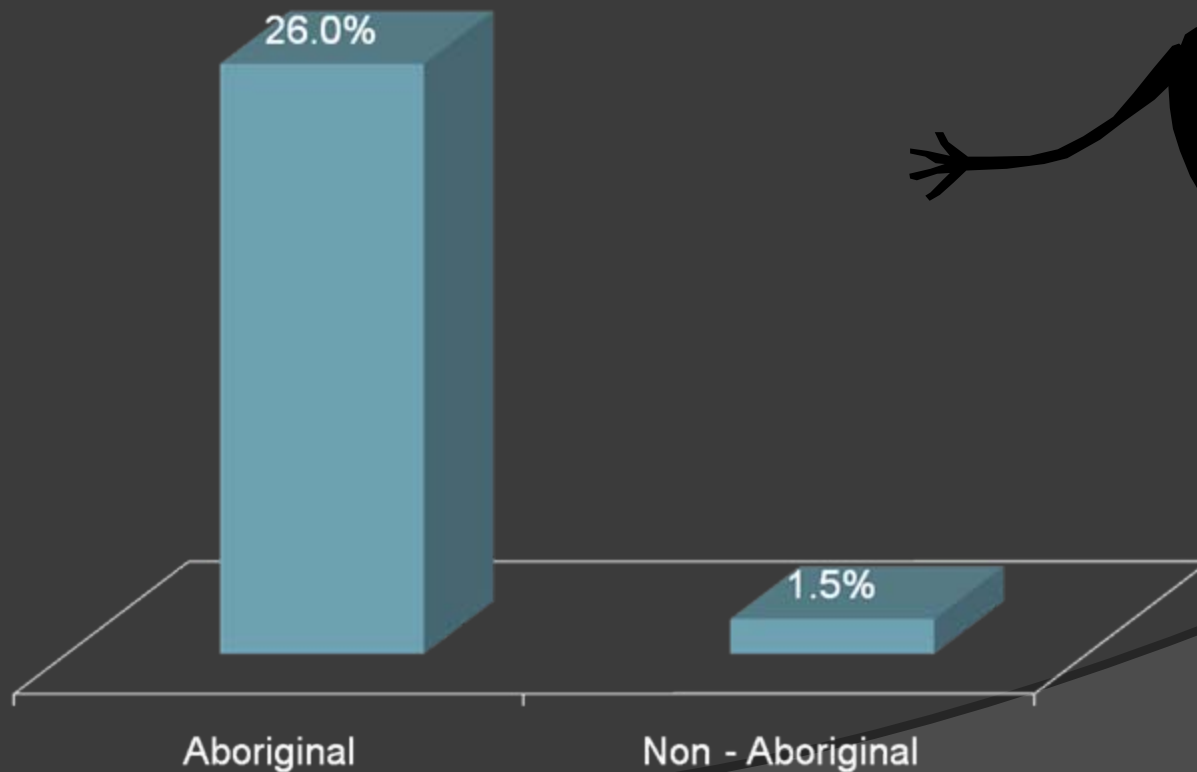


# A Final Look

## Cardiac Catheterization Outcomes for Patients with Metabolic Syndrome



# Normal Coronary Angiogram Outcomes with Metabolic Syndrome



$p < 0.001$



# Possibilities:

- ◎ Possible hypotheses for the differences in coronary angiogram outcomes between the groups:
  - Are there genetic factors present in the Aboriginal population studied?
  - Is there a biological protective mechanism in Aboriginal people that reduces the incidence CHD despite the presence of metabolic syndrome?
  - Is the effect of metabolic syndrome a macrovascular or a microvascular factor in Aboriginal patients?
  - Is there a difference in how the groups react to the environment?

# The Next Step:

- Multi – city prospective trial
- Obtain a larger sample size
- Tighter controls on data collection

# References

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