UNIVERSITY of TASMANIA

MENZIES Institute for Medical Research

EXERTION

the EXERcise stress Test collaboratION

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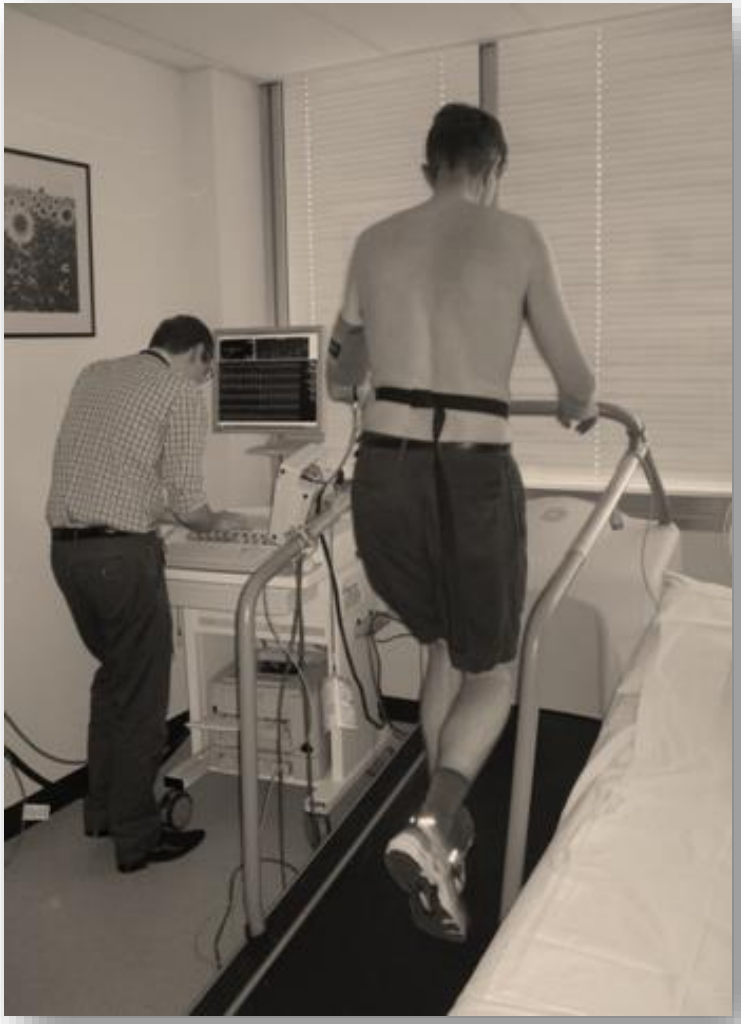
Menzies Institute for Medical Research

Data Linkage Symposium

Wednesday 22nd June 2016

Exercise Stress Test (EST)/ Graded Exercise Test (GXT)

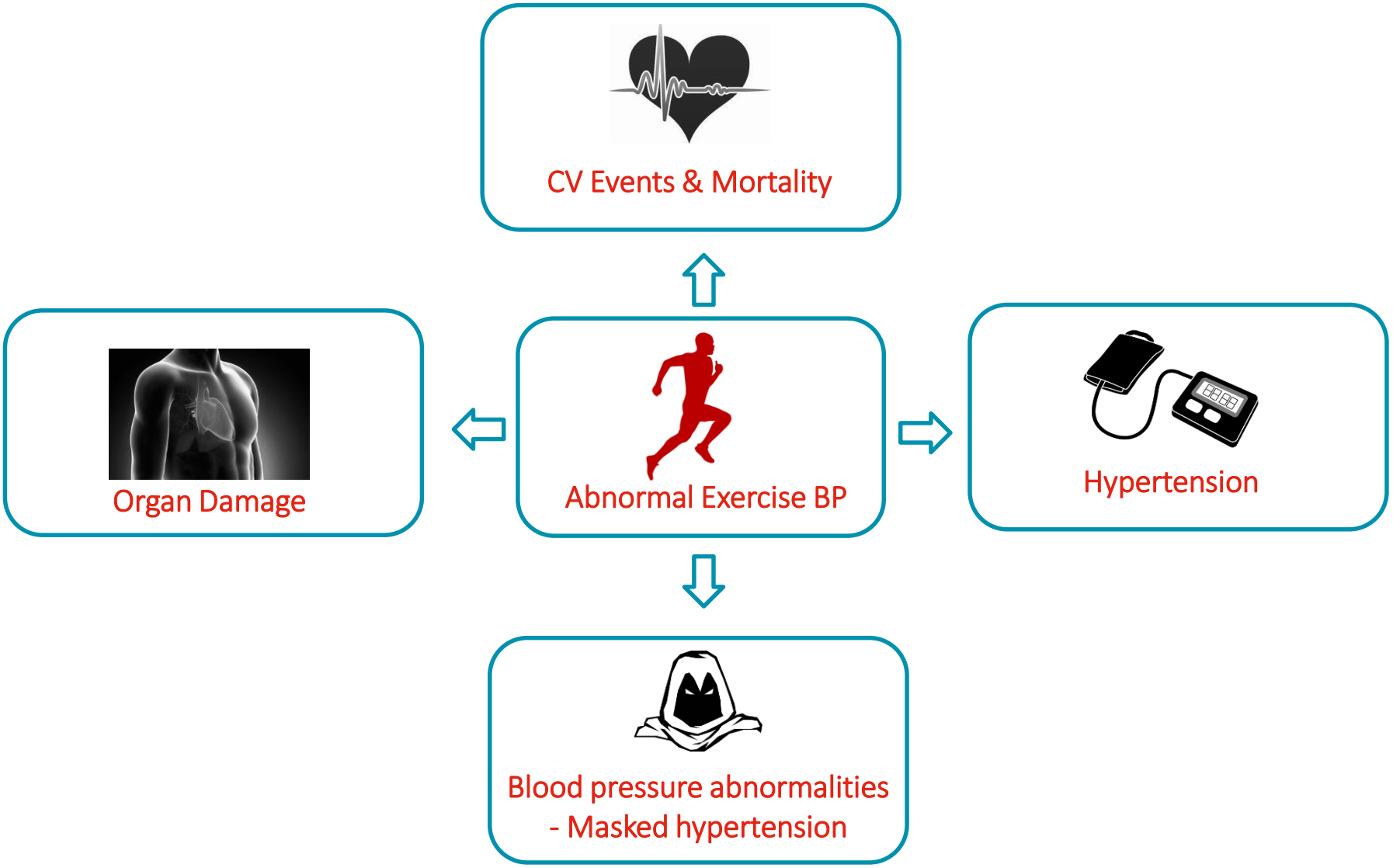


- More than 400,000 exercise stress tests conducted in Australia every year – Medicare data

  → Many millions worldwide!

- Measurement of BP before, during and in recovery is a standard (mandatory) requirement of every test.

The importance of abnormal exercise BP



Exercise BP – Key Clinical Issues

Issue 1.

No threshold values that denote normal or abnormal exercise BP via association to clinical outcomes.

→ *This means supervising clinicians have no way of knowing whether the BP response to a* GXT *is to be considered normal or abnormal.*

→ *No clinical decisions or follow-up care can be initiated based on the BP response to a GXT*

Exercise BP – Key Clinical Issues

Issue 2.

No evidence-based rationale (association with exercise-induced CV outcomes) for abnormal BP values that form indications to stop a GXT outlined in GXT guidelines.

→ *Is it safe to continue an GXT with abnormally high/low exercise BP?*

→ *Are their acute risks associated with large increases/drops in exercise BP?*

→ *Current guideline recommendations are only based on the weakest level of evidence - expert consensus*

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Establishing a national database of GXT results linked to outcomes

Primary aims are to determine:

1. Age- and- sex- specific exercise BP reference values for each stage of a clinical GXT.
2. Threshold values denoting abnormal exercise BP through data-linkage to long-term (e.g. 10 years) CV events and mortality.
3. Whether abnormal exercise BP confers increased risk of exercise-induced (acute) clinical events through data-linkage to short-term (e.g. 30-day) CV hospitalizations and mortality.

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How?

Manual extraction of de-identified data from GXT testing machines

→ Multiple collaborating (nationwide) centers that perform clinical GXT's.

→ Retrospective data - all data available

→ *Expected n >200,000 (nationally)*

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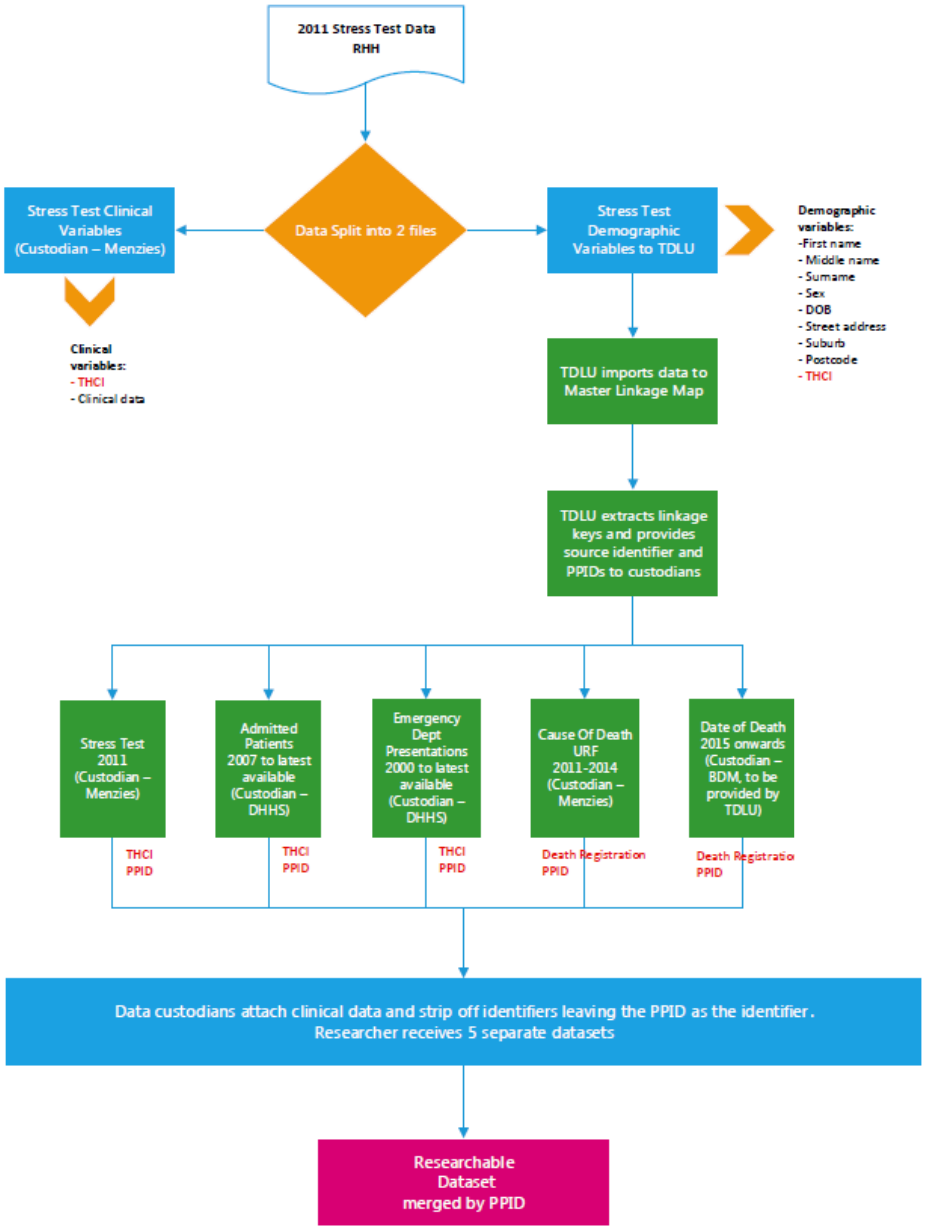
Linking to clinical outcomes:

- State-by-state data linkage
- Linkage goal is to gain a patient characterization and ascertain acute (within 30 days) and chronic (up to 15 years) outcomes (CV events & mortality).
- Linkage to core/master linkage datasets including hospital admissions, emergency department presentations and death registries – coded causes of death, reason for hospital admission.
- Feasibility and coverage to be assessed in TAS and WA first.

Tasmania – the EXERTION pilot study



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Linkage variables

Data set name	Source Identifier	Title	First name	Middle name(s)	Surname	Sex	DOB	Address1	Address2	Suburb / Town	Postcode	Birthweight
Stress Test Data	THCI?		Y	Y	Y	Y	Y	Y	Y	Y	Y	
Tasmania Public Hospital Admitted Patient	THCI	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Tasmanian Emergency Department Presentations	THCI	Y	Y	Y	Y	Y	Y	y	y	Y	Y	
Tasmanian Death Register	Death Registration Number	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	

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PROGRESS…..

Ongoing considerations

- Data coverage (public vs. private records)
- Access to pharmaceutical data for patient characterisation
  - Linking to PBS (a national process with ongoing cost)