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# Prevalence and patterns of multimorbidity in Australia

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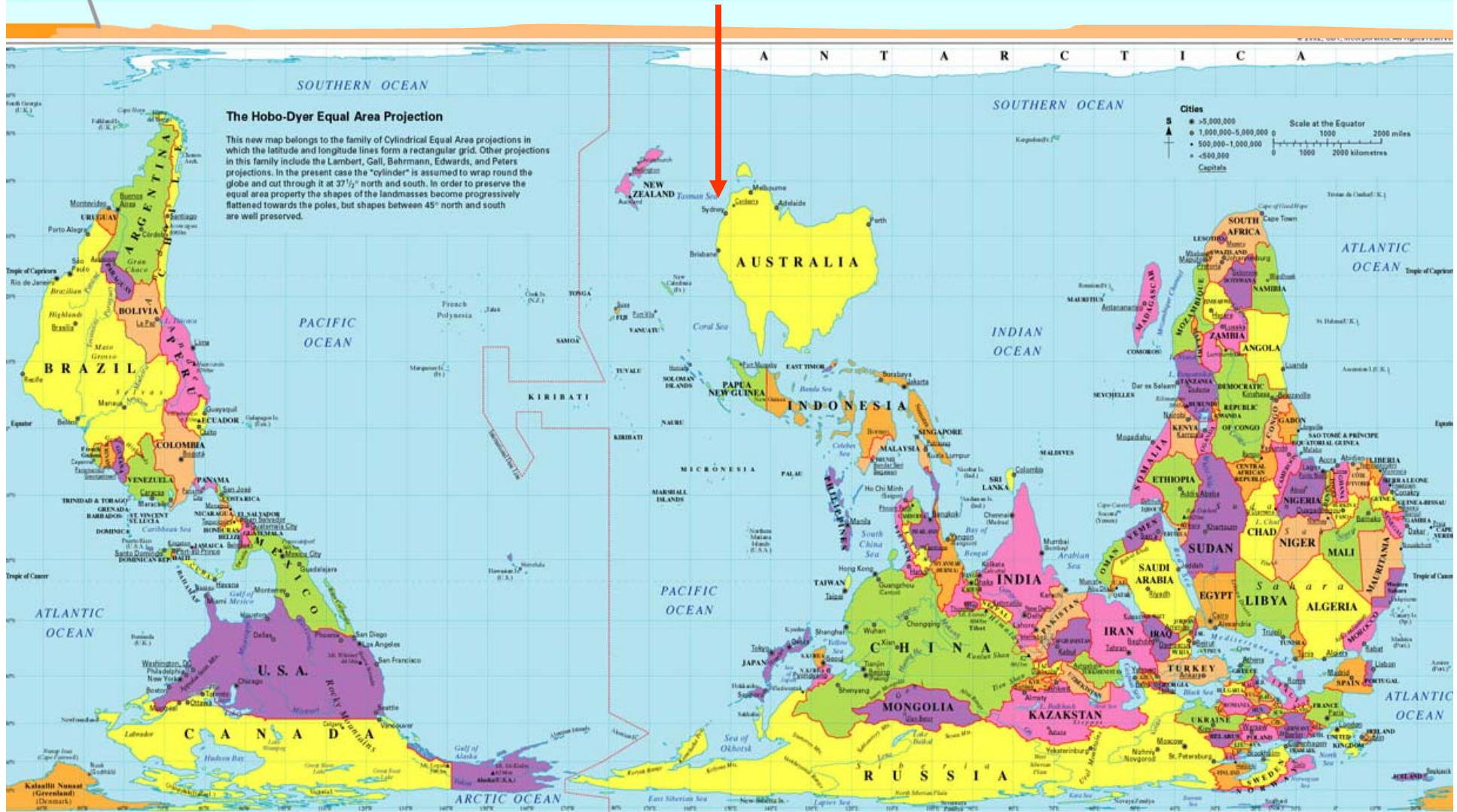
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## Where we are from



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# Background

- Single chronic disease entities are the focus of most:
  - health systems and payment structures
  - guidelines and guidance documents
  - controlled trials (i.e. controlled morbidity environment)
- What of the holistic care envisaged in general practice?

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# Background

- Research into multiple morbidities first looked at co-morbidity

*‘the existence of any distinct additional disease entity with a patient with the index disease under study’* (Feinstein 1967)

- More recently interest moved to multimorbidity

*‘The co-occurrence of two or more diseases within one person without defining an index disease’* (van den Akker et al 2001)

- International estimates suggest prevalence is:  
~30% of all persons, and ~ 60% of 65-74 year olds



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# Research questions

- What is the prevalence of multimorbidity in Australia?
- What are the common combinations of disease entities?
- How does the way you count morbidities affect the results?



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# General practice in Australia

- Population 22.5 million people
- 24,029 practising GPs (107:100,000 (vocationally recognised GPs and other medical practitioners)
- GPs are gate keepers to secondary and tertiary sectors
- Fee-for-service, no patient lists
- Universal medical insurance scheme, Australian Government funded (Medicare)
- About 112 million claims for GP services in 2008-09
- Average 5 GP services per head of population/year





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# BEACH methods

- A sub-study of the BEACH program – a continuous national study of GP clinical activity (now in its 14<sup>th</sup> year)
  - National GP random sample (drawn from Government claims data)
  - 1,000 GPs per year – ever changing sample
  - 20 GPs per week x 50 weeks a year
  - each GP completes details of 100 consecutive patient encounters
  - using paper based structure encounter recording forms
  - All types of encounters included
  - National data 100,000 paper based encounter records per year
  - Use SAS 9.3 to adjust for the cluster sample study design



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## Methods

This study:

- 289 BEACH GP participants between 07/08 & 05/09
- Each GP asked, for 30 consecutive patients

***‘Does this patient have any of the following chronic diseases/problems?’***

- Both clinician and patient input encouraged
- Final patient sample = 8,677 from across Australia

Differs from our previous study in which we included only selected Australian health priority areas

Britt HC, Harrison CM, Miller GC, Knox SA 2008.

Prevalence and patterns of multimorbidity in Australia. Med J Aust 189(2):72-77.

This study – includes ALL diagnosed chronic morbidities





## PLEASE READ CAREFULLY

The shaded section of the following forms asks questions about **PATIENT'S CHRONIC DISEASES / PROBLEMS**.  
 You may tear out this page as a guide to completing the following section of forms.

### INSTRUCTIONS

Answer these questions for **ALL** of the **next 30 PATIENTS** in the order in which the patients are seen.

Please **DO NOT** select patients to suit the topic being investigated.

Use your own knowledge, patient knowledge and medical records as you see fit, in order to answer these questions.

### Abbreviations

IHD = ischaemic heart disease

CHF = congestive heart failure

Periph Vasc Dis = peripheral vascular disease

CVA = cerebrovascular accident

COAD = chronic obstructive airways disease

GORD = gastro-oesophageal reflux disease

### Patient chronic diseases/problems

The aim of these questions is to allow us to estimate the prevalence and patterns of multimorbidity in general practice patients. This may assist in the planning for future health service needs.

Please use the tick boxes to indicate whether the patient has **ANY** of the listed chronic diseases or problems even if you have managed this problem today. Tick as many as apply.

Most of the conditions listed below require continual management or surveillance and may need consideration in future care.

If the patient has chronic diseases/problems that are not listed, please tick the box labelled 'other' in the relevant group and specify the problem(s) in the space provided.

**Malignant neoplasms** are dealt with separately. In the far right hand column please specify the primary site of the neoplasm.

If the patient has any other chronic problems or diseases that cannot be grouped by the listed body systems please specify these in the other chronic problems group.

If the patient has **NO** chronic problems please tick the box labelled 'no chronic problems in this patient', leaving everything else blank.



Does the patient have any of the following chronic diseases/problems? (Tick as many as apply)	<b>Cardiovascular</b> <input type="checkbox"/> Hypertension <input type="checkbox"/> IHD <input type="checkbox"/> CHF <input type="checkbox"/> Periph. Vasc. Dis <input type="checkbox"/> CVA/stroke <input type="checkbox"/> Other _____ (please specify)	<b>Endocrine / nutritional</b> <input type="checkbox"/> Hyperlipidaemia <input type="checkbox"/> Diabetes Type 1 <input type="checkbox"/> Diabetes Type 2 <input type="checkbox"/> Obesity (BMI $\geq 30$ ) <input type="checkbox"/> Other _____ (please specify)	<b>Musculoskeletal</b> <input type="checkbox"/> Osteoarthritis <input type="checkbox"/> Rheumatoid arthritis <input type="checkbox"/> Other arthritis <input type="checkbox"/> Osteoporosis <input type="checkbox"/> Chronic back pain <input type="checkbox"/> Other _____ (please specify)	<b>Respiratory</b> <input type="checkbox"/> Asthma <input type="checkbox"/> COAD <input type="checkbox"/> Other _____ (please specify)	<b>Psychological</b> <input type="checkbox"/> Depression <input type="checkbox"/> Anxiety <input type="checkbox"/> Sleep disorder <input type="checkbox"/> Other _____ (please specify)	<b>Gastrointestinal</b> <input type="checkbox"/> GORD <input type="checkbox"/> Inflammatory bowel disease <input type="checkbox"/> Other _____ (please specify)	<b>Genitourinary</b> <input type="checkbox"/> Chronic renal failure <input type="checkbox"/> Other _____ (please specify)	<b>Eye</b> <input type="checkbox"/> Glaucoma <input type="checkbox"/> Other _____ (please specify)	<b>Other chronic problems</b> <input type="checkbox"/> Malignant neoplasm Site: _____ (please specify) <b>Other diseases:</b> _____ _____ _____
	<input type="checkbox"/> No chronic problems in this patient								

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# Methods

Morbidity classified to the International Classification of Primary Care – Version 2 (Wonca) then to the CIRS

Three prevalence estimates:

1. In the sample itself
2. In the attending patient population  
(by adjusting for attendance patterns x age x sex)
3. In the Australian population  
(by adjusting for proportion of each age-sex groups that did not attend GP that year)

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## Cumulative Index Rating Scale (CIRS) morbidity classes

- Cardiac
- Vascular
- Haematological
- Respiratory
- Ophthalmological & ORL
- Upper gastrointestinal
- Lower gastrointestinal
- Hepatic and pancreatic
- Renal
- Genitourinary
- Musculoskeletal & tegumental
- Neurological
- Endocrine, metabolic, breast
- Psychiatric

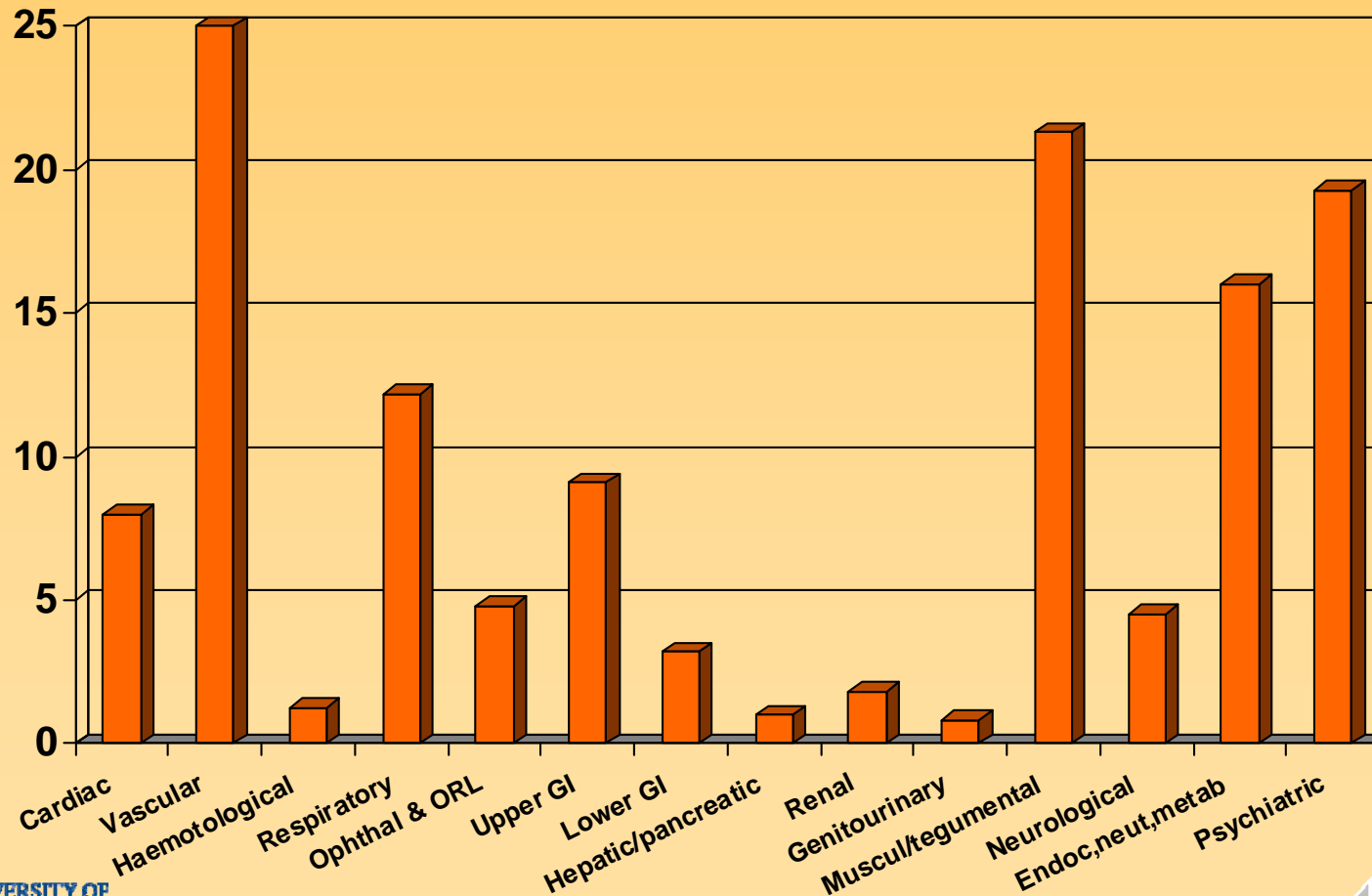
All recorded morbidities were classified to a CIRS class according to:  
*Hudon C, Fortin M, Soubhi F (2007). Abbreviated guidelines for scoring the Cumulative Illness Rating Scale (CIRS) in family practice. J Clin Epidemiol 2007;60:212*



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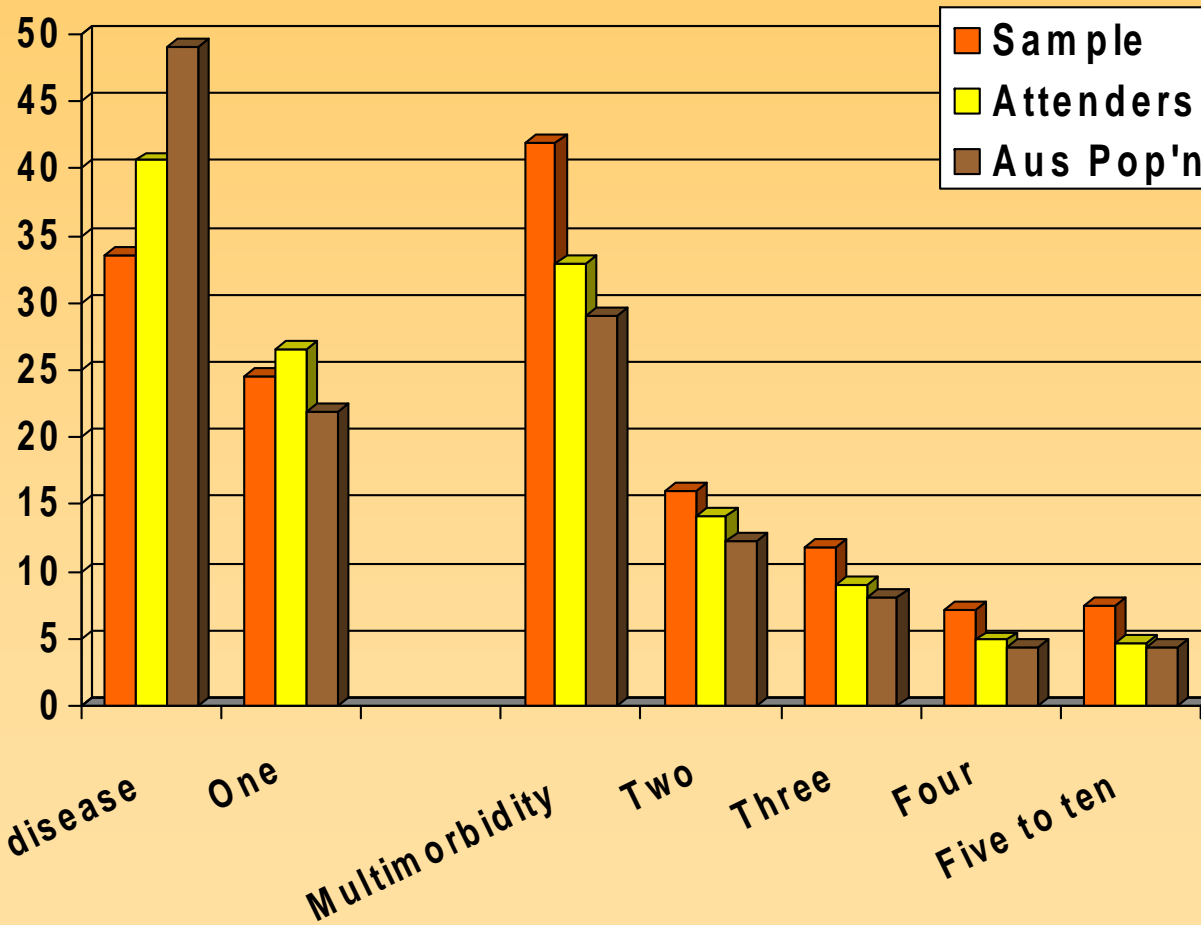
## Prevalence of each CIRS domain among sample (%) (N = 8,677 patients)



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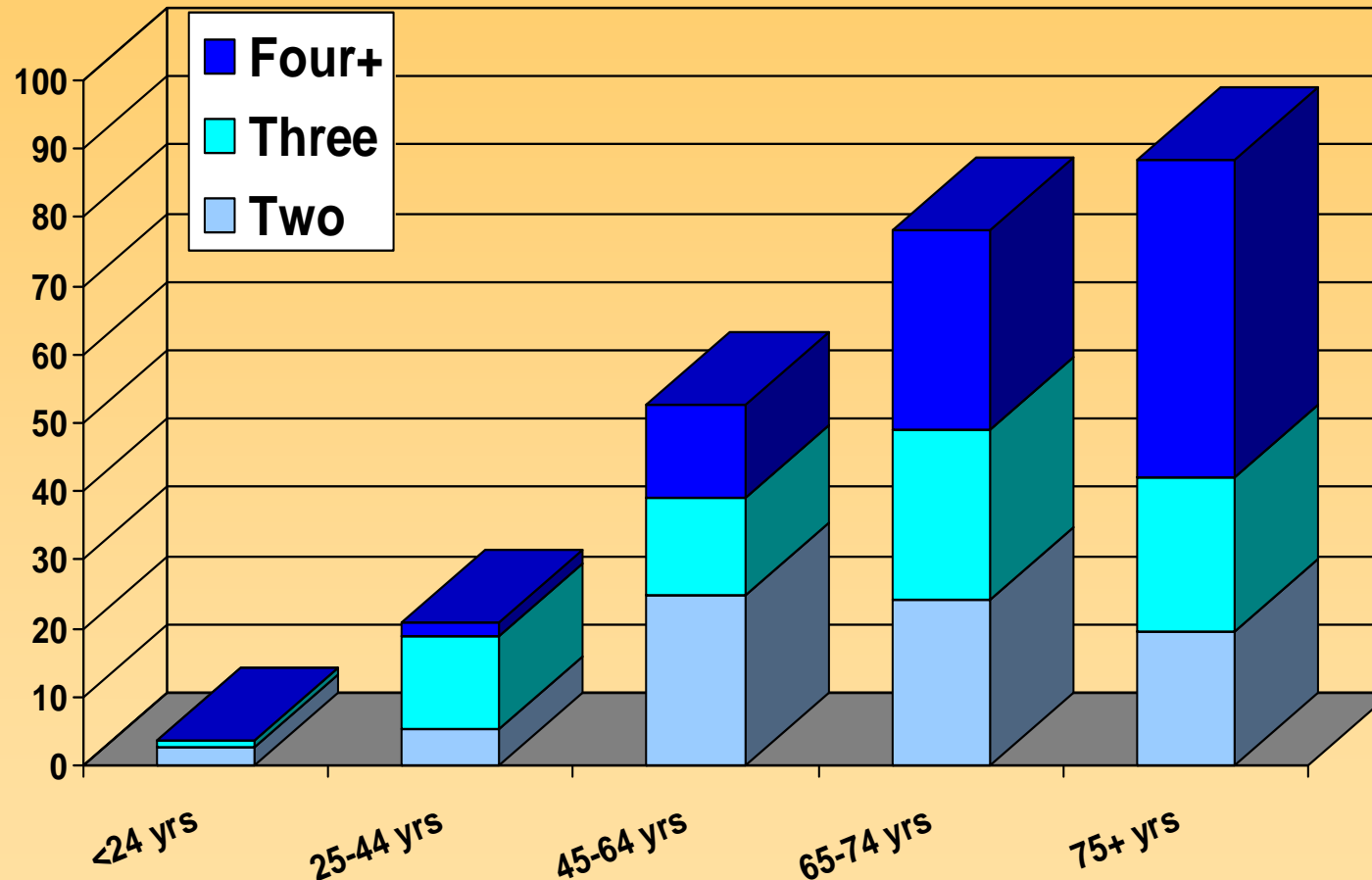
## Prevalence of multimorbidity and number of domains, in: sample, attending population, & Australian population



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# Prevalence of multimorbidity, number of domains by patient age – sample only

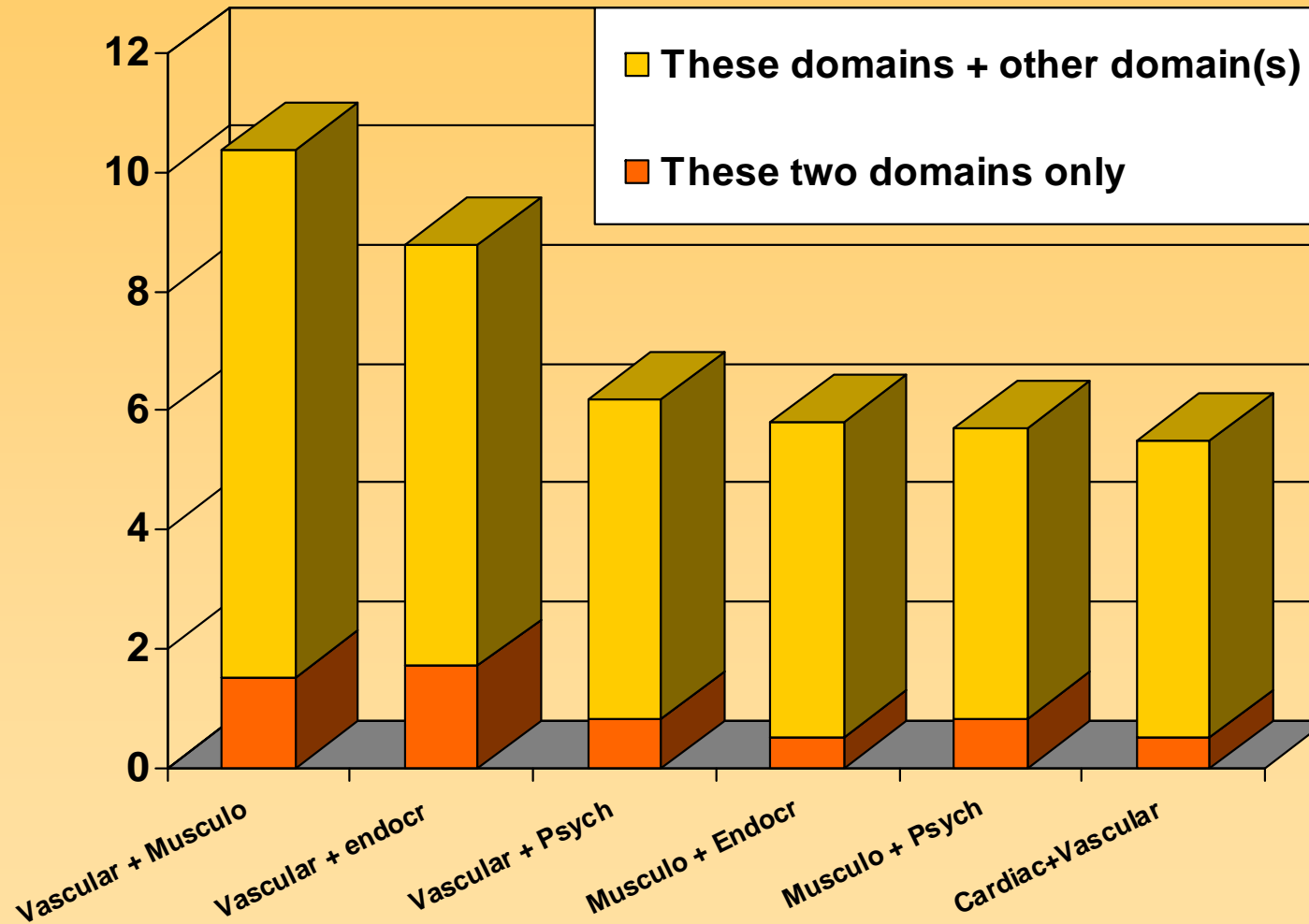


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## Common combinations among those with multimorbidity (% of Australian population)





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## In summary

- 33% of those who go to the GP & 29% of the population have multimorbidity (as here defined)
- Prevalence very high compared with hypertension (16%), depression (11%) (Ref Knox et al MJA, 2008)
- Prevalence increases with age (to 89%, in 75 +)  
– no sex difference

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# Conclusion

- At marginal cost to the BEACH program we can gain reliable estimates of the prevalence and patterns of multimorbidity in the community.
- These results will guide health care planning, allowing:
  - estimates of future health service needs, and
  - identification of areas in which multimorbidity management guidelines would be most useful.



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BUT: Need international agreement on methods to be used

- How you define a 'morbidity' affects the prevalence estimate.
- If we had used each diagnosed individual problem as the base (ICPC-2 instead of CRIS):
  - prevalence of multimorbidity in the patient sample = 51.3% (C/F with CIRS = 41.9%)
  - Mean number of morbidities in people with at least one morbidity ( i.e. complexity) = 3.8 (C/F with CIRS = 2.4)

Interested?: join the *International Research Community on Multimorbidity*. (<http://pages.usherbrooke.ca/crmcspl-blog/>)



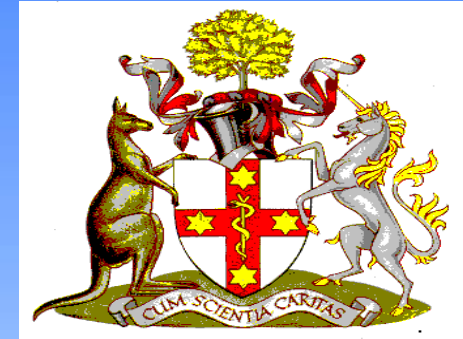


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*and endorsed by*



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**AND THANKS TO  
ALL THE GPs**

**BEACH 2010-11**





Australian Government  
Australian Institute of  
Health and Welfare

## General practice activity in Australia 2009–10

*Australian GP Statistics  
and Classification Centre*



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