

Chronic illness: economic risks for families, government and the economy and approaches to reducing risk

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Health and economic risk

- The Intergenerational Reports: ageing and its risks for labour force participation
- Impact of chronic disease and risks for labour force participation
- Chronic disease and risks of lost labour force participation, income, savings, tax and benefits
- Potential for interventions to decrease economic risk through increased labour force participation (e.g. diabetes and pain interventions)

Why consider economic impacts beyond health care?

The Intergenerational Report

to assess the long term sustainability of current Government policies over the 40 years following the release of the report, including by taking account of the financial implications of demographic change

What does it have to do with health?

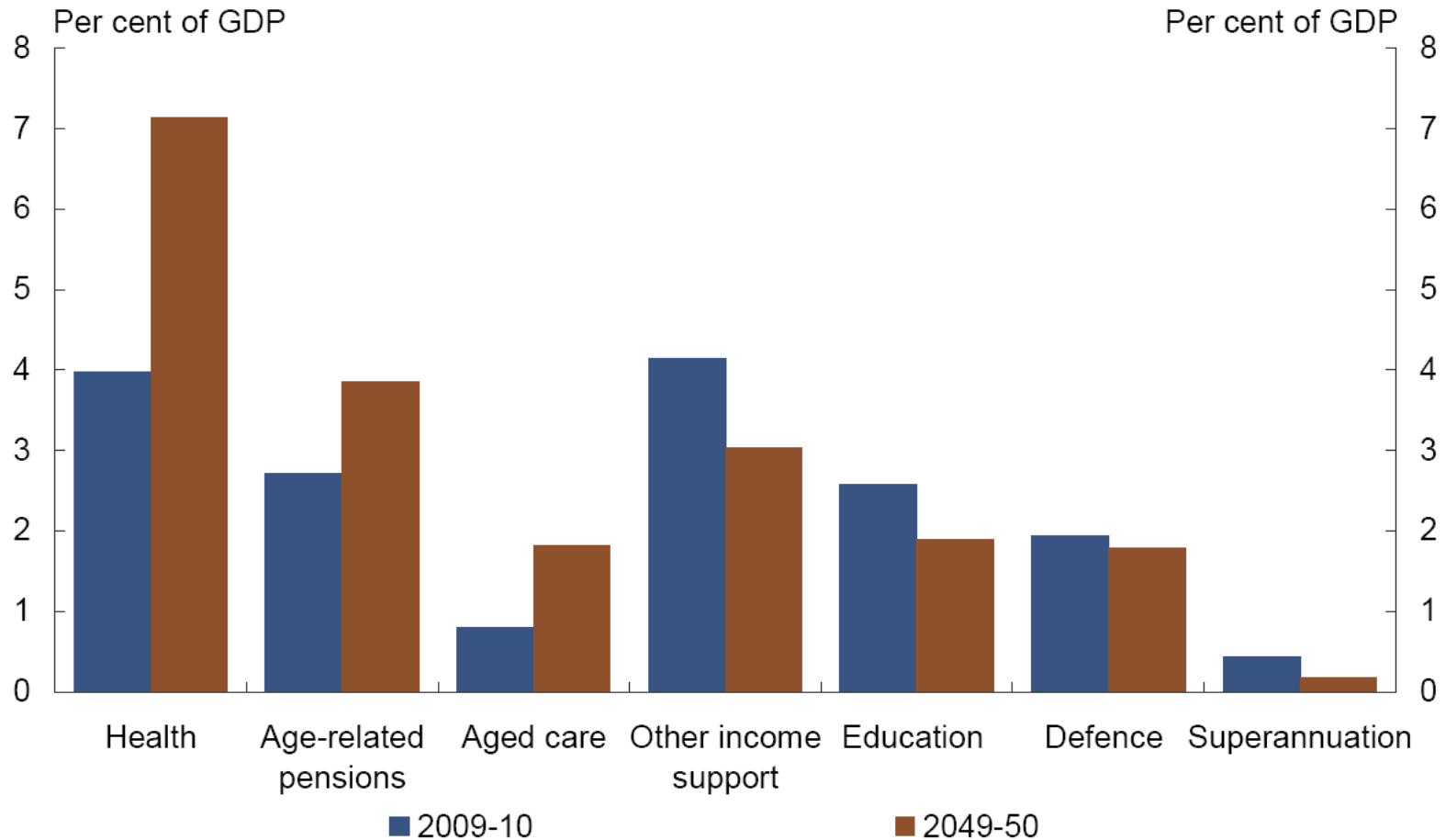
- How much money will be available for health spending
- How much pressure will health spending place on the future budget balance
- Therefore, places the future of health funding in the context of the future economy and budget balance

Australian Population projections (%)



Age range	2010	2020	2030	2040	2050
0 to 14	19.1	19.0	18.3	17.4	17.2
15 to 64	67.4	64.7	62.4	61.3	60.2
65 to 84	11.7	14.3	16.6	17.2	17.6
85+	1.8	2.1	2.7	4.0	5.1

Source: Intergenerational Report 2010

Projections of Australian Government modelled spending by category



Source: Intergenerational Report 2010

- Shrinking working age population → Shrinking tax base
-  Cut growth in health spending
-  Grow the economy (increase fertility, labour force participation – women and older workers, productivity etc)

BUT THERE IS A DILEMMA: HEALTH DRIVES LABOUR FORCE PARTICIPATION

- Employment policies and priorities have been determined independently from health priorities
- 58% of men and 26% of women who retire from full-time work early (before the age of 55 years) do so because of ill health.
- Emerging skills shortages and an ageing workforce mean a more holistic approach is required that considers the interaction of health and labour force priorities

- 2003 Survey of Disability, Ageing and Carers
- Chronic conditions associated with the highest odds of being out of the labour force for people aged 45 to 64
- Impact on labour force participation is based on the person's self-reported main condition
- Minor conditions not included

RESULTS

- The total number of Australians aged 45 to 64 not working due to a health condition was estimated to be 663,000.
- This lost workforce reduced Australia's GDP by around \$12 billion per annum.

Long-term health conditions associated with being out of the labour force and the lost workforce because of each condition

Condition	Adjusted OR* (95% CI)	P	EP [†]	Lost workforce [‡]
Back problems (dorsopathies)	3.59 (2.98–4.33)	< 0.001	0.721	144 764
Arthritis and related disorders	3.06 (2.52–3.73)	< 0.001	0.674	134 318
⇒ Mental and behavioural disorders	5.71 (4.16–7.84)	< 0.001	0.825	55 757
Diseases of the nervous system	3.25 (2.42–4.35)	< 0.001	0.692	39 976
All other conditions	3.42 (2.43–4.82)	< 0.001	0.708	33 169
⇒ Depression/mood affective disorders (excluding postnatal depression)	6.71 (4.44–10.14)	< 0.001	0.851	32 724
Other diseases of the musculoskeletal system and connective tissue	3.16 (2.25–4.44)	< 0.001	0.683	31 452
Heart diseases	4.21 (2.77–6.40)	< 0.001	0.762	31 363
Injury/accident	3.71 (2.63–5.23)	< 0.001	0.730	30 311
Diabetes	2.52 (1.85–3.43)	< 0.001	0.603	27 004
Hypertension (high blood pressure)	1.29 (1.03–1.62)	0.03	0.227	19 546
Neoplasms (tumours/cancers)	3.66 (2.19–6.11)	< 0.001	0.727	16 525
Diseases of the respiratory system	3.68 (2.07–6.54)	< 0.001	0.728	16 014



Association of number of long-term health conditions with being out of the labour force

No. of conditions	Adjusted odds ratio* (95% CI)	<i>P</i>
1	1.63 (1.41–1.89)	< 0.001
2	2.31 (1.96–2.73)	< 0.001
3	3.90 (3.20–4.75)	< 0.001
4–5	5.44 (4.42–6.70)	< 0.001
6+	16.10 (11.45–22.5)	< 0.001

* Adjusted for age group and sex. The reference group was "no condition". ◆

Modelling other economic impacts

- How much tax is lost ?
- How much extra social security payments are paid ?
- What are the impacts on personal incomes ?
- What are the impacts on savings and lifetime living standards ?
- What are the impacts on poverty ?
- What impacts would interventions to treat chronic conditions have ?



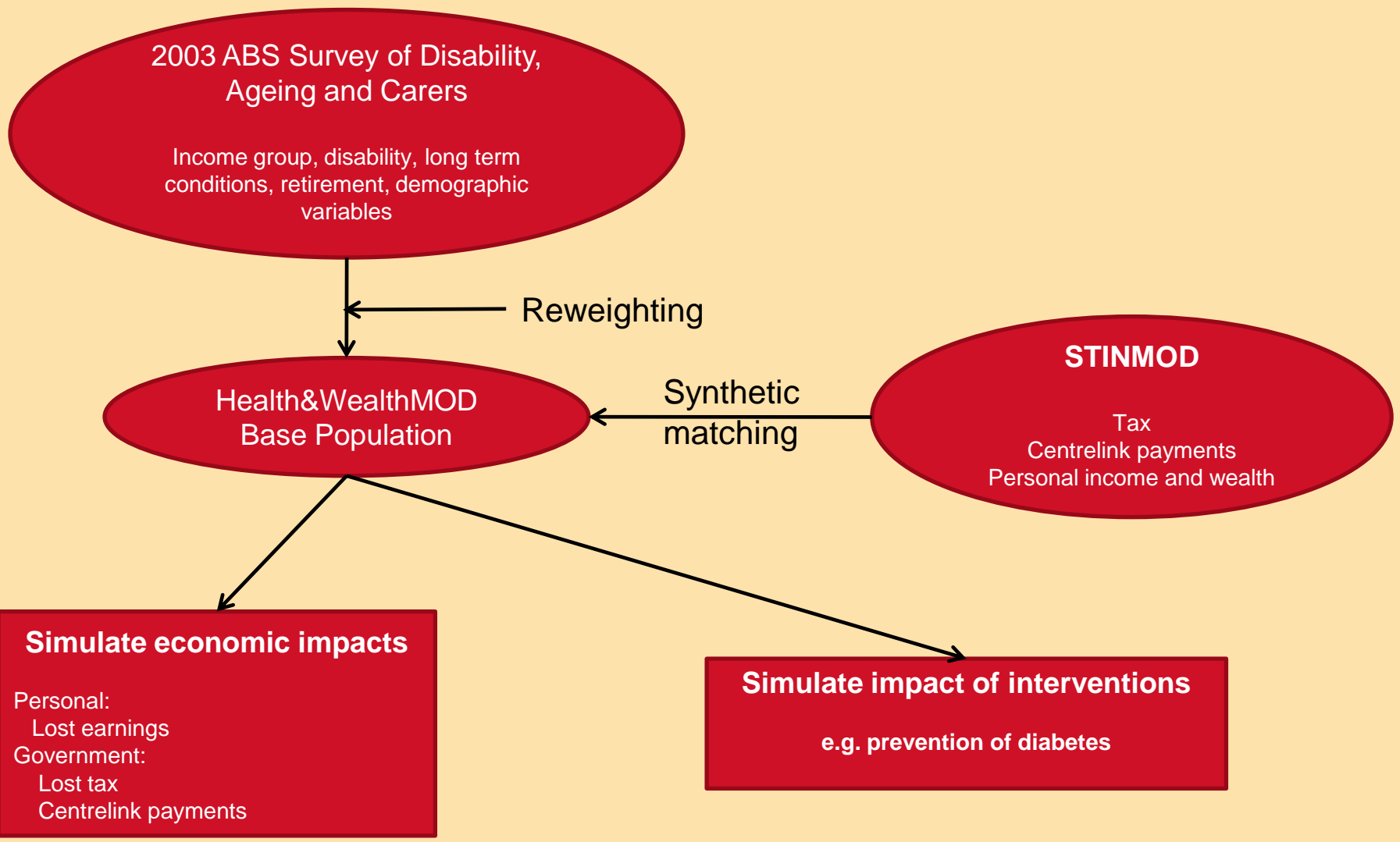
Health&WealthMOD

A large scale microsimulation model cofunded by ARC and Pfizer Australia



The Team





Cost of retiring early due to illness in Australia BMC Public Health 2011 11:438

Geometric means of weekly income, transfer payments and tax liability by labour force status for the Australian population aged 45-64 years, 2009

Labour force status	Income [#]	Transfer income ^{\$}	Tax liability [!]
Employed full-time	1,167.0	0.2	166.3
Employed part-time	482.9	0.9	8.9
Not in labour force due to ill health	217.8	74.2	0.0

[#] including transfer income

^{\$} including family payments

[!] including Medicare levy

National annual impact of persons not in the labour force due to ill health for the Australian population aged 45-64 years, 2009

	Income [#]	Transfer payments ^{\$}	Tax liability [!]
Not in labour force due to ill health	17,989,175,000	1,468,007,000	2,052,384,000

Odds ratios of having any wealth by different classes of wealth, Australians 45-64 years old, 2009, adjusted for age, gender and education

Labour force status	Total wealth	Cash	Super	Home equity	Other financial investments ^{\$}
Employed full-time no condition	Ref	Ref	Ref	Ref	Ref
Employed part-time no condition	1.92 (0.42 - 8.75)	1.07 (0.78 - 1.46)	0.40 (0.27 - 0.59)	1.57 (0.99 - 2.50)	1.05 (0.81 - 1.35)
Not in labour force due to depression	0.09 (0.02 - 0.41)	0.72 (0.29 - 1.76)	0.03 (0.02 - 0.08)	0.35 (0.16 - 0.75)	0.50 (0.20 - 1.27)
Not in labour force due to mental health	0.03 (0.01 - 0.10)	1.23 (0.51 - 2.98)	0.02 (0.01 - 0.05)	0.16 (0.07 - 0.36)	0.33 (0.15 - 0.76)

^{\$} includes shares and property investments

Chronic conditions and lost wealth

% difference (95% CI) in value of wealth, Australians 45-64 years old, 2009, adjusted for age, gender and education

Labour force status	Total wealth	References
Employed full time, no chronic condition	Ref	
Not in the labour force due to depression	-78% (-92 – -37)	Schofield et al. <i>Brit J of Psy</i> 2011, 198: 123-128
Not in labour force due to other mental illness	-93% (-98 – -71)	Schofield et al. <i>Brit J of Psy</i> 2011, 198: 123-128
Not in labour force due to back pain	-87% (-90 – -84)	Schofield et al. <i>Eur Spine J</i> 2011, 20: 731-736
Not in labour force due to CVD	-84% (-89 – -77)	Schofield et al. <i>Int J Cardiol</i> 2011, 146(1): 125-126
Not in labour force due to arthritis	-85% (-88 – -81)	Under review

Lifetime costs of exiting workforce early due to chronic conditions (Accepted Jul 2012, *The Economic Record*)

Comparisons of actual total savings and annuity at age 65 for those not in the labour force due to ill health with the counterfactual total savings and annuity at age 65 if they were employed and had no chronic condition

	Total savings (cash, super, shares, other property) at age 65		Annuity at age 65	
	Mean (\$)	Median (\$)	Mean (\$)	Median (\$)
Male, 45 – 54				
Actual	56,740	1,810	3,280	100
Counterfactual	377,330	249,160	21,800	14,400
Male, 55 – 64				
Actual	145,710	34,400	8,420	1,990
Counterfactual	322,220	208,220	18,620	12,030
Female, 45 – 54				
Actual	76,100	830	3,850	40
Counterfactual	246,480	170,040	12,470	8,600
Female, 55 – 64				
Actual	103,440	9,410	5,230	480
Counterfactual	189,200	120,650	9,570	6,100

% difference of total savings and annuity at age 65 for those working part time or not in the labour force due to CVD compared to those working full time, Australians aged 45 – 64 years old

	Total savings^{\$}	Annuity
Employed full time, no condition	Ref.	Ref.
Employed part time, no condition	-53.5 (-63.9 – -40.3)	-52.0 (-61.5 – -40.4)
Not in labour force due to CVD	-99.6 (-99.9 – -97.9)	-99.2 (-99.8 – -96.6)

^{\$} includes cash, superannuation, shares and property investments

TABLE 2. Proportion of Individuals in Income Poverty With Varying Labor Force and Health Status Among the 45- to 64-Year-Old Australian Population

Labor Force Status	Number in Poverty	Number Not in Poverty	% in Poverty
NILF due to back problems	48,000	56,000	46
NILF for other reasons, no chronic health condition	155,000	241,000	39
Employed part-time with back problems	20,000	66,000	23
Employed part-time with no chronic health condition	54,000	368,000	13
Employed full time with back problems	18,000	198,000	8
Employed full time with no chronic health condition	79,000	1,332,000	6

NILF indicates not in labor force

Odds ratio of being in income poverty by labour force status, adjusted for age, sex and education, 45 to 64 year old Australian population

Employment status	OR	95% CI
Not in the labour force due to CVD	Ref	
Not in the labour force due to other reasons	0.83	0.81 - 0.85
Employed part time with no chronic health condition	0.19	0.19 - 0.20
Employed full time with no chronic health condition	0.07	0.07 - 0.07

Impact of diabetes intervention on labour force participation (BMC Public Health 2011, 11:418)

To investigate the impact on labour force participation and personal incomes of diabetes intervention using a screening program and metformin or lifestyle intervention for those identified as pre-diabetics

Estimated the extra number of years in the labour force and increase in personal incomes of Australians aged 45 – 64 years in 2003, who would not have developed diabetes if a screening and intervention program to prevent the onset of diabetes were in place for the 20 years from 1983

Increased number of person years in the labour force & the associated increase in total incomes over the ten years

	Age group in 2003	Using metformin		Lifestyle intervention	
		Total person years	Total income	Total person years	Total income
Male	45-49	28	1,263,000	43	1,896,000
	50-54	97	4,319,000	125	5,595,000
	55-59	282	12,578,000	358	15,967,000
	60-64	683	30,486,000	753	33,599,000
Female	45-49	11	347,000	11	347,000
	50-54	42	1,329,000	42	1,329,000
	55-59	679	21,629,000	816	25,983,000
	60-64	790	25,144,000	890	28,334,000
Total		2,612	97,095,000	3,038	113,049,000

\$44,600 per
person per year

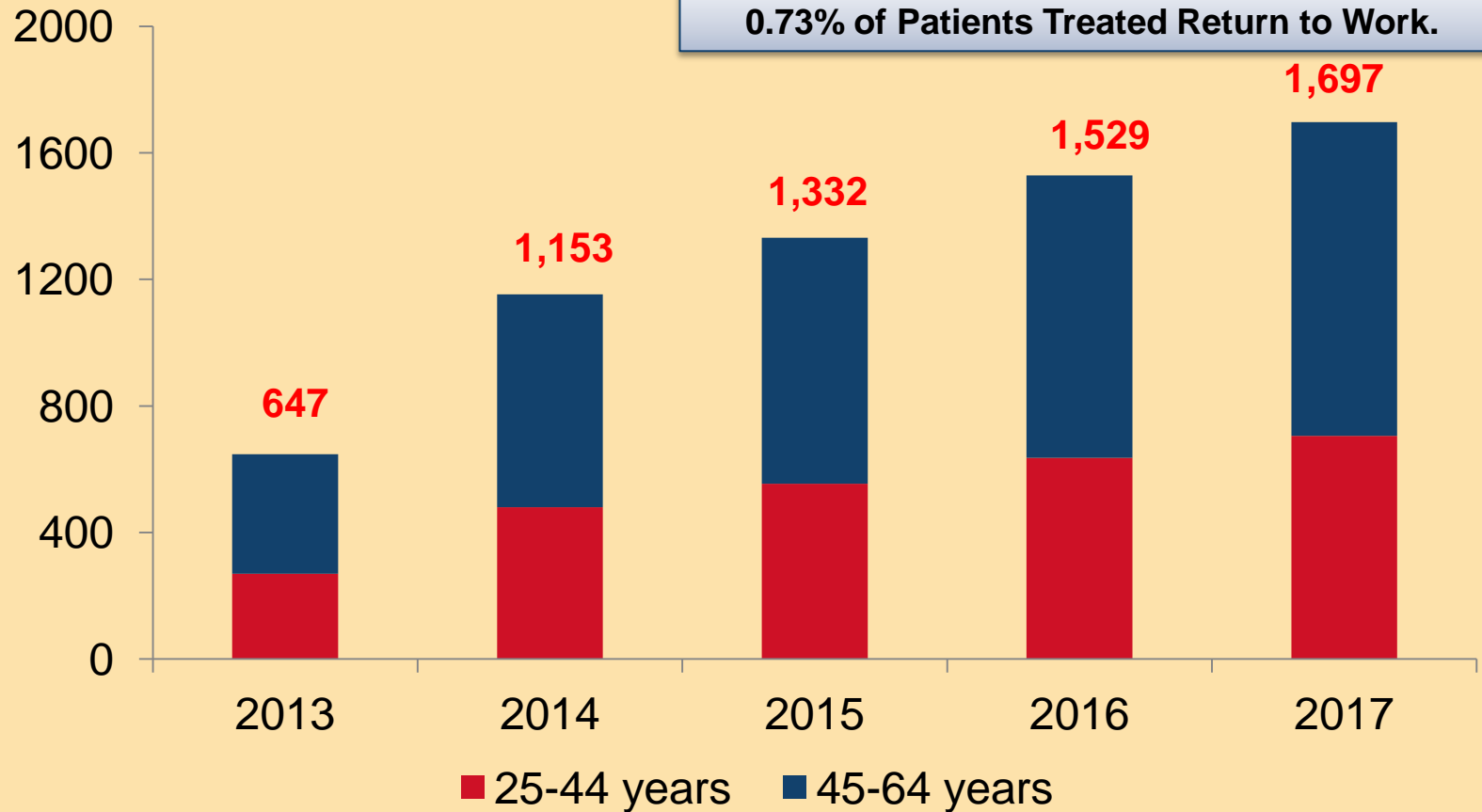
\$31,800 per
person per year



Economic impacts associated with neuropathic pain reduction using Lyrica[®] (pregabalin)

*(A joint work between NHMRC Clinical Trials Centre and
KMC Health Care, paper under preparation)*

Additional pregabalin patients in the labour force



Total additional patients

88,122

157,190

181,643

208,596

231,428

Economic benefits from increased labour force participation (per person)

	Additional private income	Additional tax revenue	Reduced transfer payments
25 – 44 yrs	\$41,400	\$7,200	\$13,900
45 – 64 yrs	\$47,000	\$7,500	\$13,900

Total economic benefits (25 – 64 yrs) (in \$ million)

	2013	2014	2015	2016	2017
Additional private income	\$28.8	\$51.5	\$59.5	\$68.4	\$75.9
Additional tax payment	\$4.7	\$8.5	\$9.8	\$11.2	\$12.5
Reduction in transfer payments	\$9.0	\$16.1	\$18.6	\$21.4	\$23.7
Total Commonwealth Benefit	\$13.7	\$24.6	\$28.4	\$32.6	\$36.2