



# Fitness and Claims

Roseanne da Silva

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# What do you do.....?

- Super fit
- Gym bunnies (at least twice a week)
- Some exertion (once a week)
- No sweat



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# Getting the Nation to Play

- 2 907 respondents aged 16+
- 58% do no physical activity
- 8% exercise daily
- Factors:
  - Age
  - Gender
  - Race
  - Wealth
  - Urban/Rural



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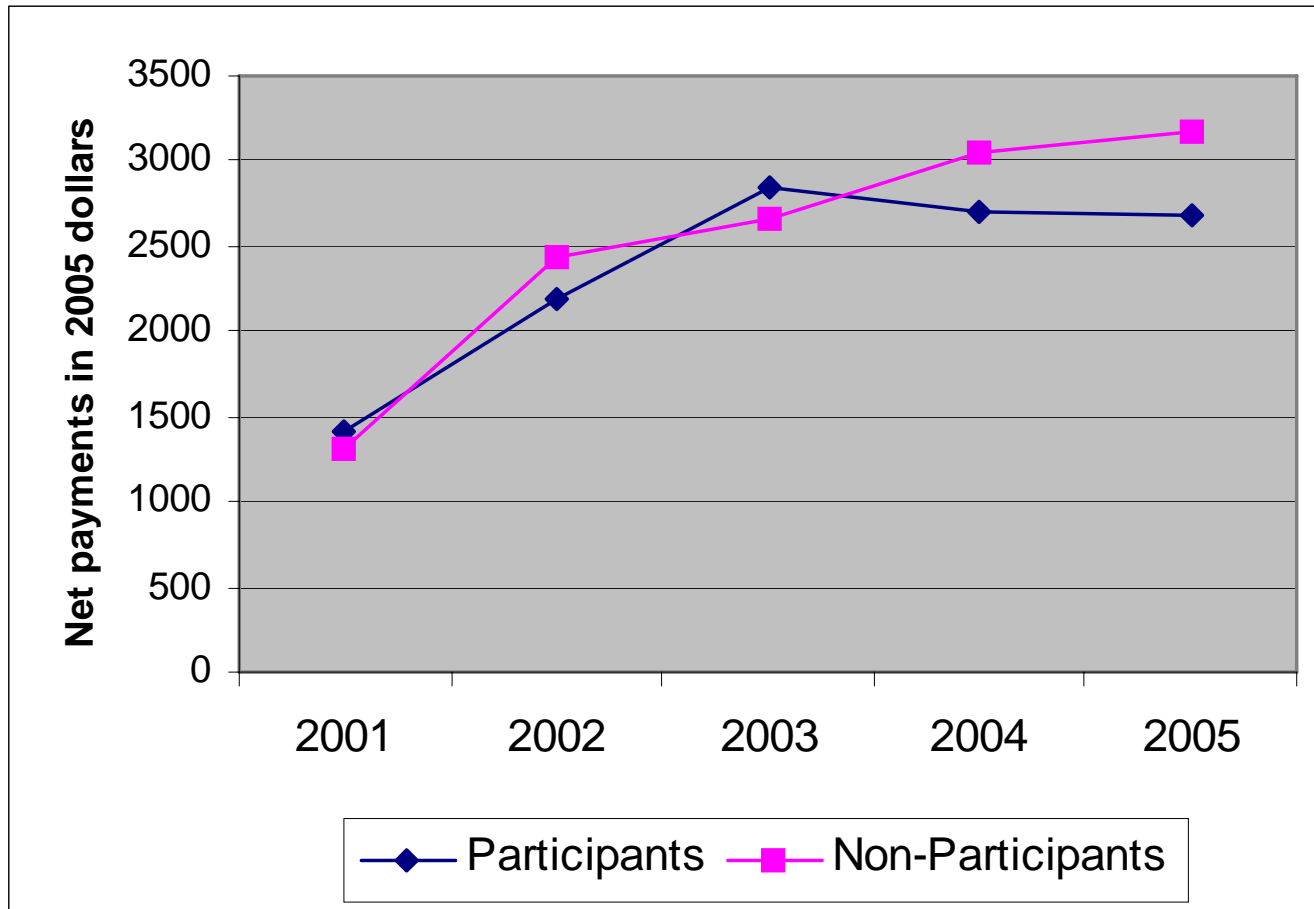


# Highmark study

- Four year study (2002 to 2005)
- 9 666 program participants
- 1 892 employees (19%) completed HRA in 2002
- Largest participation growth was fitness
- \$1.65 in claims cost saving per dollar spent on the programme



# Health expenditure trends



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## Studies from around the World

- Bouchard (2001): Physical inactivity is associated with at least a 1.5-2.0 fold higher risk of most chronic diseases of lifestyle such as coronary heart disease, Type 2 diabetes, and hypertension
- Katzmarzyk et al (2000) estimated that physical inactivity was responsible for 2.5% of the total direct health care costs in Canada.
- Wang et al (2004) modeled the health care costs linked to cardiovascular disease (CVD) only in the United States and found that physical activity accounted for 15.3% of cases and 13.1 % of CVD health care expenditure in 1999



- Allender et al (2007) estimated that 3% of the UK's disability adjusted life-years (or just over £1.0 billion) for ischaemic heart disease, ischaemic stroke, breast cancer, colon/rectum cancer and diabetes mellitus in 2002 was attributable to physical inactivity.
- Using a cost-of-illness approach, Garrett et al. (2004) examined medical claims among more 1.5 million health plan members over the age of 18 years. In this model, more than 30% of cases of stroke, cancer of the colon, cardiovascular disease and osteoporosis were attributable to inactivity.



## Changing behavior

- Martinson et al.(2003) examined the impact of changes in physical activity status over 2 years in a small cohort of health plan members aged 50 years and older, and found that moving from inactive to active was associated with a more than \$2000 savings in health care claims over 2 years, compared to persons who remained inactive.
- Nguyen (2008) demonstrated that after two years, Medicare beneficiaries who received a health club benefit as part of their health plan had 2.3%(3.3% to 1.2%) significantly fewer inpatient admissions and lower total health care costs (\$500; 95%CI: \$892 to \$106) than matched controls.





# Vitality Longitudinal Study

- Five year period
- Principal and spouse beneficiaries
- 1 January 2002 to 30 June 2007
- 33 196 197 member months of data
- Analysis categories
  - Calendar month
  - Duration
  - Duration excl. previous
  - Cohort

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# Research questions

- Is there evidence that participation in the Vitality programme leads to increased participation in fitness activities?
- Does increased participation in fitness activities lead to reduction in claims costs?



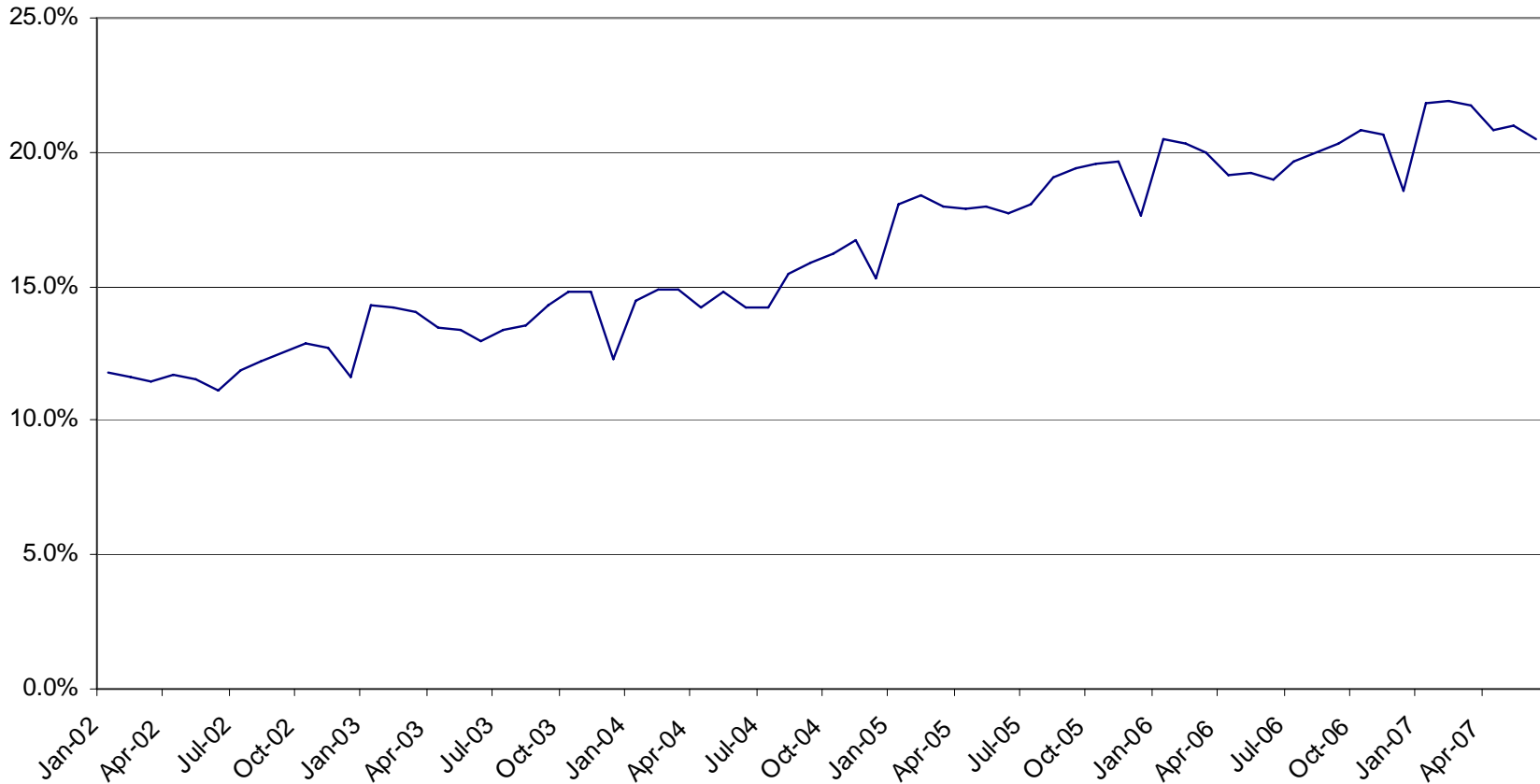
# Behavioral change

Year	Average on Vitality	At Least 1 Gym Visit	% Visit	Visits per member
2002	409,461	48,873	11.9%	6.8
2003	503,440	69,456	13.8%	6.7
2004	569,082	86,010	15.1%	6.6
2005	567,403	104,618	18.4%	6.5
2006	532,396	105,644	19.8%	6.2
2007	502,469	106,956	21.3%	6.2

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% of Vitality members with a gym visit



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# Fitness status

<b>Fitness Inactive:</b> 0 to 4 Gym Visits
<b>Fitness Low Active:</b> 4 to 24 Gym Visits
<b>Fitness Medium Active:</b> 24-48 Gym Visits or 0 to 4999 SA Active points
<b>Fitness Engaged:</b> > 48 Gym Visits or at least 5000 SA Active points

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# Distribution of members by Fitness engagement

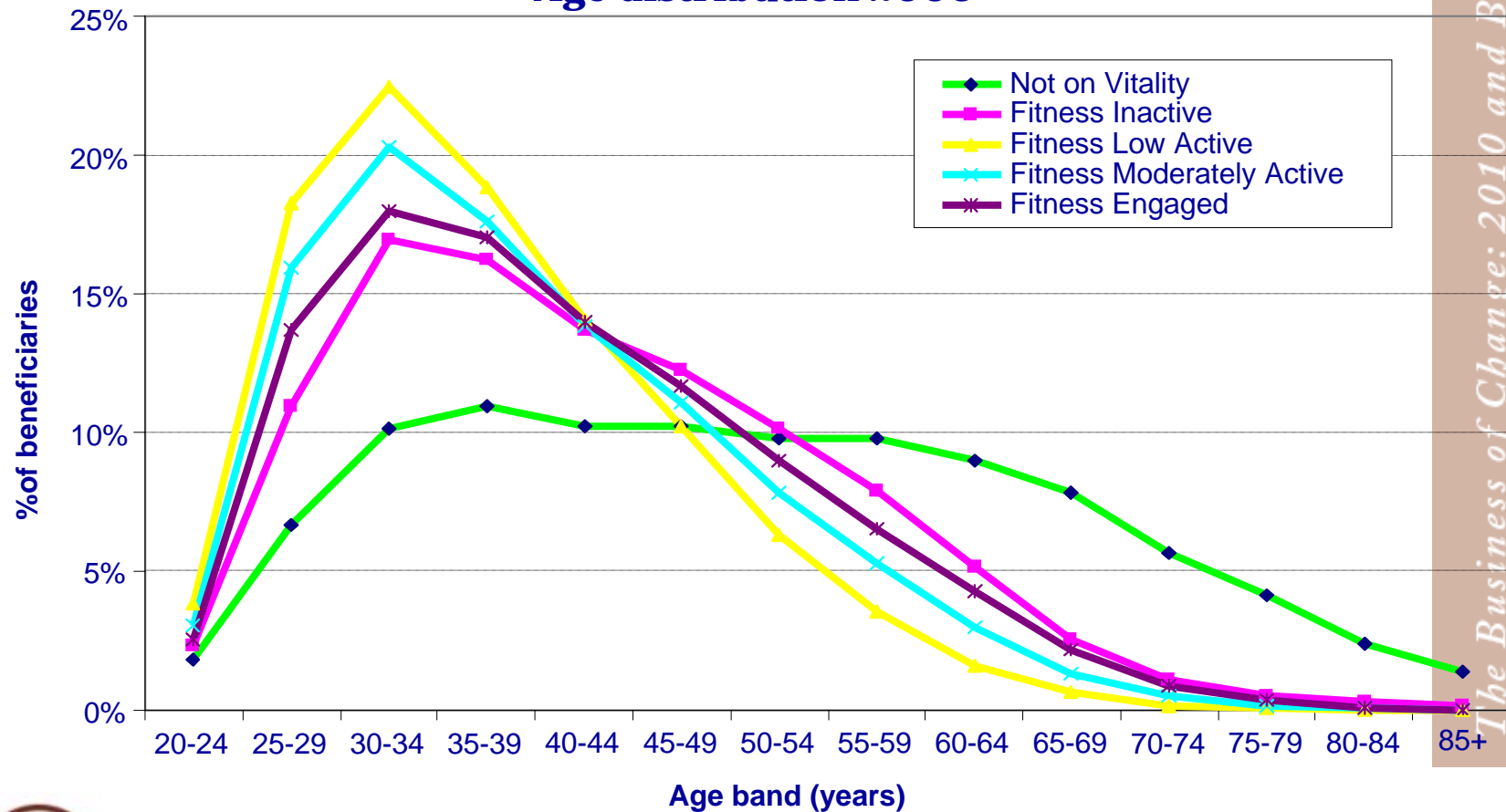
	2006		
	Beneficiaries	% of total beneficiaries	% of Vitality beneficiaries
Not on Vitality	357,840	37.71%	n/a
Fitness Inactive	419,187	44.17%	70.91%
Fitness Low Active	52,713	5.55%	8.92%
Fitness Medium Active	49,633	5.23%	8.40%
Fitness Engaged	69,601	7.33%	11.77%
Total	948,974		

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# Age distribution by Fitness engagement

## Age distribution 2006



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# Duration Year 5 year transition

Fitness Status in Year 1	Fitness Status in Year 5				Total
	Fitness Inactive	Fitness Low Active	Fitness Medium Active	Fitness Engaged	
Fitness Inactive	226 508	19 874	14 302	<b>14 618</b>	79.62%
Fitness Low Active	11 515	4 227	<b>4 029</b>	<b>3 597</b>	6.76%
Fitness Medium Active	5 204	<b>2 969</b>	<b>4 241</b>	<b>4 396</b>	4.86%
Fitness Engaged	4 284	3 211	5 536	17 265	8.76%
Total	71.58%	8.76%	8.13%	11.53%	345 776

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# Analysis of movements

Remain Inactive	226,507	65.5%
Remain Engaged	17,265	5.0%
Remain other status	8,468	2.4%
Move up	60,816	17.6%
Move down	32,719	9.5%

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# Duration year

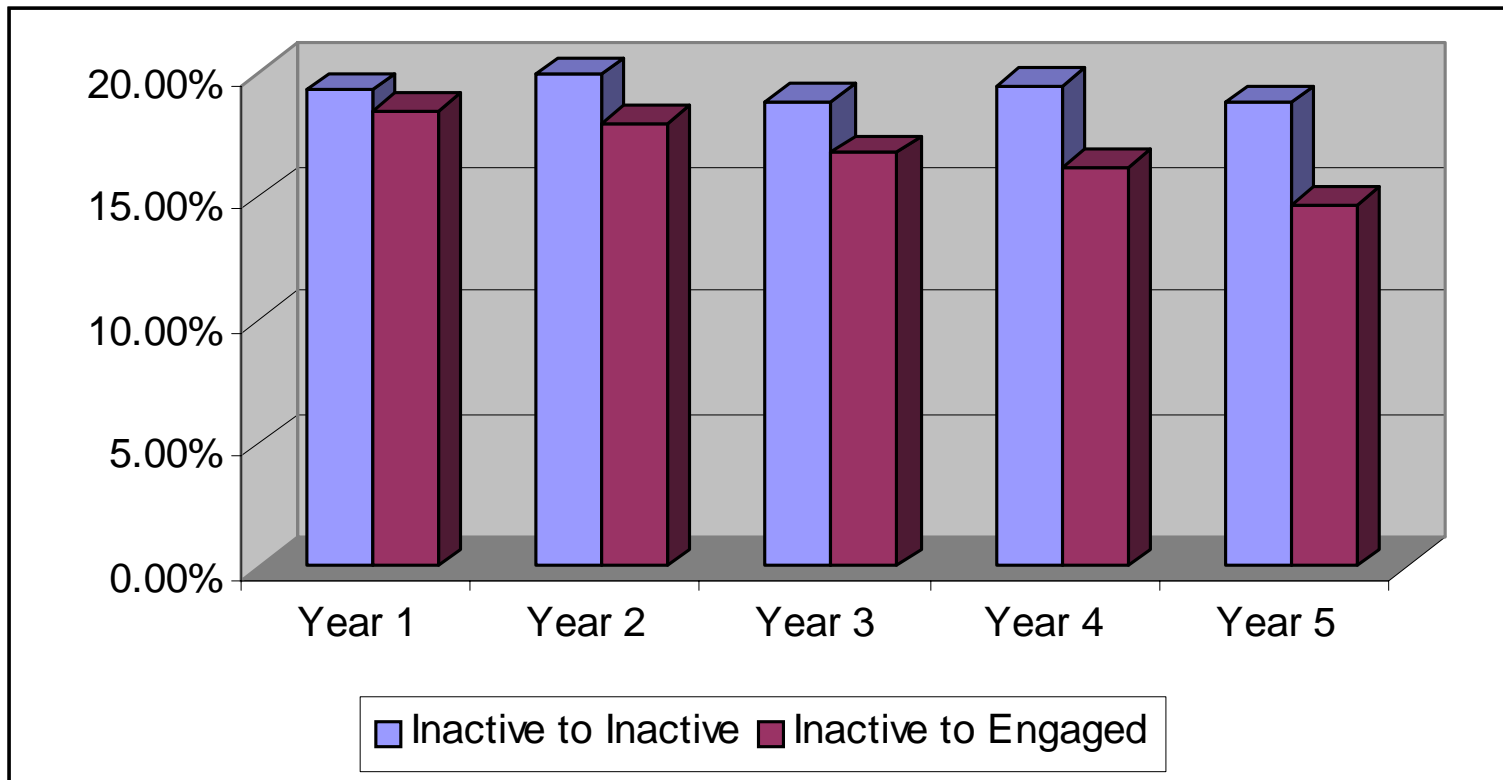
## Annual progress Inactive to Engaged

Fitness Status	Year1	Year2	Year3	Year4	Year5
Fitness Inactive	100	66.9	44.7	15.4	0.0
Fitness Low Active	0.0	9.7	11.6	9.1	0.0
Fitness Medium Active	0.0	8.0	12.7	15.6	0.0
Fitness Engaged	0.0	15.0	31.0	60.0	100.0

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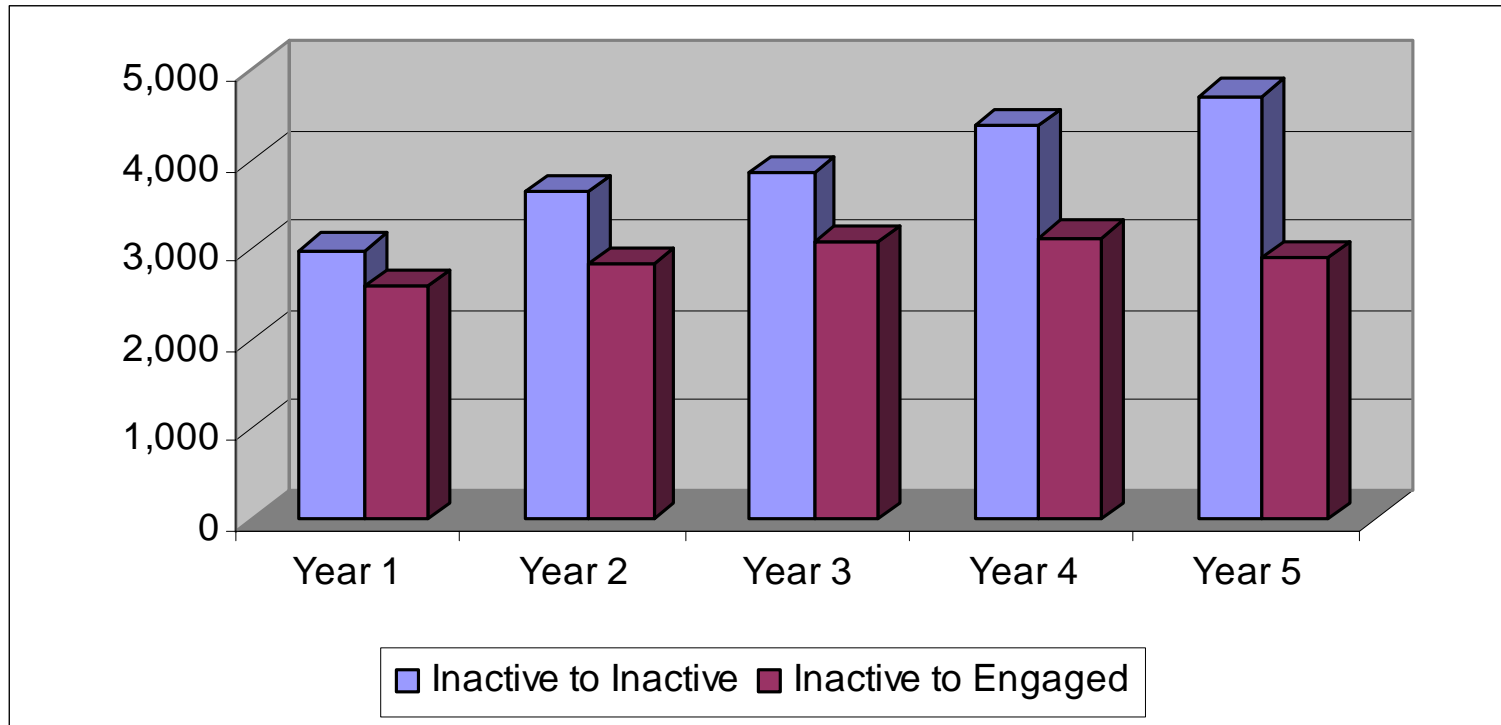
# Probability of Admission



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# Claim cost (unadjusted hospitalisation)



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## Preliminary quantification of savings

- Initial status distribution
- Mix of periods – inflation issue
- Trend analysis – Inactive to Inactive
- Expected = Yr 1 x trend
- Saving = Expected - Actual



# Upward movements

	Year 2	Year 3	Year 4	Year 5
Inactive to Low	5.8%	5.0%	5.5%	4.6%
Inactive to Medium	4.0%	9.8%	8.9%	7.6%
Inactive to Engaged	9.4%	6.4%	13.8%	19.7%
Low to Medium	4.3%	4.0%	-0.4%	0.6%
Low to Engaged	9.3%	11.6%	11.6%	18.0%
Medium to Engaged	7.0%	-3.9%	6.7%	14.8%

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# Preliminary findings

- Evidence of behavioral change from participation incentives
- Impact of fitness activities on claims experience
- Impact of other incentivised activities under investigation
- Longitudinal study raises issue of inflation adjustments



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# Acknowledgements

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# This woman is 50 years old....

