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THE IMPACT OF WELLNESS ACTIVITIES ON HOSPITAL CLAIMS EXPERIENCE

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Agenda

- The VIP study
- The Discovery Health Medical Scheme
- Wellness programmes
- The Vitality programme
- Defining engagement
- Analysis of hospital experience
- Next steps.....

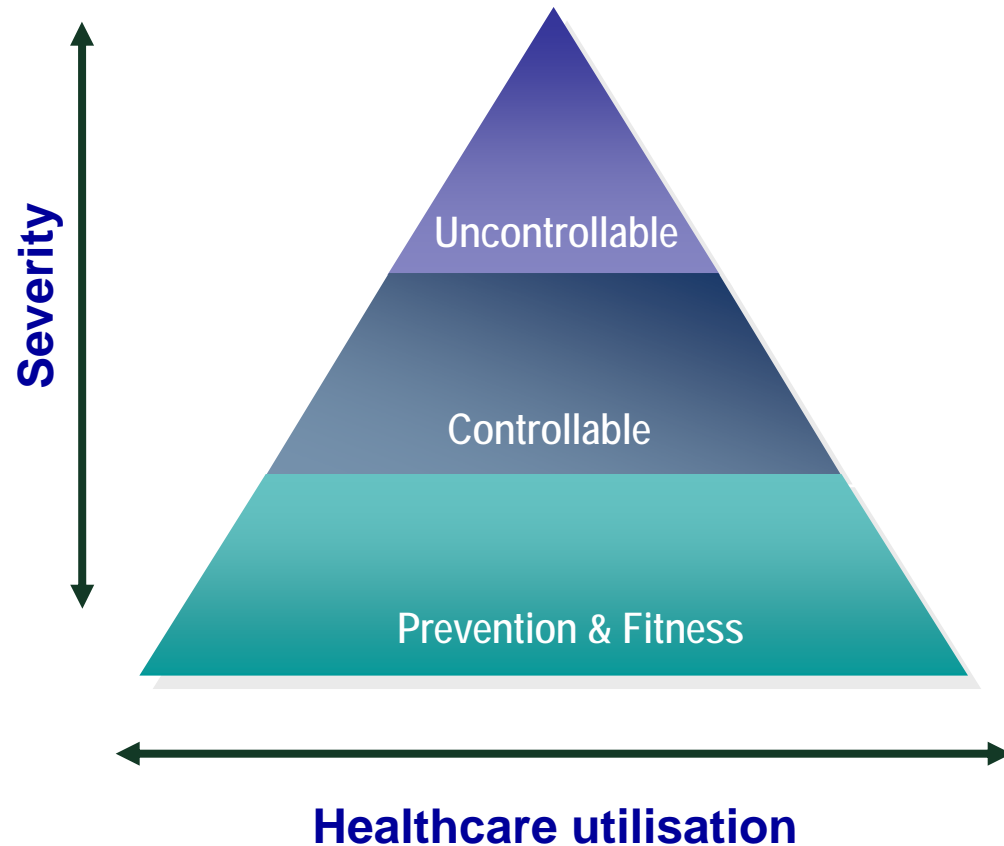
The Vitality Insured Persons (VIP) study

- Objectives of study: To assess the effect of engagement with the Vitality programme on clinical indicators and claims experience.
- The VIP study covers close to 1 million adult beneficiaries including detailed data on wellness activities and claims experience.
- Comprehensive data set from 2002 to date.

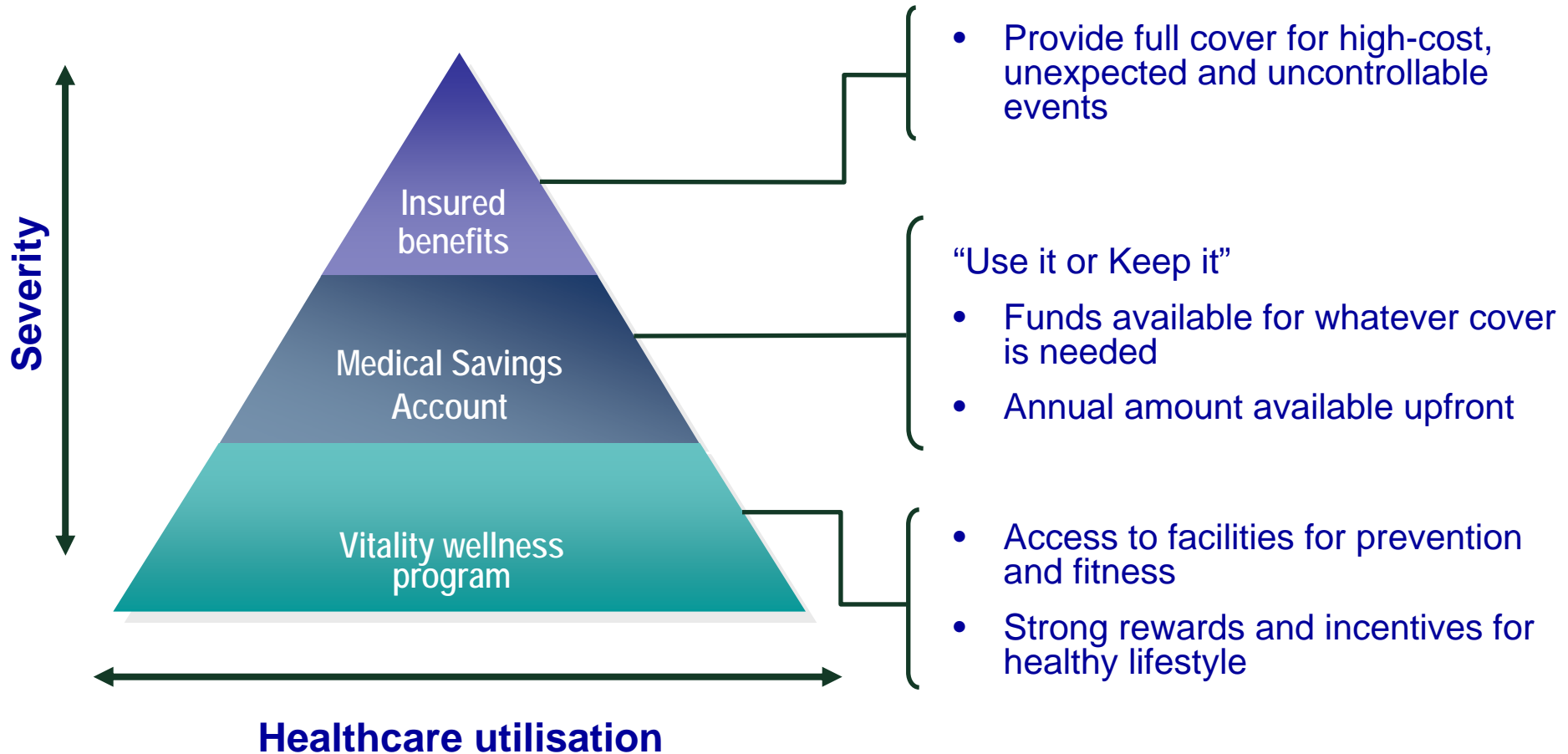
The Discovery Health Medical Scheme

- The largest medical expense insurer in South Africa covering over 2 million beneficiaries
- The Discovery Product Range
 - Mutual fund covering medical expenses
 - Annual option selection
 - Comprehensive hospital coverage
 - Chronic coverage based on option level
 - Day to day benefits covered via savings accounts

Discovery's consumer driven plan design



Discovery's consumer driven plan design



Comparison to US market

- **Similarities**
 - Indemnification of medical expenses
 - Managed care interventions
 - Strong, technology driven private health sector
 - Economically affluent portion of the population participating in cover
- **Differences**
 - Mutual fund structure
 - Regulatory constraints eg community rating and guaranteed acceptance

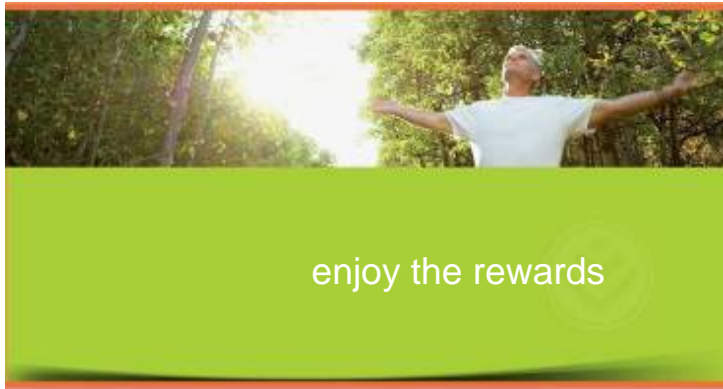
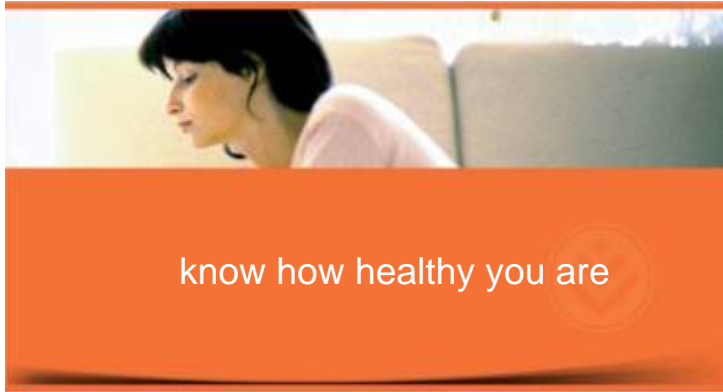
Wellness Programmes

- Insurance context compared to employer context
 - Claims experience benefits (rather than productivity)
 - Loyalty benefits
 - Value perceptions
- Preventative focus not curative
- Reward preventative effort

The Vitality Programme

- Rewards based wellness programme
- Offered in SA, UK and USA
- Members earn points for engaging in their health and wellness
- Vitality points tier status determines reward levels

Vitality drives healthy behaviour



Earn immediate Vitality points by understanding your health status:

- Vitality Nutrition Assessment
- Vitality Physical Activity Assessment
- Vitality Age
- Many more preventative tools

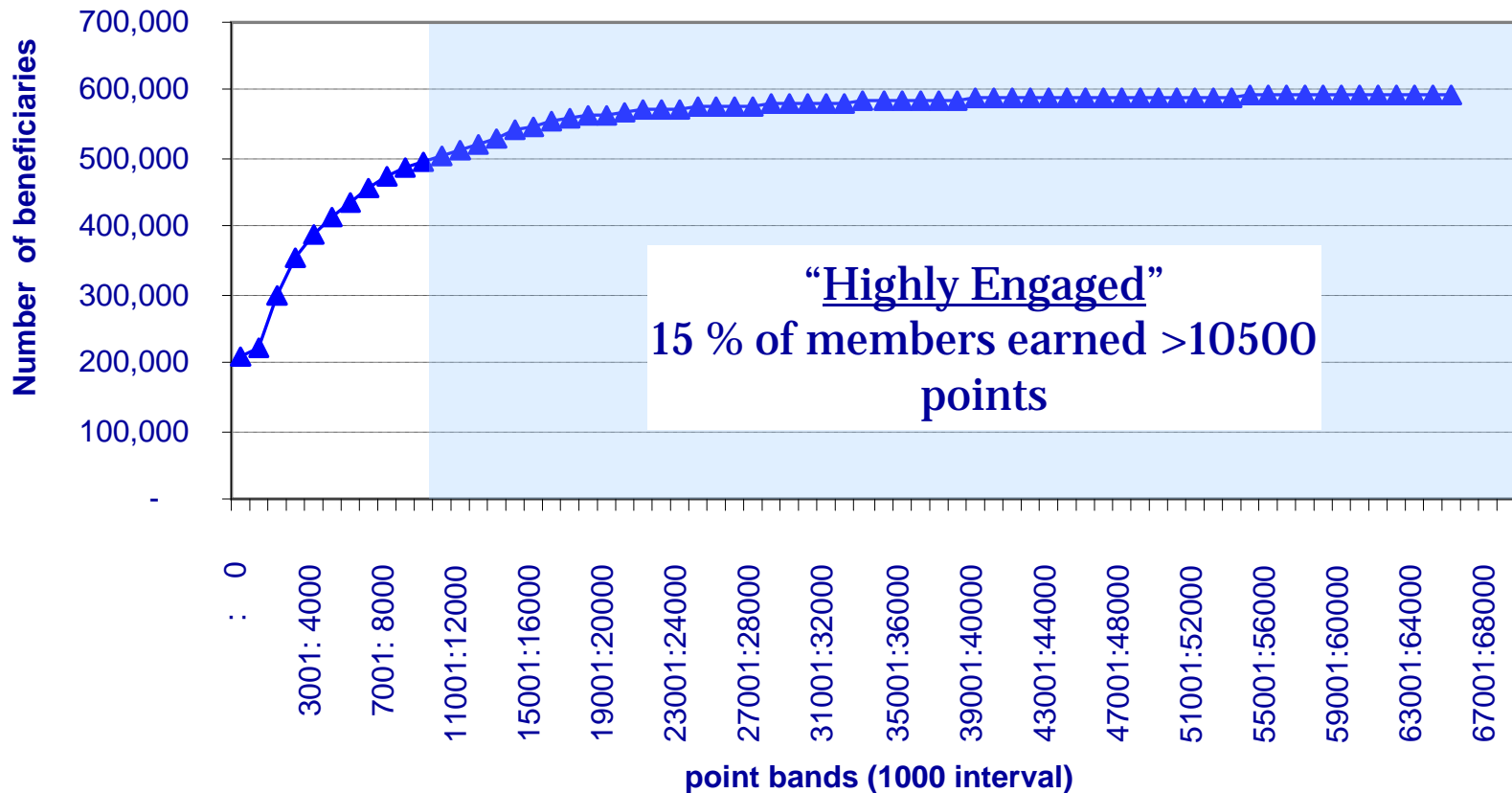
	Bronze	Silver	Gold
P	15 000	35 000	45 000
P + A	30 000	70 000	90 000

Points categories

- **Fitness:**
 - 150 points per gym visit (max is 15 000 for the year)
 - 3000 points for participating in a 10km running event
- **Preventative:**
 - 5000 points for voluntary HIV test
 - 1500 points for getting cholesterol check with bonus points for acceptable range
- **Healthy choices**
 - 5000 points for being a non smoker
- **Knowledge**
 - 1500 points for completing HRA or nutritional assessment

Number of Beneficiaries who earned points during 2006

Cumulative Points



Vitality Status

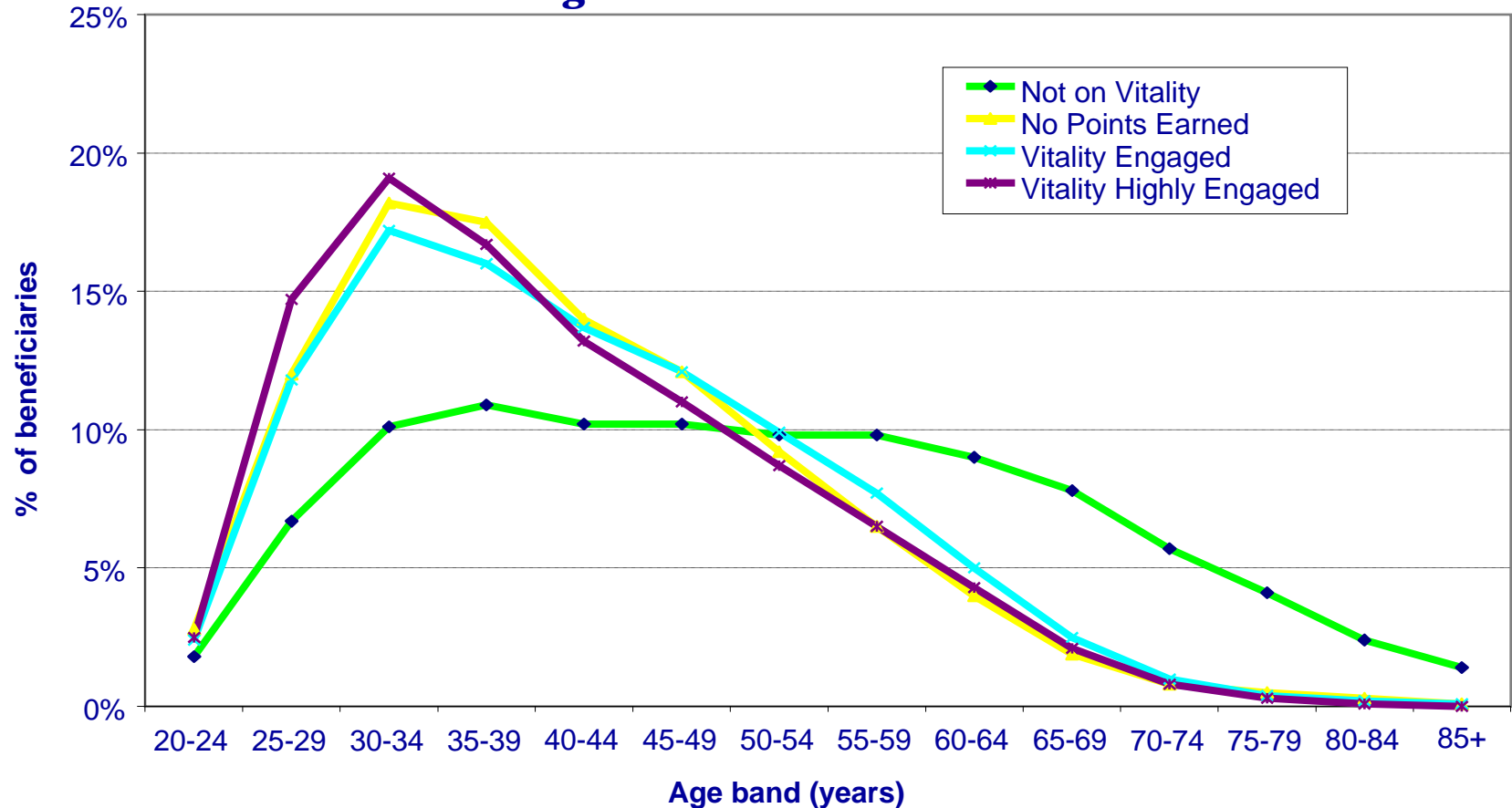
- **Not:** Not on Vitality Programme
- **NPE:** On Vitality Program but No Points Earned (on Vitality but with zero points in the Fitness, Healthy choices, Knowledge and Preventive categories)
- **VE:** Vitality Engaged (on Vitality with non-zero points in the categories noted above but not meeting the total engaged criteria)
- **VHE:** Vitality Highly Engaged (aggregate points > 10 500)
- **Notes:**
 - Exclude 'other' points from accumulation
 - Consider individual rather than family based accumulation
 - 15% threshold for highly engaged

Distribution of beneficiaries by Vitality engagement

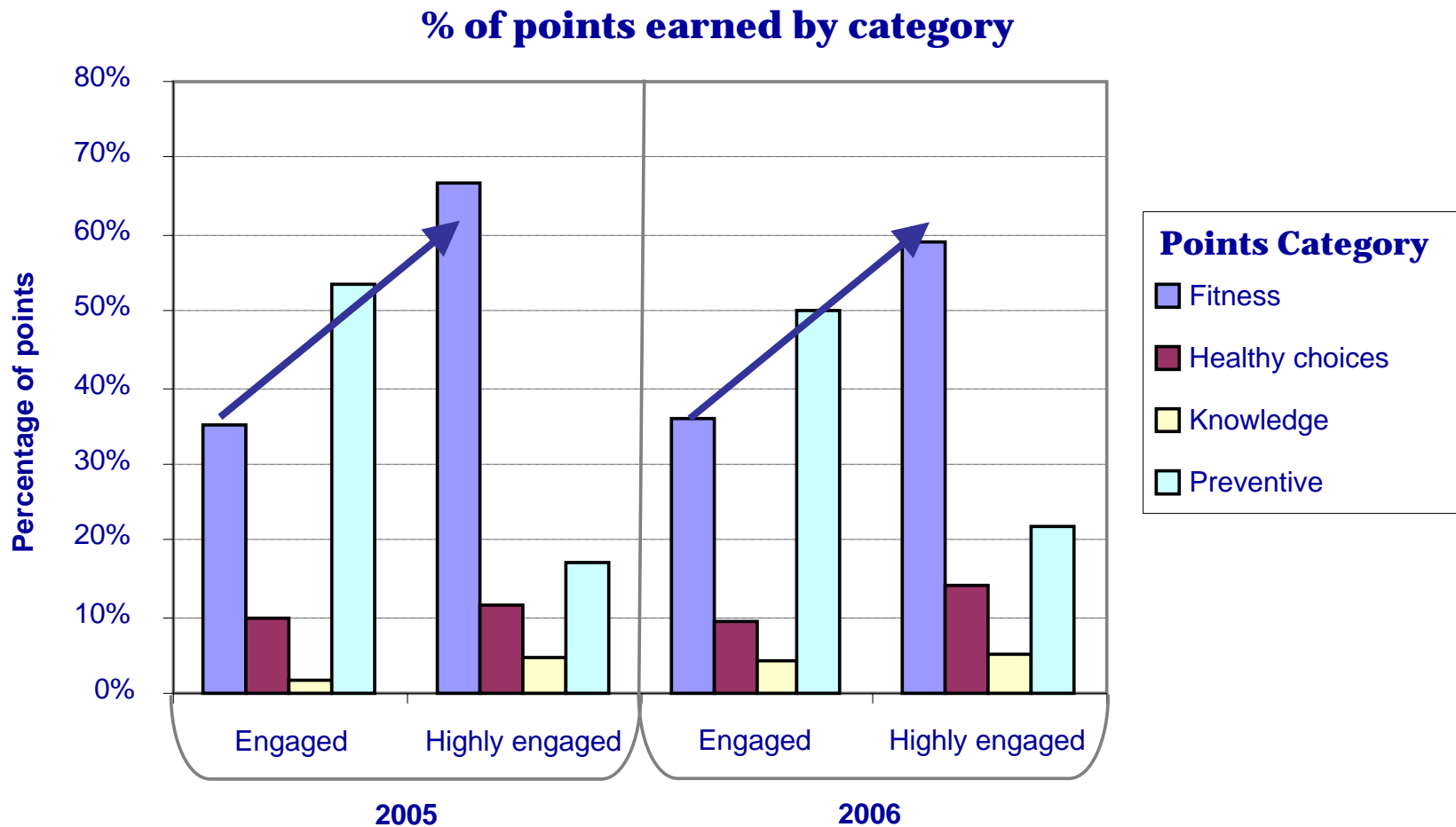
	2006		
	Beneficiaries	% of total beneficiaries	% of Vitality beneficiaries
Not on Vitality	357,840	37.70%	n/a
No Points Earned	207,728	21.90%	35.14%
Vitality Engaged	293,208	30.90%	49.60%
Vitality Highly Engaged	90,198	9.50%	15.26%
Total	948,974		

Age distribution by Vitality engagement

Age distribution 2006



Correlation between Fitness engaged and Vitality engaged



Fitness Status

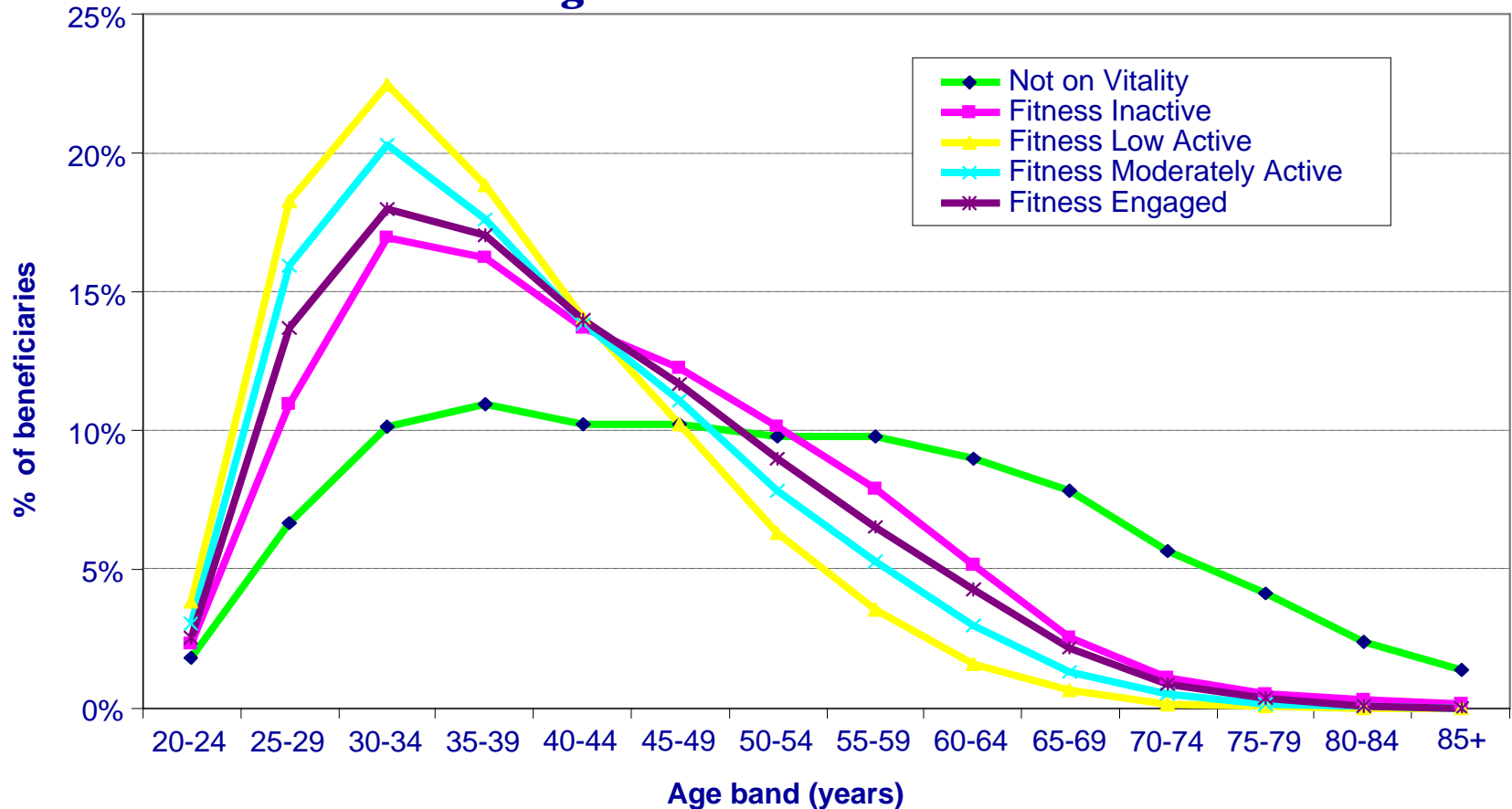
- **FE:** Fitness engaged (at least 5000 SA Active points or more than 48 gym visits per annum)
- **FMA:** Fitness medium active (24 to 48 gym visits per annum)
- **FLA:** Fitness low active (4 to 24 gym visits per annum)
- **FIA:** Fitness inactive (3 or less gym visits per annum)
- **Not:** Not on Vitality Programme

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		

Age distribution by Fitness engagement

Age distribution 2006



Selection of covariates for adjustment of means

2006 Amount-All beneficiaries		
Order	Variable	Importance
1	Chronic Status	1.00
2	Age	0.45
3	Gender	0.25
4	Area	0.17
5	Vitality Engaged Status	0.14
6	Plan	0.13
7	Fitness Engaged Status	0.09

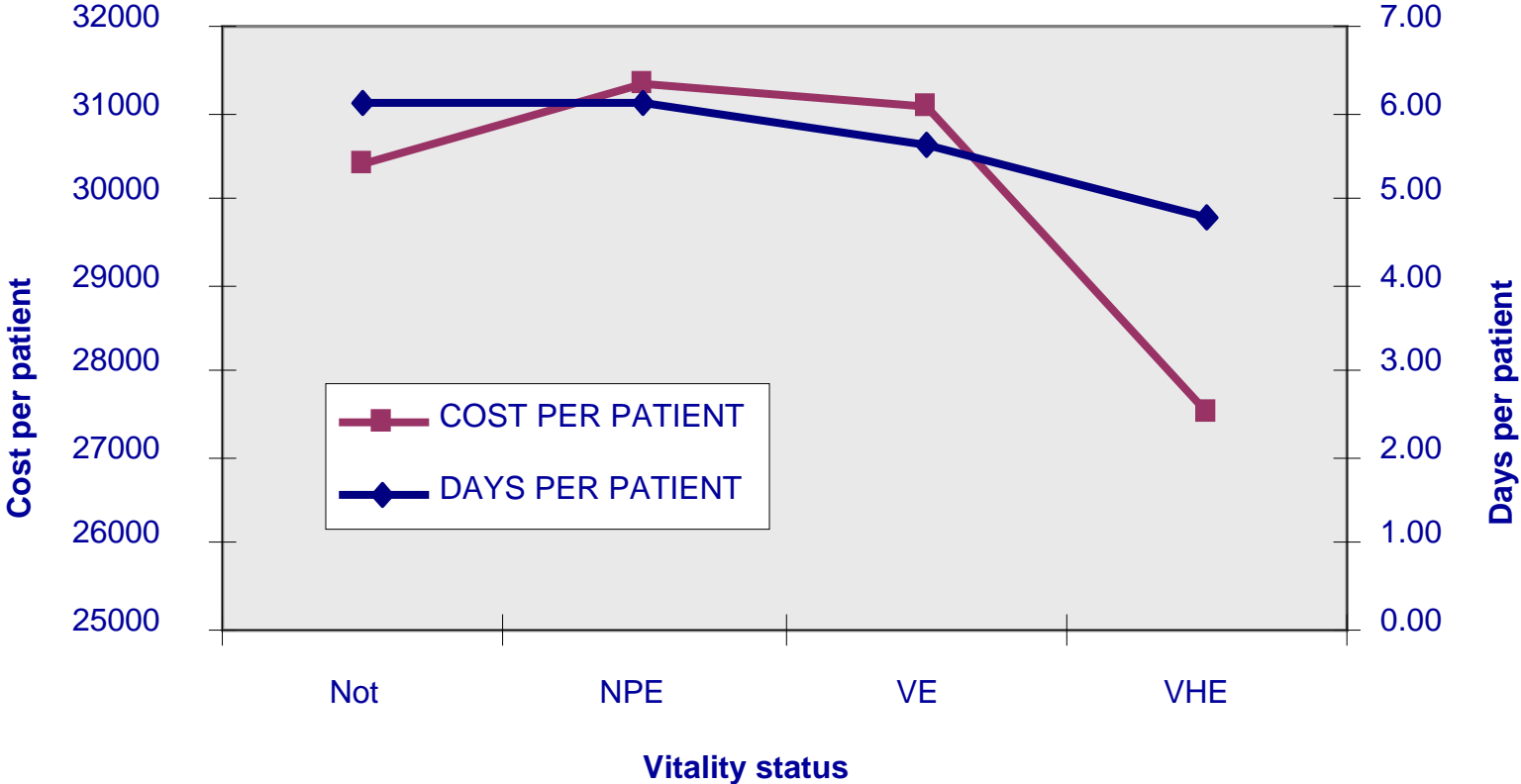
Calculation of adjusted means

- Use covariates to normalise the population in each group
- Hypothetical population with same profile in terms of age/gender/region/plan/chronic status
- Methodology:
 - For each category comparison consider homogeneous groups (according to covariates)
 - Construct an aggregate by weighting the homogeneous groups the same
 - Weightings for comparison differ from actual weightings and so absolute values of statistics compared (eg average length of stay) differ from actual.

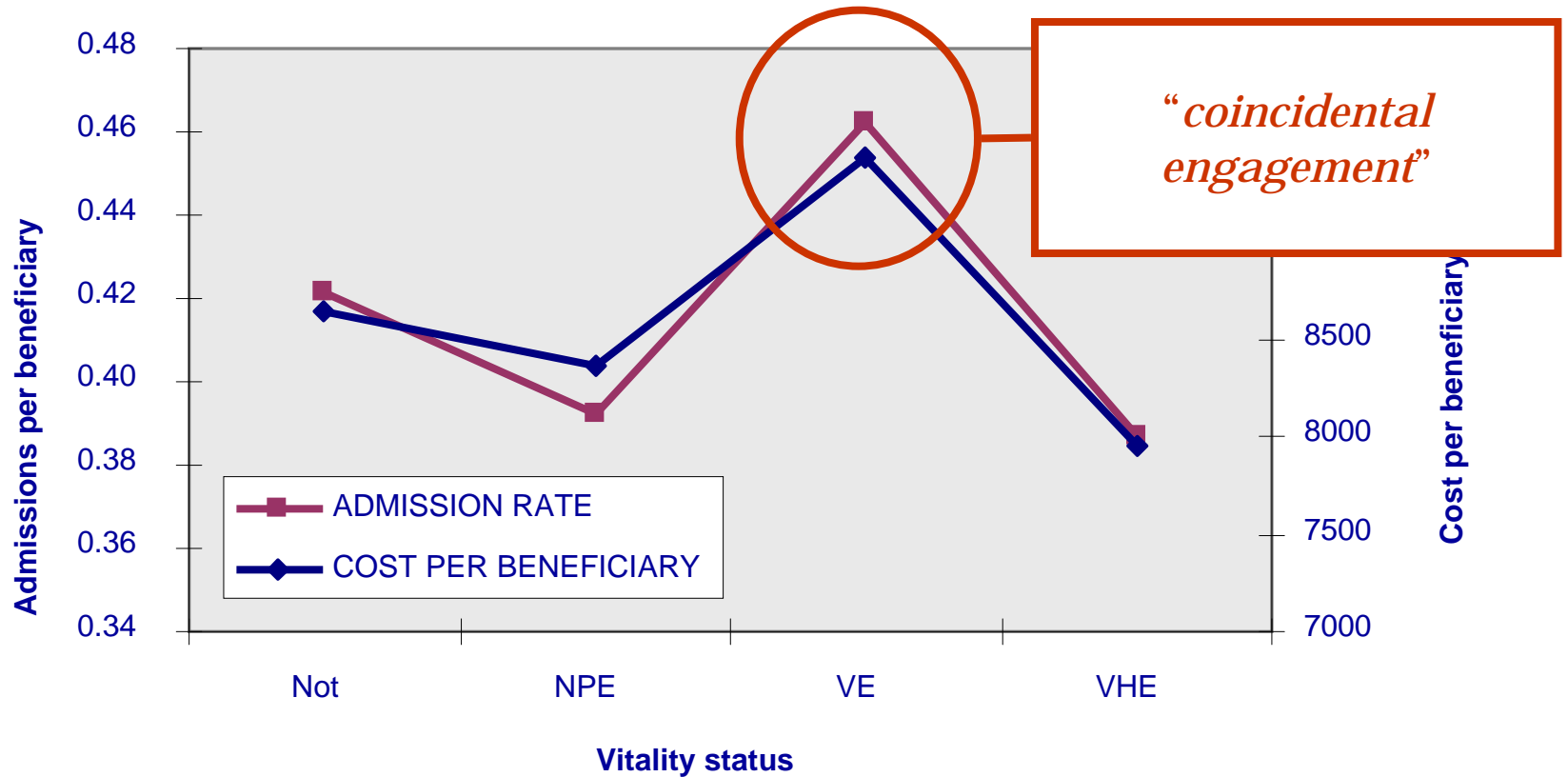
Analysis of hospital experience

- Hospital experience by Vitality engagement and Fitness engagement was considered after adjusting for covariates
- Isolates the differences due to engaged status rather than profile differences
- Focus on relative differences rather than absolute values
- Per Patient and per Beneficiary analysis (treatment of zeros)

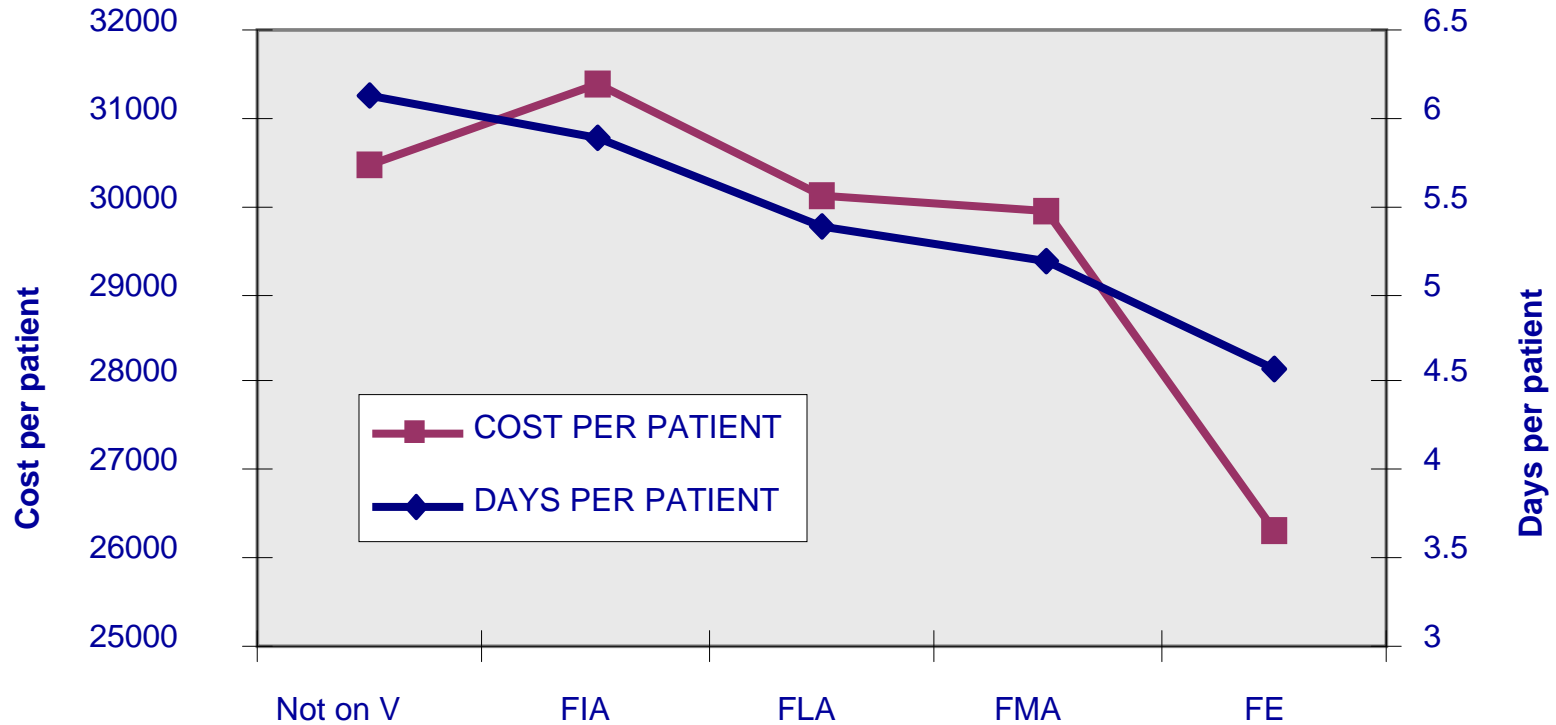
Hospital experience by Vitality Status: Per Patient



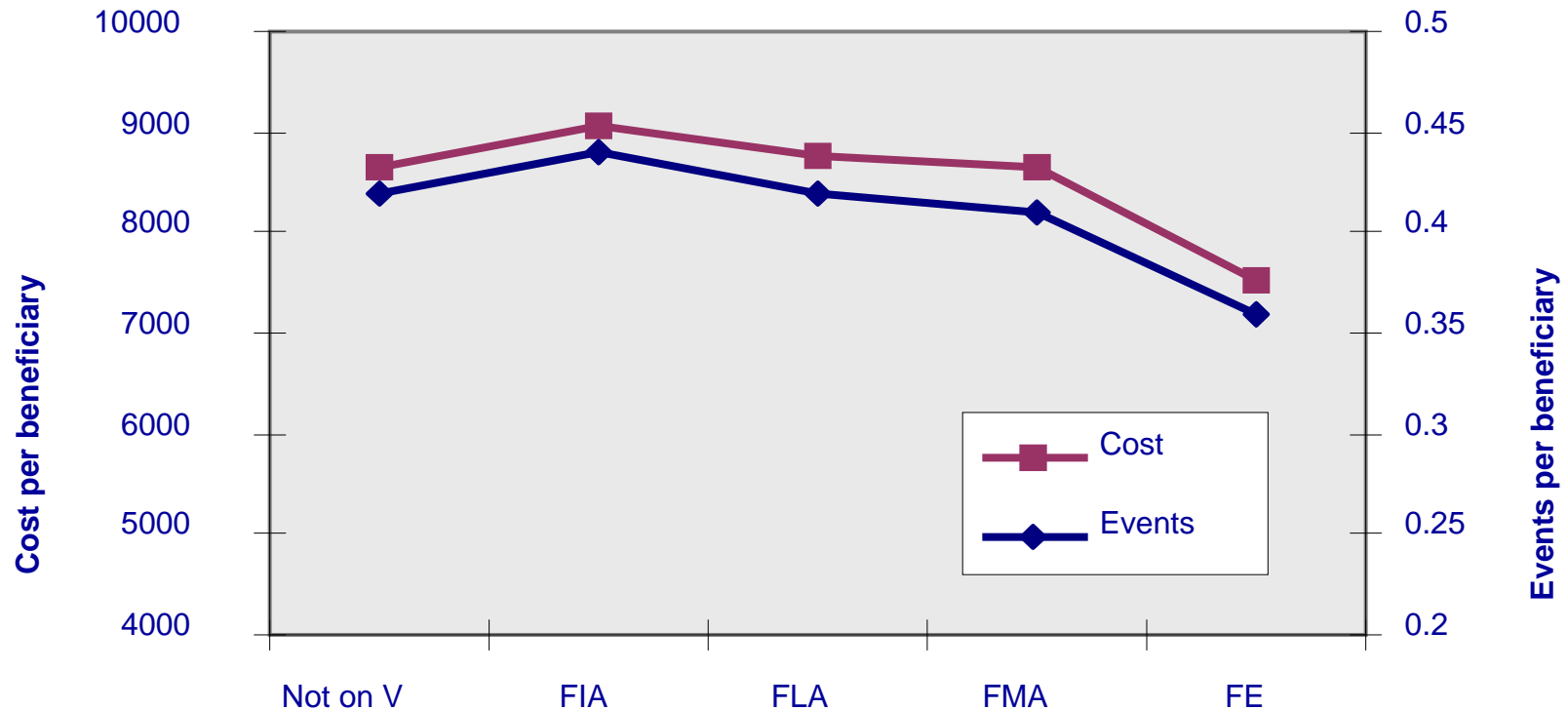
Hospital experience by Vitality Status: Per Beneficiary



Hospital experience by Fitness engagement: Per Patient



Hospital experience by Fitness engagement: Per Beneficiary



Considering the highest level of engagement

- **95% Confidence Intervals for Reduction in Hospital Admission Rates**

2006	Lower	Estimate	Upper
VHE vs. Others	8.81%	9.95%	11.09%
FE vs. Others	14.61%	15.90%	17.18%

Diagnosis-related groupings

- Need to consider admission types
- Can be correlated with chronic conditions
- Diagnostic related groups defined according to primary ICD10 coding
- Vitality clinical team further categorized certain admissions into those that could be affected by behavioral change (termed “direct” with the balance of the DRG termed “other”)
- Category analysis included ALL admissions.

Reduction in admission rates per diagnostic grouping

	Vitality Highly Engaged vs. all other	Fitness Engaged vs. all other
Cardiovascular (direct)	7.4% ***	8.0% ***
Cardiovascular (other)	Ns	Ns
Digestive	5.6% ***	11.8% ***
Nervous and Musculoskeletal System	15.6% ***	15.8 ***
Nervous (other)	17.0% ***	20.9% ***
Musculoskeletal (other)	Ns	Ns
Cancer	13.2% **	35.4% ***
Kidney and Urinary Tract	16.6% ***	20.3% ***
Respiratory (direct)	20.1% ***	18.7% ***
Respiratory (other)	21.0% ***	21.9% ***
Mental (direct)	36.2% ***	34.6% ***
Mental (other)	21.8% **	21.4% **
Endocrine, Nutritional and Metabolic (direct)	20.7% ***	20.0% ***
Endocrine, Nutritional and Metabolic (other)	Ns	15.9% **
Overall	10.0% ***	15.9% ***

Conclusions

- Higher level of engagement is associated with lower claims costs particularly for
 - Cardiovascular
 - Nervous and musculoskeletal
 - Mental
 - Endocrine, nutritional and metabolic
- “Direct” groups had highest levels of significance
- Trends clearer for Fitness status, especially highly engaged
- Some distortion on screening under Vitality due to chronic management
- Key differences are in admission rates

Next steps

- Problem of selection vs. behavioural change is not addressed by cross-sectional analysis
- Chronic indicator is highest covariate – separate analysis
- Longitudinal analysis to investigate causation is underway
- Collaborative work with social scientists

Acknowledgements

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