



Actuarial Model for Wellness SURVEY RESULTS – APPENDIX II

Appendix II: Summary of Survey Results
Responses to the SOA - Administered Actuarial Wellness Model Survey
 (Note "N" refers to the number of responses to each question or sub-question)

1. How familiar are you with wellness actuarial models? Check all that apply.	
N	398
I design actuarial models for wellness	10.55%
I work with and / or improve actuarial wellness models	15.33%
I analyze actuarial wellness model outcomes	23.37%
I do not work directly with actuarial wellness models, but am interested in such a model	64.32%
Not applicable / not interested in actuarial wellness models	6.03%

2. For models you have used or currently use, what has been your involvement? Check all that apply.	
N	237
Determining ROI of wellness	48.95%
Adjusting valuation tables	3.38%
Helping individuals understand implications of lifestyle behaviors	29.54%
Designing wellness incentive programs	40.51%
Demonstrating impact	47.68%
Other, please describe	6.33%
Not applicable	28.27%
For Responses of "Other":	
<u>Tally</u>	<u>Text Responses</u>
3	Estimate the value of incentives / cost of programs to address socioeconomic determinants of health
3	Creating the model itself, for ourselves or our clients, showing ROI to our own firm
3	Reviewing other actuarial work, explain to others
2	Identifying members at risk to target for programs

3. For models you have used or currently use, which of the following are important factors? Check all that apply.	
N	200
Environmental factors (e.g., demographics, genetics, physical environment, socioeconomic status, education, culture)	55.50%
Lifestyle factors (e.g., diet/nutrition/healthy eating, exercise/physical activity/fitness, stress/anxiety, addictive behavior, risky lifestyle, sleep)	71.50%
Risk condition prevalence and cost (e.g., obesity, hyperlipidemia, hypertension, hyperglycemia, anxiety/depression)	74.00%
Disease state prevalence and cost (e.g., diabetes, heart disease, asthma/COPD, stroke/kidney disease, cancer)	73.50%
Health morbidity and cost	66.00%
Presenteeism impact and productivity cost	30.50%
Absence prevalence and cost	32.50%
Litigation/accident/property loss prevalence and cost	3.00%
Workplace injury prevalence and workers' compensation cost	13.50%
Disability incidence and cost	25.00%
Loss of activities of daily living and long-term care cost	11.00%
Mortality impact and life insurance, retirement and retiree medical cost	14.50%
Other, please describe	9.50%
For Responses of "Other":	
<u>Tally</u>	<u>Text Responses</u>
7	Not Applicable
1	DNA / genetics
1	Dental costs
1	Risk scores based on claims
1	Business outcomes
1	Behavioral factors and engagement
1	Participation in wellness plan
All other responses not tallied are individual responses.	

4. For models you have used or currently use, do you use lifestyle behaviors / health risks to adjust the following insurance premiums? Check all that apply.	
N	153
Medical	80.39%
Short term disability	5.88%
Long term disability	5.23%
Life insurance	6.54%
Workers' compensation	3.27%
Property/liability	0.00%
Other, please describe	15.03%
For Responses of "Other":	
<u>Tally</u>	<u>Text Responses</u>
12	Not Applicable
3	Still need to adjust for impact of dental care
2	Yes, impacts medical underwriting
All other responses not tallied are individual responses.	

5. When using future wellness models, on a scale of 1 to 5, please rate the likelihood you will:																		
Question	N	Average	Std Dev	Do Not Know	% Least Likely (1 or 2)	% Neutral (3)	% Likely (4 or 5)	Differential										
Determine ROI of wellness	216	4.11	1.07	5.1%	8.8%	7.4%	78.7%	69.9%										
Adjust valuation tables	200	1.65	1.31	20.0%	58.0%	8.5%	13.5%	-44.5%										
Help individuals understand implications of lifestyle behaviors	213	3.35	1.32	6.6%	19.2%	19.2%	54.9%	35.7%										
Design wellness incentive programs	216	3.87	1.19	3.7%	12.0%	15.7%	68.5%	56.5%										
Demonstrate impact	215	4.30	0.85	3.7%	4.2%	6.0%	86.0%	81.9%										
Other, please describe	24	0.29	1.89	87.5%	8.3%	0.0%	4.2%	-4.2%										
For Responses of "Other":																		
<table border="0"> <thead> <tr> <th><u>Tally</u></th> <th><u>Text Responses</u></th> </tr> </thead> <tbody> <tr> <td>2</td> <td>Not Applicable</td> </tr> <tr> <td>1</td> <td>Pricing / underwriting</td> </tr> <tr> <td>1</td> <td>Analysis of population / risk scoring / data mining</td> </tr> <tr> <td>1</td> <td>"Wellness does not have proven value, so this project is feeding the latest gimmick of the EB consulting firm."</td> </tr> </tbody> </table>									<u>Tally</u>	<u>Text Responses</u>	2	Not Applicable	1	Pricing / underwriting	1	Analysis of population / risk scoring / data mining	1	"Wellness does not have proven value, so this project is feeding the latest gimmick of the EB consulting firm."
<u>Tally</u>	<u>Text Responses</u>																	
2	Not Applicable																	
1	Pricing / underwriting																	
1	Analysis of population / risk scoring / data mining																	
1	"Wellness does not have proven value, so this project is feeding the latest gimmick of the EB consulting firm."																	

6. When using future wellness models, on a scale of 1 to 5, please rate the likelihood you will need the following factors:

Question	N	Average	Std Dev	Do Not Know	% Least Likely (1 or 2)	% Neutral (3)	% Likely (4 or 5)	Differential
Environmental factors (e.g., demographics, genetics, physical environment, socioeconomic status, education, culture)	212	3.92	1.17	4.2%	11.8%	13.7%	70.3%	58.5%
Lifestyle factors (e.g., diet/nutrition/healthy eating, exercise/physical activity/fitness, stress/anxiety, addictive behavior, risky lifestyle, ...)	215	4.37	0.84	2.8%	3.3%	9.3%	84.7%	81.4%
Risk condition prevalence and cost (e.g., obesity, hyperlipidemia, hypertension, hyperglycemia, anxiety/depression)	215	4.46	0.72	3.3%	1.4%	6.5%	88.8%	87.4%
Disease state prevalence and cost (e.g., diabetes, heart disease, asthma/COPD, stroke/kidney disease, cancer)	215	4.50	0.71	2.8%	1.4%	6.0%	89.8%	88.4%
Health morbidity and cost	212	4.24	0.93	4.7%	4.7%	9.4%	81.1%	76.4%
Presenteeism impact and productivity cost	207	3.11	1.31	5.3%	25.6%	26.1%	43.0%	17.4%
Absence prevalence and cost	204	3.10	1.26	5.4%	26.0%	25.5%	43.1%	17.2%
Litigation/accident/property loss prevalence and cost	189	1.59	0.93	10.6%	70.9%	13.2%	5.3%	-65.6%
Workplace injury prevalence and workers' compensation cost	194	2.10	1.23	6.2%	60.3%	17.0%	16.5%	-43.8%
Disability incidence and cost	199	2.67	1.41	6.0%	42.7%	19.1%	32.2%	-10.6%
Loss of activities of daily living and long-term care cost	192	2.19	1.30	8.3%	51.6%	20.8%	19.3%	-32.3%
Mortality impact and life insurance, retirement and retiree medical cost	190	2.19	1.35	8.4%	53.2%	17.4%	21.1%	-32.1%
Other, please describe	29	0.86	1.29	75.9%	3.4%	6.9%	13.8%	10.3%

For Responses of "Other":

Tally Text Responses

Not enough significant responses - only two text comments.

7. When using future wellness models, on a scale of 1 to 5, please rate the likelihood you will use lifestyle behaviors/health risks to adjust the following insurance premiums:								
Question	N	Average	Std Dev	Do Not Know	% Least Likely (1 or 2)	% Neutral (3)	% Likely (4 or 5)	Differential
Medical	207	4.10	1.15	6.8%	8.2%	6.8%	78.3%	70.0%
Short term disability	187	2.05	1.34	16.0%	42.8%	22.5%	18.7%	-24.1%
Long term disability	186	1.92	1.30	17.7%	44.1%	23.7%	14.5%	-29.6%
Life insurance	187	1.75	1.39	17.6%	52.9%	13.9%	15.5%	-37.4%
Workers' compensation	180	1.43	1.17	18.9%	61.7%	11.7%	7.8%	-53.9%
Property/liability	178	0.99	0.63	23.6%	69.1%	7.3%	0.0%	-69.1%
Other, please describe	37	0.78	1.66	67.6%	18.9%	5.4%	8.1%	-10.8%
For Responses of "Other":								
<u>Tally</u>		<u>Text Responses</u>						
3		Impact of dental care should be taken into account (source is dental insurance company)						
All other responses not tallied are individual responses.								

8. Please describe the models with which you are familiar. Consider all models when answering.	
<u>Tally</u>	<u>Text Responses</u>
11	None
7	Internal to own company - to measure ROI of vendor programs
6	Univ. of Michigan / Dee Eddington migration model (risk factor scoring)
5	Pre & Post Models / Cohort Matching
5	Homegrown models - unique to situations
3	Milliman's Health Cost Guidelines / Medical Benefits Relativities
3	Health Risk Assessment models
3	Medical underwriting / healthcare pricing / financial projection
2	HERO Health Risk Cost
Several mentioned industry-related models (life insurance, pension, disease state, etc.).	
Mentioned names of specific models include: Optum, Johns Hopkins, Gallup, Ingenix, Kenexa, MediSave, StayWell, Thompson Reuters, CHAT by NIH, CHD, Insignia, MONAHRQ, WellScore, DxCG Risk Adjustment model, Medicare HCC, Prometheus, Al Lewis's Plausibility model, Ipro, and more.	

9. What sources of data may be available to support the development of an actuarial model?

Tally	Text Responses
36	Internal company claims / diagnostic / proprietary data
14	Health Risk Assessment Data (HRA)
10	Biometric Data
9	Demographics
7	Disease Mgmt / Wellness participation data / incentives use
6	Health status factors / predictive modeling scores
5	Data from vendors
5	STD / LTD claims
5	Not applicable
4	CDC weekly mortality & morbidity reports / public record data
4	Presenteeism / absenteeism / leave data

Other interesting data sources are: Time 1 risk factors, Time 2 risk factors, Life insurance underwriting data, clinical models, Vitality Group data, Dee Eddington research model data, disease mgmt. cost and prevalence data, BCBS (would share if good model arises), SEERS data, HEDIS data, NHANES data, CAHPS data, BRFS data, EBRI, and many more listed. There were certainly not many prevalent, repeated data sources, but many varied ideas we would have to investigate further.

10. On a scale of 1 to 5, how well does the conceptual model capture the following?

Question	N	Average	Std Dev	Do Not Know	% Does Not Capture (1 or 2)	% Neutral (3)	% Does Capture (4 or 5)	Differential
Environmental factors	181	3.38	1.04	17.1%	8.3%	12.2%	62.4%	54.1%
Lifestyle factors	180	3.53	0.93	16.7%	5.0%	8.9%	69.4%	64.4%
Risk conditions	179	3.50	0.82	16.8%	2.8%	11.2%	69.3%	66.5%
Disease states	182	3.48	0.83	16.5%	1.6%	15.9%	65.9%	64.3%
Actuarial outcomes	181	3.52	0.85	17.1%	3.9%	8.8%	70.2%	66.3%
Actuarial impacts	177	3.56	0.84	16.9%	2.8%	12.4%	67.8%	65.0%
Progression of health	175	3.10	1.05	21.7%	6.3%	17.7%	54.3%	48.0%

11. What suggested additions/revisions to the conceptual model do you have?

Tally	Text Responses
11	Non-answer / N/A
4	Increased emphasis, and definition, of cultural impact of work (culture) and home (culture)
3	Account for interdependencies / cannot measure causation
3	Individual decisions, compliance with preventive care guidelines
2	Impacts of wellness programs, change the course of health progression (progression is not linear)
2	Traumatic injuries due to risky behavior (seatbelts, helmets)
2	Smoker data, BMI data, and exercise data
2	Income data
2	Industry (work) description
2	Levels of disease severity (as a progression, such as well->absence of disease->disease->death)
2	Provider culture in region
2	Depression as a risk condition or disease state (can be either)
2	Educational disparity

And some of the individual responses that were interesting include: dental and vision data, impact of physical and biometric data under lifestyle factors, metrics layers under each item in the chart such as BMI and neck circumference under obesity, probability of return to work data, clinical / quality indicators such as emergency room utilization or % getting physicals, risk score description / methodology, timing of impact on medical cost, social interactions / relationships, should split health costs between EE and employer / insurer and government expense, impact of air and water pollution, and incorporate access disparity. There are more ideas, some are less feasible / more difficult to incorporate.

12. On a scale of 1 to 5, how feasible do you believe it is to factor in the impact of wellness into an actuarial model for your area of practice?

Question	N	Average	Std Dev	Do Not Know	% Least Feasible (1 or 2)	% Neutral (3)	% Most Feasible (4 or 5)	Differential
Feasibility	191	3.68	0.96	2.6%	9.9%	25.7%	61.8%	51.8%

13. If an actuarial model could demonstrate impact, how important is it to reflect the impact of wellness for your area of practice? Please rate on a scale of 1 to 5.

Question	N	Average	Std Dev	Do Not Know	% Least Important (1 or 2)	% Neutral (3)	% Most Important (4 or 5)	Differential
Important	191	4.18	0.93	1.0%	6.8%	7.3%	84.8%	78.0%

14. On a scale of 1 to 5, how important is each role of actuaries in wellness?

Question	N	Average	Std Dev	Do Not Know	% Least Important (1 or 2)	% Neutral (3)	% Most Important (4 or 5)	Differential
Establishing standards of evaluation	188	3.99	0.90	4.3%	3.2%	17.6%	75.0%	71.8%
Modeling financial impact	185	4.61	0.53	2.2%	0.5%	2.2%	95.1%	94.6%
Determining ROI	188	4.31	0.77	3.7%	3.2%	6.9%	86.2%	83.0%
Modeling financially viable programs	188	4.28	0.77	2.7%	1.6%	12.2%	83.5%	81.9%
Externally validating and reviewing other models, ROI, or savings calculations	184	4.08	0.82	3.8%	2.7%	13.6%	79.9%	77.2%
Understanding impact on morbidity, mortality, disability, or other loss	186	4.14	0.84	2.7%	2.7%	14.0%	80.6%	78.0%
Communicating results/impact to the public and to executive leadership	187	4.03	0.88	3.2%	3.7%	18.2%	74.9%	71.1%
Helping people understand the implications of their behaviors	186	3.36	1.14	3.2%	19.4%	32.8%	44.6%	25.3%
Other, please describe	20	1.10	1.49	70.0%	5.0%	10.0%	15.0%	10.0%

For Responses of "Other":

Tally	Text Responses
1	Soft impact, morale, etc. needs to be taken into account
1	Implement as risk control to stabilize financial performance

15. What type of organization do you belong to? Check

N	192
Brokerage Firm	4.17%
Consulting Firm	34.38%
Financial/Investing Firm	0.00%
Government Agency	3.13%
Insurance Company	52.60%
Pharmacy Benefits Management	1.04%
Wellness Provider	7.81%
Other	7.29%

For Responses of "Other":

Tally	Text Responses
2	Data warehousing and analytics
2	Health providers
1	Disease Mgmt firm
1	EAP

There are several other responses, some of which apply less to the results than others.

16. What are your areas of practice? Check all that apply.	
N	194
Academic	0.52%
Disability	12.37%
Finance/Investment	4.64%
Health	93.30%
Life Insurance	10.82%
P&C	0.00%
Regulatory	3.09%
Retirement/Pension	6.70%
Risk Management	6.70%
Retired Actuary	0.00%
Non-Traditional, please describe	3.09%

For Responses of "Non-Traditional":

<u>Tally</u>	<u>Text Responses</u>
1	Responded as wellness, could have selected health
1	Responded as Medicare suppliment, could have selected health
1	Responded as EAP & wellness, could have selected health
1	Responded as health policy, could have selected health or legal

And a couple other responses.

17. What roles do you play? Check all that apply.	
N	194
Business Development	25.26%
Consultant	48.97%
Financial/Retirement Planner	1.03%
Investment Advisor	0.00%
Product Development	43.30%
Risk Advisor	21.13%
Underwriter	11.86%
Valuation Actuary	20.10%
Not an Actuary	4.12%
Not Mentioned	21.13%
Other	21.13%

For Responses of "Other":

<u>Tally</u>	<u>Text Responses</u>
11	Pricing Actuary (could have responded as underwriter, but feel this is different role)
8	Analyst / claims experience analysis / research
5	Chief Actuary
4	Trend forecasting & medical management analysis
3	General / appointed Actuary
3	Directors / Managers / Sr. Director HR

Many other responses, none that were prevalent.

18. Which of the following best describes the size of your current employer?	
N	193
1 to 49 Employees	10.36%
50 to 199 Employees	9.33%
200 to 999 Employees	7.77%
1,000 to 9,999 Employees	34.72%
10,000 or more Employees	37.31%
Not currently employed	0.52%

Question 19 - Comments:

15 responses were positive.
3 responses were negative (from 3 different people).
11 responses were "no feedback".

Positive / Constructive Feedback Included:
Include "emotions" in the analysis (mental health)
Dental and vision should be included in impact to medical
Should send this to broader group of actuaries
Worksite wellness / clinics impact should be looked into
Consider determining the value of the investment rather than the ROI
Need to develop ASOP on evaluation of wellness and behavioral change