

### Risk Management Model for Disease Management ROI - Asthma

Risk Level	Penetration Percentage	Number of Members (Marginal)	Event Rate	Expected Events	Cost per Event (average)	Events Avoided Rate	Events Avoided	Gross Savings	Cumulative Gross Savings	Cumulative Expenses (as % of program)	Cumulative Net Savings	Return on Partial Investment
High	4%	22	182%	41	\$ 487,999	1.35%	0.5	\$ 267,620	\$ 267,620	\$ 10,375	\$ 257,245	<b>25.79</b>
	8%	22	182%	41	\$ 7,277	1.35%	0.5	\$ 3,991	\$ 271,610	\$ 20,750	\$ 250,860	<b>13.09</b>
	11%	17	182%	30	\$ 4,013	1.35%	0.4	\$ 1,651	\$ 273,261	\$ 28,531	\$ 244,730	<b>9.58</b>
Moderate	15%	22	137%	31	\$ 2,751	2.00%	0.6	\$ 1,683	\$ 274,944	\$ 38,906	\$ 236,038	<b>7.07</b>
	20%	28	137%	38	\$ 2,195	2.00%	0.8	\$ 1,678	\$ 276,622	\$ 51,875	\$ 224,747	<b>5.33</b>
	25%	28	137%	38	\$ 1,791	2.00%	0.8	\$ 1,369	\$ 277,991	\$ 64,844	\$ 213,147	<b>4.29</b>
	30%	28	137%	38	\$ 1,433	2.00%	0.8	\$ 1,096	\$ 279,086	\$ 77,812	\$ 201,274	<b>3.59</b>
	35%	28	137%	38	\$ 1,108	2.00%	0.8	\$ 847	\$ 279,933	\$ 90,781	\$ 189,153	<b>3.08</b>
	40%	28	137%	38	\$ 910	2.00%	0.8	\$ 695	\$ 280,629	\$ 103,750	\$ 176,879	<b>2.70</b>
	45%	28	137%	38	\$ 745	2.00%	0.8	\$ 569	\$ 281,198	\$ 116,718	\$ 164,480	<b>2.41</b>
	52%	39	137%	54	\$ 566	2.00%	1.1	\$ 606	\$ 281,804	\$ 134,874	\$ 146,929	<b>2.09</b>
Low	57%	28	137%	38	\$ 426	2.00%	0.8	\$ 326	\$ 282,129	\$ 147,843	\$ 134,286	<b>1.91</b>
	60%	17	127%	21	\$ 342	2.25%	0.5	\$ 164	\$ 282,293	\$ 155,624	\$ 126,668	<b>1.81</b>
	65%	28	127%	35	\$ 272	2.25%	0.8	\$ 217	\$ 282,510	\$ 168,593	\$ 113,916	<b>1.68</b>
	70%	28	127%	35	\$ 211	2.25%	0.8	\$ 168	\$ 282,678	\$ 181,562	\$ 101,116	<b>1.56</b>
	75%	28	127%	35	\$ 158	2.25%	0.8	\$ 126	\$ 282,803	\$ 194,531	\$ 88,273	<b>1.45</b>
	80%	28	127%	35	\$ 118	2.25%	0.8	\$ 94	\$ 282,897	\$ 207,499	\$ 75,398	<b>1.36</b>
	85%	28	127%	35	\$ 88	2.25%	0.8	\$ 70	\$ 282,968	\$ 220,468	\$ 62,500	<b>1.28</b>
	90%	28	127%	35	\$ 68	2.25%	0.8	\$ 54	\$ 283,022	\$ 233,437	\$ 49,585	<b>1.21</b>
	95%	28	127%	35	\$ 51	2.25%	0.8	\$ 40	\$ 283,062	\$ 246,405	\$ 36,657	<b>1.15</b>
	100%	28	127%	35	\$ 21	2.25%	0.8	\$ 17	\$ 283,079	\$ 259,374	\$ 23,704	<b>1.09</b>
<b>Total</b>	<b>100%</b>	<b>558</b>		<b>768</b>		<b>2.01%</b>	<b>15.4</b>	<b>\$ 207,556.19</b>	<b>\$ 283,078.52</b>	<b>\$ 259,374.03</b>	<b>\$ 23,704.49</b>	<b>1.09</b>

Risk Level: Based on Disease Management data from February 2011

Penetration Percentage: Based on Disease Management data from February 2011

Number of Members (Cumulative): Disease Management number, February 2011

Event Rate: Calculated from MPI Admissions data; Number of Admissions/Number of Members for each disease

Expected Events: Event Rate multiplied by Number of Members

Cost per Event: Based on all available MPI Claims data, broken down by percentile, average of percentile was used

Events Avoided Rate: Is calculated from the actual change in number of events over time and stratified over the severity levels.

Gross Savings: Cost per Event multiplied by Events Avoided multiplied by Expected Events

Cumulative Gross Savings

Cumulative Expenses: Totals \$1.5 Million, "as percentage of program" multiplies \$1.5M by ratio of disease to total

Cumulative Net Savings: Cumulative Gross Savings less Cumulative Expenses

Return on partial investment: Cumulative Gross Savings divided by Cumulative Expenses as % of program

Model based on Economic ROI Model for Disease Management Programs by Ian Duncan, FSA, MAAA, FCIA, FIA