

Additional File 4: Summary of the outcomes

Author, year	Program	Outcome measure	Outcome in detail	Results	Effect measure
Studies on financial incentives					
An et al., 2013	Cash-back for healthy food program	Self-reported measures of food consumption and weight status (BMI)	Increase in daily fruits and vegetables consumption by (10% discount) Increase in daily fruits and vegetables consumption by (25% discount) More likely to have three or more servings of wholegrain foods daily (10% discount) More likely to have three or more servings of wholegrain foods daily (25% discount) Less likely to regularly have foods high in sugar (10% discount) Less likely to regularly have foods high in sugar (25% discount) Less likely to regularly have foods high in salt (10% discount) Less likely to regularly have foods high in salt (25% discount) Less likely to regularly have fried food (10% discount) Less likely to regularly have fried food (25% discount) Less likely to regularly have processed food (10% discount) Less likely to regularly have processed food (25% discount) Less likely to regularly have fast food (10% discount) Less likely to regularly have fast food (25% discount) Statistically significant association between lower obesity and 25% discount	0.38 (servings) 0.64 (servings) 2.05 (OR) 2.96 (OR) 0.73 (OR) 0.35 (OR) 0.59 (OR) 0.26 (OR) 0.53 (OR) 0.26 (OR) 0.71 (OR) 0.33 (OR) 0.54 (OR) 0.28 (OR) 0.86 (OR)	(95% CI: 0.37 – 0.39) (95% CI: 0.62 – 0.65) (95% CI: 1.97 – 2.13) (95% CI: 2.84 – 3.08) (95% CI: 0.69 – 0.76) (95% CI: 0.34 – 0.37) (95% CI: 0.55 – 0.62) (95% CI: 0.25 – 0.28) (95% CI: 0.50 – 0.55) (95% CI: 0.25 – 0.27) (95% CI: 0.68 – 0.74) (95% CI: 0.31 – 0.34) (95% CI: 0.51 – 0.56) (95% CI: 0.27 – 0.29) (95% CI: 0.81 – 0.91)
Patel et al., 2011	Vitality health promotion program	Changes in the participation in activities on fitness, and hospital admissions	Percentage of inactive (years 1-5) Percentage of low-active (years 1-5) Percentage of medium-active (years 1-5) Percentage of high-active (years 1-5) Probability of hospital admissions per number of additional gym visits per week 1+ every 2 weeks 1+ per week 3+ every 2 weeks 2+ per week	0.58 (OR) 1.04 (OR) 1.63 (OR) 1.26 (OR) 0.97 (OR) 0.93 (OR) 0.90 (OR) 0.87 (OR)	(95% CI: 0.57-0.58) (95% CI: 1.02-1.07) (95% CI: 1.6-1.65) (95% CI: 1.25-1.28) (95% CI: 0.95-0.97) (95% CI: 0.90-0.93) (95% CI: 0.85-0.90) (95% CI: 0.80-0.87)
Patel et al., 2010	Vitality physical activity	Hospital admissions	Admission rate per member (Not registered) compared to others Admission rate per member (Not Engaged) compared to others Admission rate per member (Lowly Engaged) compared to others Admission rate per member (Highly Engaged) compared to others Difference in admission rates between highly engaged and others (cancer) Difference in admission rates between highly engaged and others (cardiovascular diseases) Difference in admission rates between highly engaged and others (endocrine and metabolic) Difference in admission rates between highly engaged and others (musculoskeletal)	0.42 (p<0.001) 0.39 (p n.s.) 0.46 (p<0.001) 0.39 (p n.s.) -13.17% (p<0.01) -7.37% (p<0.0001) -20.66% (p<0.0001) -15.60% (p<0.0001)	(95% CI: 0.419-0.425) (95% CI: 0.388-0.396) (95% CI: 0.459-0.466) (95% CI: 0.382-0.393) (95% CI: -3.57%- -22.63%) (95% CI: -5.49%- -9.35%) (95% CI: -14.83%- -26.53%) (95% CI: -10.67%- -20.55%)
Sturm et al., 2013	Cash-back for healthy food	Changes in healthy food purchases	Increase in the ratio of healthy to total food expenditure (10% rebate) Increase in the ratio of healthy to total food expenditure (25% rebate) Increase in the ratio of fruit and vegetables to total food expenditure (10% rebate) Increase in the ratio of fruit and vegetables to total food expenditure (25% rebate) Decrease in the ratio of less desirable to total food expenditure (10% rebate) Decrease in the ratio of less desirable to total food expenditure (10% rebate)	6.0% 9.3% 5.7% 8.5% 5.6% 7.2%	(95% CI: 5.3 - 6.8) (95% CI: 8.5- 10.0) (95% CI: 4.5- 6.9) (95% CI: 7.4- 9.7) (95% CI: 4.7- 6.5) (95% CI: 6.3- 8.1)

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Hubbert et al., 2003	Financial incentives on a weight loss program	Participation rate and weight loss	Mean attendance (no. of classes) (with incentives) Mean attendance (no. of classes) (without incentives) Proportion (%) attending ≥10 classes (with incentives) Proportion (%) attending ≥10 classes (without incentives) Proportion (%) losing ≥% body weight (with incentives) Proportion (%) losing ≥6% body weight (without incentives) Proportion attending ≥10 classes and losing ≥6% body weight (with incentives) Proportion attending ≥10 classes and losing ≥6% body weight (without incentives)	10.1± 1.8 8.2± 2.5 84% 37% 56% 20% 56% 14%	P<0.001 P<0.001 P<0.001 P<0.001 P<0.001 P<0.001 P<0.001 P<0.001
Schwartz et al., 2014	Financial incentives	Healthy food purchases	Percentage Increase in healthy grocery item purchases	3.5%	
Ball et al., 2017	The ACHIEVE (Active Choices IncEntiVE)	Changes in physical activity and sedentary behaviour	Mean (SD) leisure time physical activity (mins/week) (baseline vs. follow-up) Mean (SD) transport related physical activity (mins/week) (baseline vs. follow-up) Mean (SD) sitting (hours/day) (baseline vs. follow-up)	92.0 (118.5) vs. 344.5 (406.6) 77.9 (90.7) vs. 256.8 (318.2) 8.5 (2.5) vs. 5.4 (2.0)	P<0.001, Effect size 0.61 P<0.001, Effect size 0.56 P<0.001, Effect size 1.35
Lambert et al., 2009	Vitality – incentive based physical activity	Hospital admissions and costs	Mean no. of admissions per member (not registered) Mean no. of admissions per member (inactive) Mean no. of admissions per member (Low active) Mean no. of admissions per member (Moderate active) Mean no. of admissions per member (High active) Mean cost per member (Not registered) Mean cost per member (inactive) Mean cost per member (Low active) Mean cost per member (Moderate active) Mean cost per member (High active)	0.42 0.44 0.42 0.41 0.36 8,644 (2006 South Africa Rand) 9,075 (2006 South Africa Rand) 8,770 (2006 South Africa Rand) 8,642 (2006 South Africa Rand) 7,540 (2006 South Africa Rand)	(95% CI: 0.42-0.42) (95% CI: 0.44-0.44) (95% CI: 0.42-0.43) (95% CI: 0.40-0.42) (95% CI: 0.36-0.37) (95% CI: 8,545-8,743) (95% CI: 8,966-9,184) (95% CI: 8,560-8,980) (95% CI: 8,428-8,856) (95% CI: 7,354-7,727)
McGill et al., 2018	Australian weight loss and lifestyle modification program (Financial incentives)	Attitudes and views of participants	Percentage of participants who believed that 3-6 months incentive after a program would be helpful in weight loss maintenance Percentage who perceived non-cash incentives would motivate weight loss maintenance Percentage who perceived that cash incentives would motivate weight loss maintenance Percentage who perceived that deposit contracts would motivate weight loss maintenance Percentage who perceived that matched deposit contracts would motivate weight loss maintenance	56.9% 85.3% 77% 40.5% 48.7%	Not applicable
Studies on health coaching					
Adams et al., 2013	Health coaching	Patient satisfaction and perceived success	Percentage of those who were satisfied with the program Percentage of those who would recommend health coaching Percentage of those who were neutral about the program Percentage of self-reported respondents who attended 2 or more session compared to 1 session: Eat more healthfully Increase physical activity Improve health Improve quality of life Reduce risk of diseases	70% 71% 20% 68% vs. 54% 71% vs. 54% 79% vs. 61% 83% vs. 61% 73% vs. 51%	 P=0.04 P<0.001 P=0.005 P<0.001 P=0.10

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Koocher et al., 2001	Medical crisis counselling	Reductions in distress, hospital utilisation and costs	Reduction in anxiety scale for cancer patients who received the program Reduction in anxiety scale for cardiac patients who received the program No increases in overall medical costs	t statistic (36) = 2.107 anxiety scale- n.a. t statistic (23) =2.196 anxiety scale- n.a.	P=0.043 P=0.04
Härter et al., 2013	Health coaching	Evaluation of the coaching and process, effects on patient and physician communication	Percentage of people who were satisfied with the coaching Percentage of people who would recommend the coaching to others Percentage of people who learnt new options to influence health conditions Percentage of people who found the information was comprehensive Percentage of people who found the amount of information adequate Percentage of people who found the coaching as useful	78.3% 82.3% 53.3.% 84.8% 81.2% 67.9%	Not applicable
Schwartz et al., 2010a	Online disease management program with coaching	Medical costs and claims	Health care costs per person per year Return on investment for every dollar spent on the program	757 (2008 US\$) 9.89 (2008 US\$)	n.a.
Scuffham et al., 2019	Health coaching for disease management (CAPICHe)	Healthcare utilisation and costs	Mean estimated total cost 1-year post-intervention (intervention group) Mean estimated total cost 1-year post-intervention (control group) Same-day admission cost (intervention group) Same-day admission cost (group group) Same-day admissions per 1000 person-years (intervention group) Same-day admissions per 1000 person-years (control group)	4934 (2012AUS\$) 4868 (2012AUS\$) 468 (2012AUS\$) 508 (2012AUS\$) 530 614	(95% CI: AUS\$4823–5045) (95% CI: AUS\$4680-5058) (95% CI: 454-482) (95% CI: 484-533) (95% CI: 508-552) (95% CI: 571-657)
Lawson et al., 2013	Health coaching- telephonic	Health and behavioural outcomes	Percentage of people who met at least one lifestyle change Increase motivation among participants to change by Increase confidence among participants in ability to change Increase readiness to make change Increase in limiting fat in foods Increase in being very satisfied with physical activity level	89% 11% 15% 34% 12.8% 20.9%	Not applicable
Schmittziel et al., 2017	Wellness coaching on weight loss	Changes in weight loss	BMI trajectory after start of wellness coaching compared to baseline BMI trajectory for control group compared to baseline	-1.79 kg/m ² (negative) -0.26 kg/m ² (no change)	P<0.001 P=0.11
Harmar et al., 2010	Telephonic coaching in Chronic care management program	Hospital admission rate	Decrease in admission rate (intervention group) Increase in admission rate (control group)	6.2% 14.9%	P<0.001
Morello et al., 2016	Telephonic Complex Care Program	Hospital use and benefits paid	Mean difference of hospital admissions after 12 months to base line (intervention group) Mean difference of hospital admissions after 12 months to base line (control group) Increase in benefits paid for ancillary claims made per intervention participant in 12 months	2.4 (p<0.005) 2.3 (p<0.005) 120.45 (2013AUS\$)	(95% CI 1.1-3.6) (95% CI: 0.8-3.8)
Studies on wellness programs					
Harris, 2011	Wellness program (Healthy	Medical utilisation, health	Mean (SD) number of inpatient admissions in 2006 (program continuers vs non-continuers) Mean (SD) number of emergency department visits in 2006 (program continuers vs non-continuers)	0.06 (0.25) vs. 0.06 (0.32) 0.10 (0.39) vs. (0.12 (0.43)	P=0.436 P=0.053

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	Lifestyle rewards program)	claims, health risk behaviours	Mean (SD) claims on depression in 2006 (program continuers vs non-continuers) Mean (SD) Change in smoking status attributable to intervention- Smoke free help	0.16 (0.36) vs. 0.15 (0.36) -0.585 (0.078)	P=0.722
King et al., 2012	Health-plan sponsored fitness centers	Changes in physical activity and positive health outcomes, health utilisation	Frequency of fitness centre visits declined in year 2 of a program (year 1 vs year 2) Median for year 1 (Interquartile range) Median for year 2 (Interquartile range) Decrease in total health care costs by the end of year 2 Adjusted healthcare cost for those with 2 to <3 visits to fitness centre Adjusted healthcare cost for those with ≥ 3 visits to fitness centre	75 vs. 55 49 (11-1120) 12 (0-89) -500 (US\$ year n.a.) -1252 (US\$ year n.a.) -1309 (US\$ year n.a.)	(CI: -\$892- -\$106), p=0.01 P<0.001 P=0.001
Maeng et al., 2013	MyHealth Rewards (health plan-driven employee health and wellness program)	Impact on cardiovascular event rate and health costs	Experience of stroke (hazard ratio) Experience of myocardial infraction (hazard ratio) Percentage of cost reduction during the 2 nd and 3 rd year of the program Return on investment of the program	0.73 0.56 10-13% 1.52 (-1.99- to 5.02)	(95% CI: 0.60-0.90) (95% CI: 0.40-0.79)
Henry et al., 2016	Internet based health promotion	Reducing care gaps on haemoglobin A1c testing, pneumonia vaccination, and cancer screenings	Adjusted Odds of Care Gap Closure by the program users compared to non-users HbA1c testing Pneumonia vaccine Mammogram Pap smear Colorectal cancer screening	1.12 0.95 1.09 1.06 1.09	(95% CI: 1.06-1.18) (95% CI: 0.91-1.00) (95% CI: 1.05-1.14) (95% CI: 1.02-1.11) (95% CI: 1.06-1.12)
Frost et al., 2018	Physical activity	Participation in physical activity and changes in physical activity	Increase in % of children engaged in moderate to vigorous physical activity in 6 months Increase in % of children engaged in vigorous physical activity in 6 months Increase in % of children engaged in moderate to vigorous physical activity at 1 year from baseline Increase in % of children engaged in vigorous physical activity at 1 year from baseline	23.3% 26.2% 17.2% 33.1%	
Cheadle et al., 2018	Healthy eating, Active living	Changes in food and physical activity behaviours	Pre and post increases in moderate or rigorous physical activity Number of restaurants that had made a healthy menu after 6 months (out of 10 restaurants in one community)	17% vs. 19% Only 3	
McGill et al., 2020	The Healthy Weight for Life (HWFL)	Changes in anthropometric and lifestyle risk behaviours	Percentage of participants who achieved the weight loss maintenance at 3 months Percentage of participants who achieved the weight loss maintenance at 6 months Percentage of participants who achieved the weight loss maintenance at 9 months Percentage of participants who achieved the weight loss maintenance at 12 months Mean change in physical activity (minutes/week) Mean change in sitting (minutes/day) Mean change in healthy eating (vegetables serves/day) Mean change in healthy eating (fruits serves/day)	76% 62% 55% 56% -56.5 +24.6 (16.9) +0.4 (0.2) +0.1 (0.1)	P=0.059 P=0.147 P=0.009 P=0.383
Coombes, 1998	Malnutrition screening	Identification of risk patients	Percentage of patients with high nutritional risk Percentage of patients with moderate nutritional risk	22% 30%	

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Schwartz et al., 2010b	wellness and disease prevention program (HealthPass)	Healthcare costs	Return on investment for every dollar invested for years of 2002-2005	2.83 (2002US\$) 1.16 (2003US\$) 1.56 (2004US\$) 1.58 (2005US\$)	
Studies on group medical appointments					
Beck et al., 1997	Group outpatient medical appointment	Health service utilisation and cost, self-reported health status, and satisfaction	Mean Emergency room visits (intervention vs. control group) Visits to subspecialists (intervention vs. control group) Visits and calls to nurses (intervention vs. control group) Satisfaction with care (intervention vs. control group) Aggregated cost savings Cost of care per member per month	0.41 vs. 0.67 3.22 vs. 3.95 8.7 vs. 7.89 49% vs. 27% 31,928 (1997US\$) 14.79 (1997US\$)	P=0.009 P=0.028 P=0.038 P=0.019
Hinchman et al., 2006	Childhood obesity	Body fat reduction, waist size, BMI	Mean (SD) change in waist size for those who attended ≥ 6 sessions Mean (SD) change in body fat for those who attended ≥ 6 sessions Mean (SD) change in waist size for preteens who attended ≥ 6 sessions Mean (SD) change in body fat for preteens who attended ≥ 6 sessions Mean (SD) change in waist size for adolescents who attended ≥ 6 sessions Mean (SD) change in body fat for adolescents who attended ≥ 6 sessions Mean (SD) change of weight (lb) after 6 months from baseline (intervention group vs. control group) Mean (SD) change of BMI (kg/m ²) after 6 months from base line (intervention group vs. control group) Mean (SD) change of BMI (%) after 6 months from baseline (intervention group vs. control group)	-0.55 (1.41) (inches) -1.63 (4.39) (%) -1.21 (1.40) (inches) -1.68 (4.09) (%) -0.70 (1.57) (inches) -0.58 (1.61) (%) 2.35 (9.90) vs. 7.64 (10.00) -1.06 (2.27) vs. 0.79 (1.67) -0.10 (0.22) vs. -0.36 (1.11)	P<0.05 P<0.05 P<0.05 P<0.05 P<0.05 P<0.05 P n.sn (intervention group) & p<0.05 (control group) P n.s. for both groups P n.s. for both groups

(Notes: OR -Odd Ratio, CI confidence interval, BMI Body Mass Index, SD Standard Deviation, n.s. Not Significant, n.a. Not Available)