

# Vaccination Programs: Client or Family Incentive Rewards

## Summary Evidence Table - Updated Evidence (search period: 1980-2012)

### Family and Client Incentives Used Alone

Study	Location and Intervention	Study Population, Setting, Sample	Effect measure	Reported baseline	Reported effect	Value used in summary [95%CI]	Follow-up time															
<p><b>Author (Year):</b> Bond (2002, 1999)</p> <p><b>Study Period:</b> 1997-2000</p> <p><b>Design Suitability (Design):</b> Least (Before-after)</p> <p><b>Quality of Execution (# of limitations):</b> Fair (4)</p> <p><b>Outcome Measure:</b> Childhood series</p>	<p><b>Location:</b> Australia, Melbourne</p> <p><b>Intervention:</b> Federal government payments to families based on child's immunization status (Childcare Benefit, Maternity Immunization Allowance, Childcare Rebate)</p> <p><b>Comparison:</b> Before-after</p>	<p><b>Setting:</b> Child care and family day care centers community-wide</p> <p><b>Study population:</b> Random samples of child care centers in Melbourne</p> <table border="1"> <thead> <tr> <th>Period</th> <th>N recruited</th> <th>N included</th> </tr> </thead> <tbody> <tr> <td>Pre</td> <td>79 organizations</td> <td>66 (same)</td> </tr> <tr> <td>Post</td> <td>66 organizations</td> <td>66 (same)</td> </tr> </tbody> </table> <p>Cross-sectional survey sample of children from study organizations (3 yrs of age or younger) regularly receiving child care at least one day a week</p> <table border="1"> <thead> <tr> <th>Period</th> <th>N surveyed</th> </tr> </thead> <tbody> <tr> <td>Before</td> <td>1578 (72% response rate)</td> </tr> <tr> <td>After</td> <td>1793 (72% response rate)</td> </tr> </tbody> </table>	Period	N recruited	N included	Pre	79 organizations	66 (same)	Post	66 organizations	66 (same)	Period	N surveyed	Before	1578 (72% response rate)	After	1793 (72% response rate)	<p>Age-appropriate vaccination rates base on parental report of dates</p> <p>Frequency of complete immunization among children whose parents received childcare assistance</p>	<p>1320 (84.3%) out of 1578</p> <p>83%</p>	<p>1667 (93.5%) out of 1793</p> <p>93%</p>	<p>Weighted diff +8.5 pct pts [95% CI: 6.2, 10.7] P&lt;00.001</p> <p>+10 pct pts [95% CI: 6, 12]</p>	2 years
Period	N recruited	N included																				
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Study	Location and Intervention	Study Population, Setting, Sample	Effect measure	Reported baseline	Reported effect	Value used in summary [95%CI]	Follow-up time												
<p><b>Author (Year):</b> Lawrence (2004)</p> <p><b>Study Period:</b> 2001</p> <p><b>Design Suitability (Design):</b> Moderate (Case-control)</p> <p><b>Quality of Execution (# of limitations):</b> Fair (4)</p> <p>Additional study of the Australian incentive program (see Bond 2002)</p>	<p><b>Location:</b> Australia</p> <p><b>Intervention:</b> Federal government payments to families based on child's immunization status (Childcare Benefit, Maternity Immunization Allowance, Childcare Rebate)</p> <p><b>Comparison:</b> Case-control</p>	<p><b>Setting:</b> Nation-wide</p> <p><b>Study Population:</b> Nationally representative sample of children (aged 28-31 months) selected from IIS</p> <p><b>Case:</b> incompletely immunized for age</p> <p><b>Controls:</b> fully immunized</p> <table border="1"> <thead> <tr> <th>Group</th> <th>N analysis</th> </tr> </thead> <tbody> <tr> <td>Case -under immunized</td> <td>190</td> </tr> <tr> <td>Controls-immunized for age</td> <td>589</td> </tr> </tbody> </table>	Group	N analysis	Case -under immunized	190	Controls-immunized for age	589	<p>Variables associated with incomplete immunization status</p> <p>Knowledgeable about maternity immunization allowance</p> <p>Knowledgeable about Childcare benefit</p>	<p><u>Controls</u> 74%</p> <p>25%</p>	<p><u>Cases</u> 53%</p> <p>15%</p>	<p>Odds ratios for awareness of benefit and immunization status</p> <p>Odds Ratio: 3.34 [95% CI: 2.28, 4.91]</p> <p>Odds ratio: 2.08 [95% CI: 1.30, 3.34]</p>	<p>3 years after adoption of incentive legislation</p>						
Group	N analysis																		
Case -under immunized	190																		
Controls-immunized for age	589																		
<p><b>Author (Year):</b> Moran (1996)</p> <p><b>Study Period:</b> 1991-1992</p> <p><b>Design Suitability (Design):</b> Greatest (Randomized trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measure:</b> Influenza</p>	<p><b>Location:</b> USA, Boston, Massachusetts</p> <p><b>Intervention:</b> Mailed lottery-type incentive (grocery gift certificates)</p> <p><b>Comparison:</b> Usual care</p> <p>* All study groups received enhanced access (walk-in vaccinations), reduced client out-of-pocket costs (free vaccinations), and a health fair (client education)</p>	<p><b>Setting:</b> Urban community health center</p> <p><b>Study Population:</b> Study community health center: 1</p> <p>All adult high-risk patients (age or medical condition) of study health center seen in the preceding 18m were randomly assigned to condition N= 797</p> <table border="1"> <thead> <tr> <th>Group</th> <th>N assigned</th> <th>Nanalysis</th> </tr> </thead> <tbody> <tr> <td>Incentive</td> <td>198</td> <td>198</td> </tr> <tr> <td>Brochure</td> <td>198</td> <td>198</td> </tr> <tr> <td>Usual care</td> <td>202</td> <td>202</td> </tr> </tbody> </table> <p>(see below for incentive +brochure arm)</p>	Group	N assigned	Nanalysis	Incentive	198	198	Brochure	198	198	Usual care	202	202	<p>Influenza vaccination rates among study clients</p> <p>Multivariate analysis</p> <p>Note: Brochure arm vaccination rates 71 (36%) of 198</p>	<p>41 (20%) out of 202</p>	<p>57 (29%) out of 198</p>	<p>+9 pct pts [95% CI: 0.6, 17.4]</p> <p>Incentive mailing OR: 1.68 [95% CI = 1.05, 2.68] p=0.03</p>	<p>One influenza season</p>
Group	N assigned	Nanalysis																	
Incentive	198	198																	
Brochure	198	198																	
Usual care	202	202																	

Family and Client Incentives Used with Additional Interventions

Study	Location and Intervention	Study Population, Setting, Sample	Effect measure	Reported baseline	Reported effect	Value used in summary [95%CI]	Follow-up time						
<p><b>Author (Year):</b> Browngoehl (1997), Kennedy (1994)</p> <p><b>Study Period:</b> 1992-1993</p> <p><b>Design Suitability (Design):</b> Moderate (Retrospective cohort)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measure:</b> Childhood series</p>	<p><b>Location:</b> USA, Philadelphia, Pennsylvania</p> <p>Tracking and reminders + provider education and incentives + parent education and incentives + transportation assistance + home visits</p> <p>Comparison: Group of older children</p>	<p>Setting: Medicaid managed care group</p> <p>Study population: -children aged 18-24 months (I) -children aged 30-35 months (C)</p> <table border="1" data-bbox="665 553 1094 651"> <thead> <tr> <th>Group</th> <th>N</th> </tr> </thead> <tbody> <tr> <td>Intervention</td> <td>1254</td> </tr> <tr> <td>Control</td> <td>1257</td> </tr> </tbody> </table>	Group	N	Intervention	1254	Control	1257	<p>Vaccination completion rates for 4 DTP/3 OPV/1 MMR at age 35 months</p> <p>4 DTP/3 OPV/1 MMR/1 Hib at age 35 months</p>	<p>574 (45.7%) out of 1257</p> <p>464 (36.9%) out of 1257</p>	<p>663 (52.9%) out of 1254</p> <p>483 (38.5%) out of 1254</p>	<p>+7.2 pct pts [95%CI 3.3, 11.1] p &lt;0.05</p> <p>+1.6 pct pts [95%CI -2.2, 5.4] NS</p>	<p>Intervention period was 1 year</p>
Group	N												
Intervention	1254												
Control	1257												

Study	Location and Intervention	Study Population, Setting, Sample	Effect measure	Reported baseline	Reported effect	Value used in summary [95%CI]	Follow-up time									
<p><b>Author (Year):</b> LeBaron (1998)</p> <p><b>Study Period:</b> 1992-1993</p> <p><b>Design Suitability (Design):</b> Greatest (Group non-randomized trial)</p> <p><b>Quality of Execution (# of limitations):</b> Fair (3)</p> <p><b>Outcome Measure:</b> Childhood series</p>	<p><b>Location:</b> USA, Atlanta, GA (Residence-based intervention study)</p> <p>Incentives (food and baby products) + Outreach+ Reducing Out-of-Pocket Costs+ Community-wide Education+ Enhanced Access</p> <p><b>Comparison:</b> Usual care</p>	<p><b>Setting:</b> Community-wide</p> <p><b>Study Population:</b> Study intervention communities</p> <ul style="list-style-type: none"> <li>• 5 intervention</li> <li>• 4 comparison</li> </ul> <p>Children of surveyed households</p> <ul style="list-style-type: none"> <li>• 3-59 months of age</li> </ul> <table border="1" data-bbox="669 560 1003 649"> <thead> <tr> <th>Group</th> <th>1992</th> <th>1993</th> </tr> </thead> <tbody> <tr> <td>Inter</td> <td>347</td> <td>429</td> </tr> <tr> <td>Ctrl</td> <td>178</td> <td>221</td> </tr> </tbody> </table>	Group	1992	1993	Inter	347	429	Ctrl	178	221	<p>Age-appropriate vaccination rates</p>	<p><u>Intervention 1992</u> 154(44%) out of 347</p> <p><u>Comparison 1992</u> 78(44%) out of 178</p>	<p><u>Intervention 1993</u> 269 (61%) out of 429</p> <p><u>Comparison 1993</u> 129 (58%) out of 221</p>	<p>+ 3 pct pts 95% CI: [-5, 11]</p>	<p>Intervention period was 1 year</p>
Group	1992	1993														
Inter	347	429														
Ctrl	178	221														
<p><b>Author (Year):</b> Luthy (2011)</p> <p><b>Study Period:</b> 2009</p> <p><b>Design Suitability (Design):</b> Least (Before-after)</p> <p><b>Quality of Execution (# of limitations):</b> Fair (3)</p> <p><b>Outcome Measure:</b> Tdap</p>	<p><b>Location:</b> Utah, district-wide</p> <p><b>Intervention:</b> Client Incentives (monetary prize for teachers, Rip Stick or IPod) + Client Education</p> <p><b>Comparison:</b> Before-after</p>	<p>Setting: District-wide local elementary schools N=13 schools</p> <p>Study Population:</p> <ul style="list-style-type: none"> <li>• Sixth grade students (incoming seventh grade students)</li> <li>• Total enrollment ranging from &lt;500 to &gt;800 students per school</li> </ul> <table border="1" data-bbox="669 1166 915 1255"> <thead> <tr> <th>Group</th> <th>N analysis</th> </tr> </thead> <tbody> <tr> <td>Pre</td> <td>895</td> </tr> <tr> <td>Post</td> <td>958</td> </tr> </tbody> </table>	Group	N analysis	Pre	895	Post	958	<p>Percentage of compliant sixth graders: Tdap booster</p>	<p>2008</p> <p><u>Pre-intervention</u> 54%</p>	<p>2009</p> <p><u>Post-intervention</u> 57%</p>	<p>+3 pct pts</p>	<p>Intervention was 4 weeks</p>			
Group	N analysis															
Pre	895															
Post	958															

Study	Location and Intervention	Study Population, Setting, Sample	Effect measure	Reported baseline	Reported effect	Value used in summary [95%CI]	Follow-up time									
<p><b>Author (Year):</b> Moran (1996)</p> <p><b>Study Period:</b> 1991</p> <p><b>Design Suitability (Design):</b> Greatest (Randomized trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measure:</b> Influenza</p>	<p><b>Location:</b> USA, Boston, Massachusetts</p> <p><b>Intervention:</b> Mailed lottery-type incentive (grocery gift certificates) + brochure</p> <p><b>Comparison:</b> Usual care</p> <p>* All study groups received enhanced access (walk-in vaccinations), reduced client out-of-pocket costs (free vaccinations), and a health fair (client education)</p>	<p><b>Setting:</b> Urban community health center</p> <p><b>Study Population:</b> Study community health center: 1</p> <p>All adult high-risk patients (age or medical condition) of study health center seen in the preceding 18m were randomly assigned to condition N= 797</p> <table border="1" data-bbox="669 649 1094 857"> <thead> <tr> <th>Group</th> <th>N assigned</th> <th>Nanalysis</th> </tr> </thead> <tbody> <tr> <td>Incentive + brochure</td> <td>199</td> <td>199</td> </tr> <tr> <td>Usual care</td> <td>202</td> <td>202</td> </tr> </tbody> </table> <p>(see above for incentive only arm)</p>	Group	N assigned	Nanalysis	Incentive + brochure	199	199	Usual care	202	202	<p>Influenza vaccination rates among study clients</p>	<p><u>Usual care</u> 41 (20%) out of 202</p>	<p><u>Incentive + brochure</u> 52 (26%) out of 199</p>	<p>+6 pct pts [95% CI: -2.2, 14.2] NS</p>	<p>Intervention period was one influenza season</p>
Group	N assigned	Nanalysis														
Incentive + brochure	199	199														
Usual care	202	202														
<p><b>Author (Year):</b> Tweed (2007)</p> <p><b>Study Period:</b> Jan-Sept 2004</p> <p><b>Design Suitability (Design):</b> Least (Before-after)</p> <p><b>Quality of Execution (# of limitations):</b> Fair (4)</p> <p><b>Outcome Measure:</b> Childhood series</p>	<p><b>Location:</b> USA, Virginia (Virginia Beach, Hampton, Newport News, Norfolk, Portsmouth)</p> <p><b>Intervention:</b> Child care programs (dedicated staff+ client tracking + client reminder/recall + incentives + client education)</p> <p><b>Comparison:</b> Before-after</p>	<p><b>Setting:</b> child care centers</p> <p><b>Study Population:</b></p> <ul style="list-style-type: none"> <li>children &lt; 24 months of age</li> </ul> <p>N= 299 eligible n=185 participated</p> <p>N=5 cities selected N=15 daycare centers</p>	<p>Percentage of children UTD in vaccinations</p> <p>All centers</p>	<p>61 (33%) out of 185</p>	<p>(71%)</p>	<p>+ 38 pct pts 95% CI: cannot be calculated</p>	<p>Intervention period was 9 months</p>									

Study	Location and Intervention	Study Population, Setting, Sample	Effect measure	Reported baseline	Reported effect	Value used in summary [95%CI]	Follow-up time						
<p><b>Author (Year):</b> Yokley (1984)</p> <p><b>Study Period:</b> not reported</p> <p><b>Design Suitability (Design):</b> Greatest (Group randomized trial)</p> <p><b>Quality of Execution:</b> Fair</p>	<p><b>Location:</b> USA, Akron, Ohio</p> <p>Multi-arm intervention trial (not all presented here)</p> <p>Incentive lottery (\$175.00 cash) for parents + mailed client reminder/recall</p> <p>Comparison: Usual care</p>	<p><b>Setting:</b> public health clinic</p> <p><b>Study Population:</b> Study public health clinic: N=1 Underimmunized preschool aged children or the study public health clinic</p> <p>N=1133 (53.9% of all children in clinic) randomly assigned to one of 5 conditions</p> <table border="0" data-bbox="665 617 1096 711"> <tr> <td><u>Group</u></td> <td><u>N analysis</u></td> </tr> <tr> <td>Incentive + reminder</td> <td>183</td> </tr> <tr> <td>Both comparison arms</td> <td>227</td> </tr> </table>	<u>Group</u>	<u>N analysis</u>	Incentive + reminder	183	Both comparison arms	227	<p>Vaccination rates for at least 1 vaccine at follow-up</p>	<p><u>Usual care</u> 13.2%</p>	<p><u>Lottery + remdr</u> 30.8%</p>	<p>+17.6 pct pts [95%CI 8.2, 27.0] p&lt;0.05</p>	<p>3 months</p>
<u>Group</u>	<u>N analysis</u>												
Incentive + reminder	183												
Both comparison arms	227												