

Vaccination Programs: Client Reminder and Recall Systems

Summary Evidence Table (2007–2012)

Study	Location and Intervention	Study Population and Sample	Effect measure	Reported baseline	Reported effect	Value used in summary	Follow-up time															
Author & year (study period): Dini 2000 (1993-1996) Design suitability (design): Greatest (individual randomized trial) Quality of execution (# of Limitations): Fair (2) Outcome Measurement: Children Outpatients Vaccination series at 24m of age Computer generated reminders by telephone and mailed recall letters	Location: USA; Denver, CO Intervention: Computer vaccination database employed -Telephone and letter reminder/recall + database -Telephone reminder + database -Letter recall + database Comparison: Usual care + database	Four public health clinics utilizing the vaccination database Households of children listed in the vaccination database -Children 60-90 days of age	Vaccination series completion at 24 months of age Overall: (Any CRR)	<u>Comparison</u> 40.9%	<u>Intervention</u> 49.2%	8.3 pct pts (95%CI 0.7, 15.9) Relative change (20.3%) Rate ratio=1.21 (1.01,1.44)	22 months															
		<table border="1"> <thead> <tr> <th>Group</th> <th>N enrolled</th> <th>N receipt</th> </tr> </thead> <tbody> <tr> <td>T + L</td> <td>215</td> <td>177</td> </tr> <tr> <td>T only</td> <td>217</td> <td>189</td> </tr> <tr> <td>Letter</td> <td>216</td> <td>183</td> </tr> <tr> <td>Comp</td> <td>213</td> <td>186</td> </tr> </tbody> </table>	Group	N enrolled	N receipt	T + L		215	177	T only	217	189	Letter	216	183	Comp	213	186	Telephone+ Letter	40.9%	50.2%	9.3 pct pts (NS)
		Group	N enrolled	N receipt																		
		T + L	215	177																		
		T only	217	189																		
Letter	216	183																				
Comp	213	186																				
Overall loss to f/u 126 (14.6%) of 861 enrolled	Telephone only	40.9%	49.3%	8.4 pct pts (NS)																		
	Letter only	40.9%	48.2%	7.3 pct pts (NS)																		
	Intention to treat analyses (all compared to the UC group)																					

Study	Location and Intervention	Study Population and Sample	Effect measure	Reported baseline	Reported effect	Value used in summary	Follow-up time
<p>Author & year (study period): Findley 2008+ 2009 (2006-2007)</p> <p>Design suitability (design): Moderate (retrospective cohort)</p> <p>Quality of execution (# of Limitations): Fair (4)</p> <p>Outcome Measurement: Childhood series</p>	<p>Location: USA; New York City, NY</p> <p>Intervention: (Start Right) Client education + client reminder/recall + IIS/Database + client incentives + Provider assessment and feedback</p> <p>Comparison: usual care</p>	<p>Setting: inner city</p> <p>Study population: Children</p> <ul style="list-style-type: none"> • 19-35 months of age • born between 4/99-9/03 at primary community hospital <p>N=895 Start Right participants</p>	<p>Proportion of children UTD immunizations for the childhood series</p>	<p>Intervention: 63%</p>		<p>11.1 pct pts (95% CI: NR)</p>	<p>2 years</p>

Study	Location and Intervention	Study Population and Sample	Effect measure	Reported baseline	Reported effect	Value used in summary	Follow-up time						
<p>Author & year (study period): Hambidge 2009 (2004-2006)</p> <p>Design suitability (design): Greatest (individual randomized trial)</p> <p>Quality of execution (# of Limitations): Good (1)</p> <p>Outcome Measurement: Influenza</p>	<p>Location: Denver, Colorado</p> <p>Intervention: Client reminder/recall + outreach/tracking (case management) + home visits + immunization information systems</p> <p>Comparison: usual care</p>	<p>Setting: Community health centers</p> <p>Study Population</p> <ul style="list-style-type: none"> • Children • Primarily Hispanic • > 99% w/public insurance or uninsured <table border="0" style="width: 100%;"> <tr> <td></td> <td style="text-align: center;"><u>N infants</u></td> </tr> <tr> <td>Intervention</td> <td style="text-align: center;">408</td> </tr> <tr> <td>Comparison</td> <td style="text-align: center;">399</td> </tr> </table>		<u>N infants</u>	Intervention	408	Comparison	399	<p>UTD at 15 months</p>	<p>33%</p>	<p>44%</p>	<p>11 pct pts [95% CI: 4,18]</p>	<p>15 months</p>
	<u>N infants</u>												
Intervention	408												
Comparison	399												
<p>Author & year (study period): Humiston 2011 (2003-2004)</p> <p>Design suitability (design): Greatest (individual randomized control trial)</p> <p>Outcome Measurement: Adults 65 years + Influenza</p>	<p>Location: USA; Rochester, NY</p> <p>Intervention: Provider reminders + client reminder/recall</p> <p>Comparison: Usual care</p>	<p>Study Population:</p> <ul style="list-style-type: none"> • active patients of participating primary care clinics • aged ≥65 years • residents of New York <table border="0" style="width: 100%;"> <tr> <td><u>Group</u></td> <td style="text-align: center;"><u>N</u></td> </tr> <tr> <td>I: Prov Rem + Client Rem</td> <td style="text-align: center;">1748</td> </tr> <tr> <td>C:Usual Care</td> <td style="text-align: center;">2004</td> </tr> </table>	<u>Group</u>	<u>N</u>	I: Prov Rem + Client Rem	1748	C:Usual Care	2004	<p>Proportion of eligible patients who received influenza vaccination</p>	<p>22%</p>	<p>64%</p>	<p>42 pct pts 95% CI: [39, 45 pct pts]</p>	<p>4 months</p>
<u>Group</u>	<u>N</u>												
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Study	Location and Intervention	Study Population and Sample	Effect measure	Reported baseline	Reported effect	Value used in summary	Follow-up time						
<p>Author & year (study period): Kharbanda 2011 (2009)</p> <p>Design suitability (design): Greatest (other design w/concurrent comparison)</p> <p>Quality of execution (# of Limitations): Fair (3)</p> <p>Outcome Measurement: Adolescents Outpatient HPV</p>	<p>Location: New York City, New York</p> <p>Intervention: Client reminder/recall – text messaging</p> <p>Comparison: Historical controls</p>	<p>Nine pediatric clinical sites (5 academic and 4 private)</p> <p>Adolescents 9–20 years who received HPV1 or HPV2 during the intervention period</p> <table border="0"> <tr> <td><u>Group</u></td> <td><u>N</u></td> </tr> <tr> <td>Intervention</td> <td>124</td> </tr> <tr> <td>Comparison</td> <td>1080</td> </tr> </table>	<u>Group</u>	<u>N</u>	Intervention	124	Comparison	1080	<p>On-time receipt of next HPV vaccine dose</p>	<p><u>Comparison</u> 38.1% (95% CI: 43, 60%)</p>	<p><u>Intervention</u> 51.6% (95% CI: 35, 41%)</p>	<p>13.5 pct pts P=.003</p>	<p>6 months</p>
<u>Group</u>	<u>N</u>												
Intervention	124												
Comparison	1080												

Study	Location and Intervention	Study Population and Sample	Effect measure	Reported baseline	Reported effect	Value used in summary	Follow-up time						
<p>Author & year (study period): Lemstra 2011 (2007-2008)</p> <p>Design suitability (design): Greatest (Group randomized trial)</p> <p>Quality of execution (# of Limitations): Good (1)</p> <p>Outcome Measurement: Children MMR Economic information</p>	<p>Location: Canada; Saskatoon Health Region</p> <p>Intervention: Home visits + Client reminder/recall + MIMS (database)</p> <p>Comparison: Client reminder/recall</p>	<p>Study Population: -2 year olds not UTD with MMR vaccination -Subset lived in low-income neighborhoods N=257</p> <table border="0"> <tr> <td><u>Group</u></td> <td><u>N</u></td> </tr> <tr> <td>Intervention</td> <td>142</td> </tr> <tr> <td>Comparison</td> <td>115</td> </tr> </table>	<u>Group</u>	<u>N</u>	Intervention	142	Comparison	115	<p>Proportion of children UTD MMR vaccination</p>	<p><u>Comparison</u> 56 (48.7%) of 115</p>	<p><u>Intervention</u> 86 (60.5%) of 142</p>	<p>11.8 pct pts 95% CI: [-0.4, 24]</p>	<p>1 year</p>
<u>Group</u>	<u>N</u>												
Intervention	142												
Comparison	115												

Study	Location and Intervention	Study Population and Sample	Effect measure	Reported baseline	Reported effect	Value used in summary	Follow-up time																				
<p>Author & year (study period): Nowalk 2008 (2001-2005)</p> <p>Design suitability (design): Greatest (Other Design with Concurrent Comparison)</p> <p>Quality of execution (# of Limitations): Good</p> <p>Outcome Measurement: Influenza PPV</p>	<p>Location: USA; Pennsylvania</p> <p>Intervention: Standing orders + provider education + client reminder/recall + reduced out-of-pocket costs + client education + expanded access + provider reminder + client incentives + provider incentives</p> <p>Comparison: Usual care</p>	<p>Setting: Faith-based centers and community inner city health centers</p> <p>Study Population:</p> <ul style="list-style-type: none"> Adults ≥50 years of age <table border="1"> <thead> <tr> <th>Period</th> <th>I (N)</th> <th>Site</th> <th>C (N)</th> </tr> </thead> <tbody> <tr> <td>Year 1</td> <td>255</td> <td>A,B</td> <td>313</td> </tr> <tr> <td>Year 2</td> <td>401</td> <td>A,B,C</td> <td>167</td> </tr> <tr> <td>Year 3</td> <td>507</td> <td>A,B,C,D</td> <td>61</td> </tr> <tr> <td>Year 4</td> <td>507</td> <td>A,B,C,D</td> <td>61</td> </tr> </tbody> </table>	Period	I (N)	Site	C (N)	Year 1	255	A,B	313	Year 2	401	A,B,C	167	Year 3	507	A,B,C,D	61	Year 4	507	A,B,C,D	61	<p>Receipt of vaccinations</p> <p>Influenza</p> <p>PPV</p>	<p>27.1%</p> <p>48.3%</p>	<p>48.9%</p> <p>81.3%</p>	<p>21 pct pts [95% CI: 13, 29]</p> <p>33 pct pts [95%CI: 24, 42]</p>	<p>4 years</p>
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<p>Author & year (study period): Stockwell 2012 (2009)</p> <p>Design suitability (design): Greatest (Individual randomized trial)</p> <p>Quality of execution (# of Limitations): Good (1)</p> <p>Outcome Measurement: Adolescents Outpatient Recommended vaccines</p>	<p>Location: USA; New York City, New York</p> <p>Intervention: Client reminder/recall systems using mobile text messages</p> <p>Comparison: Usual care</p>	<p>Network of community-based clinics affiliated within an academic medical center in New York City</p> <p>N= 6 clinics (2 intervention and 4 control)</p> <p>Adolescents 11-18 years of age needed either or both meningococcal (MCV4) and tetanus-diphtheria-acellular pertussis (Tdap) immunizations</p> <table> <tr> <td></td> <td style="text-align: center;"><u>N</u></td> </tr> <tr> <td>Intervention</td> <td style="text-align: center;">195</td> </tr> <tr> <td>Control</td> <td style="text-align: center;">166</td> </tr> </table>		<u>N</u>	Intervention	195	Control	166	<p>Percentage of patients who received an additional adolescent vaccination – MCV4 and Tdap (24 weeks)</p>	<p>Control 18.1%</p>	<p>Intervention 36.4%</p>	<p>Difference: +18.3 pct pts P<0.001</p>	<p>6 months</p>
	<u>N</u>												
Intervention	195												
Control	166												

Study	Location and Intervention	Study Population and Sample	Effect measure	Reported baseline	Reported effect	Value used in summary	Follow-up time						
<p>Author & year (study period): Szilagyi 2011 (2007-2008)</p> <p>Design suitability (design): Greatest (Individual randomized trial)</p> <p>Quality of execution (# of Limitations): Fair (2)</p> <p>Outcome Measurement: Adolescents Meningococcal Pertussis HPV Economic information</p>	<p>Location: USA; Rochester, New York</p> <p>Intervention: immunization database + “staged” client reminder/recall + home visits</p> <p>Comparison: Usual care</p>	<p>Setting: Eight primary care practices</p> <p>Study population:</p> <ul style="list-style-type: none"> • Adolescents • Mean age 13.5 years • 63% Black • Urban • 74% Medicaid recipients • 6% uninsured <table border="0" style="width: 100%;"> <tr> <td style="text-align: left;"><u>Group</u></td> <td style="text-align: center;"><u>N</u></td> </tr> <tr> <td>Intervention</td> <td style="text-align: center;">3707</td> </tr> <tr> <td>Comparison</td> <td style="text-align: center;">3839</td> </tr> </table>	<u>Group</u>	<u>N</u>	Intervention	3707	Comparison	3839	<p>MCV4/Tdap/HPV</p>	<p>1061 (32.4%) out of 3839</p>	<p>1496 (44.7%) out of 3707</p>	<p>+12.3 pct pts 95% CI: [10, 14.5]</p>	<p>Intervention period was 14 months</p>
<u>Group</u>	<u>N</u>												
Intervention	3707												
Comparison	3839												

Study	Location and Intervention	Study Population and Sample	Effect measure	Reported baseline	Reported effect	Value used in summary	Follow-up time
<p>Author & year (study period): Winston 2007 (2004)</p> <p>Design suitability (design): Greatest (Individual randomized trial)</p> <p>Quality of execution (# of Limitations): Fair (4)</p> <p>Outcome Measurement: Adults 65 yrs + Outpatients Administrative database PPV</p>	<p>Location: USA; Atlanta, GA</p> <p>Intervention: Client reminder/recall by telephone following CRR by mail and Small Media postings in clinics</p> <p>Comparison: Usual care following CRR by mail with small media postings in clinics</p>	<p>Study managed care network general medicine clinics</p> <p>Unvaccinated adults age 65 years or older (subset of overall study) N allocated</p> <p>Inter 1198 Comp 1197</p> <p>Note: 44% of Inter group were found to be previously vaccinated for PPV</p>	<p>Receipt of pneumococcal vaccination among previously unvaccinated</p> <p>Intention to treat analysis</p>	<p>I: (44%) C: NR</p>	<p>I: 17% C: 8% p<0.001</p>	<p>9 pct pts (95%CI 6.4, 11.6) Relative change (+112%)</p> <p>Adjusted Odds ratio for the overall study = 2.3 (95%CI 2.0, 2.7]</p>	<p>6m</p>

Study	Location and Intervention	Study Population and Sample	Effect measure	Reported baseline	Reported effect	Value used in summary	Follow-up time
<p>Author & year (study period): Vora 2009 (2004-2005)</p> <p>Design suitability (design): Greatest (other with concurrent comparison group)</p> <p>Quality of execution (# of Limitations): Fair (3)</p> <p>Outcome Measurement: Childhood series</p>	<p>Location: USA; south side of Chicago, IL</p> <p>Intervention: Client education + client reminder/recall + home visits + (tracking)</p> <p>Comparison: usual care (historical control)</p>	<p>Setting: Hospitals 1st study-received well-child care and immunization at the FFHC 2nd study-any clinics in a defined zip code</p> <p>Study population: Children</p> <ul style="list-style-type: none"> • 19-35 months of age • born at University of Chicago <p>N=400 neonates enrolled n= 146 children completed program</p>	<p>Proportion of children UTD immunizations for the childhood series (at 24 months)</p>	<p>I: 0% C: 0%</p>	<p>I: 91% C: 49%</p>	<p>42 pct pts Unable to calculate 95% CI</p>	<p>1 year</p>

C: comparison
 CI: confidence interval
 CRR: client reminder and recall
 HPV: human papillomavirus infection
 I: intervention
 L: letter
 MMR: measles-mumps-rubella vaccine
 MCV4: meningococcal conjugate vaccine
 PAF: provider assessment and feedback
 PPV: pneumococcal polysaccharide vaccine
 T: telephone
 Tdap: tetanus, diphtheria, and pertussis
 UC: usual care
 UTD: up-to-date