

# Increasing Appropriate Vaccinations: Health Systems-based Interventions Implemented in Combination

## Summary Evidence Table - Effectiveness Review

Quality of execution (# of Limitations) Outcome Measurement	Study & Intervention Characteristics	Population & Sample Size	Effect Measure	Reported Baseline	Reported Effect	Value Used in Summary [95%CI]	Follow-Up Time
<p><b>Author (Year):</b> Tierney, et al. (1986)</p> <p><b>Study Period:</b> 1983-1984</p> <p><b>Design suitability (design):</b> Greatest Suitability (Randomized Trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> PPV</p>	<p><b>Location</b> Indianapolis</p> <p><b>Intervention:</b> Provider reminders + Provider assessment/feedback</p> <p><b>Comparison:</b> Reminders for other preventive care</p>	<p><b>Setting:</b> University-based clinic</p> <p><b>Study population:</b> Adults</p> <p>N =1750 total</p>	Vaccination rates	4%		+28 pct pts [95% CI: not reported]	9 months

Quality of execution (# of Limitations) Outcome Measurement	Study & Intervention Characteristics	Population & Sample Size	Effect Measure	Reported Baseline	Reported Effect	Value Used in Summary [95%CI]	Follow-Up Time								
<p><b>Author (Year):</b> Elster, et al. (1987)</p> <p><b>Study Period:</b> 1983-1984</p> <p><b>Design suitability (design):</b> Greatest Suitability (Nonrandomized Trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Childhood series</p>	<p><b>Location:</b> Utah</p> <p><b>Intervention:</b> Expanded access + Outreach/tracking</p> <p><b>Comparison:</b> Usual care</p>	<p><b>Setting:</b> University of Utah School of Medicine</p> <p><b>Study Population:</b> -19 year old mothers/infants - 14%-22% of study population Hispanic - mixed socioeconomic status</p> <p>N=Not reported</p>	<p>Up-to-date vaccination rates for infants</p>	<p>68%</p>		<p>+17 pct pts P &lt; 0.05</p>	<p>~ 19 months</p>								
<p><b>Author (Year):</b> Lukasik, et al. (1987)</p> <p><b>Study Period:</b> 1985</p> <p><b>Design suitability (design):</b> Greatest Suitability (Nonrandomized Trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Influenza</p>	<p><b>Location:</b> London, Ontario</p> <p><b>Arm 1:</b> Provider reminders+ Client education + Client reminder/recall + Expanded access</p> <p><b>Arm 2:</b> Provider reminder + Client education</p> <p><b>Comparison:</b> Usual care</p>	<p><b>Setting:</b> Victoria Family Medicine Center</p> <p><b>Study Population:</b> -Adults &gt; 65 years</p> <table border="0" style="margin-left: 20px;"> <tr> <td></td> <td style="text-align: center;"><u>N</u></td> </tr> <tr> <td>Arm 1</td> <td style="text-align: center;">120</td> </tr> <tr> <td>Arm 2</td> <td style="text-align: center;">123</td> </tr> <tr> <td>Compr</td> <td style="text-align: center;">NR</td> </tr> </table>		<u>N</u>	Arm 1	120	Arm 2	123	Compr	NR	<p>Vaccination rates</p> <p>Arm 1 vs Comparison</p> <p>Arm 2 vs Comparison</p> <p>Arm 1 vs Arm 2</p>	<p>7%</p> <p>5%</p> <p>5%</p>		<p>+44 pct pts [95% CI: not reported]</p> <p>+22 pct pts [95% CI: not reported]</p> <p>+22 pct pts P = 0.002</p>	<p>14 weeks</p>
	<u>N</u>														
Arm 1	120														
Arm 2	123														
Compr	NR														

Quality of execution (# of Limitations) Outcome Measurement	Study & Intervention Characteristics	Population & Sample Size	Effect Measure	Reported Baseline	Reported Effect	Value Used in Summary [95%CI]	Follow-Up Time
<p><b>Author (Year):</b> Soljak, et al. (1987)</p> <p><b>Study Period:</b> 1985</p> <p><b>Design suitability (design):</b> Greatest Suitability (Nonrandomized Trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Childhood series</p>	<p><b>Location:</b> Northland, New Zealand</p> <p><b>Intervention:</b> Provider reminders + Client reminder/recall</p> <p><b>Comparison:</b> Usual care</p>	<p><b>Setting:</b> Clinics</p> <p><b>Study Population:</b> -Children</p> <p>N= Not reported</p>	<p>Up-to-date with "all appropriate antigens"</p>	<p>Not reported</p>		<p>+5 pct pts at 5 months (risk ratio significant)</p>	<p>5 months</p>
<p><b>Author (Year):</b> Korn, et al. (1988)</p> <p><b>Study Period:</b> 1984-1985</p> <p><b>Design suitability (design):</b> Moderate Suitability (Time Series)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Influenza PPV</p>	<p><b>Location:</b> Minneapolis -St Paul, Minnesota</p> <p><b>Intervention:</b> Provider assessment/feedback + Provider education + Provider reminders</p> <p><b>Comparison:</b> Usual care</p>	<p><b>Setting:</b> Internal medicine resident's clinic at a hospital</p> <p><b>Study Population:</b> -Adults -Mean age 52-56 years -Urban/suburban - 35%-42% male</p> <p style="text-align: center;"><u>N</u></p> <p>Inter 202 Compr 199</p>	<p>Vaccination rates</p> <p>Influenza</p> <p>PPV</p>	<p>9%</p> <p>9%</p>		<p>-3 pct pts (non-significant)</p> <p>+15 pct pts P &lt; 0.01</p>	<p>1 year</p>

Quality of execution (# of Limitations) Outcome Measurement	Study & Intervention Characteristics	Population & Sample Size	Effect Measure	Reported Baseline	Reported Effect	Value Used in Summary [95%CI]	Follow-Up Time								
<p><b>Author (Year):</b> Becker, et al. (1989)</p> <p><b>Study Period:</b> 1986-1987</p> <p><b>Design suitability (design):</b> Greatest Suitability (Randomized Trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Influenza PPV Tetanus</p>	<p><b>Location:</b> Charlottesville, Virginia</p> <p><b>Arm 1:</b> Provider reminders + client reminder/recall</p> <p><b>Arm 2:</b> Provider reminders only</p> <p><b>Comparison:</b> Usual care</p>	<p><b>Setting:</b> University of Virginia medicine clinic</p> <p><b>Study Population:</b> - Adults - Aged 40-60 years, mean 51-52 - 64%-72% female - 50%-60% black - Low socioeconomic status</p> <table border="1"> <thead> <tr> <th></th> <th>N</th> </tr> </thead> <tbody> <tr> <td>Arm 1</td> <td>168</td> </tr> <tr> <td>Arm 2</td> <td>203</td> </tr> <tr> <td>Compr</td> <td>192</td> </tr> </tbody> </table>		N	Arm 1	168	Arm 2	203	Compr	192	<p>Vaccination rates</p> <p><u>Arm 1:</u> Influenza PPV Tetanus</p> <p><u>Arm 1 vs Arm 2:</u> Influenza PPV Tetanus</p>	<p>5%</p> <p>5%</p> <p>5%</p> <p>17.8%</p> <p>8.8%</p> <p>5.9%</p>		<p>+16 pct pts</p> <p>+1 pct pts</p> <p>+8 pct pts (analysis of variance for groups 1, 2, and 3 only significant for Td)</p> <p>+7.2 pct pts</p> <p>-1.1 pct pts</p> <p>+8.2 pct pts</p>	<p>1 year</p>
	N														
Arm 1	168														
Arm 2	203														
Compr	192														

Quality of execution (# of Limitations) Outcome Measurement	Study & Intervention Characteristics	Population & Sample Size	Effect Measure	Reported Baseline	Reported Effect	Value Used in Summary [95%CI]	Follow-Up Time
<p><b>Author (Year):</b> Turner, et al. (1989)</p> <p><b>Study Period:</b> 1984</p> <p><b>Design suitability (design):</b> Greatest Suitability (Nonrandomized Trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Tetanus (Additonal evidence)</p>	<p><b>Location:</b> Philadelphia, Pennsylvania</p> <p><b>Intervention:</b> Provider reminders + Client education</p> <p><b>Comparison:</b> Usual care</p>	<p><b>Setting:</b> Internal medicine residency clinic</p> <p><b>Study Population:</b> - Adults, mean age 60-62 years - Urban - 69%-78% female - Low socioeconomic status</p> <p>N= 64 charts audited</p>				<p>Td was &lt;10% all groups pre and post and had not improved 1 year later; other preventive care significantly improved; physician knowledge by questionnaire increased (non-significant)</p>	
<p><b>Author (Year):</b> Barton, et al. (1990)</p> <p><b>Study Period:</b> 1983-1987</p> <p><b>Design suitability (design):</b> Moderate Suitability (Time Series)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Influenza</p>	<p><b>Location:</b> Boston, Massachusetts</p> <p><b>Arm 1:</b> Client reminder/recall + Client education + Provider reminders</p> <p><b>Arm 2:</b> Client reminder/recall + Client education + Provider reminders + Provider assessment/feedback</p> <p><b>Comparison:</b> Usual care</p>	<p><b>Setting:</b> Clinic/provider's offices</p> <p><b>Study Population:</b> - Aged &gt;65 years - Urban</p> <p>N= 647 total</p>	<p>Vaccination rates</p> <p>Arm 1 vs Comparison</p> <p>Arm 2 vs Comparison</p> <p>Arm 2 vs Arm 1</p>	<p>24%</p> <p>24%</p> <p>42%</p>		<p>+18 pct pts [95% CI: not reported]</p> <p>+36 pct pts [95% CI: not reported]</p> <p>+18 pct pts [95% CI: not reported]</p>	<p>3 influenza seasons</p>

Quality of execution (# of Limitations) Outcome Measurement	Study & Intervention Characteristics	Population & Sample Size	Effect Measure	Reported Baseline	Reported Effect	Value Used in Summary [95%CI]	Follow-Up Time						
<p><b>Author (Year):</b> Nichol (1990)</p> <p><b>Study Period:</b> 1987; 1987-1992</p> <p><b>Design suitability (design):</b> Greatest Suitability (Other design w/Concurrent Comparison)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Influenza</p>	<p><b>Location:</b> Minneapolis, Minnesota</p> <p><b>Intervention:</b> Standing orders + Expanded access + Provider reminders + Client reminder/recall</p> <p><b>Comparison:</b> Usual care at 3 other Midwestern academic hospitals</p>	<p><b>Setting:</b> VA Outpatient services</p> <p><b>Study Population:</b> -Veterans</p> <table border="0" style="margin-left: 20px;"> <tr> <td></td> <td style="text-align: center;"><u>N</u></td> </tr> <tr> <td>Inter</td> <td style="text-align: center;">378</td> </tr> <tr> <td>Compr</td> <td style="text-align: center;">997</td> </tr> </table>		<u>N</u>	Inter	378	Compr	997	<p>Vaccination rates</p>	<p>32%</p>		<p>+26 pct pts P &lt; 0.00001</p>	<p>~ 1 year</p>
	<u>N</u>												
Inter	378												
Compr	997												
<p><b>Author (Year):</b> Turner, et al. (1990)</p> <p><b>Study Period:</b> 1987-1988</p> <p><b>Design suitability (design):</b> Greatest Suitability (Randomized Trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Influenza PPV</p>	<p><b>Location:</b> Greenville, North Carolina</p> <p><b>Intervention:</b> Client-held paper immunization records + Provider reminder</p> <p><b>Comparison:</b> Provider reminders</p>	<p><b>Setting:</b> East Carolina School of Medicine resident physician clinic</p> <p><b>Study Population:</b> -Adults - 60% black - Mixed urbanistically</p> <table border="0" style="margin-left: 20px;"> <tr> <td></td> <td style="text-align: center;"><u>N</u></td> </tr> <tr> <td>Inter</td> <td style="text-align: center;">177</td> </tr> <tr> <td>Compr</td> <td style="text-align: center;">246</td> </tr> </table>		<u>N</u>	Inter	177	Compr	246	<p>Vaccination rates Influenza</p> <p>PPV</p>	<p>27%</p> <p>27%</p>		<p>+18 pct pts (p &lt; 0.002)</p> <p>-2 pct pts (p = 0.34); significant increase occurred in most other preventive measures</p>	<p>9 months</p>
	<u>N</u>												
Inter	177												
Compr	246												

Quality of execution (# of Limitations) Outcome Measurement	Study & Intervention Characteristics	Population & Sample Size	Effect Measure	Reported Baseline	Reported Effect	Value Used in Summary [95%CI]	Follow-Up Time
<p><b>Author (Year):</b> Buffington, et al. (1991)</p> <p><b>Study Period:</b> 1989</p> <p><b>Design suitability (design):</b> Greatest Suitability (Randomized Trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Influenza</p>	<p><b>Location:</b> Rochester, New York</p> <p><b>Arm1:</b> Provider assessment/feedback</p> <p><b>Arm 2:</b> Provider assessment/feedback + Client reminder/recall</p> <p><b>Comparison:</b> Usual care</p>	<p><b>Setting:</b> Private physician offices</p> <p><b>Study Population:</b> - Adults - Aged &gt;65 years - Urban/suburban</p>	<p>Vaccination rates Arm 2 vs Comparison</p> <p>Arm 2 vs Arm 1</p>	<p>50%</p> <p>66%</p>	<p>67%</p> <p>67%</p>	<p>+17 pct pts P &lt; 0.001</p> <p>+ 1 pct pts</p>	<p>14 weeks</p>
<p><b>Author (Year):</b> Hutchinson, et al. (1991)</p> <p><b>Study Period:</b> 1981-1987</p> <p><b>Design suitability (design):</b> Moderate Suitability (Time series)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Influenza</p>	<p><b>Location:</b> Hamilton, Ontario</p> <p><b>Intervention:</b> Client reminder/recall + Expanded access</p> <p><b>Comparison:</b> Usual care</p>	<p><b>Setting:</b> Community clinic</p> <p><b>Study Population:</b> - Adults - Aged &gt;65 years - Urban - 66% female</p> <p>N= 273 participants</p>	<p>Vaccination rates</p>	<p>17%</p>		<p>+35 pct pts [95% CI: not reported]</p>	<p>6 years</p>

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<p><b>Author (Year):</b> Nichol, et al. (1990; 1991)</p> <p><b>Design suitability (design):</b> Greatest Suitability (Prospective Cohort)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Influenza</p> <p><i>Additonal evidence</i></p>	<p><b>Location:</b> Minneapolis, Minnesota</p> <p><b>Intervention:</b> Standing orders + Provider reminders + Expanded access + Client education</p> <p><b>Comparison:</b> None</p>	<p><b>Setting:</b> VA hospital</p> <p><b>Study Population:</b> - Adults - Aged &gt;65 years</p> <p>N=Not reported</p>				<p>Before intervention inpatient coverage &lt;25% and outpatient coverage &gt;60%; addition of policy for inpatients brought inpatient coverage to 79%, which did not differ significantly from outpatient levels</p>	

Quality of execution (# of Limitations) Outcome Measurement	Study & Intervention Characteristics	Population & Sample Size	Effect Measure	Reported Baseline	Reported Effect	Value Used in Summary [95%CI]	Follow-Up Time
<p><b>Author (Year):</b> Ornstein, et al. (1991)</p> <p><b>Study Period:</b> 1988-1989</p> <p><b>Design suitability (design):</b> Greatest Suitability (Group Randomized Trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Tetanus</p>	<p><b>Location:</b> South Carolina</p> <p><b>Arm 1:</b> Provider reminders</p> <p><b>Arm 2:</b> Client reminder/recall</p> <p><b>Arm 3:</b> Provider reminders + Client reminder/recall</p> <p><b>Comparison:</b> Usual care</p>	<p><b>Setting:</b> University of South Carolina at family medicine center</p> <p><b>Study Population:</b></p> <ul style="list-style-type: none"> <li>- Adults</li> <li>- Aged &gt;18 years, mean age 40 years</li> <li>- Urban</li> <li>- 61% female</li> <li>- 61% black</li> <li>- Low socioeconomic status</li> </ul> <p style="text-align: center;"><u>N</u></p> <p>Inter 1908 Compr 1576</p>	<p>Vaccination rates Arm 3 vs Comparison</p> <p>Arm 3 vs Arm 1</p> <p>Arm 3 vs Arm 2</p>	<p>Not reported</p> <p>10.5%</p> <p>9.5%</p>	<p>12%</p> <p>12%</p>	<p>+8.2 pct pts [95% CI: not reported]</p> <p>+1.5 pct pts</p> <p>+2.5 pct pts</p>	<p>1 year</p>

Quality of execution (# of Limitations) Outcome Measurement	Study & Intervention Characteristics	Population & Sample Size	Effect Measure	Reported Baseline	Reported Effect	Value Used in Summary [95%CI]	Follow-Up Time
<p><b>Author (Year):</b> Dickey, et al. (1992)</p> <p><b>Study Period:</b> 1988-1989</p> <p><b>Design suitability (design):</b> Greatest Suitability (Nonrandomized Trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Influenza PPV Tetanus</p>	<p><b>Location:</b> San Francisco, California</p> <p><b>Intervention:</b> Client-held paper immunization records + client education</p> <p><b>Comparison:</b> Client-held paper immunization records for providers</p>	<p><b>Setting:</b> Family practice residency clinic</p> <p><b>Study Population:</b> - Adults - Mean age 55 years - Urban - 49%-55% Spanish speaking</p> <p>N= 200 participants</p>	<p>Vaccination rates</p> <p>Influenza</p> <p>PPV</p> <p>Tetanus</p>	<p>46%</p> <p>47%</p> <p>46%</p>		<p>-7 pct pts</p> <p>+16 pct pts</p> <p>+7 pct pts (P &lt; 0.05)</p>	<p>4 months</p>

Quality of execution (# of Limitations) Outcome Measurement	Study & Intervention Characteristics	Population & Sample Size	Effect Measure	Reported Baseline	Reported Effect	Value Used in Summary [95%CI]	Follow-Up Time								
<p><b>Author (Year):</b> Margolis, et al. (1992)</p> <p><b>Study Period:</b> 1989-1990</p> <p><b>Design suitability (design):</b> Greatest Suitability (Nonrandomized Trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Influenza</p>	<p><b>Location:</b> Minneapolis-St. Paul, Minnesota</p> <p><b>Intervention:</b> Standing orders + client reminder/recall + Provider education + expanded access</p> <p><b>Comparison:</b> Usual care Two clinics in each group</p>	<p><b>Setting:</b> Staff model health maintenance organization</p> <p><b>Study Population:</b>                      - Adults                      - Aged &gt;65 years                      - Urban/suburban</p> <p>N= outcomes assessed in 150 randomly chosen clients/clinic</p>	<p>Vaccination rates</p> <p>Intervention clinic 1 vs comparison clinic 1</p> <p>Intervention clinic 2 vs comparison clinic 2</p>	<p>66%</p>		<p>+ 6 pct pts                      P=0.01 (I2 vs C2)</p>	<p>1 influenza season</p>								
<p><b>Author (Year):</b> Moran, et al. (1992)</p> <p><b>Study Period:</b> 1990</p> <p><b>Design suitability (design):</b> Greatest Suitability (Randomized Trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Influenza</p>	<p><b>Location:</b> not reported</p> <p><b>Arm 1:</b> Client reminder/recall + expanded access + reduced out-of-pocket cost</p> <p><b>Arm 2:</b> 2 client reminder/recall + expanded access + reduced out-of-pocket cost</p> <p><b>Comparison:</b> Usual care</p>	<p><b>Setting:</b> Community health center</p> <p><b>Study Population:</b>                      - Adults                      - Urban                      - 61% female</p> <table border="0" style="margin-left: 20px;"> <tr> <td></td> <td style="text-align: center;"><u>N</u></td> </tr> <tr> <td>Arm 1</td> <td style="text-align: center;">135</td> </tr> <tr> <td>Arm 2</td> <td style="text-align: center;">138</td> </tr> <tr> <td>Compr</td> <td style="text-align: center;">136</td> </tr> </table>		<u>N</u>	Arm 1	135	Arm 2	138	Compr	136	<p>Vaccination rates</p> <p>Arm 1 vs comparison</p> <p>Arm 2 vs comparison</p>	<p>52 (38%) out of 136</p> <p>52 (38%) out of 136</p>	<p>54 (40%) out of 135</p> <p>41 (29% ) out of 138</p>	<p>+ 2 pct pts [non significant]</p> <p>-8 pct pts [non significant]</p>	<p>1 influenza season</p>
	<u>N</u>														
Arm 1	135														
Arm 2	138														
Compr	136														

Quality of execution (# of Limitations) Outcome Measurement	Study & Intervention Characteristics	Population & Sample Size	Effect Measure	Reported Baseline	Reported Effect	Value Used in Summary [95%CI]	Follow-Up Time
<p><b>Author (Year):</b> Oeffinger, et al. (1992)</p> <p><b>Study Period:</b> Time not reported</p> <p><b>Design suitability (design):</b> Greatest Suitability (Nonrandomized Trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Childhood series</p>	<p><b>Location:</b> McLennan County, Texas</p> <p><b>Intervention:</b> Client education + Client reminder/recall</p> <p><b>Comparison:</b> Usual care</p>	<p><b>Setting:</b> Family practice residency in hospital and clinic</p> <p><b>Study Population:</b></p> <ul style="list-style-type: none"> <li>- Mothers/infants</li> <li>- Aged &lt;1 year with 35%-39% adolescent mothers</li> <li>- 28%-36% Hispanic</li> <li>- 33%-47% black</li> </ul> <p>N=Not reported</p>	<p>Up-to-date with 3 DTP vaccination/2 OPV by 12 months</p>	<p>28%</p>		<p>-4% P=0.41</p>	<p>Not reported</p>
<p><b>Author (Year):</b> O’Sullivan, et al. (1992)</p> <p><b>Study Period:</b> Time not reported</p> <p><b>Design suitability (design):</b> Greatest Suitability (Randomized Trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Childhood</p>	<p><b>Location:</b> Eastern United States</p> <p><b>Intervention:</b> Client reminder/recall + Client-held paper immunization record + reduced out-of-pocket cost</p> <p><b>Comparison:</b> Usual care</p>	<p><b>Setting:</b> Large urban teaching hospital</p> <p><b>Study Population:</b></p> <ul style="list-style-type: none"> <li>- Mothers/infants</li> <li>- Maternal aged &lt;17</li> <li>- 100% black</li> <li>- Low socioeconomic status</li> </ul> <p>N=Not reported</p>	<p>Children aged 18 months up-to-date with vaccinations</p>	<p>18%</p>		<p>+15 pct pts P&lt;0.02</p>	<p>Not reported</p>

Quality of execution (# of Limitations) Outcome Measurement	Study & Intervention Characteristics	Population & Sample Size	Effect Measure	Reported Baseline	Reported Effect	Value Used in Summary [95%CI]	Follow-Up Time
<p><b>Author (Year):</b> Frame, et al. (1994)</p> <p><b>Study Period:</b> 1991-1992</p> <p><b>Design suitability (design):</b> Greatest Suitability (Group randomized Trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Tetanus</p>	<p><b>Location:</b> Dansville, New York</p> <p><b>Intervention:</b> Client reminder/recall + Provider reminders</p> <p><b>Comparison:</b> Client reminder/recall</p>	<p><b>Setting:</b> Family practice offices</p> <p><b>Study Population:</b></p> <ul style="list-style-type: none"> <li>- Adults</li> <li>- Aged &gt;21 years</li> <li>- Rural</li> <li>- Low/middle socioeconomic status</li> </ul> <p style="text-align: center;"><u>N</u></p> <p>Inter 829 Compr 836</p>	<p>Vaccination rates</p>	<p>20%</p>		<p>+21 pct pts [95% CI: 16, 26]</p>	<p>2 years</p>
<p><b>Author (Year):</b> Herman, et al. (1994)</p> <p><b>Study Period:</b> 1989-1990</p> <p><b>Design suitability (design):</b> Greatest Suitability (Randomized Trial)</p> <p><b>Quality of Execution:</b> Good</p> <p><b>Outcome Measurement:</b> Influenza PPV</p>	<p><b>Location:</b> Cleveland, Ohio</p> <p><b>Arm 1:</b> Standing orders + Client education + Provider education</p> <p><b>Arm 2:</b> Provider education + Client education</p> <p><b>Comparison:</b> provider education</p>	<p><b>Setting:</b> Academic clinical organization</p> <p><b>Study Population:</b></p> <ul style="list-style-type: none"> <li>- Adults</li> <li>- &gt;65 years</li> <li>- 67% female</li> <li>- Predominantly white</li> </ul> <p style="text-align: center;"><u>N</u></p> <p>Arm 1 387 Arm 2 389 Compr 426</p>	<p>Vaccination rates</p> <p>Arm 1 vs comparison Influenza PPV</p> <p>Arm 2 vs comparison Influenza PPV</p> <p>Arm 1 vs Arm 2 Influenza PPV</p>	<p>23% 23%</p> <p>23% 23%</p> <p>44.6% 5.1%</p>		<p>+13 pct pts +19 pct pts [Significant]</p> <p>+3 pct pts +2 pct pts [Non-significant]</p> <p>+10.5 pct pts +16.5 pct pts</p>	<p>2 influenza seasons</p>

Quality of execution (# of Limitations) Outcome Measurement	Study & Intervention Characteristics	Population & Sample Size	Effect Measure	Reported Baseline	Reported Effect	Value Used in Summary [95%CI]	Follow-Up Time
<p><b>Author (Year):</b> Karuza, et al. (1995)</p> <p><b>Study Period:</b> 1990-1992</p> <p><b>Design suitability (design):</b> Greatest Suitability (Group Randomized Trial)</p> <p><b>Quality of Execution:</b> Good</p> <p><b>Outcome Measurement:</b> Influenza</p>	<p><b>Location:</b> Buffalo, New York</p> <p><b>Intervention:</b> Provider assessment/feedback + Provider reminders + client reminder/recall + Provider education + Client education + Standing orders + Expanded access</p> <p><b>Comparison:</b> Underwent similar process for nonsteroidal drug prescribing</p>	<p><b>Setting:</b> Private practices</p> <p><b>Study Population:</b> - Adults - Urban - 80% male</p>	<p>Vaccination rates</p>	<p>48%</p>		<p>+16 pct pts P&lt; 0.01</p>	<p>2 influenza seasons</p>
<p><b>Author (Year):</b> Moran, et al. (1996)</p> <p><b>Study Period:</b> 1991</p> <p><b>Design suitability (design):</b> Greatest Suitability (Randomized Trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Influenza</p>	<p><b>Location:</b> Boston, Massachusetts</p> <p><b>Intervention:</b> Client reminder/recall + Client incentives + Expanded access + Reduced out-of-pocket cost</p> <p><b>Comparison:</b> Usual care (Expanded access + Reduced out-of-pocket costs)</p>	<p><b>Setting:</b> Community health center</p> <p><b>Study Population:</b> - Adults, mean age 66 years - Urban - 33%-35% male - Low socioeconomic status</p> <p>N= 797 total population</p>	<p>Vaccination rates</p>	<p>20%</p>		<p>+ 6 pct pts [95% CI: not reported]</p>	<p>1 influenza season</p>

Quality of execution (# of Limitations) Outcome Measurement	Study & Intervention Characteristics	Population & Sample Size	Effect Measure	Reported Baseline	Reported Effect	Value Used in Summary [95%CI]	Follow-Up Time									
<p><b>Author (Year):</b> Pierce, et al. (1996)</p> <p><b>Study Period:</b> 1989 (pre)-1993 (post)</p> <p><b>Design suitability (design):</b> Greatest Suitability (Nonrandomized Trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Childhood series</p>	<p><b>Location:</b> Albuquerque, New Mexico</p> <p><b>Intervention:</b> Expanded access + Client education + Provider education + Client reminder/recall + Outreach/tracking</p> <p><b>Comparison:</b> Usual care</p>	<p><b>Setting:</b> Public health clinics</p> <p><b>Study Population:</b></p> <ul style="list-style-type: none"> <li>- Children</li> <li>- &lt;12 months</li> <li>- 70%-29% Hispanic</li> <li>- Remainder predominately white</li> <li>- 34% below poverty level</li> </ul> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>N Pre</u></th> <th style="text-align: center;"><u>N Post</u></th> </tr> </thead> <tbody> <tr> <td>Interv</td> <td style="text-align: center;">846</td> <td style="text-align: center;">309</td> </tr> <tr> <td>Compr</td> <td style="text-align: center;">753</td> <td style="text-align: center;">138</td> </tr> </tbody> </table>		<u>N Pre</u>	<u>N Post</u>	Interv	846	309	Compr	753	138	<p>Up-to-date vaccination rates at 18 months</p>		<p>58%</p>	<p>+24 pct pts [Significance not tested because entire population included]</p>	<p>1 year</p>
	<u>N Pre</u>	<u>N Post</u>														
Interv	846	309														
Compr	753	138														
<p><b>Author (Year):</b> Brown goehl, et al. (1997)</p> <p><b>Study Period:</b> 1992-1993</p> <p><b>Design suitability (design):</b> Moderate Suitability (Retrospective cohort)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Childhood</p>	<p><b>Location:</b> Philadelphia, Pennsylvania</p> <p><b>Intervention:</b> Client reminder/recall + Provider education + Provider incentive + Client education + Client incentives + Expanded access + Outreach/tracking + Home visits</p> <p><b>Comparison:</b> Older children</p>	<p><b>Setting:</b> Medicaid managed care group</p> <p><b>Study Population:</b></p> <ul style="list-style-type: none"> <li>- Children</li> <li>- Children aged 30-35 months (control group) and 18-24 months (study group)</li> <li>- Low socioeconomic status</li> </ul> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>N</u></th> </tr> </thead> <tbody> <tr> <td>Inter</td> <td style="text-align: center;">1254</td> </tr> <tr> <td>Compr</td> <td style="text-align: center;">1257</td> </tr> </tbody> </table>		<u>N</u>	Inter	1254	Compr	1257	<p>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>37%</p> <p>37%</p>		<p>+ 7 pct pts P &lt;0.05</p> <p>+2 pct pts (Non-significant)</p> <p>Higher coverage in children who received home visits (significance not given)</p>	<p>1 year</p>			
	<u>N</u>															
Inter	1254															
Compr	1257															

Quality of execution (# of Limitations) Outcome Measurement	Study & Intervention Characteristics	Population & Sample Size	Effect Measure	Reported Baseline	Reported Effect	Value Used in Summary [95%CI]	Follow-Up Time
<p><b>Author (Year):</b> Harper, et al. (1997)</p> <p><b>Study Period:</b> 1993-1994</p> <p><b>Design suitability (design):</b> Greatest Suitability (Nonrandomized Trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p>Childhood series</p>	<p><b>Location:</b> St Paul, Minnesota</p> <p><b>Intervention:</b> Provider reminders + Client education + Provider assessment/feedback</p> <p><b>Comparison:</b> Usual care</p>	<p><b>Setting:</b> Family practice residency clinic (intervention), community clinic (control)</p> <p><b>Study Population:</b></p> <ul style="list-style-type: none"> <li>- Children aged 24-35 months</li> <li>- Urban</li> <li>- 54%-56% male</li> <li>- 86%-93% white</li> <li>- Low socioeconomic status</li> </ul> <p style="text-align: center;"><u>N</u></p> <p>Inter 280 Compr 239</p>	<p>DTP/OPV/MMR (4:3:1 doses, respectively), at age 24-35 months</p>	<p>42%</p>		<p>+12 pct pts P &lt; 0.02</p>	<p>1 year</p>
<p><b>Author (Year):</b> Nexoe, et al. (1997)</p> <p><b>Study Period:</b> 1995</p> <p><b>Design suitability (design):</b> Greatest Suitability ( Randomized Trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Influenza</p>	<p><b>Location:</b> Denmark</p> <p><b>Intervention:</b> Client reminder/recall + Reduced out-of-pocket cost</p> <p><b>Comparison:</b> Usual care</p>	<p><b>Setting:</b> General practices</p> <p><b>Study Population:</b></p> <ul style="list-style-type: none"> <li>- Adults &gt;65 years</li> <li>- 60% female</li> </ul> <p style="text-align: center;"><u>N</u></p> <p>Inter 195 Compr 195</p>	<p>Vaccination rates</p>	<p>25%</p>		<p>+ 47 pct pts [no statistical tests for these comparisons]</p>	<p>~ 15 weeks</p>

Quality of execution (# of Limitations) Outcome Measurement	Study & Intervention Characteristics	Population & Sample Size	Effect Measure	Reported Baseline	Reported Effect	Value Used in Summary [95%CI]	Follow-Up Time
<p><b>Author (Year):</b> Satterthwaite, et al. (1997)</p> <p><b>Study Period:</b> Time not reported</p> <p><b>Design suitability (design):</b> Greatest Suitability (Randomized Trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Influenza</p>	<p><b>Location:</b> Auckland, New Zealand</p> <p><b>Intervention:</b> Client reminder/recall + reduced out-of-pocket cost</p> <p><b>Comparison:</b> Usual care</p>	<p><b>Setting:</b> General practices</p> <p><b>Study Population:</b> - Adults aged &gt; 65 years</p> <p style="text-align: center;"><u>N</u></p> <p>Inter 930 Compr 930</p>	<p>Vaccination rates</p>	<p>17%</p>		<p>+28 pct pts P &lt; 0.001</p>	<p>Not reported</p>
<p><b>Author (Year):</b> Szilagyi, et al. (1997)</p> <p><b>Study Period:</b> 1994</p> <p><b>Design suitability (design):</b> Greatest Suitability (Prospective Cohort)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Childhood series</p>	<p><b>Location:</b> New York City, Manhattan and the Bronx</p> <p><b>Intervention:</b> Expanded access + Reduced out-of-pocket cost</p> <p><b>Comparison:</b> Usual care</p>	<p><b>Setting:</b> 2 Emergency departments</p> <p><b>Study Population:</b> - Children aged birth-6.9 years - Urban - 52%-53% male - Low socioeconomic status</p> <p>N=484 participants</p>	<p>Up-to-date with DTP/OPV/MMR/Hib/Hepatitis B at 6 months</p> <p>Manhattan</p> <p>Bronx</p>	<p>64%</p> <p>64%</p>		<p>+2 pct pts [non-significant]</p> <p>+ 9 pct pts [non-significant]</p>	

Quality of execution (# of Limitations) Outcome Measurement	Study & Intervention Characteristics	Population & Sample Size	Effect Measure	Reported Baseline	Reported Effect	Value Used in Summary [95%CI]	Follow-Up Time
<p><b>Author (Year):</b> Fairbrother, et al. (1999)</p> <p><b>Study Period:</b> 1995-1996</p> <p><b>Design suitability (design):</b> Greatest Suitability (Group Randomized Trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Childhood series</p>	<p><b>Location:</b> New York City, New York</p> <p><b>Arm 1:</b> Provider assessment / feedback + Provider incentive (bonus)</p> <p><b>Arm 2:</b> Provider assessment / feedback + Provider incentive (fee-for-service)</p> <p><b>Comparison:</b> Assessment and feedback for lead and TB screening only</p>	<p><b>Setting:</b> Pediatric and family medicine providers in nine NYC neighborhoods</p> <p><b>Study Population:</b> - Children Independent samples of pediatric clients of study providers (estimated)</p> <p style="text-align: center;"><u>Nbaseline N 8m</u></p> <p>Arm1 (750) (750) Arm 2 (750) (750) Comp (750) (750)</p>	<p>Proportion of children with up-to-date vaccination status on chart audit</p> <p>Arm 1 vs comparison</p> <p>Arm 2 vs comparison</p>	<p>I: 29.1% C: 34.6%</p> <p>46.2% C 34.6%</p>	<p>I: 54.4% C: 40.7%</p> <p>I 50.5% C 40.7%</p>	<p>+19.2 pct pts [+14.2, +24.2] p&lt;0.01</p> <p>-1.8 pct pts [ -6.8, +3.2 ]</p>	<p>8 months</p>
<p><b>Author (Year):</b> Hillman, et al. (1999)</p> <p><b>Study Period:</b> 1993-1995</p> <p><b>Design suitability (design):</b> Greatest Suitability (Group Randomized Trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Childhood series</p>	<p><b>Location:</b> Philadelphia, Pennsylvania</p> <p><b>Arm 1:</b> Provider assessment/feedback + Provider incentive (bonus)</p> <p><b>Arm 2:</b> Provider assessment/feedback</p> <p><b>Comparison:</b> Assessment without feedback or incentive</p>	<p><b>Setting:</b> Primary care physician practices serving pediatric members in a managed care plan</p> <p><b>Study Population:</b> - Children Random assignment of practices to providers to one of three conditions</p> <p style="text-align: center;"><u>Nbaseline N 18m</u></p> <p>Overall 53 49 Interv 19 19 Compr 17 15</p>	<p>Total compliance score based on chart audits assessed at 6 month Intervals Arm 1 vs Comparison</p> <p>Arm 1 vs Arm 2</p>	<p>I: 60.2% C: 69.1%</p> <p>60%</p>	<p>I:76.9% C: 80.8%</p> <p>54%</p>	<p>+ 5 pct pts [non-significant]</p> <p>-5.9 pct pts [95% CI: not reported]</p>	<p>18 months</p>

Quality of execution (# of Limitations) Outcome Measurement	Study & Intervention Characteristics	Population & Sample Size	Effect Measure	Reported Baseline	Reported Effect	Value Used in Summary [95%CI]	Follow-Up Time																																
<p><b>Author (Year):</b> Rhew et al. (1999)</p> <p><b>Study Period:</b> 1997</p> <p><b>Design suitability (design):</b> Greatest Suitability (Group Randomized Trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> PPV</p>	<p><b>Location:</b> West Los Angeles, CA</p> <p><b>Arm 1:</b> Standing orders + Provider assessment/feedback + Client education + Provider reminders</p> <p><b>Arm 2:</b> Standing orders + Client education + Provider reminders</p> <p><b>Comparison:</b> Client education + Provider reminders</p>	<p>Setting: 3 health care firms/teams in geographically distinct areas.</p> <p>Study clinic (provides care to 12,000 patients; 90% men; 36.5% age 65 yrs and older; lower SES).</p> <p>Study Population: -Adults</p> <p style="text-align: center;"><u>N patients seen in</u></p> <table border="0" style="width: 100%;"> <tr> <td style="width: 10%;"><u>12wks</u></td> <td style="width: 10%;"></td> </tr> <tr> <td>Arm 1</td> <td></td> <td>1,101</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Arm 2</td> <td></td> <td>1,221</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Compr</td> <td></td> <td>1,180</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	<u>12wks</u>								Arm 1		1,101						Arm 2		1,221						Compr		1,180						<p>Total number of vaccines given by team ( all eligible staff)</p> <p>Pneumococcal vaccine</p> <p>Arm 1 vs Arm 2</p> <p>Note: All 3 study arms included provider reminders, so this study does not provide direct evidence on the effectiveness of provider reminders. However, the arms including Standing Orders demonstrated significant improvements over the arm with only client education and provider reminders.</p>	<p>Team Eligible</p> <ol style="list-style-type: none"> <li>1. (24%)</li> <li>2. (26%)</li> <li>3. (0.9%)</li> </ol>	<p>Arm 1. 22% Compr 5% P&lt;0.001</p> <p>Arm 2. 25% Compr 5% P&lt;0.001</p> <p>Arm 1: 22% Compr-Arm2: 25%</p>	<p>+17 pct pts [95% CI:14.3, 19.7]</p> <p>+20 pct pts [95% CI.17.3,22.7]</p> <p>-3 pct pts [95% CI: - 6,0.4]</p>	<p>12 weeks</p>
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Quality of execution (# of Limitations) Outcome Measurement	Study & Intervention Characteristics	Population & Sample Size	Effect Measure	Reported Baseline	Reported Effect	Value Used in Summary [95%CI]	Follow-Up Time								
<p><b>Author (Year):</b> Rodewald, et al. (1999)</p> <p><b>Study Period:</b> 1994-1995</p> <p><b>Design suitability (design):</b> Greatest Suitability (Group Randomized Trial)</p> <p><b>Quality of Execution:</b> Good</p> <p><b>Outcome Measurement:</b> Childhood series</p>	<p><b>Location:</b> Rochester, New York</p> <p><b>Arm 1:</b> Provider reminders + Provider education + Provider assessment/feedback</p> <p><b>Arm 2:</b> Provider assessment/feedback + Provider reminders + Provider education + Client reminder/recall + Outreach/tracking + Home visits</p> <p><b>Comparison:</b> Usual care</p>	<p><b>Setting:</b> 9 primary care sites serving impoverished and middle class children</p> <p><b>Study Population:</b> -Children</p> <table border="0"> <tr> <td></td> <td style="text-align: center;"><u>N</u></td> </tr> <tr> <td>Arm 1</td> <td style="text-align: center;">744</td> </tr> <tr> <td>Arm 2</td> <td style="text-align: center;">648</td> </tr> <tr> <td>Compr</td> <td style="text-align: center;">719</td> </tr> </table>		<u>N</u>	Arm 1	744	Arm 2	648	Compr	719	<p>Number &amp; percent "up to date" for age-appropriate series completion</p> <p>Arm 1 vs comparison</p> <p>Arm 2 vs comparison</p>	<p>I: 80% C: 81%</p> <p>I: 85% C: 81%</p>	<p>I: 95%</p> <p>I: 76%</p>	<p>+ 3 pct pts [95% CI: -1,7]</p> <p>+17 pct pts [95% CI: 13,21]</p>	<p>18 months</p>
	<u>N</u>														
Arm 1	744														
Arm 2	648														
Compr	719														
<p><b>Author (Year):</b> Rust, et al. (1999)</p> <p><b>Study Period:</b> 1997-1998</p> <p><b>Design suitability (design):</b> Greatest Suitability (Individual Randomized Trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Childhood series</p>	<p><b>Location:</b> USA</p> <p><b>Intervention:</b> Provider education + Provider assessment/feedback</p> <p><b>Comparison:</b> Education only</p>	<p><b>Setting:</b> Pediatric resident continuity clinic</p> <p><b>Study Population:</b> - Children</p> <table border="0"> <tr> <td></td> <td style="text-align: center;"><u>N Chart reviews</u></td> </tr> <tr> <td>Interv</td> <td style="text-align: center;">104</td> </tr> <tr> <td>Compr</td> <td style="text-align: center;">168</td> </tr> </table>		<u>N Chart reviews</u>	Interv	104	Compr	168	<p>Up to date coverage in pediatric patients of study providers obtained via chart review and local immunization registry</p>	<p>68.5%</p>	<p>71.4%</p>	<p>+2.9 pct pts [95% CI: -8, 14]</p>	<p>12 months</p>		
	<u>N Chart reviews</u>														
Interv	104														
Compr	168														

Quality of execution (# of Limitations) Outcome Measurement	Study & Intervention Characteristics	Population & Sample Size	Effect Measure	Reported Baseline	Reported Effect	Value Used in Summary [95%CI]	Follow-Up Time															
<p><b>Author (Year):</b> Ginson et al. (2000)</p> <p><b>Study Period:</b> 1997</p> <p><b>Design suitability (design):</b> Greatest Suitability (Group Randomized Tiral)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Influenza PPV</p>	<p><b>Location:</b> Canada; Moncton, New Brunswick</p> <p><b>Intervention:</b> Standing orders + Client education</p> <p><b>Comparison:</b> Usual care</p>	<p><b>Setting:</b> Hospital</p> <p><b>Study Population:</b> -Adults - Inpatients</p> <p><b>Patients:</b></p> <table border="1"> <thead> <tr> <th>Grp</th> <th>Prov</th> <th>Enrolled</th> <th>I elig</th> <th>PPVelig</th> </tr> </thead> <tbody> <tr> <td>Inter</td> <td>NR</td> <td>50</td> <td>28</td> <td>49</td> </tr> <tr> <td>Comp</td> <td>NR</td> <td>52</td> <td>37</td> <td>48</td> </tr> </tbody> </table>	Grp	Prov	Enrolled	I elig	PPVelig	Inter	NR	50	28	49	Comp	NR	52	37	48	<p>Proportion of vaccine eligible patients who were vaccinated by the 3m f/u</p> <p>Influenza</p> <p>PPV</p>	<p>C: 16%</p> <p>C:21%</p>	<p>I: 61%</p> <p>I: 67%</p>	<p>+45 pct pts p=0.0001 95%CI=[23, 67]</p> <p>+46 pct pts p=0.0001 95%CI=[28, 64]</p>	<p>1 month</p>
Grp	Prov	Enrolled	I elig	PPVelig																		
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Quality of execution (# of Limitations) Outcome Measurement	Study & Intervention Characteristics	Population & Sample Size	Effect Measure	Reported Baseline	Reported Effect	Value Used in Summary [95%CI]	Follow-Up Time								
<p><b>Author (Year):</b> Latessa, et al. (2000)</p> <p><b>Study Period:</b> Time not reported</p> <p><b>Design suitability (design):</b> Greatest Suitability (Other Design with a Concurrent Comparison)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> PPV</p>	<p><b>Location:</b> Greenville, North Carolina</p> <p><b>Arm 1:</b> Provider reminder + Client education</p> <p><b>Arm 2:</b> Client education only</p> <p><b>Comparison:</b> Usual care</p>	<p><b>Setting:</b> Family practice center at East Carolina University</p> <p><b>Study Population:</b> - Adults - Patients with risk indications (most adults) for PPV - Outpatient</p> <table border="0"> <tr> <td></td> <td style="text-align: center;"><u>N</u></td> </tr> <tr> <td>Arm 1</td> <td style="text-align: center;">205</td> </tr> <tr> <td>Arm 2</td> <td style="text-align: center;">187</td> </tr> <tr> <td>Compr</td> <td style="text-align: center;">386</td> </tr> </table>		<u>N</u>	Arm 1	205	Arm 2	187	Compr	386	<p>Proportion of eligible patients who received pneumococcal vaccination</p> <p>Arm 1 vs Comparison</p> <p>Arm 1 vs Arm 2</p>	<p>C: 27 (7%) of 386</p> <p>Arm 2: 21 (11%) out of 187</p>	<p>I: 41 (20%) of 205</p> <p>I: 41 (20%) of 205</p>	<p>+13 pct pts [95% CI: 7, 19]</p> <p>+9 pct pts [95% CI: 2, 16]</p>	<p>6 months</p>
	<u>N</u>														
Arm 1	205														
Arm 2	187														
Compr	386														

Quality of execution (# of Limitations) Outcome Measurement	Study & Intervention Characteristics	Population & Sample Size	Effect Measure	Reported Baseline	Reported Effect	Value Used in Summary [95%CI]	Follow-Up Time									
<p><b>Author (Year):</b> Shaw, et al. (2000)</p> <p><b>Study Period:</b> 1996-1997</p> <p><b>Design suitability (design):</b> Greatest Suitability (Group Randomized Trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Childhood series</p> <p><i>Additional evidence</i></p>	<p><b>Location:</b> Boston, Massachusetts</p> <p><b>Intervention:</b> Provider reminder + Provider education</p> <p><b>Comparison:</b> Provider education</p>	<p><b>Setting:</b> Outpatient pediatric clinic</p> <p><b>Study Population:</b> - Children - Aged &lt; 5 yrs old</p> <p>Visits by Study Group <u>Child visits</u></p> <table border="0"> <tr> <td>Interv</td> <td>298</td> </tr> <tr> <td>Compr</td> <td>328</td> </tr> </table>	Interv	298	Compr	328	<p>Proportion of well child visits with a missed opportunity to vaccinate (one or more vaccines).</p> <p>Note: Change represents a reduction of missed opportunities.</p>	<p>C: 71 (21.6%) of 328 well child visits</p>	<p>I: 34 (11.4%) of 298 well child visits</p>	<p>Missed Opportunity -10.2 pct pts p&lt;0.0001 [95% CI: -16, -5]</p>	<p>5 months</p>					
Interv	298															
Compr	328															
<p><b>Author (Year):</b> Keife et al. (2001)</p> <p><b>Study Period:</b> 1996-1998</p> <p><b>Design suitability (design):</b> Greatest Suitability (Individual Randomized Trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Influenza</p>	<p><b>Location:</b> Alabama, Iowa, and Maryland</p> <p><b>Intervention:</b> Quality improvement + Provider assessment/feedback</p> <p><b>Comparison:</b> Standard Provider assessment/feedback</p>	<p><b>Setting:</b> Ambulatory clinics</p> <p><b>Study Population:</b> - Adults - Medicare patients with diabetes mellitus</p> <p>Patients of study physicians (average of 20 patients per physician included in chart review)</p> <table border="0"> <tr> <td></td> <td><u>Baseline</u></td> <td><u>24m f/u</u></td> </tr> <tr> <td>Interv</td> <td>965</td> <td>678</td> </tr> <tr> <td>Compr</td> <td>966</td> <td>682</td> </tr> </table>		<u>Baseline</u>	<u>24m f/u</u>	Interv	965	678	Compr	966	682	<p>Change in proportion of patients receiving influenza</p>	<p>I: 40% C: 40%</p>	<p>I: 58% C: 46%</p>	<p>+12 pct pts [95% CI:7, 17]</p>	<p>24 months</p>
	<u>Baseline</u>	<u>24m f/u</u>														
Interv	965	678														
Compr	966	682														

Quality of execution (# of Limitations) Outcome Measurement	Study & Intervention Characteristics	Population & Sample Size	Effect Measure	Reported Baseline	Reported Effect	Value Used in Summary [95%CI]	Follow-Up Time																				
<p><b>Author (Year):</b> Shevlin et al. (2002)</p> <p><b>Study Period:</b> 1999</p> <p><b>Design suitability (design):</b> Greatest Suitability (Group Nonrandomized Trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> PPV</p>	<p><b>Location:</b> Atlanta, Georgia</p> <p><b>Intervention:</b> Provider reminders + Provider education</p> <p><b>Comparison:</b> Usual care</p>	<p><b>Setting:</b> Public hospital</p> <p><b>Study Population:</b> - Adults -Inpatients -Eligible for PPV</p> <table border="1"> <thead> <tr> <th></th> <th><u>N floors</u></th> <th><u>Nadmits</u></th> <th><u>N eligible</u></th> </tr> </thead> <tbody> <tr> <td>Interv</td> <td>2</td> <td>296</td> <td>205</td> </tr> <tr> <td>Compr</td> <td>2</td> <td>238</td> <td>150</td> </tr> </tbody> </table>		<u>N floors</u>	<u>Nadmits</u>	<u>N eligible</u>	Interv	2	296	205	Compr	2	238	150	<p>Overall PPV vaccination coverage change for inpatients</p>	<p>I: 41 (16.6%) of 296</p> <p>C: 28 (16.4%) of 238</p>	<p>119 (40.2%) of 296</p> <p>35 (14.7%) of 238</p>	<p>+25.3 pct pts [95% CI: 19, 33]</p>	<p>1 month</p>								
	<u>N floors</u>	<u>Nadmits</u>	<u>N eligible</u>																								
Interv	2	296	205																								
Compr	2	238	150																								
<p><b>Author (Year):</b> Coyle, et al. (2004)</p> <p><b>Study Period:</b> 1999</p> <p><b>Design suitability (design):</b> Greatest Suitability (Group Nonrandomized Trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> PPV</p>	<p><b>Location:</b> Bronx, New York</p> <p><b>Arm 1:</b> Provider reminders + Client education</p> <p><b>Arm 2:</b> Standing orders + Client education</p> <p><b>Comparison:</b> Usual care</p>	<p><b>Setting:</b> Hospital</p> <p><b>Study Population:</b> - Adults -Inpatients</p> <table border="1"> <thead> <tr> <th></th> <th><u>N admit</u></th> <th><u>N elig</u></th> <th><u>N</u></th> </tr> </thead> <tbody> <tr> <td><u>accpt</u></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Arm 1</td> <td>122</td> <td>55</td> <td>35</td> </tr> <tr> <td>Arm 2</td> <td>147</td> <td>56</td> <td>42</td> </tr> <tr> <td>Compr</td> <td>155</td> <td>(NR)</td> <td>(NR)</td> </tr> </tbody> </table>		<u>N admit</u>	<u>N elig</u>	<u>N</u>	<u>accpt</u>				Arm 1	122	55	35	Arm 2	147	56	42	Compr	155	(NR)	(NR)	<p>Proportion of inpatient admits who received the pneumococcal vaccination</p> <p>Arm 1 vs Comparison</p> <p>Arm 2 vs Comparison</p>	<p>1 (0.6%) of 155 admits</p> <p>1 (0.6%) of 155 admits</p>	<p>8 (6.6%) of 122 admits</p> <p>41(27.9%) of 147 admits</p>	<p>+6.0 pct pts [95% CI: 1, 11]</p> <p>+27 pct pts [95% CI:20, 35]</p>	<p>4 months</p>
	<u>N admit</u>	<u>N elig</u>	<u>N</u>																								
<u>accpt</u>																											
Arm 1	122	55	35																								
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Compr	155	(NR)	(NR)																								

Quality of execution (# of Limitations) Outcome Measurement	Study & Intervention Characteristics	Population & Sample Size	Effect Measure	Reported Baseline	Reported Effect	Value Used in Summary [95%CI]	Follow-Up Time
<p><b>Author (Year):</b> Daley, et al. (2004)</p> <p><b>Study Period:</b> 1999-2000</p> <p><b>Design suitability (design):</b> Greatest Suitability (Individual Randomized Trial)</p> <p><b>Quality of Execution:</b> Good</p> <p><b>Outcome Measurement:</b> Childhood series</p>	<p><b>Location:</b> Denver, Colorado</p> <p><b>Intervention:</b> Quality improvement (Provider reminder + Provider education) + Client reminder/recall + Immunization Information System</p> <p><b>Comparison:</b> Quality improvement (Provider reminder + Provider education) + Immunization Information System</p>	<p><b>Setting:</b> Pediatric primary care clinic</p> <p><b>Study Population:</b> - Children - Low income families</p> <p style="text-align: center;"><u>N</u></p> <p>Inter 205 Compr 215</p>	<p>Proportion of children up-to-date with childhood series</p>	<p>34 (16%) of 215</p>	<p>35(17%) of 205</p>	<p>+ 1 pct pts [95% CI: -6,8]</p>	<p>~ 1 year</p>
<p><b>Author (Year):</b> Hambidge, et al. (2004)</p> <p><b>Study Period:</b> 1998-1999</p> <p><b>Design suitability (design):</b> Greatest Suitability (Group Randomized Trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Childhood series</p>	<p><b>Location:</b> Denver, Colorado</p> <p><b>Intervention:</b> Client reminder/recall + Provider assessment/feedback + Provider education + Client education + Expanding access + Provider incentives + Provider reminder + Immunization Information Systems</p> <p><b>Comparison:</b> Provider assessment/feedback + Immunization information systems</p>	<p><b>Setting:</b> Health clinics in the Denver Health System</p> <p><b>Study Population:</b> - Children - Primarily Latino - &gt; 88% w/Medicaid/Medicare</p> <p style="text-align: center;"><u>N</u></p> <p>Interv 1030 Compr 1160</p>	<p>Proportion up-to-date at 12 months</p>	<p>71%</p>	<p>76%</p>	<p>+5 pct pts [95% CI: 1, 9]</p>	<p>1 year</p>

Quality of execution (# of Limitations) Outcome Measurement	Study & Intervention Characteristics	Population & Sample Size	Effect Measure	Reported Baseline	Reported Effect	Value Used in Summary [95%CI]	Follow-Up Time						
<p><b>Author (Year):</b> Margolis, et al. (2004)</p> <p><b>Study Period:</b> Time not reported</p> <p><b>Design suitability (design):</b> Greatest Suitability (Group Randomized Trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Childhood series</p>	<p><b>Location:</b> Charlotte and Chapel Hill, North Carolina</p> <p><b>Intervention:</b> Quality improvement + Provider assessment/feedback + Provider education</p> <p><b>Comparison:</b> Provider assessment/feedback</p>	<p><b>Setting:</b> Pediatric and family practices</p> <p><b>Selected study clinics:</b> N=44 Intervention: 22 practices Comparison: 22 practices</p> <p><b>Study Population:</b> - Children</p> <p>N= Not reported</p>	<p>Proportion of children with up-to-date information on immunizations</p>	<p>I: 65.8% C: 64.1%</p>	<p>I: 71% C: 71%</p>	<p>-1.7 pct pts [95% CI: not reported]</p>	<p>~ 30 months</p>						
<p><b>Author (Year):</b> Pappano, et al. (2004)</p> <p><b>Study Period:</b> 2002</p> <p><b>Design suitability (design):</b> Greatest Suitability (Group Randomized Trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Influenza</p>	<p><b>Location:</b> Rochester, New York</p> <p><b>Intervention:</b> Client education + Expanded access</p> <p><b>Comparison:</b> Client education</p>	<p><b>Setting:</b> Pediatric emergency department</p> <p><b>Study Population:</b> - Children</p> <table border="0" style="margin-left: 20px;"> <tr> <td></td> <td style="text-align: center;"><u>N</u></td> </tr> <tr> <td>Interv</td> <td style="text-align: center;">239</td> </tr> <tr> <td>Compr</td> <td style="text-align: center;">199</td> </tr> </table>		<u>N</u>	Interv	239	Compr	199	<p>Proportion vaccinated with at least one dose of influenza vaccine</p>	<p>70 (35%) of 199</p>	<p>160 (67%) of 238</p>	<p>+ 32 pct pts [95% CI: 23, 41]</p>	<p>14 weeks</p>
	<u>N</u>												
Interv	239												
Compr	199												

Quality of execution (# of Limitations) Outcome Measurement	Study & Intervention Characteristics	Population & Sample Size	Effect Measure	Reported Baseline	Reported Effect	Value Used in Summary [95%CI]	Follow-Up Time									
<p><b>Author (Year):</b> Quinley, et al. (2004)</p> <p><b>Study Period:</b> 1999-2000</p> <p><b>Design suitability (design):</b> Greatest Suitability (Individual Randomized Trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> PPV</p>	<p><b>Location:</b> New York state</p> <p><b>Arm 1:</b> Quality improvement + Provider assessment/feedback + Provider education (African American serving group)</p> <p><b>Arm 2:</b> Quality improvement + Provider assessment/feedback + Provider education (High-volume)</p> <p><b>Comparison:</b> Provider assessment/feedback</p>	<p><b>Setting:</b> Primary care clinics</p> <p>Random assignment of providers to condition, except all AA serving practices in Brooklyn assigned to AA intervention arm</p> <p>Providers-</p> <table border="1"> <thead> <tr> <th></th> <th>I</th> <th>C</th> </tr> </thead> <tbody> <tr> <td>Arm 1</td> <td>118</td> <td>100</td> </tr> <tr> <td>Arm 2</td> <td>582</td> <td>150</td> </tr> </tbody> </table> <p><b>Study Population:</b> - Adults -Medicare recipients</p> <p>N= not reported</p>		I	C	Arm 1	118	100	Arm 2	582	150	<p>Vaccination rate</p> <p>Arm 1 vs Comparison</p> <p>Arm 2 vs Comparison</p>	<p>I (n=118): 19.45%</p> <p>C(n=100): 18.48%</p> <p>I (n=582): 29.21%</p> <p>C(n=150): 28.42%</p>	<p>I: 23.9%</p> <p>C:20.84%</p> <p>I: 32.33%</p> <p>C: 30.81%</p>	<p>+2.1 pct pts [95% CI: not reported]</p> <p>+0.7 pct pts [95% CI: not reported]</p>	<p>1 year</p>
	I	C														
Arm 1	118	100														
Arm 2	582	150														

Quality of execution (# of Limitations) Outcome Measurement	Study & Intervention Characteristics	Population & Sample Size	Effect Measure	Reported Baseline	Reported Effect	Value Used in Summary [95%CI]	Follow-Up Time						
<p><b>Author (Year):</b> Warner, et al. (2004)</p> <p><b>Study Period:</b> 2001-2002</p> <p><b>Design suitability (design):</b> Greatest Suitability (Other Design with Concurrent Comparison)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> PPV</p>	<p><b>Location:</b> Tampa, Florida</p> <p><b>Intervention:</b> Quality Improvement + Provider reminders + Provider education</p> <p><b>Comparison:</b> Provider education</p>	<p><b>Setting:</b> Family medicine ambulatory clinics</p> <p><b>Study Population:</b> - Adults ≥ 65 years - Low SES</p> <table border="0" style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td style="text-align: center;"><u>N</u></td> </tr> <tr> <td>Interv</td> <td style="text-align: center;">93</td> </tr> <tr> <td>Compr</td> <td style="text-align: center;">98</td> </tr> </table>		<u>N</u>	Interv	93	Compr	98	<p>Vaccination rates</p>	<p>I: 56% C: 46%</p>	<p>I: 76% C: 58%</p>	<p>+ 8 pct pts P &lt; 0.05</p>	<p>~ 1 year</p>
	<u>N</u>												
Interv	93												
Compr	98												

Quality of execution (# of Limitations) Outcome Measurement	Study & Intervention Characteristics	Population & Sample Size	Effect Measure	Reported Baseline	Reported Effect	Value Used in Summary [95%CI]	Follow-Up Time
<p><b>Author (Year):</b> Bardenheier, et al. (2005)</p> <p><b>Study Period:</b> 1999-2002</p> <p><b>Design suitability (design):</b> Greatest Suitability (Prospective Cohort)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Influenza Pneumococcal</p> <p>Multistate demonstration project</p> <p><i>Additional evidence</i></p>	<p><b>Location:</b> USA; DC, FL, HI, ID, KY, MA, MN, MT, NM, OH, PA, WI, SC, NV</p> <p><b>Intervention:</b> Standing Orders+ Registry+ Provider Education+ Client Education+ Provider Reminder+ Provider Assessment and Feedback</p>	<p>Quality Improvement Project with an emphasis on promoting Standing Orders Programs in long-term care facilities in an effort to increase immunization coverage among residents</p> <p><u>States:</u> Intervention: 9 Control: 5 * States were selected based on the QIO's rating of the SOP project</p> <p>LTCFs: 20 sites per state Residents: 100 residents randomly selected from each LTCF</p>	<p>Proportion of facilities that adopted standing orders as a results of the quality improvement effort:</p> <p>Influenza</p> <p>Pneumococcal</p>	<p><u>No</u> 179(88%) out of 202</p> <p><u>No</u> 182 (90%) out of 202</p>	<p><u>Yes</u> 23(12%) out of 202</p> <p><u>Yes</u> 20 (10%) out of 202</p>	<p>pct pts [NA] [95% CI: not reported]</p> <p>pct pts [NA] [95% CI: not reported]</p>	<p>3 years</p>

Quality of execution (# of Limitations) Outcome Measurement	Study & Intervention Characteristics	Population & Sample Size	Effect Measure	Reported Baseline	Reported Effect	Value Used in Summary [95%CI]	Follow-Up Time
<p><b>Author (Year):</b> Kempe, et al. (2005)</p> <p><b>Study Period:</b> 2003-2004</p> <p><b>Design suitability (design):</b> Greatest Suitability (Individual Randomized Trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Influenza</p>	<p><b>Location:</b> Denver, Colorado</p> <p><b>Intervention:</b> Immunization Information System + Client reminder/recall</p> <p><b>Comparison:</b> Immunization Information System + Expanding access + Usual care</p>	<p><b>Setting:</b> Pediatric practices</p> <p><b>Study Population:</b> - Children - Majority privately insured</p> <p><u>N enrolled</u> Interv 2595 Compr 2598</p>	<p>Receipt of <math>\geq 1</math> influenza immunization</p>	<p>58%</p>	<p>62.4%</p>	<p>+4.4 pct pts [95% CI: 2, 7]</p>	<p>6 months</p>
<p><b>Author (Year):</b> Britto, et al. (2006)</p> <p><b>Study Period:</b> 1999-2003</p> <p><b>Design suitability (design):</b> Moderate Suitability (Time Series)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Influenza</p>	<p><b>Location:</b> Cincinnati, Ohio</p> <p><b>Intervention:</b> Quality improvement + Immunization Information System + Client reminder/recall + Client education + Provider reminders + Provider education + Standing orders + Expanded access</p> <p><b>Comparison:</b> None</p>	<p><b>Setting:</b> Childrens' medical center (cystic fibrosis clinic)</p> <p><b>Study Population:</b> - Children - Patients with cystic fibrosis at high-risk for influenza</p> <p>N=205 patients</p>	<p>Vaccination rates</p>	<p>Pre 1: 17.3% Pre 2: 41.3%</p>	<p>Post 1: 85.5% Post 2: 90.4%</p>	<p>+49.1 pct pt [95% CI: not reported]</p>	<p>4 years</p>

Quality of execution (# of Limitations) Outcome Measurement	Study & Intervention Characteristics	Population & Sample Size	Effect Measure	Reported Baseline	Reported Effect	Value Used in Summary [95%CI]	Follow-Up Time								
<p><b>Author (Year):</b> Irigoyen, et al. (2006)</p> <p><b>Study Period:</b> 2001</p> <p><b>Design suitability (design):</b> Greatest Suitability (Individual Randomized Trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Childhood series</p>	<p><b>Location:</b> New York City, New York</p> <p><b>Arm 1:</b> Client reminder/recall + Immunization Information System (continuous)</p> <p><b>Arm 2:</b> Client reminder/recall + Immunization Information System (weekly)</p> <p><b>Comparison:</b> Usual care</p>	<p><b>Setting:</b> Community-based pediatric practices</p> <p><b>Study Population:</b></p> <ul style="list-style-type: none"> <li>- Children</li> <li>- Majority Latino</li> <li>- 86% Medicaid recipients</li> </ul> <table style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td style="text-align: center;"><u>N</u></td> </tr> <tr> <td>Arm 1</td> <td style="text-align: center;">549</td> </tr> <tr> <td>Arm 2</td> <td style="text-align: center;">552</td> </tr> <tr> <td>Compr</td> <td style="text-align: center;">561</td> </tr> </table>		<u>N</u>	Arm 1	549	Arm 2	552	Compr	561	<p>Up-to-date for 4:3:1:3</p> <p>Arm 1 vs Comparison</p> <p>Arm 2 vs Comparison</p>	<p>I: 49.5% C: 48.1%</p> <p>I: 50.2% C: 48.1%</p>	<p>I: 44.1% C: 39.2%</p> <p>I: 42% C: 39.2%</p>	<p>+ 3.5 pct pts [95% CI: -2, 9]</p> <p>+ 0.7 pct pts [95% CI: -5, 7]</p>	<p>6 months</p>
	<u>N</u>														
Arm 1	549														
Arm 2	552														
Compr	561														

Quality of execution (# of Limitations) Outcome Measurement	Study & Intervention Characteristics	Population & Sample Size	Effect Measure	Reported Baseline	Reported Effect	Value Used in Summary [95%CI]	Follow-Up Time								
<p><b>Author (Year):</b> Zimmerman, et al. (2006)</p> <p><b>Study Period:</b> 2002-2004</p> <p><b>Design suitability (design):</b> Greatest suitability (Other Design with Concurrent Comparison )</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Influenza</p>	<p><b>Location:</b> Pittsburgh, PA</p> <p><b>Intervention:</b> Provider education + Standing orders + Provider reminders + Client education + Expanded access + Client reminder/recall</p> <p><b>Comparison:</b> Usual care</p>	<p><b>Setting:</b> Inner-city health centers; most patients are economically disadvantaged, Medicaid insured, overrepresented minority population of that area</p> <p><b>Study Population:</b></p> <ul style="list-style-type: none"> <li>- Children</li> <li>- 2-17 years with high-risk/active patients of the practice</li> </ul> <table border="0" style="margin-left: 20px;"> <tr> <td><u>Pd</u></td> <td><u>N</u></td> </tr> <tr> <td>Pre</td> <td>2438</td> </tr> <tr> <td>Int 1</td> <td>2935</td> </tr> <tr> <td>Int 2</td> <td>3311</td> </tr> </table>	<u>Pd</u>	<u>N</u>	Pre	2438	Int 1	2935	Int 2	3311	<p>Vaccination of eligible children</p>	<p>I: 10.4% C: 42.0%</p>	<p>I: 18.7% C: 42.7%</p>	<p>+ 7.6 pct pts [95% CI: not reported]</p>	<p>2 influenza seasons</p>
<u>Pd</u>	<u>N</u>														
Pre	2438														
Int 1	2935														
Int 2	3311														

Quality of execution (# of Limitations) Outcome Measurement	Study & Intervention Characteristics	Population & Sample Size	Effect Measure	Reported Baseline	Reported Effect	Value Used in Summary [95%CI]	Follow-Up Time						
<p><b>Author (Year):</b> Donato, et al. (2007)</p> <p><b>Study Period:</b> 2002-2005</p> <p><b>Design suitability (design):</b> Moderate Suitability (Retrospective Cohort)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Influenza</p>	<p><b>Location:</b> Pennsylvania</p> <p><b>Intervention:</b> Standing orders + Provider education (2004)</p> <p><b>Comparison:</b> Nurse assessment + Provider reminders (2002)</p>	<p><b>Setting:</b> Community hospital</p> <p><b>Study Population:</b> - Adults - Inpatients 18 years of age and older</p> <p>N=170 eligible patients</p>	<p>Porportion of eligible inpatients who were sampled and vaccinated</p>	<p>10/287 (3%)</p>	<p>73/170 (43%)</p>	<p>+40 pct pts P&lt;0.001 [95% CI: 32,48]</p>	<p>1 influenza season each year</p>						
<p><b>Author (Year):</b> Fiks, et al. (2007)</p> <p><b>Study Period:</b> 2004-2005</p> <p><b>Design suitability (design):</b> Moderate Suitability Pre-Post Design with Non-concurrent Comparison</p> <p><b>Quality of Execution:</b> Good</p> <p><b>Outcome Measurement:</b> Childhood series</p>	<p><b>Location:</b> Philadelphia, Pennsylvania</p> <p><b>Intervention:</b> Quality improvement + Provider reminders + Provider education</p> <p><b>Comparison:</b> Provider education</p>	<p><b>Setting:</b> Primary care clinics</p> <p><b>Study Population:</b> - Children - Majority African American</p> <table border="0" style="margin-left: 20px;"> <tr> <td></td> <td style="text-align: center;"><u>N</u></td> </tr> <tr> <td>Inter</td> <td style="text-align: center;">1669</td> </tr> <tr> <td>Control</td> <td style="text-align: center;">1548</td> </tr> </table>		<u>N</u>	Inter	1669	Control	1548	<p>Up-to-date for 4:3:1:3:3:1</p>	<p>1266 (81.8%) of 1548</p>	<p>1504 (90.1%) of 1669</p>	<p>+ 8.3 pct pts [95% CI: 6,11]</p>	<p>1 year</p>
	<u>N</u>												
Inter	1669												
Control	1548												

Quality of execution (# of Limitations) Outcome Measurement	Study & Intervention Characteristics	Population & Sample Size	Effect Measure	Reported Baseline	Reported Effect	Value Used in Summary [95%CI]	Follow-Up Time									
<p><b>Author (Year):</b> Meuhleisen, et al. (2007)</p> <p><b>Study Period:</b> 2003</p> <p><b>Design suitability (design):</b> Greatest Suitability (Individual Non-randomized Trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Childhood series</p>	<p><b>Location:</b> Basel, Switzerland</p> <p><b>Intervention:</b> Client reminder/recall + Client education + Provider reminders</p> <p><b>Comparison:</b> Usual care</p>	<p><b>Setting:</b> Hospital</p> <p><b>Study Population:</b> - Children - Inpatients</p> <p>Eligible and underimmunized</p> <table border="1"> <thead> <tr> <th></th> <th><u>N</u></th> <th><u>N 1m f/u</u></th> </tr> </thead> <tbody> <tr> <td>Inter</td> <td>98</td> <td>95</td> </tr> <tr> <td>Comp</td> <td>111</td> <td>106</td> </tr> </tbody> </table>		<u>N</u>	<u>N 1m f/u</u>	Inter	98	95	Comp	111	106	<p>Receipt of 1 or more catch up vaccinations</p>	<p>35%</p>	<p>45%</p>	<p>+10 pct pts [95% CI: -4, 24]</p>	<p>9 months</p>
	<u>N</u>	<u>N 1m f/u</u>														
Inter	98	95														
Comp	111	106														

Quality of execution (# of Limitations) Outcome Measurement	Study & Intervention Characteristics	Population & Sample Size	Effect Measure	Reported Baseline	Reported Effect	Value Used in Summary [95%CI]	Follow-Up Time																									
<p><b>Author (Year):</b> Nowalk, et al. (2008)</p> <p><b>Study Period:</b> 2001-2005</p> <p><b>Design suitability (design):</b> Greatest Suitability (Other Design with Concurrent Comparison)</p> <p><b>Quality of Execution:</b> Good</p> <p><b>Outcome Measurement:</b> Influenza PPV</p>	<p><b>Location:</b> Pennsylvania</p> <p><b>Intervention:</b> Standing orders + Provider education + Client reminder/recall + Reduced out-of-pocket costs + Client education + Expanded Access + Provider reminder + Client incentives + Provider incentives</p> <p><b>Comparison:</b> Usual care</p>	<p><b>Setting:</b> Faith-based centers and community inner city health centers</p> <p><b>Study Population:</b> - Adults - ≥50 years of age</p> <table border="1"> <thead> <tr> <th>Period</th> <th>I (N)</th> <th>Site</th> <th>C (N)</th> <th>Site</th> </tr> </thead> <tbody> <tr> <td>Year 1</td> <td>255</td> <td>A,B</td> <td>313</td> <td>C,D,E</td> </tr> <tr> <td>Year 2</td> <td>401</td> <td>A,B,C</td> <td>167</td> <td>D,E</td> </tr> <tr> <td>Year 3</td> <td>507</td> <td>A,B,C,D</td> <td>61</td> <td>E</td> </tr> <tr> <td>Year 4</td> <td>507</td> <td>A,B,C,D</td> <td>61</td> <td>E</td> </tr> </tbody> </table>	Period	I (N)	Site	C (N)	Site	Year 1	255	A,B	313	C,D,E	Year 2	401	A,B,C	167	D,E	Year 3	507	A,B,C,D	61	E	Year 4	507	A,B,C,D	61	E	<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>
Period	I (N)	Site	C (N)	Site																												
Year 1	255	A,B	313	C,D,E																												
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<p><b>Author (Year):</b> Slora et al. (2008)</p> <p><b>Study Period:</b> 2005-2006</p> <p><b>Design suitability (design):</b> Greatest Suitability (Group Randomized Trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Childhood series</p>	<p><b>Location:</b> USA (nationwide)</p> <p><b>Intervention:</b> Quality improvement + Provider education</p> <p><b>Comparison:</b> Provider education (traditional)</p>	<p><b>Setting:</b> Ambulatory care clinics</p> <p><b>Study Population:</b> - Children - 8-15 months -Majority White</p>	<p>Vaccination rates</p>	<p>I: 75.9% C: 81.6%</p>	<p>I: 80.8% C: 82.4%</p>	<p>+4.1 pct pts P=.261</p>	<p>1 year</p>																									

Quality of execution (# of Limitations) Outcome Measurement	Study & Intervention Characteristics	Population & Sample Size	Effect Measure	Reported Baseline	Reported Effect	Value Used in Summary [95%CI]	Follow-Up Time
<p><b>Author (Year):</b> Thomas et al. (2008)</p> <p><b>Study Period:</b> 2001-2004</p> <p><b>Design suitability (design):</b> Greatest Suitability (Other Design with Concurrent Comparison)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> 7vPCV</p>	<p><b>Location:</b> Australia; Western Sydney and Wentworth Area Health Services</p> <p><b>Intervention:</b> Provider education + Provider reminders + Client education + Reduced out-of-pocket costs + Client-held paper immunization records</p> <p><b>Comparison:</b> Reduced out-of-pocket costs + Client-held paper immunization records</p>	<p><b>Setting:</b> Maternity hospitals</p> <p><b>Study Population:</b> - Children - high-risk Aboriginal infants of invasive pneumococcal disease</p>	<p>Proportion of infants that received the 1<sup>st</sup> dose of 7vPCV compared WSA/WEN vs other areas of Sydney</p>	<p>I: 31% C: 51%</p>	<p>I: 36% C: 53%</p>	<p>+ 3 pct pts [95% CI: not reported]</p>	<p>3 years</p>

Quality of execution (# of Limitations) Outcome Measurement	Study & Intervention Characteristics	Population & Sample Size	Effect Measure	Reported Baseline	Reported Effect	Value Used in Summary [95%CI]	Follow-Up Time									
<p><b>Author (Year):</b> Allison, et al. (2009)</p> <p><b>Study Period:</b> 2003-2005</p> <p><b>Design suitability (design):</b> Greatest Suitability (Other Design with Concurrent Comparison)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Influenza</p> <p><i>Aditonal evidence</i></p>	<p><b>Location:</b> Denver, Colorado</p> <p><b>Intervention:</b> Immunization information system + Client reminder/recall + Expanded access + Client education</p> <p><b>Comparison:</b> Expanded access + Immunization information system</p>	<p><b>Setting:</b> Private pediatric practices</p> <p><b>Study Population:</b> - Children - Aged 24-72 months with (intervention) and without high-risk conditions (comparison) - 80% non-Hispanic White</p> <table border="1"> <thead> <tr> <th></th> <th><u>03-04</u></th> <th><u>04-05</u></th> </tr> </thead> <tbody> <tr> <td>Interv</td> <td>1166</td> <td>1053</td> </tr> <tr> <td>Compr</td> <td>1017</td> <td>1037</td> </tr> </tbody> </table>		<u>03-04</u>	<u>04-05</u>	Interv	1166	1053	Compr	1017	1037				<p>The ability of the regional immunization information system to generate client reminder/recalls assisted in identifying and maintaining high vaccination rates among the high-risk group</p> <p>I vs C: +10 pct pts</p>	<p>2 influenza seasons</p>
	<u>03-04</u>	<u>04-05</u>														
Interv	1166	1053														
Compr	1017	1037														

Quality of execution (# of Limitations) Outcome Measurement	Study & Intervention Characteristics	Population & Sample Size	Effect Measure	Reported Baseline	Reported Effect	Value Used in Summary [95%CI]	Follow-Up Time									
<p><b>Author (Year):</b> Fiks, et al. (2009)</p> <p><b>Study Period:</b> 2006-2007</p> <p><b>Design suitability (design):</b> Greatest Suitability (Group randomized Trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Influenza</p>	<p><b>Location:</b> Philadelphia, Pennsylvania</p> <p><b>Intervention:</b> Provider reminders + Provider education</p> <p><b>Comparison:</b> Provider education (routine care)</p>	<p><b>Setting:</b> Pediatric practices</p> <p><b>Study Population:</b> - Children - 5-19 years of age - Asthmatic</p> <table border="1"> <thead> <tr> <th></th> <th><u>N Pre</u></th> <th><u>N Post</u></th> </tr> </thead> <tbody> <tr> <td>Interv</td> <td>5329</td> <td>6110</td> </tr> <tr> <td>Compr</td> <td>5338</td> <td>5809</td> </tr> </tbody> </table>		<u>N Pre</u>	<u>N Post</u>	Interv	5329	6110	Compr	5338	5809	<p>Vaccination rates</p>	<p>I: 45.7% C: 46%</p>	<p>I: 51% C: 47.9%</p>	<p>+ 3.4 pct pts [95% CI: 1,9]</p>	<p>6 months</p>
	<u>N Pre</u>	<u>N Post</u>														
Interv	5329	6110														
Compr	5338	5809														
<p><b>Author (Year):</b> Hambidge, et al. (2009)</p> <p><b>Study Period:</b> 2004-2006</p> <p><b>Design suitability (design):</b> Greatest Suitability (Individual Randomized Trial)</p> <p><b>Quality of Execution:</b> Good</p> <p><b>Outcome Measurement:</b> Influenza</p>	<p><b>Location:</b> Denver, Colorado</p> <p><b>Intervention:</b> Client reminder/recall + Outreach/tracking (Case management) + Home visits + Immunization information systems</p> <p><b>Comparison:</b> Usual care</p>	<p><b>Setting:</b> Community health centers</p> <p><b>Study Population:</b> - Children - Primarily Hispanic - &gt; 99% w/public insurance or uninsured</p> <table border="1"> <thead> <tr> <th></th> <th><u>N infants</u></th> </tr> </thead> <tbody> <tr> <td>Interv</td> <td>408</td> </tr> <tr> <td>Compr</td> <td>399</td> </tr> </tbody> </table>		<u>N infants</u>	Interv	408	Compr	399	<p>Up-to-date 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>															
Interv	408															
Compr	399															

Quality of execution (# of Limitations) Outcome Measurement	Study & Intervention Characteristics	Population & Sample Size	Effect Measure	Reported Baseline	Reported Effect	Value Used in Summary [95%CI]	Follow-Up Time								
<p><b>Author (Year):</b> Trick, et al. (2009)</p> <p><b>Study Period:</b> 2005-2006</p> <p><b>Design suitability (design):</b> Greatest Suitability (Group Nonrandomized Trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Influenza</p>	<p><b>Location:</b> Chicago, Illinois</p> <p><b>Arm 1:</b> Standing orders + Provider education + Provider reminders (Nurse)</p> <p><b>Arm 2:</b> Standing orders + Provider education(Nurse) + Physician opt-out</p> <p><b>Comparison:</b> Standing orders + Provider education</p>	<p><b>Setting:</b> Public hospital</p> <p><b>Study Population:</b> - Adults - Inpatients</p> <table border="0" style="width: 100%;"> <tr> <td></td> <td style="text-align: center;"><u>N</u></td> </tr> <tr> <td>Arm 1</td> <td style="text-align: center;">69</td> </tr> <tr> <td>Arm 2</td> <td style="text-align: center;">66</td> </tr> <tr> <td>Compr</td> <td style="text-align: center;">69</td> </tr> </table>		<u>N</u>	Arm 1	69	Arm 2	66	Compr	69	<p>Vaccination rates</p> <p>Arm 1 vs Comparison</p> <p>Arm 2 vs Comparison</p>	<p>1%</p> <p>1%</p>	<p>6%</p> <p>12%</p>	<p>+ 5 pct pts [95% CI: - 1,11]</p> <p>+11 pct pts [95% CI: 3,19]</p>	<p>1 influenza season</p>
	<u>N</u>														
Arm 1	69														
Arm 2	66														
Compr	69														
<p><b>Author (Year):</b> Humiston, et al. (2011)</p> <p><b>Study Period:</b> 2003-2004</p> <p><b>Design suitability (design):</b> Greatest suitability (Individual randomized control trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Influenza</p>	<p><b>Location:</b> USA; Rochester, NY</p> <p><b>Intervention:</b> Provider reminders + Client reminder/recall</p> <p><b>Comparison:</b> Usual care</p>	<p><b>Study Population:</b> -active patients of participating primary care clinics -aged ≥65 years -residents of New York</p> <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>														
I: Prov Rem + Client Rem	1748														
C:Usual Care	2004														

Quality of execution (# of Limitations) Outcome Measurement	Study & Intervention Characteristics	Population & Sample Size	Effect Measure	Reported Baseline	Reported Effect	Value Used in Summary [95%CI]	Follow-Up Time						
<p><b>Author (Year):</b> Szilagyi, et al. (2011)</p> <p><b>Study Period:</b> 2007-2008</p> <p><b>Design suitability (design):</b> Greatest suitability (iRCT)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measurement:</b> Meningococcal Pertussis HPV</p>	<p><b>Location:</b> USA; Rochester, New York</p> <p><b>Intervention:</b> immunization database + “staged” client reminder/recall + home visits</p> <p><b>Comparison:</b> Usual care</p>	<p><b>Setting:</b> Eight primary care practices</p> <p><b>Study population:</b> - Adolescents -Mean age 13.5 years -63% Black -Urban -74% Medicaid recipients -6% uninsured</p> <table border="0"> <tr> <td><u>Group</u></td> <td><u>N</u></td> </tr> <tr> <td>Intervention</td> <td>3707</td> </tr> <tr> <td>Comparison</td> <td>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>Inter-vention period was 14 months</p>
<u>Group</u>	<u>N</u>												
Intervention	3707												
Comparison	3839												

Quality of execution (# of Limitations) Outcome Measurement	Study & Intervention Characteristics	Population & Sample Size	Effect Measure	Reported Baseline	Reported Effect	Value Used in Summary [95%CI]	Follow-Up Time
<p><b>Author (Year):</b> Swenson, et al. (2012)</p> <p><b>Study Period:</b> 2005-2008</p> <p><b>Design suitability (design):</b> Least (Before-After)</p> <p><b>Outcome Measurement:</b> PPV</p> <p><i>Additional evidence</i></p>	<p><b>Location:</b> USA, Denver, CO</p> <p><b>Intervention:</b> Quality Improvement (Provider Ed + Standing Orders using Clinical Decision Support System (CDSS) + PAF)</p> <p><b>Comparison:</b> Before-after</p>	<p>Denver Health and Hospital Authority: Large integrated, safety-net health care system. Including community health clinics and hospital units</p> <p><b>Eligible patients:</b>                      -Adults                      -Ages 65+, 18-64 w/ diabetes and 18-64 w/ COPD</p>	<p>Vaccination of patients-PPV</p>			<p>The CDSS standing order led to a 10% improvement in immunization rates. However, the statistical model showed that the use of CDSS did not change the trend of increasing rates over and above the initial QI efforts.</p>	<p>Intervention period was 3 years</p>

The data presented here are preliminary and are subject to change as the systematic review goes through the scientific peer review process.