

# Vaccination Programs: Provider Reminders

## Summary Evidence Tables - Updated Evidence (search period: 1997-2012)

### Provider Reminders When Used Alone

Study	Location and Intervention	Study Population and Sample	Effect measure	Reported baseline	Reported effect	Value used in summary [95%CI]	Follow-up time																								
<p><b>Author (Year):</b> Burns (2002)</p> <p><b>Study Period:</b> 1995-1996</p> <p><b>Design Suitability (Design):</b> Greatest (individual randomized trial)</p> <p><b>Outcome Measure:</b> Childhood vaccination series</p>	<p><b>Location:</b> USA, Pittsburgh, PA Provider reminder (nurse initiated chart prompt).</p> <p><b>Urbanicity:</b> Urban</p> <p><b>Setting:</b> Hospital (inpatients). Family practice residency program.</p> <p><b>Comparison:</b> Assigned randomly</p>	<p><b>Study Population:</b> Patients were screened for vaccine eligibility and were randomly assigned into the intervention or control (based on their chart #).</p> <table border="1"> <thead> <tr> <th>Arm</th> <th>N accepted</th> </tr> </thead> <tbody> <tr> <td>PR</td> <td>448</td> </tr> <tr> <td>Control</td> <td>529</td> </tr> </tbody> </table>	Arm	N accepted	PR	448	Control	529	<p>On time vaccination for selected vaccines in the childhood series.</p> <p>Review of patient records for: Hepatitis B; Diphth/tetanus/pertusis DPT; Oral Polio; Measles, mumps, rubella (MMR)</p>	<p>Selected vaccines were reported: DTP 36% Oral Polio 56% MMR 1 26%</p>	<p>Selected vaccines: DTP 4 51% Oral Polio 70% MMR 42%</p>	<p>Percent increase: DTP4 15% MMR1 16% OPV3 14%</p> <p>No changes in DTP3, DTP5, HEP3 and OPV4. Inconclusive results. Marginal evidence in support of provider reminders.</p>	1 year																		
Arm	N accepted																														
PR	448																														
Control	529																														
<p><b>Author (Year):</b> Chan (2002)</p> <p><b>Study Period:</b> 1997-1998</p> <p><b>Design Suitability (Design):</b> Greatest (Randomized Crossover Trial)</p> <p><b>Outcome Measure:</b> Influenza vaccination, Outpatients</p>	<p><b>Location:</b> USA, Washington State</p> <p><b>Intervention:</b> Provider Reminder (mailed reminders sent monthly during influenza season)</p> <p><b>Comparison:</b> Usual care</p>	<p><b>Setting:</b></p> <p><u>Solo practice</u></p> <table border="1"> <thead> <tr> <th>Physicians(n)</th> <th>1997</th> <th>1998</th> </tr> </thead> <tbody> <tr> <td>Inter</td> <td>23</td> <td>20</td> </tr> <tr> <td>Cont</td> <td>21</td> <td>20</td> </tr> </tbody> </table> <p><u>Group practice</u></p> <table border="1"> <thead> <tr> <th>Groups(n)</th> <th>1997</th> <th>1998</th> </tr> </thead> <tbody> <tr> <td>Inter</td> <td>7</td> <td>6</td> </tr> <tr> <td>Cont</td> <td>6</td> <td>7</td> </tr> </tbody> </table> <p>* All physicians were randomized to receive intervention</p> <p>Patients: Medicare outpatients</p> <table border="1"> <thead> <tr> <th>Period</th> <th>N</th> </tr> </thead> <tbody> <tr> <td>1997</td> <td>4300</td> </tr> <tr> <td>1998</td> <td>4025</td> </tr> </tbody> </table>	Physicians(n)	1997	1998	Inter	23	20	Cont	21	20	Groups(n)	1997	1998	Inter	7	6	Cont	6	7	Period	N	1997	4300	1998	4025	<p>Patients Influenza immunization rates</p> <p>Solo practice</p> <p>Group practice</p>	<p>C: 639 (33.5%)</p> <p>C: 811 (37.5%)</p>	<p>I: 701 (34.2%)</p> <p>I: 879 (39.8%)</p>	<p>+0.7 95% CI [-2,4] Relative (+2%)</p> <p>+2.3 95% CI [-.6,5] Relative (+6%)</p>	2 years
Physicians(n)	1997	1998																													
Inter	23	20																													
Cont	21	20																													
Groups(n)	1997	1998																													
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Study	Location and Intervention	Study Population and Sample	Effect measure	Reported baseline	Reported effect	Value used in summary [95%CI]	Follow-up time									
<p><b>Author (Year):</b> Dexter (2001)</p> <p><b>Study Period:</b> 1997-1998</p> <p><b>Design Suitability (Design):</b> Greatest (Group randomized trial)</p> <p><b>Outcome Measure:</b> PPV; Influenza (other preventive therapies) vaccination</p>	<p><b>Location:</b> USA, Indianapolis, IN</p> <p><b>Intervention:</b> Provider reminder system (computer)</p> <p><b>Comparison:</b> Usual care</p>	<p><b>Setting:</b> N=1 General medical teams were assigned to condition: N=8</p> <table border="1"> <thead> <tr> <th>Group</th> <th>N teams</th> <th>N patients</th> </tr> </thead> <tbody> <tr> <td>Inter</td> <td>4</td> <td>4995</td> </tr> <tr> <td>Comp</td> <td>4</td> <td>5070</td> </tr> </tbody> </table> <p>Note: N eligible were not reported</p> <p><b>Study Population:</b> Adults</p>	Group	N teams	N patients	Inter	4	4995	Comp	4	5070	<p>Adjusted rates of ordering pneumococcal vaccine for eligible patients</p> <p>Adjusted rates for ordering influenza vaccine for eligible patients</p> <p>Adjusted ordering rates for PPV based on all admitted patients</p> <p>Adjusted ordering rates for Influenza based on all admitted patients</p>	<p>C: 0.8%</p> <p>C: 1.0%</p> <p>C: 0.9% admits</p> <p>C: 0.4% admits</p>	<p>I: 35.8%</p> <p>I: 51.4%</p> <p>I: 8.5% admits</p> <p>I: 5.4%</p>	<p>+35 pct pts p&lt;0.001 95%CI [NA] Relative (+4375%)</p> <p>+50.4 pct pts p&lt;0.001 95%CI [NA] Relative (+5040%)</p> <p>+7.6 pct pts p&lt;0.001 [6.8, 9.4] Relative (+844%)</p> <p>+5.0 pct pts p&lt;0.001 [4.3, 5.7] Relative (+1250%)</p>	18 months
Group	N teams	N patients														
Inter	4	4995														
Comp	4	5070														
<p><b>Author (Year):</b> Dexheimer (2011)</p> <p><b>Study Period:</b> 2006-2007</p> <p><b>Design Suitability (Design):</b> Greatest (Prospective cohort)</p> <p><b>Outcome Measure:</b> PPV vaccination</p>	<p><b>Location:</b> USA, Nashville, TN</p> <p><b>Intervention:</b> Provider reminder system (computer)</p>	<p><b>Setting:</b> N=1</p> <p><b>Study Population:</b></p> <ul style="list-style-type: none"> <li>Adult, 65+ years</li> <li>Visited Emergency Department during study period</li> </ul> <table border="1"> <thead> <tr> <th></th> <th>n</th> </tr> </thead> <tbody> <tr> <td>Eligible</td> <td>2062</td> </tr> <tr> <td>Consented</td> <td>621</td> </tr> <tr> <td>Received</td> <td>222</td> </tr> </tbody> </table>		n	Eligible	2062	Consented	621	Received	222	Vaccination rate	38.8%	45.4%	+6.6 pct pts 95% CI: not reported	1 year	
	n															
Eligible	2062															
Consented	621															
Received	222															

Study	Location and Intervention	Study Population and Sample	Effect measure	Reported baseline	Reported effect	Value used in summary [95%CI]	Follow-up time															
<p><b>Author (Year):</b> Dubey (2006)</p> <p><b>Study Period:</b> 2002-2003</p> <p><b>Design Suitability (Design):</b> Greatest (Group randomized trial)</p> <p><b>Outcome Measure:</b> Td (rubella immunity)</p>	<p><b>Location:</b> Canada, Toronto</p> <p><b>Intervention:</b> Provider reminder (checklist of adult preventive services)</p> <p><b>Comparison:</b> Usual care</p>	<p><b>Setting:</b> N=4 Stratified random assignment</p> <p><b>Group # Clinics</b></p> <table border="1"> <tr> <td>Inter</td> <td>2</td> <td></td> </tr> <tr> <td>Comp</td> <td>2</td> <td></td> </tr> </table> <p>Samples of charts of patients seen for health check-up appointments. Patient chart samples (Td and Rubella numbers differed).</p> <table border="1"> <thead> <tr> <th>Group</th> <th>N_pre</th> <th>Npost</th> </tr> </thead> <tbody> <tr> <td>Inter</td> <td>242</td> <td>308</td> </tr> <tr> <td>Comp</td> <td>259</td> <td>297</td> </tr> </tbody> </table>	Inter	2		Comp	2		Group	N_pre	Npost	Inter	242	308	Comp	259	297	<p>Rate of preventive maneuver for Tetanus immunization (status, immunization, or offered but refused).</p> <p>Adjusted Relative Risk for Td immunization preventive service.</p> <p>Rate of preventive maneuver for rubella immunity in women of childbearing age.</p>	<p>I 12.8% C 19.7%</p> <p>I 15.5% C 10.0%</p>	<p>I 40.9% C 9.4%</p> <p>I 34.7% C 9.6%</p>	<p>+38.2 pct pts p&lt;0.001 95%CI [32,44.8]</p> <p>Adj RR=3.00 95%CI [1.72, 5.22]</p> <p>+19.6 pct pts p&lt;0.001 95%CI [9.6,29.6]</p> <p>Adj RR=3.14 95% CI [0.78, 12.62]</p>	9-12 months
Inter	2																					
Comp	2																					
Group	N_pre	Npost																				
Inter	242	308																				
Comp	259	297																				
<p><b>Author (Year):</b> MacIntyre (2003)</p> <p><b>Study Period:</b> 1998</p> <p><b>Design Suitability (Design):</b> Greatest (Individual randomized trial)</p> <p><b>Outcome Measure:</b> PPV; Influenza vaccination</p>	<p><b>Location:</b> Australia, Westmead, Victoria</p> <p><b>Intervention:</b> Provider reminders delivered in hospital (Chart memo and face-to-face reminders for staff).</p> <p><b>Comparison:</b> Provider reminders sent by mail on day of patient discharge.</p>	<p><b>Setting:</b> Study Hospital and community providers: N=1</p> <p><b>Study Population:</b> Adults (<math>\geq 65</math> yrs) Inpatients</p> <p>Consenting (vaccine eligible) patients were randomized to type of provider reminder.</p> <table border="1"> <thead> <tr> <th>Group</th> <th>N patients</th> </tr> </thead> <tbody> <tr> <td>In hospital Prov Rem</td> <td>70</td> </tr> <tr> <td>F/u outpatient Prov Rem</td> <td>61</td> </tr> </tbody> </table>	Group	N patients	In hospital Prov Rem	70	F/u outpatient Prov Rem	61	<p>Patient receipt of pneumococcal vaccine at follow-up. Patient receipt of influenza vaccine at follow-up.</p> <p>Note: High baseline coverage for influenza.</p>	<p>Outpatient provider reminder 32 (55%) of 58 eligible patients</p> <p>9 (50%) of 18 eligible patients</p>	<p>Inpatient prov reminder 47 (67%) of 70</p> <p>17 (63%) of 27</p>	<p>+12 pct pts p=0.22 [-5, +29]</p> <p>+13 pct pts p=0.58 [-16, +42]</p>	5 months									
Group	N patients																					
In hospital Prov Rem	70																					
F/u outpatient Prov Rem	61																					

Study	Location and Intervention	Study Population and Sample	Effect measure	Reported baseline	Reported effect	Value used in summary [95%CI]	Follow-up time															
<p><b>Author (Year):</b> Patwardhan (2012)</p> <p><b>Study Period:</b> 2007-2010</p> <p><b>Design Suitability (Design):</b> Moderate (Retrospective cohort)</p> <p><b>Outcome Measure:</b> Influenza vaccination</p>	<p><b>Location:</b> USA</p> <p><b>Intervention:</b> Provider reminder (EHR automatic best practice alert reminder)</p>	<p><b>Setting:</b> rheumatology clinic in a large pediatric hospital</p> <p><b>Study population:</b></p> <ul style="list-style-type: none"> <li>Rheumatology clinic patients</li> <li>Children</li> </ul> <p>N=NR</p>	Influenza vaccination rate	5.9%	25.5%	+19.6 pct pts	1 influenza season															
<p><b>Author (Year):</b> Shaw (2000)</p> <p><b>Study Period:</b> 1996-1997</p> <p><b>Design Suitability (Design):</b> Greatest (Group randomized trial)</p> <p><b>Outcome Measure:</b> Pediatric vaccination</p>	<p><b>Location:</b> USA, Boston, MA</p> <p><b>Intervention:</b> Provider reminder system (computer printout at time of patient encounter) + Provider education (lectures and posting of guidelines).</p> <p><b>Comparison:</b> Provider Education</p>	<p><b>Setting:</b> Study hospital-based continuity clinics: N=1 Outpatient pediatric clinics</p> <p><b>Study Population:</b> Pediatric resident physicians Randomized by clinic day.</p> <table border="1"> <thead> <tr> <th>Group</th> <th>N</th> <th>days</th> <th>N prov</th> <th>N visits</th> </tr> </thead> <tbody> <tr> <td>Inter</td> <td>2</td> <td></td> <td>NR</td> <td>298</td> </tr> <tr> <td>Comp</td> <td>3</td> <td></td> <td>NR</td> <td>328</td> </tr> </tbody> </table> <p>Unit of analysis: Well child visits for patients &lt; 5 yrs old</p> <p>Children &lt; 5 yrs old</p>	Group	N	days	N prov	N visits	Inter	2		NR	298	Comp	3		NR	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>	C: 71 (21.6%) of 328 well child visits	I: 34 (11.4%) of 298 well child visits	Missed Opportunity -10.2 pct pts p<0.0001 [-16, -4.5]	NR
Group	N	days	N prov	N visits																		
Inter	2		NR	298																		
Comp	3		NR	328																		
<p><b>Author (Year):</b> Tang (1999)</p> <p><b>Study Period:</b> 1995-1998</p> <p><b>Design Suitability (Design):</b> Greatest (Other design with concurrent control)</p> <p><b>Outcome Measure:</b> Influenza</p>	<p><b>Location:</b> USA, WI</p> <p><b>Intervention:</b> Provider reminder (rule-based computer reminders that appeared in eligible patient's charts).</p> <p><b>Comparison:</b> Paper reminders</p>	<p><b>Setting:</b> University-based Family Practice Center: N=1</p> <p>Physicians: N= I: 13 C: 10</p> <p><b>Study Population:</b> All patients 65 years or older who had one or more non-acute clinic visits during seasons of each year.</p>	<p>Provider compliance rates</p> <p>Computer Reminder</p> <p>Paper Reminder</p>	27 (40.1%)  11 (27.9%)	112 (68.2%)  25 (30.06%)	+25.4 pct pts 95% CI: 13.2, 37.6	3 influenza seasons															

Additional Evidence on Provider Reminders when Implemented Alone

Study	Location and Intervention	Study Population and Sample	Effect measure	Reported baseline	Reported effect	Value used in summary [95%CI]	Follow-up time									
<p><b>Author (Year):</b> Bloom (1999)</p> <p><b>Study Period:</b> 1996</p> <p><b>Design Suitability (Design):</b> Least (post-only)</p> <p>Adults (≥65yrs) Inpatients</p> <p><b>Outcome Measure:</b> Influenza; PPV vaccination</p>	<p><b>Location:</b> USA, managed care plan in NY and NJ</p> <p><b>Intervention:</b> Provider Reminder (faxed reminder sheet sent to provider for each admitted patient).</p> <p><b>Comparison:</b> Post intervention vaccination</p>	<p><b>Setting:</b> Study Managed Care Plan included 10 high volume hospitals.</p> <p><b>Study Population:</b> Patients admitted to study hospitals of plan providers: N= 206 patients admitted over the period. N= 153 eligible patients of 106 providers.</p>	<p>Proportion of patients who received influenza vaccine during hospital stay.</p> <p>Proportion of patients who received PPV vaccine during stay.</p> <p>Note: Provider reminders did not document patient vaccination status.</p>	<p>NR (survey incomplete)</p> <p>NR (survey incomplete)</p>	<p>3 (2%) of 153 patients</p> <p>1 (0.6%) of 153 patients</p>	<p>2 pct points 95%CI [NA]</p> <p>1 pct point 95%CI [NA]</p>	2 months									
<p><b>Author (Year):</b> Minkovitz (2001)</p> <p><b>Study Period:</b> 1998-1999</p> <p><b>Design Suitability (Design):</b> Least (Before-after)</p> <p>Children Outpatient</p> <p><b>Outcome Measure:</b> Childhood vaccines</p>	<p><b>Location:</b> USA, Baltimore, MD</p> <p><b>Intervention:</b> Provider reminder (nurse assessment with computer printout attached to chart). Minimal provider education (told to look at printout) and feedback</p> <p><b>Comparison:</b> Before-after</p>	<p><b>Setting:</b> Study Hospital-based pediatric clinic: N=1</p> <p><b>Study Population:</b> Patients of the pediatric clinic (≤3 yrs of age) with 1 or more visits to the clinic.</p> <table border="1"> <thead> <tr> <th>Period</th> <th>N total</th> <th>N eligible</th> </tr> </thead> <tbody> <tr> <td>Pre</td> <td>654</td> <td>521</td> </tr> <tr> <td>Post</td> <td>930</td> <td>642</td> </tr> </tbody> </table>	Period	N total	N eligible	Pre	654	521	Post	930	642	<p>Vaccination coverage for the 4:3:1:3:3 series among children 24m and older.</p> <p>Vaccination coverage for 3:2:3:3 series among children 10-23 months.</p>	<p>149 (70%) of 213</p> <p>132 (64%) of 207</p>	<p>152 (78%) of 195</p> <p>214 (71%) of 302</p>	<p>+8 pct points [-0.5, +16.5]</p> <p>+7 pct points [-1.3, +15.3]</p>	14 months
Period	N total	N eligible														
Pre	654	521														
Post	930	642														

Study	Location and Intervention	Study Population and Sample	Effect measure	Reported baseline	Reported effect	Value used in summary [95%CI]	Follow-up time												
<p><b>Author (Year):</b> Noped (2001)</p> <p><b>Study Period:</b> Oct-Nov 1999</p> <p><b>Design Suitability (Design):</b> Least (Before-After)</p> <p><b>Outcome measure:</b> Pneumococcal vaccination</p>	<p><b>Location:</b> USA, Winston-Salem, NC</p> <p><b>Intervention:</b> Provider Reminder (pharmacist assessment)</p> <p><b>Comparison:</b> Before-after</p>	<p>Pilot pneumococcal vaccination program implemented to increase coverage.</p> <p><b>Study Population:</b> High-risk patients ≥ 65 years of age Inpatient</p> <p>Study Hospital: N=1 <u>N assessed</u></p> <p>Pre: 1998 354 Post:1999 458</p>	Percentage of eligible patients vaccinated: pneumococcal	<p><u>1998</u> 26 (7.3%) of 354</p>	<p><u>1999</u> 134 (29.3%) of 458</p>	+22 pct pt 95% CI: [17, 27]	2 months												
<p><b>Author (Year):</b> Skledar (2003)</p> <p><b>Study Period:</b> 2000-2002</p> <p><b>Design Suitability (Design):</b> Least (Before-After)</p> <p><b>Outcome measure:</b> Pneumococcal vaccination</p>	<p><b>Location:</b> USA, Pittsburgh, PA</p> <p><b>Intervention:</b> Registry + Standing Orders + Provider Reminder + Client Reminder + Provider Education</p> <p><b>Comparison:</b> Before-After</p>	<p><b>Setting:</b> Study hospital: N=1</p> <p><b>Study Population:</b> Adult Hospital patients</p> <p>Pre Baseline: 309 January 2002: 383</p>	Eligible patients that were vaccinated	Pre: (3) 1%	Post: (162) 33%	+ 32 pct pts 95% CI [26.7, 36.3]	2 years												
<p><b>Author (Year):</b> Skull (1999)</p> <p><b>Study Period:</b> 1996</p> <p><b>Design Suitability (Design):</b> Least (Before-After)</p>	<p><b>Location:</b> Australia, Northern Territory; Darwin</p> <p><b>Intervention:</b> Provider Reminder + Provider Education</p>	<p><b>Setting:</b> Study Hospital: N=1; Royal Darwin Hospital</p> <p><b>Study Population:</b> Children Inpatients</p> <p><u>Analyses (NCIR)</u></p> <table border="1"> <thead> <tr> <th>Pd</th> <th>N</th> <th>N records</th> <th>N elig</th> </tr> </thead> <tbody> <tr> <td>Pre</td> <td>423</td> <td>318/405</td> <td>84</td> </tr> <tr> <td>Post</td> <td>443</td> <td>351/422</td> <td>139</td> </tr> </tbody> </table>	Pd	N	N records	N elig	Pre	423	318/405	84	Post	443	351/422	139	<p>Opportunistic vaccination rate among children: Pediatric Ward and Emergency Department</p> <p>NT Childhood Immunisation Register (NCIR)</p>	0 (0%) out of 84	6 (4%) out of 139	+4 pct pts 95% CI [.7,7]	4 months
Pd	N	N records	N elig																
Pre	423	318/405	84																
Post	443	351/422	139																

Study	Location and Intervention	Study Population and Sample	Effect measure	Reported baseline	Reported effect	Value used in summary [95%CI]	Follow-up time									
<p><b>Author (Year):</b> Vondracek (1998)</p> <p><b>Study Period:</b> April-June 1996</p> <p><b>Design Suitability (Design):</b> Least (Before-after)</p> <p>Adults Hospital inpatients</p> <p><b>Outcome Measure:</b> PPV vaccination</p>	<p><b>Location:</b> USA, Oklahoma City; OK</p> <p><b>Intervention:</b> Provider reminder system (pharmacist-run)</p> <p><b>Comparison:</b> Before-after</p>	<p><b>Setting:</b> Study hospital: N=1 Inpatient medicine and cardiology wards and rotating physicians and resident physicians.</p> <p><b>Study Population:</b> Consecutive Inpatients admitted to study wards until 40 PPV eligible patients were identified.</p> <table border="1" data-bbox="583 584 999 673"> <thead> <tr> <th>Period</th> <th>N admits</th> <th>N PPV eligible</th> </tr> </thead> <tbody> <tr> <td>Pre (4wks)</td> <td>198</td> <td>80</td> </tr> <tr> <td>Inter (6wks)</td> <td>249</td> <td>80</td> </tr> </tbody> </table>	Period	N admits	N PPV eligible	Pre (4wks)	198	80	Inter (6wks)	249	80	<p>Proportion of pneumococcal vaccine eligible inpatients who were vaccinated prior to discharge. Baseline coverage was 28.6% of indicated pts.</p> <p>Overall PPV vaccination coverage change at discharge in study samples of inpatients.</p>	<p>Pre: 0 (0%) of 80</p> <p>27 (13.6%) of 198 admits</p>	<p>Post 23 (28.8%) of 80</p> <p>60 (24.1%) of 249 admits</p>	<p>+28.8 pct pts [18.9,38.7]</p> <p>Post +10.5 pct pts [3.4, 17.6]</p>	<p>6 wks</p> <p>6wks</p>
Period	N admits	N PPV eligible														
Pre (4wks)	198	80														
Inter (6wks)	249	80														

Provider Reminders when Implemented with Additional Interventions

Study	Location and Intervention	Study Population and Sample	Effect measure	Reported baseline	Reported effect	Value used in summary [95%CI]	Follow-up time																
<p><b>Author (Year):</b> Britto (2006)</p> <p><b>Study Period:</b> 1999-2004</p> <p><b>Design Suitability (Design):</b> Moderate (Time Series)</p> <p>Children (high-risk) Outpatient (Cystic Fibrosis clinic)</p> <p><b>Outcome Measure:</b> Influenza vaccination</p>	<p><b>Location:</b> USA Cincinnati, OH</p> <p><b>Intervention:</b> Quality Improvement Project: Registry + Client Reminder/Recall + Client Education + Provider Reminder + Provider Education + Standing Orders + Expanding Access.</p> <p><b>Comparison:</b> Before-after</p>	<p><b>Setting:</b> Study Medical Center Cystic Fibrosis Clinic</p> <p><b>Study Population:</b> Patients of the Cystic Fibrosis clinic N=Not reported (205 in 2003-04)</p>	<p>Influenza vaccination coverage among the patients of the Cystic Fibrosis Clinic 1999-2004</p>	<p>Baseline 1999-2001 (2 seasons)</p> <table border="1"> <thead> <tr> <th>Yr</th> <th>Coverage</th> </tr> </thead> <tbody> <tr> <td>99-00:</td> <td>17.3%</td> </tr> <tr> <td>01-02:</td> <td>41.3%</td> </tr> </tbody> </table>	Yr	Coverage	99-00:	17.3%	01-02:	41.3%	<p>QI project (2 seasons)</p> <p>02-03: 85.5%</p> <p>03-04: 90.4%</p>	<p>+49.1 pct pt 95% CI= not calculated</p>	<p>4 years</p>										
Yr	Coverage																						
99-00:	17.3%																						
01-02:	41.3%																						
<p><b>Author (Year):</b> Coyle (2004)</p> <p><b>Study Period:</b> 1999</p> <p><b>Design Suitability (Design):</b> Greatest (Group non-randomized trial)</p> <p><b>Outcome Measure:</b> PPV</p>	<p><b>Location:</b> USA, Bronx, New York</p> <p><b>Intervention:</b> Provider reminders (pharmacist assessment with computer prompt ) + Patient education (pharmacist assessment with small media for patient)</p> <p><b>Comparison:</b> Usual Care Note: Study also compared Standing Orders to Provider Reminder</p>	<p><b>Setting:</b> Study Hospital: N=1 Patient wards were assigned to condition: N=3</p> <p><b>Study Population:</b> Patients admitted over study period N=424 Adults Hospital inpatients</p> <table border="1"> <thead> <tr> <th>Group</th> <th>N admit</th> <th>N elig</th> <th>N accpt</th> </tr> </thead> <tbody> <tr> <td>Prov remi</td> <td>122</td> <td>55</td> <td>35</td> </tr> <tr> <td>StdOrders</td> <td>147</td> <td>56</td> <td>42</td> </tr> <tr> <td>Usual Care</td> <td>155</td> <td>(NR)</td> <td>(NR)</td> </tr> </tbody> </table>	Group	N admit	N elig	N accpt	Prov remi	122	55	35	StdOrders	147	56	42	Usual Care	155	(NR)	(NR)	<p>Proportion of inpatient admits who received the pneumococcal vaccination</p> <p>Note: Patient refusal rate was 30%</p> <p>Note: Standing Orders was significantly better than provider reminders in direct comparison</p>	<p>Usual care 1 (0.6%) of 155 admits</p>	<p>Prov Rem 8 (6.6%) of 122 admits</p>	<p>+6.0 pct pts [1.4, 10.6]</p>	<p>4 months</p>
Group	N admit	N elig	N accpt																				
Prov remi	122	55	35																				
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Study	Location and Intervention	Study Population and Sample	Effect measure	Reported baseline	Reported effect	Value used in summary [95%CI]	Follow-up time																
<p><b>Author (Year):</b> Dexter (2004)</p> <p><b>Study Period:</b> 1998-1999</p> <p><b>Design Suitability (Design):</b> Greatest (Group Randomized Trial )</p> <p>Adults Hospital inpatients</p> <p><b>Outcome Measure:</b> Influenza; PPV vaccination</p>	<p><b>Location:</b> USA, Indianapolis, IN</p> <p><b>Intervention:</b> Standing Orders (nurse assessment; computer entry)</p> <p><b>Comparison:</b> Provider reminders (nurse assessment; computer prompt)</p> <p>Note: This study compared Standing Orders to Provider Reminders</p>	<p><b>Setting:</b> Study Hospital: N=1</p> <p><b>Study Population:</b> Inpatient medical ward physician teams assigned to condition. Standing orders: 4 teams Provider reminder: 4 teams</p> <table border="1"> <thead> <tr> <th></th> <th>Npatients</th> <th>N eligible</th> <th></th> </tr> <tr> <th>Grp</th> <th>Analyses</th> <th>PPV</th> <th>Influenza</th> </tr> </thead> <tbody> <tr> <td>SO</td> <td>623</td> <td>406</td> <td>385</td> </tr> <tr> <td>PR</td> <td>691</td> <td>423</td> <td>463</td> </tr> </tbody> </table>		Npatients	N eligible		Grp	Analyses	PPV	Influenza	SO	623	406	385	PR	691	423	463	<p>Vaccination admin rates for eligible inpatients: Influenza</p> <p>Pneumococcal</p> <p>Note: This study is not a direct assessment of effectiveness of provider reminders. Provider reminders were less effective than Standing Orders in this comparison.</p>	<p>Provider Rem 137 (30%) of 463</p> <p>Provider Rem 132 (31%) of 423</p>	<p>Standing Order 163 (42%) of 385</p> <p>Standing Order 209 (51%) of 406</p>	<p>+12 pct pts [5.5,18.5]</p> <p>+20 pct pts [13.4,26.6]</p>	<p>14 months (2 influenza seasons)</p>
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SO	623	406	385																				
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<p><b>Author (Year):</b> Fiks (2007)</p> <p><b>Study Period:</b> 2004-2005</p> <p><b>Design Suitability (Design):</b> Moderate (Pre-Post Design with Non-concurrent comparison)</p> <p><b>Outcome Measure:</b> Childhood series vaccination</p>	<p><b>Location:</b> USA, 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></p> <ul style="list-style-type: none"> <li>• Children</li> <li>• Majority African American</li> </ul> <table border="1"> <thead> <tr> <th></th> <th>N</th> </tr> </thead> <tbody> <tr> <td>Inter</td> <td>1669</td> </tr> <tr> <td>Control</td> <td>1548</td> </tr> </tbody> </table>		N	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>										
	N																						
Inter	1669																						
Control	1548																						

Study	Location and Intervention	Study Population and Sample	Effect measure	Reported baseline	Reported effect	Value used in summary [95%CI]	Follow-up time									
<p><b>Author (Year):</b> Fiks (2009)</p> <p><b>Study Period:</b> 2006-2007</p> <p><b>Design Suitability (Design):</b> Greatest (Group randomized Trial)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Outcome Measure:</b> Influenza vaccination</p>	<p><b>Location:</b> USA, 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></p> <ul style="list-style-type: none"> <li>• Children</li> <li>• 5-19 years of age</li> <li>• Asthmatic</li> </ul> <table border="1" data-bbox="583 479 999 560"> <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> Fishbein (2006)</p> <p><b>Study Period:</b> Not reported</p> <p><b>Design Suitability (Design):</b> Greatest (Other Design with concurrent comparison group)</p> <p>Adults Outpatients (family practice)</p> <p><b>Outcome Measure:</b> 8 vaccines indicated for adults</p>	<p><b>Location:</b> USA, Three clinics in Georgia, Louisiana, New Mexico</p> <p><b>Intervention:</b> Client Education + Provider Reminder (client completes self-assessment in office then takes form to provider at appointment).</p> <p><b>Comparison:</b> Usual care + fact sheet on physical activity.</p>	<p><b>Setting:</b> Participating family practice clinics and providers N=3 clinic systems</p> <p><b>Study Population:</b> Convenience samples of 200 consenting adult patients (18 yrs or older and not acutely ill) assigned to condition in each setting.</p> <table border="1" data-bbox="583 1079 999 1177"> <thead> <tr> <th>Condition</th> <th><u>N recruited patients</u></th> </tr> </thead> <tbody> <tr> <td>Inter</td> <td>100 per setting</td> </tr> <tr> <td>Comp</td> <td>100 per setting</td> </tr> </tbody> </table>	Condition	<u>N recruited patients</u>	Inter	100 per setting	Comp	100 per setting	<p>Overall receipt of one or more indicated vaccines at subsequent appointment.</p> <p>Note: No individual vaccine was administered significantly more commonly to intervention patients than control patients in all three clinic systems.</p>	<p>C 50 (9%) of 556 eligible patients</p>	<p>I 99 (18%) of 550 eligible patients</p>	<p>+9 pct pts p&lt;0.0001 95%CI [NR]</p>				
Condition	<u>N recruited patients</u>															
Inter	100 per setting															
Comp	100 per setting															

Study	Location and Intervention	Study Population and Sample	Effect measure	Reported baseline	Reported effect	Value used in summary [95%CI]	Follow-up time
<p><b>Author (Year):</b> Flanagan (1999)</p> <p><b>Study Period:</b> Not reported</p> <p><b>Design Suitability (Design):</b> Greatest (Individual Randomized Trial)</p> <p>Adults Outpatient</p> <p><b>Outcome Measure:</b> PPV; Influenza; Td; Hepatitis B vaccination</p>	<p><b>Location:</b> USA, Iowa City, Iowa</p> <p><b>Intervention:</b> Provider reminder system (computer-based but activated only if the provider checked the immunization section of the patient's online medical record).</p> <p><b>Comparison:</b> Usual care (no section-based rem)</p>	<p><b>Setting:</b> Study University Medical Center (general medical services)</p> <p><b>Study Population:</b> Providers were stratified on experience and assigned to condition.</p> <p><u>Group</u>    <u>N providers</u> Inter      Not reported Comp      Not reported N=89 physicians provided some data in these analyses</p>	<p>Provider orders for 1 more vaccinations during the study period.</p> <p>Rate of ordering based on online checks of the patient immunization section.</p>	<p>C: 169 orders of 1 or more immunizations</p> <p>Rate 169 (66%) of 254 immunization section checks</p>	<p>I: 391 orders of 1 or more immuniz.</p> <p>Rate 391(54%) of 726 immunization section checks</p>	<p>More checks and more orders for vaccinations</p> <p>No specific vaccine was ordered correctly to a significant degree based on condition</p>	
<p><b>Author (Year):</b> Gil (2000)</p> <p><b>Study Period:</b> 1997-1999</p> <p><b>Design Suitability (Design):</b> Moderate (retrospective cohort)</p> <p><b>Outcome Measure:</b> Influenza vaccination</p>	<p><b>Location:</b> USA, North Wilmington, Delaware</p> <p><b>Intervention:</b> Provider Reminder (computer prompt in patient electronic medical record) + Client Reminder (postcard sent in October).</p> <p><b>Comparison:</b> Before-after</p>	<p><b>Setting:</b> Study Family Medicine group practice: N=1</p> <p><b>Study Population:</b> Patients age <math>\geq 65</math> years with visits before 9/97 and after 1/99 N=344 eligible patients identified in this retrospective review</p>	<p>Proportion of eligible patients who received an influenza vaccination</p>	<p>1997-pre 173 (50.4%) of 344</p>	<p>1998-post 212 (61.6%) of 344</p>	<p>+11.2 pct points p&lt;0.001 95%CI [4, 19]</p>	<p>2 influenza seasons</p>

Study	Location and Intervention	Study Population and Sample	Effect measure	Reported baseline	Reported effect	Value used in summary [95%CI]	Follow-up time								
<p><b>Author (Year):</b> Hambidge (2004)</p> <p><b>Study Period:</b> Not reported</p> <p><b>Design Suitability (Design):</b> Greatest (Group Randomized Control Trial)</p> <p><b>Outcome Measure:</b> Childhood vaccination</p>	<p><b>Location:</b> USA, Denver CO</p> <p><b>Intervention:</b> Provider reminders (medical chart marked if behind on immunizations or well child visits) + Provider Assessment &amp; Feedback (Monthly AFIX cycles) + Provider Education + Client reminder recall (registry based postcard reminder).</p> <p><b>Comparison:</b> Usual care</p>	<p><b>Setting:</b> School based clinics within the Denver Health Medical Center: N=11</p> <p><b>Study Population:</b> Patients born at DH Medical Center between July 1, 1998 and June 1999.</p> <table border="1" data-bbox="583 532 1001 651"> <thead> <tr> <th>Group</th> <th>N patients</th> </tr> </thead> <tbody> <tr> <td>1. Imm. Arm (4 clinics)</td> <td>1030</td> </tr> <tr> <td>2. WCV Arm (3 clinics)</td> <td>475</td> </tr> <tr> <td>3. Control (4 clinics)</td> <td>1160</td> </tr> </tbody> </table>	Group	N patients	1. Imm. Arm (4 clinics)	1030	2. WCV Arm (3 clinics)	475	3. Control (4 clinics)	1160	<p>% Up to date at 12 months</p>	<p>C: 71%</p>	<p>I: 76%</p>	<p>+5 pct pts 95% CI [1.3, 8.7]</p>	<p>12 months</p>
Group	N patients														
1. Imm. Arm (4 clinics)	1030														
2. WCV Arm (3 clinics)	475														
3. Control (4 clinics)	1160														
<p><b>Author (Year):</b> Hogg (1998)</p> <p><b>Design Suitability (Design):</b> Greatest (Randomized control trial)</p> <p><b>Outcome Measure:</b> Physicians Preventative procedures including vaccinations (MMR, Influenza, tetanus, HIB and DPT).</p>	<p><b>Location:</b> Quebec, 40 km from Ottawa</p> <p><b>Intervention:</b> Provider reminders+ client reminders.</p> <p>All groups (1&amp;2) received provider reminders.</p> <p>1. Two types of mailed patient letters with reminders for preventative procedures. A. Customized letter B. Form letter.</p> <p><b>Comparison:</b> No letter for the control</p>	<p><b>Study Population:</b> Clinicians and patients from the Wakefield family medical center.</p> <p>8770 eligible patients, 719 families were randomly selected.</p> <p>Customized letter N= 204 families</p> <p>Form letter N=252 families</p> <p>Control N=263 families</p>	<p>Data collected at baseline and at 2, 4 and 6 months.</p> <p>Family received index: proportion of all procedures for which a family was overdue and were received.</p> <p>Family end-of-study up-to-date index: proportion of procedures for which the family was eligible and for which they were up-to-date at the end of the study</p>	<p>Data not reported</p>	<p>Customized letter was statistically significant over the form letter and no letter at increasing compliance with preventative procedures.</p>	<p>Significant for MMR booster vaccines (<math>X^2</math> <math>P=.04</math>).</p> <p>Higher rates (not significant) for tetanus, flu (over 65), flu (chronic disease), HIB vaccine, DPT)</p>	<p>1 year</p>								

Study	Location and Intervention	Study Population and Sample	Effect measure	Reported baseline	Reported effect	Value used in summary [95%CI]	Follow-up time
<p><b>Author (Year):</b> Honeycutt (2007)</p> <p><b>Study Period:</b> 2003-2004</p> <p><b>Design Suitability (Design):</b> Moderate (Retrospective cost analysis)</p> <p>Adults</p> <p>Hospitals</p> <p>Physicians and health care providers</p> <p><b>Outcome Measure:</b> Influenza and Pneumococcal vaccination</p>	<p><b>Location:</b> USA, NC</p> <p><b>Intervention:</b> Standing Orders (SOP): Authorize non-physician personnel to deliver vaccines. + Pre-printed Orders (PPO): Pre-printed forms in charts that do not have a physician's signature. + Physician Reminders (PR): Notes in charts to remind physicians to determine patient eligibility and order vaccination.</p>	<p><b>Study Population:</b> 10 immunization programs: Study arms: 4 SOPs, 3 PPO, 3 PR</p> <p>Patients: PR N= 259 Comparison was PPO N= 529</p> <p>Characteristics Age: not stated</p> <p>Gender: not stated</p> <p>Race: not stated</p>	<p>Percentage of admitted patients that received a vaccine order. Estimated # of patients with a vaccine order divided by total number of admissions.</p>	<p>Data not reported</p>	<p>SOP 8.9% PR 7.9% PPO 3.2%</p>	<p>7.9-3.2= 4.7%</p>	<p>6 months</p>
<p><b>Author (Year):</b> Humiston (2011)</p> <p><b>Study Period:</b> 2003-2004</p> <p><b>Design Suitability (Design):</b> Greatest (Individual randomized control trial)</p> <p>Adults 65+</p> <p><b>Outcome Measure:</b> Influenza vaccination</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></p> <ul style="list-style-type: none"> <li>active patients of participating primary care clinics</li> <li>aged ≥65 years</li> <li>residents of New York</li> </ul> <p><u>Group</u> <u>N</u></p> <p>I: Prov Rem + Client Rem 1748</p> <p>C:Usual Care 2004</p>	<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>

Study	Location and Intervention	Study Population and Sample	Effect measure	Reported baseline	Reported effect	Value used in summary [95%CI]	Follow-up time
<p><b>Author (Year):</b> Latessa (2000)</p> <p><b>Study Period:</b> NR</p> <p><b>Design Suitability (Design):</b> Greatest (Other design with a concurrent comparison)</p> <p>Patients with risk indications (most adults) Outpatient</p> <p><b>Outcome Measure:</b> PPV</p>	<p><b>Location:</b> USA, NC</p> <p><b>Intervention:</b> Provider Reminder (nurse assessment with chart sticker placement for indicated patients) + Client Education (poster in exam room).</p> <p><b>Comparison:</b> Usual Care</p> <p>Note: A third arm had only client education.</p>	<p>Study Family Practice center of East Carolina University: N=1</p> <p>Allocation by module: N=NR</p> <p>Patients with indications for PPV <u>Group</u> <u>N</u> Inter : Prov Rem + Client Edu 205 Comp Usual Care 386</p>	<p>Proportion of eligible patients who received pneumococcal vaccination</p>	<p>C: 27 (7%) of 386</p>	<p>I: 41 (20%) of 205</p>	<p>+13 pct points [7, 19]</p>	<p>6 months</p>
<p><b>Author (Year):</b> Nowalk (2008)</p> <p><b>Study Period:</b> 2001-2005</p> <p><b>Design Suitability (Design):</b> Greatest (Other Design with Concurrent Comparison)</p> <p><b>Quality of Execution:</b> Good</p> <p><b>Outcome Measure:</b> Influenza vaccination 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></p> <ul style="list-style-type: none"> <li>Adults</li> <li>≥50 years of age</li> </ul> <p><u>Period</u> <u>I (N)</u> <u>Site</u> <u>C (N)</u> <u>Site</u> 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>	<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>

Study	Location and Intervention	Study Population and Sample	Effect measure	Reported baseline	Reported effect	Value used in summary [95%CI]	Follow-up time									
<p><b>Author (Year):</b> Margolis (2004)</p> <p><b>Study Period:</b> NR</p> <p><b>Design Suitability (Design):</b> Greatest (Group randomized trial)</p> <p><b>Outcome measure:</b> Complete immunized schedule</p>	<p><b>Location:</b> USA, NC</p> <p><b>Intervention:</b> Continuing medical education+ provider education + provider reminder + clinical process improvement.</p> <p><b>Comparison:</b> control</p>	<p><b>Study:</b> Intervention: reviewed 5703 medical charts of children (24-30 months of age) from 22 medical practices.</p> <p><b>Control:</b> 3647 medical charts from 22-Non-intervention medical practices.</p>	<p>4 injections of dpt, 3 oral polio, 1 mmr, 3 h influenzae type B, and 3 HBV.</p>	<p>I = 16% C= 15%</p>	<p>No differences between the intervention and control.</p> <p>Data not reported.</p>	<p>NR</p>	<p>15-18 months</p>									
<p><b>Author (Year):</b> Mason (2000)</p> <p><b>Study Period:</b> 1998-1999</p> <p><b>Design Suitability (Design):</b> Greatest (Individual randomized trial)</p> <p><b>Outcome measure:</b> MMR vaccination</p>	<p><b>Location:</b> UK, Lechyd Morgannwg, Wales</p> <p><b>Intervention:</b> IIS(registry) + Client reminder/recall-mailed letter + Client education -mailed leaflet+Provider Reminder-mailed letter.</p> <p><b>Comparison:</b> IIS (registry) + Usual Care</p>	<p>Study Health Authority in Wales</p> <p>Under-immunized pediatric clients (at 21m of age) of the study Health Authority were enrolled and randomly assigned to condition.</p> <table border="1" data-bbox="583 893 1001 990"> <thead> <tr> <th>Group</th> <th>Nassigned</th> <th>Nanalysis</th> </tr> </thead> <tbody> <tr> <td>Inter</td> <td>255</td> <td>249 (97%)</td> </tr> <tr> <td>Comp</td> <td>256</td> <td>244 (95%)</td> </tr> </tbody> </table>	Group	Nassigned	Nanalysis	Inter	255	249 (97%)	Comp	256	244 (95%)	<p>Receipt of MMR vaccination between 21m and 24m of age</p>	<p><u>Comparison</u> 6.1%</p>	<p><u>Intervention</u> 7.2%</p>	<p>+1.1 pct pts (95%CI -3.3, +5.5) Relative change (+18%)</p>	<p>8 months (3m f/u)</p>
Group	Nassigned	Nanalysis														
Inter	255	249 (97%)														
Comp	256	244 (95%)														

Study	Location and Intervention	Study Population and Sample	Effect measure	Reported baseline	Reported effect	Value used in summary [95%CI]	Follow-up time																											
<p><b>Author (Year):</b> Muehleisen (2007)</p> <p><b>Study Period:</b> 2003</p> <p><b>Design Suitability (Design):</b> Greatest (Individual non-randomized trial)</p> <p><b>Outcome measure:</b> Childhood vaccine series</p>	<p><b>Location:</b> Basel, Switzerland</p> <p><b>Intervention:</b> Client Reminders + Client Education + Provider Reminders</p>	<p>Children hospitalized during recruitment period (Jan-April 2003)</p> <p>-Ages 61 days to 17 yrs -Without chronic conditions -With immunization records -Under immunized</p> <table border="0" data-bbox="581 503 999 649"> <tr> <td></td> <td style="text-align: center;"><u>N</u></td> <td style="text-align: center;"><u>N 1m f/u</u></td> </tr> <tr> <td>Inter</td> <td style="text-align: center;">98</td> <td style="text-align: center;">95</td> </tr> <tr> <td>Comp</td> <td style="text-align: center;">111</td> <td style="text-align: center;">106</td> </tr> </table> <p>Overall follow up (f/u) 96%</p> <p>Characteristics</p> <table border="0" data-bbox="581 649 999 730"> <tr> <td></td> <td style="text-align: center;"><u>Inter</u></td> <td style="text-align: center;"><u>Comp</u></td> </tr> <tr> <td>N f/u</td> <td style="text-align: center;">98</td> <td style="text-align: center;">111</td> </tr> <tr> <td>Age-median</td> <td style="text-align: center;">3.8</td> <td style="text-align: center;">4.0</td> </tr> </table> <p>Gender-male 56% 52%</p> <p>Race/Ethnicity: Swiss perm resident since 2m of age</p>		<u>N</u>	<u>N 1m f/u</u>	Inter	98	95	Comp	111	106		<u>Inter</u>	<u>Comp</u>	N f/u	98	111	Age-median	3.8	4.0	<p>Receipt of 1 or more catch-up immunizations</p> <p>1 month f/u of vaccination status and 9-12m f/u at end of study. Under immunized: Patient was not up to date on 1 or more immunizations according to the Swiss schedule.</p> <p>Swiss childhood vaccine series: diphtheria, tetanus, pertussis, haemophilus b, MMR, hepatitis b.</p>	<p>Not reported</p>	<p>A combined intervention of Client reminder, client counseling, and provider reminder letter increased the proportion of under-immunized pediatric patients who received at least 1 catch-up vaccination at 9month follow-up.</p>	<p>9 Month f/u</p> <table border="0" data-bbox="1682 292 1896 438"> <tr> <td><u>Group</u></td> <td><u>N</u></td> <td><u>%</u></td> </tr> <tr> <td>Inter</td> <td style="text-align: center;">95</td> <td style="text-align: center;">45%</td> </tr> <tr> <td>Comp</td> <td style="text-align: center;">106</td> <td style="text-align: center;">35%</td> </tr> </table> <p>Difference: +10 pct points (+28.5%)</p> <p>[95% CI : -4 pct pts to +24 pct pts]</p>	<u>Group</u>	<u>N</u>	<u>%</u>	Inter	95	45%	Comp	106	35%	<p>9 months</p>
	<u>N</u>	<u>N 1m f/u</u>																																
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Comp	106	35%																																



Study	Location and Intervention	Study Population and Sample	Effect measure	Reported baseline	Reported effect	Value used in summary [95%CI]	Follow-up time												
<p><b>Author (Year):</b> Rhew (1999)</p> <p><b>Study Period:</b> 1997</p> <p><b>Design Suitability (Design):</b> Greatest (Group Randomized Trial)</p> <p><b>Outcome measure:</b> PPV</p>	<p><b>Location:</b> USA, West Los Angeles, CA</p> <p><b>Intervention:</b> 1. Nurse/clerk assessment, Nurse standing orders, comparative feedback, client education (reminders), provider reminders. + 2. Nurse/clerk assessment, nurse standing orders w/compliance reminders, client education (reminders), provider reminders.</p> <p><b>Comparison:</b> client education (reminders) and provider reminders.</p>	<p>3 health care firms/teams in geographically distinct areas. Providers were randomly assigned to condition.</p> <p>Study clinic (provides care to 12,000 patients; 90% men; 36.5% age 65 yrs and older; lower SES).</p> <p>Team N patients seen in 12wks 1. 1,101 2. 1,221 3. 1,180</p>	<p>Total number of vaccines given by team ( all eligible staff)</p> <p>Pneumococcal vaccine</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 1. (24%) 2. (26%) 3. (0.9%)</p>	<p>Team 1. 22% 3. 5% P&lt;0.001</p> <p>Team 2. 25% 3. 5% P&lt;0.001</p>	<p>+17 pct pts [14.3, 19.7]</p> <p>+20 pct ts [17.3,22.7]</p>	<p>Interv period was 12 weeks</p>												
<p><b>Author (Year):</b> Shevlin (2002)</p> <p><b>Study Period:</b> 1999</p> <p><b>Design Suitability (Design):</b> Greatest (Group non-randomized trial)</p> <p><b>Outcome Measure:</b> PPV</p>	<p><b>Location:</b> USA, Atlanta, GA</p> <p><b>Intervention:</b> Provider reminder system (nurse-run) + Provider education (in-service and feedback over intervention period).</p> <p><b>Comparison:</b> Usual care</p>	<p><b>Setting:</b> Study hospital: N=1 Hospital floors were assigned to condition</p> <p><b>Study Population:</b> Adult Hospital inpatients Intake assessment determined patient admit as eligible for PPV or not</p> <table border="1"> <thead> <tr> <th>Group</th> <th>N floors</th> <th>Nadmits</th> <th>N eligible</th> </tr> </thead> <tbody> <tr> <td>Inter</td> <td>2</td> <td>296</td> <td>205</td> </tr> <tr> <td>Comp</td> <td>2</td> <td>238</td> <td>150</td> </tr> </tbody> </table>	Group	N floors	Nadmits	N eligible	Inter	2	296	205	Comp	2	238	150	<p>Proportion of PPV eligible inpatients who were vaccinated for PPV</p> <p>Overall PPV vaccination coverage change for inpatients</p>	<p>C: 7 (4.7%) of 150</p> <p>I: 41 (16.6%) of 296</p> <p>C: 28 (16.4%) of 238</p>	<p>I: 78 (38%) of 205</p> <p>119 (40.2%) of 296</p> <p>35 (14.7%) of 238</p>	<p>+33.3 pct pts p&lt;0.001 [25.8, 40.8]</p> <p>Overall PPV coverage chg +25.3 pct pts [18.5, 32.5]</p>	<p>4 weeks</p>
Group	N floors	Nadmits	N eligible																
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Study	Location and Intervention	Study Population and Sample	Effect measure	Reported baseline	Reported effect	Value used in summary [95%CI]	Follow-up time									
<p><b>Author (Year):</b> Zimmerman (2006)</p> <p><b>Study Period:</b> 2001-2004</p> <p><b>Design Suitability (Design):</b> Greatest (other design with a concurrent comparison group)</p> <p><b>Outcome Measure:</b> Influenza vaccination</p>	<p><b>Location:</b> USA, Pittsburgh, PA</p> <p>Community health system project to improve vaccination rates.</p> <p>Individual clinics adopted their own sets of interventions including Provider Reminders + Provider Education + Client Education + Standing Orders + Client reminders + Expanded access.</p> <p>Comparison: Usual Care (Provider Education )</p>	<p>Participating clinics within the University of Pittsburgh School of Medicine: N= 5 practices in 10 offices</p> <table border="1" data-bbox="590 415 982 561"> <thead> <tr> <th>Condition</th> <th>N practices</th> <th>N patients</th> </tr> </thead> <tbody> <tr> <td>Inter</td> <td>5</td> <td>2438 (Pre) 2935 (Int 1) 3311 (Int 2)</td> </tr> <tr> <td>Comp</td> <td>1</td> <td>Not reported</td> </tr> </tbody> </table> <p>Note: Only 2 or 3 of the 5 practices implemented combinations that included provider reminders and results are not specific to specific practices. Comparison clinic was an inner-city family medicine residency</p> <p><b>Study Population:</b> Children (high-risk)</p>	Condition	N practices	N patients	Inter	5	2438 (Pre) 2935 (Int 1) 3311 (Int 2)	Comp	1	Not reported	<p>Influenza vaccination coverage of active patients</p> <p>Note: Study conducted prior to and during change in ACIP influenza recommendations for children</p> <p>Note: Dramatic difference in baseline coverage rates indicating a significantly different comparison population</p>	<p>Baseline I 10.4% C 42.0%</p>	<p>Year 2 I 18.7% C 42.7%</p>	<p>(+7.6 pct pts p&lt;0.001)</p> <p>95%CI [NA]</p> <p>(OR=2.8 p&lt;0.001 95%CI [2.3, 3.4])</p> <p>Note: Results not specific to provider reminders Significant differences at baseline</p>	<p>2 years</p>
Condition	N practices	N patients														
Inter	5	2438 (Pre) 2935 (Int 1) 3311 (Int 2)														
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