Vaccination Programs: Reducing Client Out-of-Pocket-Costs

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

Study	Location and Intervention	Study Population and Sample	Effect measure	Reported baseline	Reported effect	Value used in summary [95%CI]	Follow-up time
Author (Year): Andrews (2005) **Study Period:** (2000-2002) **Design Suitability (Design):** Least (cross sectional) **Outcome Measure:** Pneumococcal	**Location:** Victoria, Australia **Intervention:** Reduced Out-of-Pocket Cost (free pneumococcal vaccine)	Telephone survey of 385 persons were eligible and 326 (85%) completed the survey. Median age of a validated sample was 73 years (range: 66-93 years) Persons older than 65	Proportion of persons that received a vaccination for Pneumococcal. Medical records were reviewed to validate vaccination	10% in 1998	50% in 2000. 50-10= 40%	40%	2 years
Author (Year): Florida Medical Quality Assurance (1998) **Design Suitability (Design):** Least (before and after) **Outcome Measure:** Influenza	**Location:** Florida USA **Intervention:** Reduced Out-of-Pocket Cost (free influenza vaccine and NO patient co-pay) + Provider education + Client education Time: 1992 before free vaccines and 1994 after free vaccines.	**Study Population:** 383 patients enrolled for at least one year before 1992 378 patients enrolled continuously in 1994 Persons older than 65 HMO: primary care, skilled nursing facility. Providers: physicians and nurses	The rate of influenza immunization	Rate before 1992 was 28%. Market A 15% Market B 27% Market C 24% Market D 32%	Rate after 1994 was 55% Market A 66% Market B 48% Market C 45% Market D 59% The program increased the percentage of influenza immunization among the Medicare beneficiaries. They concluded that removing the cost of vaccines was important to improving coverage.	55-28=27% increase. 95% CI[20 to 33%]	2 year interval

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Author (Year): Freed (1999) **Design Suitability (Design):** Least (before and after) **Outcome Measure:** Childhood immunizations	**Location:** North Carolina **Intervention:** Reduced Out-of-Pocket Cost State of North Carolina provides free vaccines to providers. Evaluation to determine the impact of a free vaccine program in North Carolina.	**Study Population:** Population level data Children: birth to 24 months Private practice, community health centers, hospital affiliated clinics, health departments Providers not identified January –February 1994 N=1241; 45% of sample January –February 1995 N=1526; 55% Surveys given to 143 parents. White 68%; Black 27%; His 5%	Childhood immunization series 7 months to 24 months.	age group 15 months: Up to date immunization 1994= 80%; Age group 24 months; 1994= 79% (n=980)	age group 15 months: Up to date 1995= 95% Age group 24 months; 1995= 84% (n=1281)	Age group 24 months; 5% difference 95% CI [2 to 8]	1 year
Author (Year): Kleschen (2000) **Design Suitability (Design):** Least (before-after) **Outcome Measure:** pneumococcal (PPV)	**Location:** Guam **Intervention:** Multicomponent program Provider reminder (blue sheet for chart) + Prov Education + Standing Orders + Enhanced Access + Reduced client out-of-pocket costs- (waived the usual co-payment of $10) + Client Reminders + Monitoring Database **Comparison:** Before-after	**Study Population:** Actively enrolled patients with confirmed diagnosis of diabetes Adults with diabetes Outpatients Provider: Physicians N=1278	Change in pneumococcal vaccination coverage of diabetic patients	Pre 42%	Post 62%	+ 20 pct points [16, 23]	4 months (Oct-Jan)

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Author (Year): Weir (2000) **Design Suitability (Design):** Least (before and after) **Outcome Measure:** Influenza vaccination	**Location:** Canterbury, New Zealand **Intervention:** Reduced Out-of-Pocket Cost Free Vaccines for people 65 and older in rest homes (nursing homes) and for staff	**Setting:** Nursing homes **Study Population:** Persons 65 and older (N) 1996 1340 1997 1973 1997 (A) 891 1997 (B) 1082	Percentage of persons vaccinated for influenza	1996 survey (48 homes); n= 1005 (74% vaccinated) Staff: 15% vaccinated in homes that did not offer free vaccines	1997 Cohort A and B; N= 3472 (76%) Staff: 35% vaccinated in homes that offered free vaccines Staff in homes that provided free vaccines had a higher vaccination rate. OR 3.2 (95% CI 1.8-5.6)	Change 2%; 95% CI (-1 to 5)	1996 and 1997
Author (Year): Humair (2002) **Design Suitability (Design):** Least (Before- after) **Outcome Measure:** Influenza	**Location:** Geneva, Switzerland **Intervention:** Multi-component: Client education+ Access+ Provider education+ assessment and feedback (PAF) + ROPC: Free vaccines	**Setting:** University based public primary care clinic **Study Population:** Control (historical): 318 patients >64 years who visited clinic in 1995 Adult 65 and older **Intervention:** 346 patients >64 years who visited clinic in 1996 Note: 144 patients, visited in both phases; 376 visited in one phase only. Analysis conducted separately	Influenza vaccination coverage levels among patients in 1995 compared to 1996 (pre and post intervention)	Pre-intervention: 21.7% <u>Both phases (n=144)</u> Pre: 29.2% One phase (n=174) Pre:15.5%	Post- Intervention: 51.7% <u>Both phases</u> Post: 69.4% One phase(n=202) Post: 39.1%	+30 pct pts [CI: 23, 37] Relative +138%	12 months

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Author (Year): Zimmerman (2003) **Design Suitability (Design):** Least (before-after) **Outcome Measure:** Influenza	**Location:** Pittsburgh, PA **Intervention:** Multi-component Provider Education + Standing Orders + Provider Reminder + Reduced Out-of-Pocket Cost + Client Education + Expanding Access + Client Reminder	**Setting:** (Health Center A&B) **Study Population:** Patients were randomly recruited from both health centers billing records Adults 50 yrs of age and older N = 648 eligible patients 154 could not be reached 119 refused Response rate= 58% Refusal rate=18% N = 375 (included in analysis)	Immunization rates of influenza defined by: • self-reported survey • administration rate from EMRs • total doses	Vaccination-EMRs (medical records) 00-01 24%	01-02 30%	Pct pt Δ+6 Relative Change: +25%	2 years
Author (Year): Middleman (2004) **Design Suitability (Design):** Least (before and after) **Outcome Measure:** Hepatitis B	**Location:** Houston, TX **Intervention:** Multicomponent, Reduced Out-of-Pocket Cost: free vaccines + Provider education	**Study Population:** Fifth grade and middle school students 1998-1999 65 schools Female 1900 (52%), male 1773 Hispanic 61%, African American 25%, White 4%, Asian 2%, Other/no response 9% 1999-2000 75 schools Female 2825 (52%) male 2648 Hispanic 61%, African American 30%, White 4%, Asian 2%, Other/no response 3%	Completion of the hepatitis B Immunization series at 0, 1 and 4 months.	NA	1dose 98-99 3673 (54%) 99-00 4200 (77%) 3 doses 98-99 1996 (61%) **99-00 3234 (59%)** Females students and students with insurance were significantly more likely to receive the first dose. Females were more likely to be vaccinated even if they did not have insurance.		

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Author (Year): Chen (2005) **Design Suitability (Design):** Least (before and after)	**Location:** Taiwan **Intervention:** Reduced Out-of-Pocket Cost: free childhood vaccinations Compared two points in time: 1989 vs 1996	**Study Population:** 1 year old Infants born in Taiwan 1989 (N = 1926); 86% completed the interview (N = 1656) Final N = 1398 1996 (N = 3998); 90% completed interview (N = 3598) Final N = 3185	Rate of immunization coverage: BCG; Hep B; oral polio; diphtheria, tetanus and pertussis; Measles;	Period Rate Pre: 66%	Period Rate Post 88%	22% [19 to 25]	
Author (Year): Vila-Corcoles (2006) **Design Suitability (Design):** Least (Before-after study) **Outcome Measure:** Pneumococcal vaccine	**Location:** Catalonia, Spain **Intervention:** Reduced Out-of-Pocket Cost: free pneumococcal vaccine and medical visit	**Study Population:** **Setting:** Community health centers: Outpatient **Study Population:** Persons older than 65 years of age that had at least one year of medical records data. Providers: Primary care physicians Patients: 10,410 (4481 male and 5929 female) Characteristics: Age: Mean age 74 to 76 years	Pneumococcal vaccination rate	Vaccination rate before the program: 2000-6%	After program implemented 2001-44% 2002-51% 2003-53% Higher rates of vaccination in high risk groups: diabetes (66%); active malignancy (65%); history of stroke (64%); chronic lung disease (64%).	47%	3 years

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Author (Year): Wiggs-Stayner (2006) **Design Suitability (Design):** Greatest (Other design w/concurrent comparison) **Outcome Measure:** Free Influenza (flu mist)	**Location:** Indiana, USA **Intervention:** Reduced Out-of-Pocket Cost: Free influenza vaccine + client education(informational flyer) Two schools received the vaccine and two control schools did not. Providers: nurses	**Study Population:** elementary school children 5-8 years 2 doses If 9-49 then 1 dose. <u>Intervention</u> School #1 264 students School #2 287 students <u>Control</u> School #1 392 students School #2 349 students	Vaccination rate and attendance.	NA	School #1. 222 eligible; 143 (64%) vaccinated. School #2. 273 eligible; 134 (49%) vaccinated Average increase of 57%		2 years

Study	Location and Intervention	Study Population and Sample	Effect measure	Reported baseline	Reported effect	Value used in summary [95%CI]	Follow-up time
Author (Year): Carpenter (2007) **Design Suitability (Design):** Least (Before-after study) **Outcome Measure:** Influenza	**Location:** Knox county, Tennessee **Intervention:** Multicomponent Reduced Out-of-Pocket Cost: Free vaccine Influenza (live attenuated) + Client education	**Study Population:** Students and adults from 5 to 49 years of age. 81 schools with 53 420 students. 50 elementary schools, 14 middle schools, and 12 high schools. Providers: nurse, physicians and others Characteristics: 48% on free/reduced lunch Gender: 53% female SES: not reported	Number and (%) vaccinated	NA	No (%) vaccinated # schools Elementary 13,809 (56%) 50 Middle 5576 (45%) 14 High 4813 (12%) 12 Total **24198 (76%)** 76 47% of elementary students fully vaccinated. 3626 (62%) of staff were vaccinated.		6 months

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Author (Year): Malmvall (2007) **Design Suitability (Design):** Least (Before and after) **Outcome Measure:** Influenza and pneumococcal	**Location:** Sweden **Intervention:** Multicomponent (Web based registry monitoring system) + Provider Education + Reduced Out-of-Pocket Cost-free vaccines + Provider assessment and feedback (via web registry) + Media campaign to let people know the vaccine was free	**Study Population:** All persons 65 and older that lived in Jonkoping county (Sweden). Aged 65 years and older and people with chronic diseases Health center Providers: Primary care physicians and nurses Note: vaccination rate was lower than 50% in the general population.	Pre: 2001 and before: # of doses delivered to the county. Post: Documented Influenza and pneumococcal vaccinations after 2002	1999 39% 2000 45% 2001 52%	2002 59% 2003 66% 2004 68% 2005 70%	18%	2002 to 2005
Author (Year): Ridda (2007) **Design Suitability (Design):** Least (Before and after) **Outcome Measure:** Pneumococcal vaccine	**Location:** Sydney, Australia **Intervention:** Reduced Out-of-Pocket Cost Assessment of a publically funded vaccine program.	**Study Population:** A convenience sample of 833 of persons older than 65 years of age (653 records were validated). Persons older than 65 Inpatient setting Providers: Physicians Gender: 56% female (validated group)	Percentage of pneumococcal vaccinations after 2005	Authors report 39%.	2005 N= 210 73% vaccinated for pneumococcal	72- 39 = 34%	1 year

Study	Location and Intervention	Study Population and Sample	Effect measure	Reported baseline	Reported effect	Value used in summary [95%CI]	Follow-up time
Author (Year): Racine (2007) **Study Period:** 1995-2003 **Design Suitability (Design):** Least (Cross-sectional) **Outcome Measure:** Childhood series PCV	**Location:** United States **Intervention:** Reduced Out-of-Pocket Costs (Universal: states that provide free vaccines to all residents vs Non-universal states)	Settings: Nationwide (State-level) Providers: Not reported Study Population: • Children • 19-35 months of age	Compared respondents in states with and without universal purchase of vaccines			Universal purchase moderated the effect of maternal education and was associated with higher vaccination coverage	
Author (Year): Al-Suhkni (2008) **Study Period:** 1999-2000 and 2002 **Design Suitability (Design):** Least (Before-after) Pneumococcal Influenza	**Location:** Ontario, Canada (Metropolitan Toronto/ Peel Region) **Intervention:** Reduced Out-of-Pocket Cost (publicly funded vaccine program)	**Setting:** 13 provinces and territories Providers: Not reported **Study Population:** Adults Group N <65 yrs at risk 188 ≥65 yrs at risk 154 ≥65 yrs healthy 187	Proportion of respondents reporting influenza vaccination Influenza <65 yrs at risk ≥65 yrs at risk ≥65 yrs healthy Pneumococcal <65 yrs at risk ≥65 yrs at risk ≥65 yrs healthy	40% 86% 67% 2% 1% 0%	59% 88% 80% 14% 49% 39%		

Study	Location and Intervention	Study Population and Sample	Effect measure	Reported baseline	Reported effect	Value used in summary [95%CI]	Follow-up time
Author (Year): Chang (2009) **Study Period:** 2004-2005 **Design Suitability (Design):** Least (Post only) **Outcome Measure:** HAV, HBV	**Location:** San Francisco, CA **Intervention:** Reduced Out-of-Pocket Cost (reduced fee) + Expanded Access	**Setting:** Community-based clinic Providers: Not reported **Study Population:** Foreign-born Chinese adults N=586 adults (unprotected)	Completion of HBV and HAV Vaccine series among 3 for Life participants HBV+HAV HBV HAV		74% 11% 11%		1 year
Author (Year): Durando (2009) **Study Period:** 2000-2005 **Design Suitability (Design):** Least (Before-after) **Outcome Measure:** PCV-7	**Location:** Italy, Liguria Region **Intervention:** Reduced Out-of-Pocket Cost (universal)	**Setting:** Region-wide Providers: Not reported **Study Population:** Children: aged < 24 months Group N Pre (00-02) 33946 Post (03-05) 35452	Impact of the immunization campaign on hospitalization rates attributable to *Streptococcus pneumoniae* All cause	64.22 (58.4-70.46) per 10,000 person-years	54.44 (49.21-60) per 10,000 person-years		5 years
Author (Year): Crosby (2011) **Study Period:** 2007-2009 **Design Suitability (Design):** Least (Cross-sectional) **Outcome Measure:** HPV vaccine	**Location:** USA, Kentucky **Intervention:** Reduced out-of-pocket costs (voucher to receive Gardasil) **Comparison:** cross-sectional	Clinics: N=2 rural clinics 1 urban clinic Young women • Aged 18-26 years • Attending university rural clinic, rural community college clinic or urban university health clinic Group Neligible Nparticipated Urban 231 209 Rural 505 495	HPV vaccine uptake rates (Dose 3) Urban Rural-a Rural-b		28.2% 4.5% 1.6%		N/A

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Author (Year): Banach (2012) **Study Period:** 2008-2009 **Design Suitability (Design):** Least (Cross-sectional) **Quality of Execution:** Fair (2 limitations) **Outcome Measure:** Influenza	**Location:** USA, New York City **Intervention:** Home visits + reduced out-of-pocket costs **Comparison:** Cross-sectional	To assess seasonal influenza vaccination coverage within an urban home-based primary care (HBPC) program **Study population:** All home-bound patients older than 65 years of age who received routine care from MSVD n=689 eligible adults	Receipt of influenza vaccination through the MSVD program			508 patients (689 eligible patients): 74% vaccination coverage	N/A