Uploaded to VFC Website

November 2012

This Document has been provided to you courtesy of Veterans-For-Change!

Feel free to pass to any veteran who might be able to use this information!

For thousands more files like this and hundreds of links to useful information, and hundreds of "Frequently Asked Questions, please go to:

Veterans-For-Change

Veterans-For-Change is a 501(c)(3) Non-Profit Corporation
Tax ID #27-3820181

If Veteran's don't help Veteran's, who will?

We appreciate all donations to continue to provide information and services to Veterans and their families.

https://www.paypal.com/cgi-bin/webscr?cmd=_s-xclick&hosted_button_id=WGT2M5UTB9A78

Note: VFC is not liable for source information in this document, it is merely provided as a courtesy to our members.

CHCS

Center for
Health Care Strategies, Inc.

ROI Evidence Base:
Studies on Diabetes

November 2007

This set of studies is part of the *ROI Evidence Base*, which was developed by the Center for Health Care Strategies and Mathematica Policy Research, Inc. to help policymakers identify intervention strategies with the potential to both improve quality and reduce health care costs. For the full *ROI Evidence Base*, visit **www.chcs.org**.

Made possible through funding from the Robert Wood Johnson Foundation.

Diabetes Studies Reporting Decreases in Cost/Utilization - Summary Table

Clinical Focus	Author/ Year	Target Population	Intervention Strategies	Evaluation Timeframe	Cost/Utilization Outcomes	Quality of Evidence
Diabetes	Sadur 1999	Adults	Six monthly group meetings led by a diabetes nurse educator and a multidisciplinary team. Meetings included health and diet education, and medication review. Phone contacts with nurse between meetings to review diabetes management.	1 year	43% reduction in number of hospitalizations; 28% reduction in number of physician visits;	A
Diabetes	Wagner 2001	Adults	Group meetings every 3-6 months over 2 years, consisting of one-on-one visits with physician, nurse, and pharmacist; and group educational/peer support sessions. Nurses developed individualized plans for each participant and the entire group prior to each meeting.	2 years	50% reduction in number of ER visits	A
Diabetes	Wolf 2004	Adults	Registered Dietitian led individual, group, and telephone patient educational and support sessions.	1 year	14% reduction in total number of medications per day	A
Diabetes	Barnett 2006	Adults	Patients used a simple messaging device (requiring only basic phone service and an electrical outlet) to answer scripted questions about symptoms and health status. Nurse care coordinators monitored responses daily and acted according to clinical judgment	2 years	9% reduction in all-cause hospitalizations.	B
Diabetes	Villagra 2004	Adults	Telephonic disease management; web-based patient education; home remote patient monitoring devices; reminders and educational mailings for patients. Mail, fax, or telephone progress reports to primary care doctors.	1 year	24% reduction in hospitalizations; 14% reduction in ER visits; 5% reduction in office visits	B
Diabetes	Davidson 2007	Adults	Specially trained nurse, under endocrinologist supervision, treated patients following detailed diabetes care algorithms.	1 year	71% reduction in combined outcome of preventable diabetes-related ER visits and hospitalizations	C
Diabetes	Sidorov 2002	Adults	Scheduled one-on-one or group diabetes patient education sessions at primary care offices provided by traveling nurse educators. Promotion of guideline-based care to primary care doctors by nurse educators, and program sponsorship of diabetes CME for doctors.	2 years	25% reduction in number of all-cause hospitalizations	C

Wherever possible, impacts on service utilization (such as hospital admissions or ER visits) are expressed as percentage reductions in the number of services per person per unit time. If the article does not present numbers of services per person per unit time but does provide total number of services, this quantity is estimated by dividing the number of services by the sample size, without accounting for variable lengths of follow up or for mortality. In cases where only numbers or proportions of people with any (one or more) service use are reported, service use impacts are expressed as percentage reductions in the proportion with any service use.

Detail for Selected Study - Sadur 1999

Characteristic	Description
Author and Year of Publication	Sadur 1999
Clinical Focus	Diabetes
Target Population	Members of Northern California Kaiser Health Plan with either Type 1 or Type 2 diabetes
Intervention Strategies	In addition to regular care from primary care doctor, a total of six monthly group meetings at the clinic (Diabetes Cooperative Care Clinics). Groups consisted of 10-18 patients, each meeting lasting 2 hours, led by a diabetes nurse educator and a multidisciplinary team of a dietitian, a behaviorist, and a pharmacist. Meetings included blood pressure measurement, education on home blood glucose monitoring; individual and group consultations with dietitian, behaviorist, and pharmacist; and referrals to podiatrist, ophthalmologist, and smoking cessation programs. Additional health education talks as voted on by group, e.g., diabetes complications, foot care, exercise, stress and emotional issues in diabetes, sexual dysfunction. Between meetings, phone contacts by nurse with patients to review diabetes management with frequency ranging from every 3d. to 2 weeks. Nurses regularly reviewed all cases with diabetologist.
Additional Targeting Criteria	Ages 16-75 y.o., hemoglobin A1c>8.5% or no hemoglobin A1c measured within past year.
Opt-in/opt-out, if available	Opt-in
Enrollment rate, if available	70%
Geographic Location	Pleasanton, CA
Health Care Setting	Kaiser-Permanente Pleasanton Clinic
Health Insurance	HMO (Kaiser-Permanente Northern California)
Quality of Evidence	A
Study Design	Randomized controlled trial
Sample Size	185 (T=97; C=88)
Evaluation Timeframe	1 year
Cost/Utilization Outcomes	43% reduction in number of hospitalizations over 18 months after randomization, including the 6 month intervention period (T=16/1,000 persons/month, C=28/1,000 persons/month, p=0.04). 28% reduction in number physician visits in the 6 months after the six month intervention period, (T=242/1,000 persons/month, C=338/1,000 persons/month, p=0.06) 50% reduction in number of non-physician visits in the 6 months after the six month intervention period, (T=167/1,000 persons/month, C=333/1,000 persons/month, p=0.001)
Full Citation	Sadur, Craig N., Nancy Moline, Mary Costa, Dorothea Michalik, Debra Mendlowitz, Sharon Roller, Randy Watson, Bix E. Swain, Joe V. Selby, and W. Curtis Javorski. "Diabetes Management in a Health Maintenance Organization: Efficacy of Care Management Using Cluster Visits." *Diabetes Care*, vol. 22, no. 12, December 1999, pp. 2011-2017.

Detail for Selected Study – Wagner, 2001

Characteristic	Description
Author and Year of Publication	Wagner 2001
Clinical Focus	Diabetes
Target Population	Members of Group Health Cooperative with diabetes
Intervention Strategies	Group meetings at the clinic every 3-6 months over 2 years. Groups consisted of 6-10 patients, each meeting consisted of one-on-one visits with the primary care physician, a nurse, and a pharmacist; and a 1 hour group educational/peer support session. Prior to each meeting, intervention nurses developed individualized plans and goals for each participant during the upcoming meeting, as well as plans and goals for the entire group.
Additional Targeting Criteria	None stated
Opt-in/opt-out, if available	Opt-in
Enrollment rate, if available	70%
Geographic Location	Seattle, WA
Health Care Setting	Seattle area clinics of Group Health Cooperative
Health Insurance	HMO (Group Health Cooperative)
Quality of Evidence	A
Study Design	Group randomized (practice-level) controlled trial
Sample Size	35 practices (T=14, C=21), 707 patients (T=278; C=429)
Evaluation Timeframe	2 years
Cost/Utilization Outcomes	50% reduction in number of ER visits over 2 years (T=0.1/year, C=0.2/year, p=0.04) 16% increase in number of primary care visits over 2 years (T=6.4/year, C=5.5/year, p=0.05). 24% reduction in number of specialty visits over 2 years (T=2.8/year, C=3.7/year, p=0.007) 20% reduction in proportion with hospital admission (T=16.9%, C=21.0%, *p=0.10*) Effects on total costs non-significant (p=0.79)
Full Citation	Wagner, Edward H., Lois C. Grothaus, Nirmala Sandhu, Mary Sue Galvin, Mary McGregor, Karen Artz, and Eric A. Coleman. "Chronic Care Clinics for Diabetes in Primary Care." *Diabetes Care*, vol. 25, no. 5, April 2001, pp. 695-700.

Detail for Selected Study – Wolf, 2004

Characteristic	Description
Author and Year of Publication	Wolf 2004
Clinical Focus	Diabetes
Target Population	Members of commercial health insurance plan in Virginia (Southern Health Services Plan) with obesity and diabetes
Intervention Strategies	Over the course of 1 year, participants had 6 individual sessions (approximately 4 hours total) and 6 one-hour small group sessions with a Registered Dietitian (RD). RD also conducted brief monthly phone contacts with participants for support.
Additional Targeting Criteria	Use of diabetes medications, body mass index ≥ 27 kg/m^2, age ≥ 20 y.o.
Opt-in/opt-out, if available	Opt-in
Enrollment rate, if available	11%
Geographic Location	Charlottesville, VA
Health Care Setting	Academic Medical Center
Health Insurance	Commercial
Quality of Evidence	A
Study Design	Randomized controlled trial
Sample Size	144 (T =73; C = 71)
Evaluation Timeframe	1 year
Cost/Utilization Outcomes	14% reduction in total number of medications per day (T = 5 medications/day; C = 5.8 medications/day; p = 0.03). No other cost/utilization outcomes reported.
Full Citation	Wolf, Anne M., Mark R. Conaway, Jayne Q. Crowther, Kristen Y. Hazen, Jerry L. Nadler, Beverly Oneida, and Viktor E. Bovbjerg. "Translating Lifestyle Intervention to Practice in Obese Patients with Type 2 Diabetes." *Diabetes Care*, vol. 27, no. 7, July 2004, pp. 1570-1576.

Detail for Selected Study – Barnett, 2006

Characteristic	Description
Author and Year of Publication	Barnett 2006
Clinical Focus	Diabetes
Target Population	Adults (veterans) with diabetes
Intervention Strategies	Patients were provided with a home messaging device requiring only basic telephone service and an electrical outlet. Using this device, patients answered scripted questions every day on their diabetes symptoms and health status. Nurse care coordinators (RNs or nurse practitioners) monitored patients' responses daily and made clinical judgments on whether responses required actions and the types of appropriate follow-up (for example, assessing the patient over the phone, scheduling follow-up appointments, refilling medications, helping with medication management, calling to remind patients about appointments).
Additional Targeting Criteria	Two or more VA hospitalizations or VA ER visits in the 12 months before enrollment.
Opt-in/opt-out, if available	Opt-in
Enrollment rate, if available	not stated
Geographic Location	Florida, southern Georgia, and Puerto Rico
Health Care Setting	4 VA Medical Centers
Health Insurance	VA
Quality of Evidence	B
Study Design	Comparison group design using propensity scoring and difference-in-differences
Sample Size	782 (T=391; C=391)
Evaluation Timeframe	24 months
Cost/Utilization Outcomes	9% reduction in all-cause hospitalization.[a] Impact on ER visits not assessable (because of propensity score design, comparison group had a very high rate of ER visits at baseline)

Barnett, 2006 continued

Full Citation	Barnett, Tracey E., Neale R. Chumbler, W. Bruce Vogel, Rebecca J. Beyth, Haijing Qin, and Rita Kobb. "The Effectiveness of a Care Coordination Home Telehealth Program for Veterans with Diabetes Mellitus." *American Journal of Managed Care*, vol. 12, no. 8, August 2006, pp. 467-474.

[a]*The authors actually estimated a 25% reduction in hospitalizations between the intervention and comparison groups, using combined "propensity score matching" and "difference-in-differences" methodologies. We derived the 9% listed here from the raw numbers of admissions at baseline and follow-up for the two groups (Barnett personal communication), assuming that the fixed baseline difference in admissions between intervention and comparison groups also applies to the post-period, and that half of the admissions in the two year follow-up period occurred in the first year of follow-up. We used the following formula for this calculation: {(treatment post)-(comparison post plus baseline T-C difference)}/(comparison post plus baseline T-C difference). For more information on the results, please refer to the article directly.*

Detail for Selected Study – Villagra, 2004

Characteristic	Description
Author and Year of Publication	Villagra 2004
Clinical Focus	Diabetes
Target Population	Employees of self-insured employers covered under HMO and POS plans with diabetes
Intervention Strategies	Telephonic disease management; web-based patient education; remote patient monitoring devices; reminders and educational mailings for patients. Mail, fax, or telephone progress reports to primary care doctors.
Additional Targeting Criteria	None
Opt-in/opt-out, if available	Opt-out
Enrollment rate, if available	97%
Geographic Location	10 areas of the sponsoring MCO: Nashville, TN; Florida; Denver, CO; mid-Atlantic states (Baltimore, Washington, DC, Philadelphia, Delaware, and southern NJ); Dallas, TX; Houston, TX; Chicago, IL; Kansas; Ohio; and NYC metro area (including northern NJ, and CT)
Health Care Setting	Private physician offices
Health Insurance	Managed care
Quality of Evidence	B
Study Design	Presents two separate analyses: A regression adjusted parallel group comparison using the 5 early implementation sites as treatments and 5 late implementation sites as controls, and a regression adjusted pre-post comparison (at the program level with all 10 sites aggregated). In addition, 2 sub-analyses conducted for each of these 2 analyses: *full* participants (those enrolled in the first 2 months of the intervention who remained in the program until the completion of the first year) and *all* participants (any who had at least one month of exposure to the program even if they subsequently dropped out).
Sample Size	Pre/post comparison all participants: 75,759 (Pre=32,267; Post=43,492) Parallel group comparison all participants: 39,292 (T=27,188; Comparison=12,104)
Evaluation Timeframe	1 year

Villagra, 2004 continued

Cost/Utilization Outcomes	Parallel group comparison all participants (preferred method): 22% reduction in total costs (T=$431/person/month, C=$551/person/month, p<0.0001); 2% reduction in inpatient costs (T=$145/person/month, C=$147/person/month, p<0.10); 24% reduction in hospitalizations (T=157/1,000 persons/month, C=206/1,000 persons/month, p<0.0001); 14% reduction in ER visits (263/1,000 persons/month, C=307/1,000 persons/month, p<0.0001); 5% reduction in office visits (T=6.56/1,000 persons/month, C=6.93/1,000 persons/month, p<0.0001). Pre/post comparison all participants: 5% reduction in total costs (post=$464/person/month, pre=$490/person/month, p<0.001); 12% reduction in inpatient costs (post=$137/person/month, pre=$156/person/month, p<0.001); 17% reduction in number of hospitalizations (post=172/1,000 persons/month, pre=206/1,000 persons/month, p<0.0001); 9% increase in ER visits (post=286/1,000 persons/month, pre=262/1,000 persons/month, p<0.0001); 2% reduction in office visits (post=6.63/1,000 persons/month, pre=6.75/1,000 persons/month, p<0.001).
Full Citation	Villagra, Victor G. and Tamim Ahmed. "Effectiveness of a Disease Management Program for Patients with Diabetes." *Health Affairs*, vol. 23, no. 4, July/August 2004, pp. 255-266.

Detail for Selected Study – Sidorov, 2002

Characteristic	Description
Author and Year of Publication	Davidson 2007
Clinical Focus	Diabetes
Target Population	Patients with diabetes attending a county-sponsored community clinic (patients were predominantly low-income and from minority groups)
Intervention Strategies	Specially trained nurse followed detailed diabetes treatment algorithms to provide diabetes care. Cholesterol targets and recommended processes of care were based on the ADA guidelines. An endocrinologist also met with the nurse once a week, but was available by phone at all other times.
Additional Targeting Criteria	None
Opt-in/opt-out, if available	Opt-in
Enrollment rate, if available	Not available
Geographic Location	Los Angeles
Health Care Setting	County-sponsored community clinic affiliated with Charles A. Drew University
Health Insurance	Not reported
Quality of Evidence	C
Study Design	Pre-post
Sample Size	367
Evaluation Timeframe	1 year
Cost/Utilization Outcomes	71% reduction in combined outcome of "preventable diabetes-related urgent care visits/ER visits/hospitalizations" (Pre-: 21 events [15 urgent care/ER + 6 hospitalizations]; post-: 6 events [5 urgent care/ER + 1 hospitalization]; $p<0.001$).
Full Citation	Davidson, Mayer B., Adeela Ansari, and Vicki J. Karlan. "Effect of a Nurse-Directed Diabetes Disease Management Program on Urgent Care/Emergency Room Visits and Hospitalizations in a Minority Population." *Diabetes Care*, vol. 30, no. 2, February 2007, pp. 224-227. (Additional details of the intervention in Davidson, Mayer B., Maria Castellanos, Petra Duran, and Vicki Karlan. "Effective Diabetes Care by a Registered Nurse Following Treatment Algorithms in a Minority Population." *American Journal of Managed Care*, vol. 12, no. 4, April 2006, pp. 226-232.

Detail for Selected Study – Sidorov, 2002

Characteristic	Description
Author and Year of Publication	Sidorov 2002
Clinical Focus	Diabetes
Target Population	Enrollees with diabetes in Geisinger Health Plan's commercial HMO or Medicare-risk HMO
Intervention Strategies	Team of roughly 50 nurse educators each assigned to cover 1 to 15 primary care sites depending on geography and patient load. Educators provided scheduled one-on-one or group education sessions with enrollees at the primary care offices and recorded visits in practices' medical records for physician review and co-signature. Nurse educators also provided informal, guideline based recommendations to primary care doctors, performed case management, and facilitated specialty referrals. Program offered CME sessions to doctors. To encourage enrollment, nurses could offer glucose meters and 100 test strips at no cost to patients meeting criteria.
Additional Targeting Criteria	none
Opt-in/opt-out, if available	Opt-in
Enrollment rate, if available	46%
Geographic Location	41 counties in northeastern and central Pennsylvania
Health Care Setting	Primary care physician offices
Health Insurance	Commercial and Medicare-risk HMOs by Geisinger Health Plan
Quality of Evidence	C
Study Design	Comparison of participants and non-participants with regression adjustment for measured differences
Sample Size	6,799 (T=3,118; comparison=3,681).
Evaluation Timeframe	2 years
Cost/Utilization Outcomes	25% reduction in number of all-cause hospitalizations (T=0.12/person/year, C=0.16/person/year, p=0.026) 21% reduction in paid claims excluding pharmacy (T=$394.62/person/month, C=$502.48/person/month, p<0.0001) 43% reduction in inpatient days (T=0.56/person/year, C=0.98/person/year, p=0.003) 8% increase in primary care office visits (T=8.36/person/year, C=7.78/person/year, p=0.001)
Full Citation	Sidorov, Jaan, Robert Shull, Janet Tomcavage, Sabrina Girolami, Nadine Lawton, and Ronald Harris. "Does Diabetes Disease Management Save Money and Improve Outcomes?" *Diabetes Care*, vol. 25, no. 4, April 2002, pp. 684-689